THE VALIDITY OF HIGH SCHOOL GRADES, ACT SCORES, AND NEDT SCORES IN PREDICTING COLLEGE GRADES

BY

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THE VALIDITY OF HIGH SCHOOL GRADES, ACT SCORES, AND NEDT SCORES

IN PREDICTING COLLEGE GRADES

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A Research Paper

Presented to

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In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

in Education

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by

Loretta Taylor Craig

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To the Graduate Council:

I am submitting herewith a Research Paper written by Loretta Taylor Craig entitled "The Validity of High School Grades, ACT Scores, and NEDT Scores in Predicting College Grades." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Arts in Education, with a major in guidance and counseling.

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Accepted for the Council

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ACKNOWLEDGEMENTS

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CHAPTER I

INTRODUCTION

In recent years we have experienced an unprecedented growth
in the number of students attending and wanting to attend insti-
tutions of higher learning. According to recent estimations, almost
half of the nation's high school graduates now enter college
(Bridgeman, 5). Emphasis on the importance of education beyond
high school--and particularly of college education--has been mounting
steadily. Going to college has come to be regarded as a desirable
goal for many of our nation's youth. Professional and technical
jobs requiring college level training have been increasing at a
faster rate than has any other major group of jobs.

Diamond (9) sees this growing emphasis on the values of
higher education as being reflected in increasing pressure on the
schools to prepare students for college, to help them get into
college, and to insure their successful performance in college.

Traxler and Townsend are quoted here (23:9),

> The whole process of formal education can be viewed
> as guidance. The individual pupil is studied, taught
> and advised throughout his school years. Individual
> guidance should be a continuous process so that
> adjustment of the pupil can be made all along the
> way as he develops.

They say, also, that the final decisions about college should be
made by the student, but it is the responsibility of the high school
counselor to see that the student has available as much good, clear

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and helpful information as can be accumulated.

Weeks (11) believes that part of a counselor's responsibility is to provide objective, accurate information so that students' decisions will be based upon reality as well as on some of the more subjective aspects of choice.

The basic consideration of academic success is seen by Cashen (7) as a major problem faced by those who wish to enter college, those who must finance that education, and those who help others make the college decision. For this reason he feels that research is necessary in many different areas relative to the prediction of academic success. Woods (26) feels that decisions regarding college, success, insofar as possible, should be based on objective, well validated evidence. He does not advocate ignoring the individual, but by using validated prediction devices one can be of much more value to the individual. Hill (26) also, recommends statistical procedures over armchair evaluation. He strongly emphasizes the need for research in individual schools in order that accurate information about the future academic achievement of that school's students be available. He states that the only way a school can get accurate information is by completing its own statistical study.

The subjects in this study are graduates of a relatively small rural high school. As is the general trend in all schools, more and more graduates of this school wish to attend college. It is, therefore, becoming increasingly more important for the guidance counselor to be able to provide predictive information to students about their chances for succeeding in college. Although much

research has been conducted in regard to predicting college achieve-
ment, most of it has been based on the achievement of students from
many schools who attended one college. As pointed out in a study by
McCormick and Asher (16) few studies have dealt specifically with the
development of a prediction design for indicating success in several
colleges from one high school on the basis of data available in the
high school record. The objective of this study was to develop pre-
dictive information on the high school in the study in regard to the
three colleges included in the study.

STATEMENT OF THE PROBLEM

The purpose of this study was to test the validity of three
variables available in the high school record for predicting academic
performance of Stewart County High School students at Austin Peay
State University (APSU), the University of Tennessee at Martin (UTM),
and Murray State University (MSU). The three variables are high
school grade point average (HSGPA), American College Test Composite
scores (ACT), and National Educational Development Test Composite
scores (NEDT). Since it is generally found that variables do not do
an equally good job in prediction of any given criteria, the validity
of each variable was determined to establish which one was the best
single predictor of college grades.

It was also the purpose of this study to develop a workable
means for using the information gathered in counseling high school
students.

IMPORTANCE OF THE STUDY

The high school counselor has the major responsibility for counseling students about college. To assist in this task there is much information available, based on the general population, for predicting college achievement. In the past information available in the cumulative record has been the primary source of information for use in counseling with students about college, but validated information based on the particular high school has not been available to support any resulting conclusions. Of the Stewart County High School graduates who attend college over 94 percent attend one of the three colleges in this study. By determining the validity of the three variables for predicting academic achievement of Stewart County High School students at Austin Peay State University, the University of Tennessee at Martin, and Murray State University, objective information will be available to assist students in making decisions about college. Students, then, will be able to base their decisions about college on objective information as well as on more intangible factors. It is also believed that the results of this study would be of assistance to persons working with students in high schools of similar size and population with regard to achievement of students at colleges similar to the colleges in this study.

LIMITATIONS OF THE STUDY

The study was limited in that conditions such as student attitude, culture or health can affect the reliability of any or all

of the variables in the study. Also, a student may fall below the predicted achievement in college performance for reasons other than academic ability; or he may exceed the predicted college performance because of unusually high motivation. If available, it would have been desirable to include in the study variables such as attitude, interest, or cultural background.

Only single correlations were computed on each of the variables. It is most likely that a multiple correlation of a combination of the variables would have yielded a higher predictive validity.

The number of students included in the study who attended the University of Tennessee at Martin and Murray State University was small, but the sample included all students over a four year period who attended these schools.

CHAPTER II

REVIEW OF RELATED LITERATURE

Layman (13) investigated the validity of preadmission measures as predictors of freshman grade point average, and preadmission measures and freshman grade point average as predictors of sophomore grade point average. She found that high school average and entrance examination measures were significant predictors of freshman grade point average, but high school grade point average was the best single predictor of freshman grade point average. Freshman grade point average was the best single predictor of sophomore grade point average.

Willingham (25), too, found that freshman performance was a better predictor of college performance after the freshman year and that admission measures made little or no contribution to freshman grades in forecasting sophomore grades.

Lewis (14), also, found that pre-college variables were not significant for predicting achievement beyond the sophomore level. His study investigated the efficiency of pre-college variables as predictors of freshman, sophomore and junior grade point average. Although high school rank and entrance test composite scores were found to be significant predictors of freshman GPA, freshman GPA contributed more to the efficiency of sophomore prediction. Previous college grade point average was the best predictor of grade point average beyond the sophomore year.

The purpose of a study by Passons (21) was to determine the predictive validity of the American College Test, the Scholastic Aptitude Test and high school grades as predictors of first semester college grade point average, and of grades in ten general education courses. He found that high school grade point average yielded the highest predictive validity for first semester grade point average. The test scores were slightly higher than high school grade point average for predicting grades in particular courses; however, the differences were not of any statistical significance.

Zimmerman, Brown, and Michael (27) studied the validity of the Semantic Memory Ability Tests to predict freshman college achievement. The authors concluded that these tests had little practical validity for prediction purposes.

Dickason (10) attempted to determine if awareness and commitment of freshman engineering students would correlate significantly with college grade point average. He computed multiple correlations using academic as well as non-academic predictors and found that academic predictors correlate more highly with freshman grade point average than non-academic predictors. He also found that the awareness-commitment rating was of little assistance as a predictor of college achievement.

Foster and Danskin (12) reported on three phases of a study of the American College Test. The study found that ACT scores, alone and in combination with high school rank, are significant predictors of college grades; but high school rank was found to be the best single predictor of college achievement.

Alexakas (2) predicted the college grade point average of
academically superior high school students using regression and dis-
crimination analysis on the basis of nineteen independent variables
and by clinical counselors on the basis of all information collected
through counseling interviews and testing during four high school
years. The obtained results indicated that the statistical measures
were slightly superior to the clinical predictions. However, he
concluded that neither type of prediction was as efficient as one
would wish them to be. The author suggested a combination of clin-
ical and statistical predictions could be more efficient and more
useful in counseling students than any single method.

Owens and Roaden (20), in a study of graduate students, found
the undergraduate grade point average to be the best single predictor
of graduate grade point average. The Watson-Glaser Critical Thinking
Appraisal Test and the Ohio State University Psychological Test were
the next best single predictors.

The purpose of a study by DeSena and Weber (8) was to
determine which of two aptitude tests, the School and College Ability
Test or the American College Test, had the higher degree of predic-
tability of successful college achievement. Both tests correlated
with freshman grade point average at the one percent level of
significance. The conclusion of the authors was that there is not
a significant difference between the ACT Composite and the SCAT
Total for predicting college grade point average.

McCormick and Asher (16) stressed the importance of the
creation of prediction equations for each high school to aid in

counseling. They studied the value of certain aspects of the high
school record for predicting the grade point average of students com-
pleting the first semester of work in several colleges. They found the
high school grade point average to be the best single predictor of
college grade point average.

Mann (15) reported the results of a study of the validity of
the Scholastic Aptitude Test and the School and College Ability Tests
when they are combined with high school rank for predicting first
year college grades. The two tests were found to be significant pre-
dictors of college grade point average; however, high school rank
was found to be the best single predictor of college grades.

The major purpose of a study by Scannell (22) was to investi-
gate annually obtained comparable measures as predictors of college
success. In addition, the predictive power of measures of school
attainment was studied using these measures separately and in com-
bination with achievement test scores. He found that high school
grade point average was the best single predictor of college success,
but rank in class was not highly predictive for graduates of small
high schools. He also found that the accuracy with which general
college academic success was predicted from achievement test scores
increased year by year from Grade 4 through high school; yet com-
binations of achievement test data obtained at several points in
student's careers were only slightly more predictive than the most
recent results. The finding by Scannell that, when restriction in
range of scores is considered, elementary school test data correlate

highly with college success, would suggest that predictions of college success from elementary school test scores can be as useful as predictions from high school test scores.

CHAPTER III

DESIGN OF THE STUDY

The primary purpose of the study was to find a means for predicting academic achievement of Stewart County High School graduates who attend Austin Peay State University, the University of Tennessee at Martin, and Murray State University. The subjects, therefore, were ninety-four Stewart County High School graduates. All Stewart County High School graduates of the years 1965, 1966, 1967 and 1968 who completed at least one year at one of the three colleges in the study were included. The subjects were divided into three groups. Group I consisted of sixty-eight students who attended Austin Peay State University, Group II consisted of fifteen students who attended the University of Tennessee at Martin, and Group III consisted of eleven students who attended Murray State University.

The criterion used in the study was defined in terms of the overall freshman grade point average at each of the colleges. The degree of success of each student was recorded on a four point system (A = 4, B = 3, C = 2, D = 1, F = 0). Grade point averages were obtained from the three colleges in the study.

The Stewart County High School cumulative record of each student provided the prediction variables of high school grade point average (HSGPA), National Educational Development test scores (NEDT), and American College Test scores (ACT). The high school grade point average was computed on a four point system (A = 4). The Composite

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scores were used for the NEDT and the ACT.

The NEDT Interpretive Manual (18) describes the National
Educational Development Tests as a battery of tests designed to
provide information about the student's general educational devel-
opment and ability in each of the five areas tested. These five
areas are: English Usage, Mathematics Usage, Social Studies Reading,
Natural Sciences Reading and Word Usage. The manual states that the
Composite score is the average of the five test scores and can be
viewed as an index of total educational development. Students take
the tests in the ninth and tenth grades, and results are reported
in standard scores from 1 to 36 and in percentile ranks. One purpose
of the tests, according to its authors, is to identify those stu-
dents who should be encouraged to extend their education beyond
high school. Clark, in the Sixth Mental Measurements Yearbook, says
of the NEDT (6:17),

> From the guidance point of view the measurement data
> provided by the NEDT should be useful in predicting
> success in academic subjects, but the data would be
> much more useful if multiple regression equations
> were available to show the relationship of test results
> to currently used scholarship or college entrance
> examinations.

Traxler (6) says of the tests that the scores are highly reliable
for predicting grades in the ninth and tenth grades. However, he
made no reference to their predictability for later academic
achievement.

The Counselor's Handbook (3) of the American College Testing
Program describes the ACT as the collecting, processing and reporting

of information for use in educational planning. Students are tested in English, Mathematics, Social Studies and Natural Sciences. As with the NEDT, results are reported in standard scores of 1 to 36 and in percentile ranks. The Composite score is an average of all the areas tested. Findley, in the Sixth Mental Measurements Yearbook (6), points out that the ACT is a descendent of the NEDT. He states that the ACT Composite score is predictive of college success, as does Englehart (6). Englehart, however, cautions against exclusive reliance on these scores when counseling students because other factors such as student's goals, interests, values and the college's educational and training requirements must be considered.

High school grades, NEDT Composite scores and ACT Composite scores were selected because they are used most often by the high school to assess ability to do college work and because they are readily available in the high school record. It would have been desirable to use variables which measured emotional adjustment and interests, but the cumulative record did not contain such information.

The study consisted of two phases. The first phase was the study of the predictability of freshman grade point average at each of the colleges in the study by use of each individual predictor. The Pearson product-moment coefficient of correlation was used to determine the relationship of the three variables to college grades for each of the groups. Therefore, the HSGPA, ACT scores and NEDT scores of students attending Austin Peay State University were individually correlated with their freshman grade point average.

The same procedure was followed for students attending the University of Tennessee at Martin and Murray State University.

The second phase of the study consisted of preparing expectancy tables from the data collected on each of the groups. It was felt that the expectancy tables would provide a workable means for interpreting the results of the study to high school students and their parents.

CHAPTER IV

ANALYSIS OF DATA

Data were collected from the high school cumulative record of ninety-four students who graduated from Stewart County High School in the years 1965, 1966, 1967, and 1968 and attended one of the three colleges in this study. The students were divided into three groups. Group I was composed of sixty-eight students who attended Austin Peay State University, Group II was composed of fifteen students who attended the University of Tennessee at Martin, and Group III was composed of eleven students who attended Murray State University.

The Pearson product-moment coefficient of correlation was used to test the validity of the independent variables in each group to predict college academic achievement. Table 1 presents the data from this analysis. Upon analysis of the correlation of each independent variable with college achievement, it can be noted in Table 1 that high school grade point average was in each instance the best single predictor of college academic achievement. This finding is in agreement with the findings of most of the related studies reviewed.

The next best variable for predicting college achievement at Austin Peay State University and Murray State University was the ACT Composite score. The validity of this variable for predicting college GPA at these two colleges, with correlations of .50 and .83

respectively, was significant at the .01 level. However, the cor-
relation of .49 between ACT scores and college GPA for those Stewart
County High School students attending the University of Tennessee
at Martin was not significant.

As can also be noted in Table 1, NEDT scores were second best
in predicting college GPA for Group II and poorest for Groups I and
III. Although the correlation between NEDT scores and college GPA
was .57 for Group II as compared with .42 for Group I, the cor-
relation for Group II was significant only at the .05 level, whereas
the correlation for Group I was significant at the .01 level of
significance. The correlation of .77 for NEDT scores of Group III
was also significant at the .01 level.

Table 1

Correlation of HSGPA, ACT Scores, and
NEDT Scores with College GPA

	APSU	UTM	MSU
HSGPA	.71[a]	.65[a]	.86[a]
ACT	.50[a]	.49	.83[a]
NEDT	.42[a]	.57[b]	.77[a]

a - significant at the .01 level of significance
b - significant at the .05 level of significance

The mean HSGPA for students attending Austin Peay State
University was 2.99, and the standard deviation was .35. College
GPA for Group I was 2.25, and the standard deviation was .69. The

mean of ACT scores of Group I was 17.81, and the standard deviation was 3.93. NEDT scores for Group I had a mean of 15.13 and a standard deviation of 3.21.

The high school grade point average mean for students attending the University of Tennessee at Martin was 3.12, and the standard deviation was .37. College GPA mean for this group was 2.08, and the standard deviation was .54. The mean ACT score for Group II was 19.33, and the standard deviation was 3.30. The mean NEDT score was 16.4, and the standard deviation was 2.98.

Students attending Murray State University had a high school grade point average mean of 3.17 and a standard deviation of .49. The college GPA mean was 2.48, and the standard deviation was 1.01. The mean score on the ACT for this group was 18.91, and the standard deviation was 5.64. This group had a mean score on the NEDT of 15.82 and a standard deviation of 3.40.

In order to be able to make practical application of the collected data in counseling high school students and their parents, expectancy tables were prepared for each variable in predicting college achievement at the three colleges in the study. Table 2 presents the percentage of the students in Group I with regard to high school grade point average and college grade point average. The college grade point average of 1.60 might be considered a cut-off point since a student who has completed three quarters of work at Austin Peay State University and has not maintained a GPA of 1.60 or greater will be placed on academic probation (4). As can

be noted in Table 2, 50 percent of Group I who earned HSGPA's between 2.25 and 2.49 failed to maintain satisfactory grades, but only 3 percent of the students whose HSGPA was 3.0 to 3.49 and none whose HSGPA was 3.5 or better failed to maintain satisfactory grades. For Group I, college grade point average increases as high school grade point average increases. Therefore, while the probability for succeeding is 0.5 for a student in the lowest interval, a student in the highest interval could feel fairly confident that he could succeed at Austin Peay State University.

Table 2

Expectancy Table Showing Grade Point Average at Austin Peay State University Based on High School Grade Point Average

(N = 68, HSGPA mean = 2.99, S. D. = .35, CGPA mean = 2.25, S. D. = .69, r = .71)

HSGPA	Percentage in each interval group earning GPA within each grade point interval						
	0.29-0.99	1.00-1.59	1.60-1.99	2.00-2.49	2.50-2.99	3.00-3.49	2.50-4.00
3.5 - 4.0					$33\frac{1}{3}$	50	$16\frac{2}{3}$
3.0 - 3.49		3	9	43	31	11	3
2.50 - 2.99	14	10	47	24	5		
2.25 - 2.49		50	$33\frac{1}{3}$		$16\frac{2}{3}$		

Table 3 is an expectancy table of the probabilities for academic achievement at Austin Peay State University based on a

student's ACT score. It is interesting to note that while 100 percent of the students in the lowest interval, 9-10, failed to maintain a satisfactory GPA, and only 7 percent above the ACT score 16 failed to maintain a satisfactory GPA, the students whose scores on the ACT were between 11 and 14 did as well as or better than the students whose scores were 15 or 16. This would seem to suggest that for Stewart County High School students, ACT scores between 11 and 16 are not highly selective for predicting GPA at Austin Peay State University. Knowledge of this would make it necessary to consider variables other than the ACT score when counseling students.

Table 3

Expectancy Table Showing Grade Point Average at Austin Peay
State University Based on ACT Scores

(N = 68, ACT mean score = 17.81, S. D. = 3.93,
CGPA mean = 2.25, S. D. = .69, r = .50)

ACT	Percentage in each interval group earning GPA within each score group						
	0.29-0.99	1.00-1.59	1.60-1.99	2.00-2.49	2.50-2.99	3.00-3.49	3.50-4.00
25 - 26				50	50		
23 - 24			13		29	29	29
21 - 22			25	12	25	38	
19 - 20	7		21	36	29	7	
17 - 18			18	46			
15 - 16		33	22	33	12		
13 - 14		30	30	30	10		
11 - 12	17		33	17	33		
9 - 10	100						

Expectancy percentages for National Educational Development Test scores of Group I can be found in Table 4. As with ACT scores, students whose scores were 9 or 10 did as well as or better than students whose scores were between 11 and 16; however, only 14 percent of the students with scores above 16 failed to maintain a GPA of 1.60 or better.

Table 4

Expectancy Table Showing Grade Point Average at Austin Peay State University Based on NEDT Scores

(N = 68, NEDT mean score = 15.13, S. D.= 3.21
CGPA mean = 2.25, S. D. = .69, r = .42)

NEDT	Percentage in each interval group earning GPA within each score group						
	0.29–0.99	1.00–1.59	1.60–1.99	2.00–2.49	2.50–2.99	3.00–3.49	3.50–4.00
21 – 22			20	40	20	20	
19 – 20	14				43	14	29
17 – 18			8	25	50	17	
15 – 16		9	9	64	9	9	
13 – 14		12	47	24	12	5	
11 – 12	15	23	15	31	8	8	
9 – 10			$33\frac{1}{3}$	$33\frac{1}{3}$	$33\frac{1}{3}$		

Table 5 presents percentages for Group II for high school grade point average. At the University of Tennessee at Martin, a student must have a cumulative GPA of 1.50 or greater at the end of three quarters (24). None of the students in Group II had high school averages below 2.50; however, one-third of the students in the high school grade point interval 2.50 - 2.99 failed to maintain the required college GPA of 1.50. As with Group I, as the high school average increased, the percentage of students who succeeded at this college increased. Only one student whose HSGPA was 3.0 or greater failed to maintain an adequate freshman grade point average.

Table 5

Expectancy Table Showing Grade Point Average at
The University of Tennessee at Martin Based
on High School Grade Point Average

(N = 15, HSGPA mean = 3.12, S. D. = .37,
CGPA = 2.08, S. D. = .54, r = .65)

HSGPA	Percentage in each interval group earning GPA within each grade point interval						
	0.29-0.99	1.00-1.49	1.50-1.99	2.00-2.49	2.50-2.99	3.00-3.49	3.50-4.00
3.5 - 4.0				50		50	
3.0 - 3.49		14		57	29		
2.50 - 2.99		33 $\frac{1}{3}$	33 $\frac{1}{3}$	33 $\frac{1}{3}$			
2.25 - 2.49							

ACT score percentages are given in Table 6 for Group II. As can be noted in Table 6, ACT scores between 13 and 18 do not seem to predict academic achievement any better than do scores of 11 or 12. Students whose ACT scores were 11 or 12 were able to earn a CGPA between 1.50 and 1.99, yet there were students whose ACT scores were between 15 and 20 who did not maintain a satisfactory college grade point average. Of course one must take into account non-academic variables as well as the fact that there can be exceptions to any case; however, in view of the fact that in this study ACT scores had no significant correlation with college grades for Group II, it would be necessary to rely more heavily on judging a student's potential in terms of his past performance--high school grades.

Table 6

Expectancy Table Showing Grade Point Average at the University
of Tennessee at Martin Based on ACT Scores

(N = 15, ACT mean score = 19.33, S. D. = 3.30,
CGPA mean = 2.08, S. D. = .54, r = .49)

ACT	Percentage in each interval group earning GPA within each score group						
	0.29-0.99	1.00-1.49	1.50-1.99	2.00-2.49	2.50-2.99	3.00-3.49	3.50-4.00
23 - 24				$33\frac{1}{3}$	$33\frac{1}{3}$	$33\frac{1}{3}$	
21 - 22			$33\frac{1}{3}$	$66\frac{2}{3}$			
19 - 20		25		75			
17 - 18		50		50			
15 - 16		50			50		
13 - 14							
11 - 12			100				

The expectancy data on NEDT scores for Group II are in Table 7. Students with scores between 9 and 12 would appear to perform in college as well as or better than students with scores between 12 and 16. However, the students with scores above 18 were consistently successful in college.

Table 7

Expectancy Table Showing Grade Point Average at the University of Tennessee at Martin Based on NEDT Scores

($N = 15$, NEDT mean score = 16.4, S. D. = 2.98, CGPA mean = 2.08, S. D. = .54, r = .57)

NEDT	Percentage in each interval group earning GPA within each score group						
	0.29-0.99	1.00-1.49	1.50-1.99	2.00-2.49	2.50-2.99	3.00-3.49	3.50-
19 - 20				$66\frac{2}{3}$		$33\frac{1}{3}$	
17 - 18		$16\frac{2}{3}$		$66\frac{2}{3}$	$16\frac{2}{3}$		
15 - 16			50		50		
13 - 14		100					
11 - 12			100				
9 - 10				100			

Table 8 presents percentage data on high school grade point average for Group III. It is a requirement at Murray State University that a student have a cumulative GPA of 1.60 at the end of three quarters or he will be placed on academic probation (17). In this group, also, past record would seem to predict future performance. As

can be noted in Table 8, none of the students in the lowest interval were able to maintain a satisfactory average in college, but all four students whose HSGPA was 3.5 or better also had college GPA's above 3.5.

Table 8

Expectancy Table Showing Grade Point Average at Murray
State University Based on High School
Grade Point Average

(N = 11, HSGPA mean = 3.17, S. D. = .49
CGPA mean = 2.48, S. D. = 1.01, r = .86)

HSGPA	Percentage in each interval group earning GPA within each grade point interval						
	0.29–0.99	1.00–1.59	1.60–1.99	2.00–2.49	2.50–2.99	3.00–3.49	3.50–4.00
3.50 – 4.00							100
3.00 – 3.49		25	50	25			
2.50 – 2.99			50	50			
2.25 – 2.49		100					

Percentages for ACT scores are presented for Group III in Table 9. ACT scores were consistent in predicting college achievement of Stewart County High School students at Murray State University. All students with scores of 17 or better did satisfactory work at Murray State University; 50 percent with scores of 15 or 16 and 33 $\frac{1}{3}$ percent with scores of 11 or 12 did not succeed academically. For Group III, ACT scores were almost as predictive of college grade

point average as were high school grades.

Table 9

Expectancy Table Showing Grade Point Average at Murray
State University Based on ACT Scores

(N = 11, ACT mean score = 18.91, S. D. = 5.64,
CGPA mean = 2.48, S. D. = 1.01, r = .83)

ACT	Percentage in each interval group earning GPA within each score group						
	0.29-0.99	1.00-1.59	1.60-1.99	2.00-2.49	2.50-2.99	3.00-3.49	3.50-4.00
25 - 26							100
23 - 24				50			50
21 - 22							
19 - 20							
17 - 18					100		
15 - 16		50			50		
13 - 14							
11 - 12		$33\frac{1}{3}$	$66\frac{2}{3}$				
9 - 10							

Table 10 presents percentage data on NEDT scores for Group III.
As was the case with Groups I and II, NEDT scores between 11 and 16
are not progressively selective. According to Table 10, students
with NEDT scores of 9 or 10 would have a better chance of succeeding
at Murray State University than students with scores of 15 or 16.

It would seem that high ACT scores and NEDT scores are more predictive of successful academic achievement than lower scores are predictive of failure. This would emphasize once more the importance of considering all behavior on the part of the student when assessing his academic potential.

Table 10

Expectancy Table Showing Grade Point Average at Murray
State University Based on NEDT Scores

(N = 11, NEDT mean score = 15.82, S. D. = 3.40,
CGPA mean = 2.48, S. D. = 1.01, r = .77)

NEDT	Percentage in each interval group earning GPA within each score group						
	0.29–0.99	1.00–1.59	1.60–1.99	2.00–2.49	2.50–2.99	3.00–3.49	3.50–4.00
21 - 22							100
19 - 20							100
17 - 18			50				50
15 - 16		100					
13 - 14			$33\frac{1}{3}$	$33\frac{1}{3}$	$33\frac{1}{3}$		
11 - 12			50	50			

CHAPTER V

SUMMARY AND CONCLUSIONS

The primary purpose of the study was to find a means for predicting academic achievement of Stewart County High School students who attend Austin Peay State University, the University of Tennessee at Martin, and Murray State University. Ninety-four students--all of those graduating in the years 1965, 1966, 1967 and 1968 and attending one of the three schools in the study--were included in this study. The subjects were divided into three groups. Group I, with sixty-eight students, was composed of those students who attended Austin Peay State University; Group II, with fifteen students, was composed of students who attended the University of Tennessee at Martin; and Group III was composed of eleven students who attended Murray State University.

The prediction variables of high school grade point average, ACT Composite scores and NEDT Composite scores were obtained from the Stewart County High School cumulative record of each student. The criterion was the freshman grade point average which was obtained from the three colleges in the study. The Pearson product-moment coefficient of correlation was computed to determine the relationship of the three variables to freshman GPA. After correlating the data, expectancy tables were prepared on each of the three variables as related to the college for which the variable was applicable.

Upon analysis of the data it was determined that in each instance the high school grade point average was the best predictor of college GPA in the freshman year. The correlations for HSGPA ranged from .65 to .86. ACT scores were the next best predictor for students attending Austin Peay State University and Murray State University, with correlations of .50 and .83 respectively; but there was not a significant correlation between ACT scores and college grade point average for students attending the University of Tennessee at Martin. NEDT scores, with a correlation of .57, gave the second best prediction of freshman GPA for students attending the University of Tennessee at Martin and were poorest for students attending Austin Peay State University and Murray State University. However, NEDT scores correlated with freshman GPA at the one percent level of significance for students attending APSU and MSU and at the five percent level of significance for students attending UTM.

Data from the expectancy tables would indicate that a student's chances for academic success in college increase as his high school grade point average increases. However, except in the case of ACT scores for predicting freshman GPA at Murray State University, ACT scores and NEDT scores below 16 do not provide a dependable means for predicting success or failure.

NEED FOR FURTHER RESEARCH

1. Additional research is needed on the predictive validity of American College Test scores and National Educational Development

Test scores with regard to the dependability of standard scores below 16 to predict success or failure in college.

2. A multiple regression procedure should be developed to predict college academic achievement using ACT scores and NEDT scores with other variables.

3. Variables such as study habits, attitudes, and self concept should be studied for their predictive ability.

4. Additional research is needed in the prediction of college grade point average beyond the freshman year using high school grade-point average, ACT scores, or other variables available in the high school record.

5. Additional research is needed as to the ability of HSGPA or other variables available in the high school record to predict completion of a college program for a degree. For example: the attrition rate of students whose HSGPA is below 2.5 might be compared with that of students whose HSGPA is 3.0 or better.

6. Research is needed as to the ability of high school grade point average in a particular subject to predict performance in that subject in college as compared with the predictive ability of the ACT score in that subject. For example: the high school grade point average in mathematics and the ACT Mathematics score could be compared as to their validity for predicting grade point average in college mathematics.

IMPLICATIONS OF THE STUDY

Studies such as this one can be valuable because high school counselors need information that would be useful in predicting college achievement from variables readily available in the high school cumulative record. Information pertaining to prediction of college achievement is particularly needed in the small high school. Guidance counselors should be encouraged to conduct studies in their own schools even if they must use simple statistical procedures such as those used in this study.

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Table 11

Data for Correlations, Austin Peay State University Students

HSGPA	ACT	NEDT	CGPA
3.00	19	17	2.58
3.04	18	17	2.19
3.61	24	20	2.96
3.19	22	21	3.23
3.02	13	11	2.19
3.14	17	15	2.14
3.38	17	17	2.88
2.33	13	12	1.06
2.40	14	14	2.78
2.90	16	14	2.23
2.40	11	10	1.77
3.00	13	11	1.41
3.06	19	16	2.64
2.54	10	11	0.81
2.63	20	13	1.60
3.04	20	15	1.92
3.00	17	18	2.06
3.36	26	21	2.64
3.00	23	21	1.70
2.70	21	18	1.86
2.77	12	10	2.60
2.95	14	11	2.48
3.07	24	19	2.65
2.34	15	14	1.13
2.53	11	11	0.57
2.92	20	14	1.72
2.65	12	15	2.27
3.02	20	12	2.17
2.90	21	14	1.73
2.43	15	14	1.00
2.45	16	13	1.98
3.10	25	21	2.48
3.32	21	16	3.26
2.28	11	13	1.90
3.14	17	15	2.29
3.02	20	16	2.29
2.72	14	12	1.72
3.18	20	18	2.59
3.65	23	18	3.37

Table 11 (continued)

Data for Correlations, Austin Peay State University Students

HSGPA	ACT	NEDT	CGPA
3.59	22	20	
3.04	15	15	2.94
3.50	20	14	2.30
3.39	17	17	3.02
2.61	15	13	3.29
2.84	18	14	2.22
2.58	19	19	1.84
3.39	21	17	0.29
3.26	19	21	2.10
3.32	23	20	2.49
2.84	13	13	3.67
3.10	16	17	1.86
3.20	20	14	2.67
3.44	21	17	2.40
2.57	18	14	2.94
2.50	14	11	1.78
2.88	14	11	1.36
3.30	21	12	1.96
3.11	12	12	3.25
3.25	20	15	2.71
3.04	14	11	2.29
3.04	16	13	2.04
3.00	18	14	1.88
3.04	17	14	2.52
2.90	15	15	2.39
3.23	24	18	1.55
3.57	23	21	2.74
2.98	19	10	3.20
3.60	23	19	2.37
			3.84

Table 12

Data for Correlations, The University of
Tennessee at Martin Students

HSGPA	ACT	NEDT	CGPA
3.24	16	16	2.56
3.02	21	18	2.29
2.98	21	16	1.89
2.74	20	10	2.00
2.84	18	17	2.38
3.86	23	20	3.09
3.00	20	18	2.00
3.46	23	20	2.42
3.39	23	18	2.75
3.64	20	18	2.33
2.86	11	12	1.80
2.74	15	13	1.40
3.02	22	20	2.00
3.38	20	17	1.17
2.68	17	13	1.17

Table 12

Data for Correlations, Murray State University Students

HSGPA	ACT	NEDT	CGPA
2.33	12	13	1.00
3.84	25	19	3.84
2.83	15	12	2.38
3.64	26	21	3.87
3.10	17	14	2.36
3.02	16	15	1.07
3.73	26	21	3.53
3.00	12	11	1.85
2.64	12	13	1.80
3.19	23	17	1.96
3.60	24	18	3.58