A STUDY OF THE FRESHMEN PLACEMENT TESTS GIVEN AT APPALACHIAN STATE TEACHERS COLLEGE AS A BASIS FOR DETERMINING THEIR EFFECTIVE USE AS A SCREENING DEVICE

A THESIS

PRESENTED TO

the Faculty of the Department of Education

Appalachian State Teachers College

In Partial Fulfillment

of the Requirements for the Degree of

Master of Arts in Education

---

by

Jean Jensen Wey

May 1958

A STUDY OF THE FRESHMEN PLACEMENT TESTS GIVEN AT APPALACHIAN STATE TEACHERS COLLEGE AS A BASIS FOR DETERMINING THEIR EFFECTIVE USE AS A SCREENING DEVICE

---

by

Jean Jensen Wey

Approved by:

Isabel F. Jones
Chairman of Thesis Advisory Committee

Herbert Wey
Director of Graduate Study

Uberto Price
Major Professor

Julian Carr
Minor Professor

TABLE OF CONTENTS

CHAPTER PAGE

CHAPTER PAGE

LIST OF TABLES

TABLE PAGE

TABLE PAGE

CHAPTER I

THE PROBLEM AND DEFINITION OF TERMS

Times have changed. Because of the increased birth rate following World War II and the increased desire on part of American people to have a college education, the problem facing college and university presidents and deans has changed from one of recruiting students to one of trying to care for the great number of high school graduates who want to enter college.

The President's Committee on Education Beyond the High School[1] pointed out that twice as many babies were born in 1956 as in 1936. Those born in the late thirties are already straining our college and university resources to the limit of their capacity. In the next 15 years the number of young people between the ages of 18 and 24 will increase more than 10 million. By 1970 this age group will increase 64 per cent. Furthermore, the per cent of high school graduates entering college is steadily increasing. The enrollments in colleges and universities have increased steadily from 1.1 million in 1930 to nearly 3.2 million in 1956 and by 1960 will approach the 4 million mark. By 1970 enrollments in institutions of higher education are expected to double or to go even higher. Even more startling is the fact that each year 160,000 of our most able high school graduates are not going to college. This is equivalent to

---

[1] Superintendent of Documents, Education Beyond the High School, (Report of President's Committee on Education Beyond the High School. Washington, D. C.: United States Government Printing Office, July, 1957.)

one-half of the top one-fourth who are going. Some of these lack necessary finances, some are not discovered by their teachers, some never learn about career opportunities, some are deterred because of discriminatory practices, and some live in areas where the education they seek is unobtainable. At the same time that we have students with ability not going to college, we have many students who go and then drop out before graduation. Walters[2] points out that of the students entering college fifty per cent drop out. In similar studies reported by Langhorne[3], McNeely[4], Landskow[5], and MacRae[6] of students involving a large group of four-year colleges in more than half of the colleges, less than one-third graduated. The other students either transferred or dropped out.

There are many reasons why students drop out of college. Lack of money, lack of effort on students' part, marriage, and illness are listed as the cause of a number of drop-outs; however,

---

[2]J. E. Walters, Individual Education (New York: John Wiley and Sons; 1935), pp. 3-4.

[3]N. C. Langhorne, "A University Takes Inventory," Journal of the American Association of Collegiate Registrars, 15:41-51, October, 1939.

[4]John H. McNeely, "College Student Morality Studies," Journal of the American Association of Collegiate Registrars, 15:119-24, January, 1940.

[5]Norvin Lawrence Landskow, "Suggested Student Survival Techniques Tried Out at the University of Minnesota," College and University, 23:234-44, January, 1948.

[6]James B. MacRae, "Responsibility of the Colleges for the Welfare of the Students," National Conference on Higher Education, Current Issues in Higher Education, National Education Association Department of Higher Education, 1950, pp. 51-56.

academic failure or lack of interest in school are responsible for a large proportion.[7] Parres[8] states in his study that:

> Efforts to avoid the appalling amount of waste caused by the high percentage of failures in the early semesters of college attendance have, therefore, taken the general direction of pre-college testing and guidance with a view toward better selection of students likely to succeed in college, and the elimination, as far as possible, of poor college risks.

The "appalling amount of waste" and "poor college risks" refer in part to students who did not "make the grade" at college after they entered school as freshmen.

These startling data, which were presented in the bulletin "Education Beyond the High School"[9] and, also, reported in other research studies, point out the tremendous problem that is now confronting colleges and universities throughout this country. Lack of finances and, where finances were available, the failure to plan and construct college housing and classroom space has made this problem more critical.

The "sputniks", Russia has fired into outer space, have just recently caused the nation as a whole to be more concerned about education at all levels, and especially, the need for more and better education at the college and university level.

---

[7]Byron S. Hollinshead, Who Shall Go To College, (New York: Columbia University Press, 1952), p. 11.

[8]John George Parres, "Prediction of Academic Success in the Undergraduate Schools of the University of Pennsylvania" (Unpublished Doctor's dissertation, The University of Pennsylvania, 1955), p. 3.

[9]Superintendent of Documents, op. cit.

The increased number of applications for college and university work, the limited facilities for higher education, the emphasis on more and better education, the high percentage of drop-outs, and the great number of capable students not going to college has created a tremendous problem of guidance and selection at the college and university level. Presidents, deans, admission officers, and counselors of our colleges and universities are seeking better ways of guiding and screening the great number of young people who are applying for admission.

In the past three years Appalachian State Teachers College has been confronted by this problem, and the problem is becoming more acute each year. Colleges and universities throughout the country, even some in North Carolina, have been using tests as a means of screening. So far the administration officers at Appalachian State Teachers College have used tests for placement and guidance and have not resorted to the use of tests for screening. However, due to the increasing number of drop-outs, the administration officers are now looking for valid ways of selecting students who have the greatest chance for success at Appalachian State Teachers College.

It was the need for screening at Appalachian State Teachers College and the interest on the part of the administration officers in making use of those criteria that would be valid and fair to all applicants that brought about this study. Since Appalachian State Teachers College has been giving tests for the purpose of placement and guidance, it seemed plausible that a study of the test results

could be made to see if the tests might be used, in the future, as a basis for screening. This study was undertaken in an effort to determine how effective the selection of students at Appalachian State Teachers College would have been if the scores on the placement tests had been used as the basis for the selection of those students permitted to enter this institution.

I. THE PROBLEM

Statement of the Problem. The purpose of this investigation was to determine the effectiveness of placement tests given to freshmen at Appalachian State Teachers College as possible devices for screening.

Major aspects of the problem were:

1. To determine with what degree of accuracy the placement tests could have been used to predict academic success in college provided certain cut-off points had been established.
2. To determine the number and percentage of drop-outs who would not have been admitted to college provided certain cut-off points had been established.
3. To determine the number and percentage of graduates who would have been refused admission to college provided certain cut-off points had been established.
4. To determine which one of the placement tests or combination of tests would have best screened potential drop-outs and, yet, not eliminate potential graduates.

5. To determine the cut-off points on the placement tests that would have best screened potential drop-outs and, yet, not eliminate potential graduates.
6. To make suggestions for a valid program of screening, placement, and guidance at Appalachian State Teachers College.

Importance of the study. Many colleges and universities are finding it necessary to use selective devices for admitting students. Until the present time, no devices have been used for screening or selecting students at Appalachian State Teachers College, Boone, North Carolina. Because of the increase in applications, it may be necessary in the near future to limit the entrance of students. Many investigations have been made on predicting college success. The selection of students for all colleges and universities may differ according to the standards of admission, quality of work demanded of the students, general practices followed, curriculum offered, and many other factors.

Such findings were discovered by Kille[10] who mentions that each college has its own traditions, convictions, and objectives which influence selection of students.

---

[10]Frank R. Kille, "A Dean Looks at Admission," College Board Review, No. 14, May, 1951, p. 198.

These findings were supported in a report by the National Education Association Research Division.[11]

On the basis of such information, Appalachian State Teachers College admission officers should not adopt screening devices in order to screen students; but they should, in terms of the purposes of the college, take steps to determine what criteria should be used for screening at this institution. In light of this conclusion, it was believed that any study aimed at doing this would have definite value to Appalachian State Teachers College and to other institutions having a similar purpose.

II. DEFINITION OF TERMS USED

The term tests was used to refer to the Inglis Vocabulary Test, the Barret-Ryan-Schrammel English Test, and the American Council on Education Psychological Examination when used in connection with Appalachian State Teachers College.

The term IV was used to refer to the Inglis Vocabulary Test.

The term BRS was used to refer to the Barrett-Ryan-Schrammel English Test.

The term ACE was used to refer to the American Council on Education Psychological Examination.

The term drop-out was used to refer to the 320 students who left school before graduation and who had a quality point rating below 175 at the time they left school.

---

[11]National Education Association Research Division, "Teacher Education," National Association Research Bulletin, 35:171-174, December, 1957.

The term graduates was used to refer to the 584 students who entered Appalachian State Teachers College during the years of 1950, 1951, 1952, and 1953 and who graduated from Appalachian State Teachers College by the end of fall quarter, 1957.

The term national norm was used to refer to those norms developed on national basis and given in the test booklet which accompanies the tests. National norms were not available for the Inglis Vocabulary Test.

The term local norm was used to refer to the norms obtained from the test scores of 1245 freshmen who entered Appalachian State Teachers College during the years of 1950, 1951, 1952, and 1953. It should be noted that only 904 of these students are included in this study as either graduates or drop-outs.

The term quality point was used to refer to quality ratings as determined by dividing the total number of grade points by the number of hours attempted. These ratings are expressed in percentages. The rating of 200 per cent indicates that the student has an average of "C". The rating of 100 per cent indicates that the student has an average of "D".

III. SCOPE OF STUDY

The scope of this study was restricted to the students who entered Appalachian State Teachers College as freshmen during the years of 1950, 1951, 1952, and 1953 and who fell into the following two classifications: first, those students who had scores on all three placement tests and who graduated from Appalachian State

Teachers College by the end of fall quarter, 1957; second, those students who had test scores on all three placement tests and who dropped out of Appalachian State Teachers College while having a quality point rating below 175.

IV. SOURCES OF DATA

The data for this study were collected from the files of the registrar and the guidance director at Appalachian State Teachers College.

The data for this study consisted of (1) test scores of the freshmen classes of the years 1950, 1951, 1952, and 1953 on the IV, BRS, and ACE, (2) the quality point rating of the drop-outs having a quality point rating below 174, and (3) the local and national norms on the BRS and ACE, and the local norm on the IV. (Note: National norms were not available for IV; but median scores of the ninth, tenth, eleventh, twelfth, College Freshmen, and College Seniors were available. These were not used in this study.)

The Inglis Vocabulary Test, the Barrett-Ryan-Schrammel English Test, and the ACE have been used by Appalachian State Teachers College for entrance examinations for the purpose of guidance and classification of students.

The purpose of the Inglis Vocabulary Test is to measure the student's knowledge of the intelligent general reader's vocabulary; that is, of those words which belong neither to our everyday vocabulary of commonest words nor to special and technical vocabularies, but that constitute a large part of the educated person's vocabulary.

It is designed primarily to test the student's reading vocabulary rather than his active vocabulary.

The Barrett-Ryan-Schrammel English Test is designed to measure, objectively, student and class proficiency in the essential mechanics of English--functional grammar and usage, parts of speech, parts of a sentence, punctuation, vocabulary, and pronunciation. The areas included are fundamental to written expression; many are also related to effectiveness in oral expression.

The American Council on Education Psychological Examination for College Freshmen is an instrument designed to measure aptitude for college study. It is not what is commonly referred to as an intelligence test, but a test of certain intellectual abilities that have been shown to be closely related to scholastic success.

V. TREATMENT OF DATA

The data for this study which consisted of the scores made on placement tests given to entering freshmen of 1950, 1952, 1953, 1954, were first divided into two groups. The first group consisted of test scores for the 320 students having dropped out of college before graduation and having a quality point rating below 175 at the time they dropped out. The second group consisted of test scores for 584 students who graduated from college.

The quality point ratings for each of the 320 drop-outs were secured, and this group was divided into two groups: first, those having quality point ratings of 0-99; second, those having quality point ratings between 100-174.

The local norms for each of the three placement tests were secured from the guidance office. The 10th, 15th, and 25th percentiles were selected as cut-off points on each of these tests. The national norms were secured for the ACE and BRS, and the 10th, 15th, and 25th percentiles were again used as cut-off points. The scores for the national and local groups at the 10, 15, and 25 percentile points on the BRS, IV, and the ACE are as follows:

	IV*	BRS		ACE	
Percentile Point	Local	Local	National	Local	National
10	40	62	73	56	62
15	44	66	80	63	68
25	50	73	90	71	76

* National norms are not available for the Inglis Vocabular Tests.

Using the 10th, 15th, and 25th percentiles as cut-off points on both local and national norms, the test scores of all drop-outs were analyzed to determine the number and percentage of drop-outs who made scores on each test or combination of tests below these selected percentiles. The drop-outs were then divided into two groups: (1) one having quality point ratings between 0-99, and (2) one having quality point ratings between 100-174. These two groups were then treated in the same manners as the total group of drop-outs.

Using the 10th, 15th, and 25th percentiles as cut-off points on both local and national norms, the test scores of all graduates were analyzed to determine the number and percentage of graduates who made scores on each test or combination of tests below these selected percentiles.

Finally, a comparison was made of the number and percentage of drop-outs making scores below the selected cut-off points with the number and percentage of graduates making scores below selected cut-off points.

VI. VALIDITY AND RELIABILITY OF DATA

The data used in this study were collected from records in the guidance office and the registrar's office. The number of graduates and drop-outs were taken from records that are kept up to date. The test scores were secured from the records of students kept in the guidance office. These were checked against duplicate records in the registrar's office. The tests were administered and scored by competent and qualified personnel, and the results have been used as a basis for guidance and instructional grouping.

In light of these facts, it was safe to assume that the data used were reliable.

Care was taken in determining local norms which were based on the scores of 1245 individuals who took these tests during the years of 1950, 1951, 1952, and 1953; thus, the local norms included scores of all freshmen who entered Appalachian State Teachers College whether or not they were included in this study. This study was actually concerned with 320 drop-outs and 584 graduates, or 90% of the total of 1245 students, who entered Appalachian State Teachers College over the four year period. The 341 students not included in study were those who either transferred to other institutions or who

left school for reasons other than academic deficiency.

The one major assumption which might affect the validity of the data was that all students who left school before graduation and who had a quality point rating below 175 did so because of academic reasons. It was because of this assumption that the drop-outs were divided into two groups: (1) those having a quality point rating of 100-174, and (2) those having a quality point rating of 0-99. There is little doubt that those drop-outs with quality point ratings of 0-99 were strongly motivated to do so because of low academic standing.

SUMMARY

Because of mounting enrollment at Appalachian State Teachers College and the increasing problem of selecting students who are best qualified to do the work required at this college, this study was undertaken to collect data that might be used as basis for future screening of students.

This investigation consisted of comparing scores made by freshmen on each of the three placement tests that have been administered at Appalachian State Teachers College. The scores used for comparison were the scores for those students who dropped out of school because of academic reasons and those students who graduated.

The data used were collected from existing records at the college. It is hoped that the results of this study will reveal cut-off points on a test or a combination of tests that will enable the admissions officers to screen those students who have very little chance of success in college--and, at the same time, to select those students who have the potential to do college work successfully.

CHAPTER II

REVIEW OF RELATED STUDIES

A review of the literature in relation to predicting academic success in college reveals that hundreds of studies have been made in this general area. These studies make use of many different factors as bases for predicting college success in the academic fields. Although hundreds of studies have been made in relation to prediction of academic success in college, few studies are directly related to prediction of academic success in teachers colleges or in the teacher education program; therefore, the review of the literature will be concerned with studies in general. Special emphasis, however, will be placed on those studies making use of tests as one predictive factor and those studies concerned, primarily, with prediction of academic success in teacher education.

One study which is directly concerned with prediction of academic success in a teacher's college is a study made in 1951 by Regan.[12] Regan undertook this study in an effort to develop an instrument for predicting the probable academic success of college freshmen. An actual correlation was worked out between such measures as the High School Rank of the student, an average of his scores on the subject matter of content parts of the Entrance Examination, his score on the Cooperative English Test, and average of his scores on the Cooperative Achievement Test, and his score on the

---

[12]Paul C. Regan, "A Comparison of Cooperative Test Scores on Entrance Examination Scores as Measure For Predicting Scholastic Success In a Teacher College," (Unpublished Doctor's dissertation, Colorado State College, 1951).

American Council Psychological Examination with the student's performance in the first semester of college work as judged by the criterion of grade-point average. The data involved 207 students of the freshman classes of 1949 and 1950 at the New Jersey State Teachers College. The findings of this study show that High School Rank was the most reliable predictor of academic success with the total score on the Entrance Examination being second. However, the author pointed out that a combination of such factors as high school rank, average score on the Cooperative Achievement Tests, and the total score on the American Psychological Examination was the best predictor of academic success. The multiple correlation of .6387 was found between these three factors and the criterion of first semester grade-point averages.

Another study closely related to the study now under investigation is a study made in 1955 by Parres.[13] The study by Parres was an attempt to determine the value of test scores, previous school marks, and certain other factors in the selection of students for the undergraduate schools of the University of Pennsylvania and to determine which factor or combination of factors contributes most to the forecasting of academic success. Although this study includes all the undergraduate schools of the University of Pennsylvania, only that part of the study concerning the School of Education is summarized in this report. The predictor variables examined in the School of

---

[13]John G. Parres, "Prediction of Academic Success in The Undergraduate Schools of The University of Pennsylvania," (Unpublished Doctor's dissertation, University of Pennsylvania, 1955).

Education were high school average marks, the College Entrance Examination Board Scores in the Scholastic Aptitude Test (SAT), which consists of the Verbal Aptitude Test (VAT) and the Mathematical Aptitude Test, (MAT), English Composition, age at entrance to college, quintile standing at graduation from high school, and principal's recommendation. The criterion of success was the freshman average marks. The data included the scores of 155 students who had spent two years at the University. The findings of this study disagreed with the study by Regan[14] in that the best single predictor of academic success in the freshman year of college is high school average marks, the coefficient of correlation between the two variables being .65. The next best single predictor was the Verbal Aptitude Test on the College Entrance Examination Test which had correlation of .55 with freshman marks. Again, a combination of factors was found to be better than any one single factor. The combination of high school marks and the Verbal Aptitude Test was found to have a correlation of .72 with the freshman averages.

Although not limited to teacher education, the study made by Smith[15] is reviewed here for two reasons: First, it was from this study that arose the idea for the investigation at Appalachian State Teachers College; second, the methods used in Smith's study for analyzing data are very similar to the ones used in the study now

---

[14]Regan, op. cit.

[15]George B. Smith, "Who Would Be Eliminated. A Study of Selective Admission to College," Kansas Studies In Education, December, 1956, University of Kansas Publications, School of Education, Lawrence, Kansas.

under investigation. Smith's study was undertaken with an interest in seeing what would have happened at the University of Kansas had the entrance placement examinations administered to all students at the time of first registering at the University of Kansas been really used as "selection" tests. The study included 1,006 graduates, students of the class of 1955, who had taken both the American Council of Education Examination and the Cooperative English Test at the beginning of their freshman year in college. The study was really centered on 208 graduates who made below the 50th percentile on both the ACE and the English examinations. The reason for using the 50th percentile as the "cutting" score is that several educators had used that point in recent speeches. The 208 students who scored below the 50th percentile on both the ACE and the English placement tests were distributed throughout the University and just as widely distributed throughout the different schools of the University. The study found that students with perseverance, drive, and determination, even though they have low entrance test scores, seem to succeed in all fields of academic endeavors. Another very interesting point was brought out in this study. If the "cutting score" for admission had been placed at the 25th percentile, 67 students would have been denied admission who in their later work did equally as well as the 140 students in the next higher quarter of test scores. Obviously, more of those in the lower percentage ranges dropped out of their own free will or were invited to depart through some administrative procedure, but the 67 students who continued their education did about as well as those who remained in the next 25th percentile range,

at least in the opinion of many college professors who assigned the grades. The fact that the various faculties voted degrees on all 208 of the students involved indicated that they considered them to have performed sufficiently well to represent the University of Kansas as graduates of this institution.

In summarizing his study Smith made the following statement:

> The solution for the crush of future enrollments is not selection prior to registration in a state system, college, or university, if such institutions can in any way possible expand their facilities to accept the groups wishing to be educated. It would seem that every other device for handling large enrollments should be tried before screening entrants by examinations in the state systems.
>
> If restrictions for admission had been applied through the two tests used in this study, 208 graduates of the Class of 1955 at the University of Kansas would not have been admitted as freshmen if the "cutting score" of the fiftieth percentile had been in operation. The loss to the state and nation would have been forty teachers, twenty-two engineers, five journalists, seven lawyers, seven doctors, seven pharmicists, and ninety-six graduates from the College of Liberal Arts and Sciences and the School of Business who majored in areas where the supply of trained manpower is in equally short supply.

Because of the numerous studies in the area of prediction of academic success in college, it is not possible to make a complete analysis of them as has been done with the previous three studies. The remainder of this review of the literature will be a brief analysis of the findings of different studies as they pertain to certain factors used in predicting academic success in college.

High School average marks. Many studies on the relationship between high school average marks and college success have been made.

Among these studies by Segal[16], Durfliner[17], Gladfelter[18], Hawks[19], and Byrns[20] were found correlations from .50 to .70 between high school marks and college marks. These investigations give additional weight to the supposition that if all high school marks and college marks could be reduced to comparable bases throughout, a student's probability of success could be more accurately predicted. The disparity marking schemes among high schools and among colleges tend to reduce the reliability of the predictors; and therefore, decrease the size of the coefficients of correlation.

It may be stated that among all the factors contributing to prediction of college success, high school average marks continues to show a very high correlation with college scholarship despite the size of the group studied, kinds of marking systems used, the length of the college course considered as the criterion, and other factors

---

[16]David Segal, "Prediction of Success in College," U. S. Office of Education Bulletin, No. 15, Washington, D. C.: Government Printing Office, pp. 60-61, 1934.

[17]Glenn W. Durfliner, "Prediction of College Success: A Summary of Recent Findings," Journal of the American Association of Collegiate Registrars, 19:68-78, October, 1943.

[18]Millard E. Gladfelter, "The Value of Several Criteria in Predicting College Success," Bulletin of the American Association of Collegiate Registrars, 11:187-95, April, 1936.

[19]Lena J. Hawks, "Certain Relationships Between Scholarship in High School and College," John Hopkins University Studies in Education, Baltimore: The John Hopkins Press, 1931, p. 17.

[20]Ruth K. Byrns and V. A. C. Henmon, "Long Range Prediction of College Achievement," School and Society, 41:877-80, June, 1935.

which make it difficult to reduce the material to comparable data. Read,[21] in a study made at Wichita Municipal University, concurs with the findings of many investigators when he concludes that high school average is one of the best single predictors of freshman average marks.

High School Rank. Because of the disparity in high school marks the ranking of students is usually considered a very slight improvement over high school averages in predicting college scholarship. Studies by Lins,[22] Plumb,[23] Lien,[24] Thomann,[25] found a correlation of .43 to .75 between high school rank and college marks.

An analysis of studies reviewed here seem to indicate that there are no significant differences between high school rank and high school marks as predictors of success in college. It should be noted, however, that rank is influenced by the number in the

---

[21]C. B. Read, "Prediction of School Success in a Municipal University," School and Society, 48:187-88, August, 1938.

[22]L. J. Lins, "Probability Approach to Forecasting University Success with Measured Grades As The Criterion," Educational and Psychological Measurements, 10:386-91, Autumn, 1950.

[23]Valworth Rice Plumb, "The Prediction of Academic Success at the University of Minnesota, Duluth Branch." (Unpublished, Ph. D. Dissertation, University of Wisconsin, 1950. iv-179 pp.)

[24]Arnold Juel Lein, "A Comparative Predictive Study of Students in the Four Curricula of a Teacher Education Institution," Journal of Experimental Education, 21:31-219, December, 1952.

[25]Don F. Thomann, "Relationship Between the High School and College Editions of the A.C.E. Psychological Examination and Their Relative Value in Predicting College Achievement," Journal of the American Association of Collegiate Registrars, 23:217-33, January, 1948.

graduating class. For example, to rank first in a class of 30 is quite different from ranking first in a class of 300. Nevertheless, in spite of this variation, high school rank upon graduation seems to be as efficient or slightly more efficient a predictor variable as high school average marks. This holds true especially when high school percentile rank with its greater precision is used as the predictor variable.

Scholastic Aptitude Tests. In a summary of coefficients of correlation of general aptitude tests and college success compiled in 1934, Wagner[26] found the range of the College Entrance Examination Board SAT to run from .41 to .55. She reports the median coefficients of all types of general aptitude tests as running from .40 to .50.[27] In several comprehensive summaries of prognostic measures, medians of .45,[28] and .41[29] were found between various scholastic aptitude tests and college scholarship. Based upon previous research it can be concluded that aptitude tests of scholastic ability show a median correlation coefficient of about .45 with college average marks, with

---

[26]Mazie E. Wagner, "Prediction of College Performance," The University of Buffalo Studies, Vol. 9, Buffalo, New York: The University, May, 1934, pp. 194-209.

[27]Ibid., p. 21.

[28]Harl R. Douglass, The Relation of High School Preparation and Certain Other Factors to Academic Success at the University of Oregon, University of Oregon Publications, Series III, No. 1, Eugene, Oregon, University of Oregon, 1931, p. 21.

[29]H. F. Garrett, "A Review and Interpretation of Investigations of Factors Related to Scholastic Success in Colleges of Arts and Sciences and Teachers Colleges," Journal of Experimental Education, 18:113, December, 1949.

the median coefficient of the Scholastic Aptitude Test of the College Entrance Examination Board being approximately .46.

Thus, it appears that the College Board Scholastic Aptitude Test is as reliable as other aptitude tests for predicting college scholarship. General aptitude tests constitute a fairly reliable means for predicting success as a whole; but they rank, generally, below high school marks, high school class rank, and general achievement tests in efficiency of prediction.

Achievement Tests Including English Usage. In general, research shows that the correlation coefficients between the English Composition Test and college success are somewhat lower than the coefficients of correlation for other tests of achievement.

Weber,[30] in an investigation conducted at Wells College covering a six-year period, found a coefficient of correlation of .403 between English Composition and first-year college average in one study. In another study he found, on the other hand, a coefficient of .178.

Working with 261 students at Mt. Holyoke College, Weaver and Stokes[31] found a correlation coefficient of the .46 between English Composition and freshman average marks.

---

[30] C. O. Weber, "Old and New College Board Scores and Grades of College Freshmen," Journal of the American Association of Collegiate Registrars, 20:70-75, October, 1944.

[31] L. J. Weaver and S. M. Stokes, "New College Entrance Examination Board Examinations," Journal of Higher Education, January, 1945.

In comparing the results of the studies on English Composition with investigations of average score on all College Board Achievement tests, it has been found that the coefficients of correlation between the average achievement tests score and college average run higher than the coefficient between English Composition and college average. Crawford,[32] in a study at Yale which included 591 students, found a coefficient of .6393 between College Board achievement tests and freshman average marks; in another study, he found a coefficient of .4412.

In his study at Wells College, Weber[33] found coefficients of .46 and .31 between old-type CEEB average score, new-type CEEB average score, respectively, and college marks.

In combined data collected on 358 students in three Eastern colleges, Landry[34] reported a coefficient of correlation of .491 between average score on the achievement tests of the College Entrance Examination Board and freshman average.

General achievement tests, it is agreed by most investigators, rank second to high school marks or class rank as predictors of college success, the median coefficient of correlation of the several studies being .49. When achievement tests are restricted to specific

---

[32] A. B. Crawford, "Forecasting Freshman Achievement," School and Society, 31:125-32, January, 1930.

[33] Weber, op. cit., pp. 70-75.

[34] H. A. Landry, "Relative Prediction Value of Certain College Entrance Criteria," Journal of Experimental Education, 5:256-60, March, 1937.

subjects, as in the case of the English Composition, the median drops to .40.[35]

Age and college success. The relationship between age and college average marks tends to be negative. At any rate there is almost general agreement among studies in this area that there is from zero to negative relationship between age and college success. In respect to this, in a study at Michigan State College, Pierson[36] found that the youngest students (those 18 years or younger) made the highest grades, and the lowest grades were made by those from 22 to 24 years of age.

Dwyer,[37] who reviewed the area rather thoroughly, is of the opinion that the correlations between age and college scholarship are not significant enough to be valuable for prediction purposes. It would seem that age cannot be relied upon for use in forecasting college success.

Principal's Recommendation. Many colleges, in addition to giving consideration to a student's high school preparation and record, entrance examinations, and other factors, evaluate the confidential statement from the principal as to the student's personal qualifications, character, and fitness to do college work.

---

[35]Garrett, op. cit., p. 104.

[36]Roland R. Pierson, "Age Versus Academic Success in College Students," School and Society, 48:94-95, August, 1948.

[37]Paul S. Dwyer, "The Correlation Between Age at Entrance and Success in College," Journal of Education Psychology, 30:216, April, 1938.

This factor, in cases where the reports of the principals can be relied upon, is a reliable supplement to the knowledge gained about the student from other indicators of probable academic success.

Cowdery, [38] in a study made at Stanford University, found a coefficient of correlation of .41 between principal's recommendation and college scholarship.

At Temple University, Gladfelter[39] correlated principal's recommendation with freshman average of 129 students from Philadelphia high schools and found a coefficient of .46.

In a study at the University of Oregon which included 381 students, Douglass[40] found coefficients of .43 and .48 between principal's ratings and three terms of college work and five terms of college work, respectively.

Multiple Correlation. A number of investigations in relation to college success have been made wherein a combination of several variables are used in an attempt to improve the prediction of academic success in college. Almost without exception these investigations have found that a combination of several factors is more accurate in forecasting academic success in college than any single factor.

---

[38]Karl M. Cowdery, "Stanford University Admission Method," Bulletin of the American Association of Collegiate Registrars, 5:95-100, April, 1930.

[39]Gladfelter, op. cit., pp. 187-95.

[40]Douglass, op. cit., p. 12.

Durflinger,[41] in his summary of investigations in this area, reported that multiple correlation coefficients are seldom higher than .80. In his study of investigations he found that irrespective of the combinations used the median multiple correlation coefficient is usually between .60 and .70.

SUMMARY

In summarizing this review of the literature the following conclusion seems plausible. High school average and high school rank in class seem to be the individual factors that best predict academic success in college with high school rank by percentiles having a slight edge over high school average. Next to high school rank and high school average, a battery of achievement tests is the predictor of academic success; however, this is not true for achievement tests in some special areas such as English usage.

General aptitude tests may be used as reliable bases for prediction of success in college; but, in general, they rank below high school average, high school rank in class, and general achievement tests in efficiency of prediction. The relation between age and college success is of no value as a predictor, and it should not be used either as a single factor or in combination with other factors. The principal's recommendation may in certain cases be used

---

[41] Durflinger, op. cit., p. 77.

as a reliable means of predicting success in college, but care should be taken in the use of this factor.

In the final analysis, no single factor gives a correlation high enough to be used by itself without considerable error; therefore, the use of several factors in combination is recommended over the use of any one factor. Almost without exception, a combination of factors will give a more efficient prediction of college success than will any one factor.

The study by Smith[42] as well as many other studies stress the importance of caution in making use of any one variable or combination or variables as the sole bases for selecting college students. Doing this without a careful program of individual guidance and counseling will most likely result in elimination of some young people who have the drive and determination that see them through a successful college education.

---

[42]Smith, op. cit., p. 28.

CHAPTER III

ANALYSIS OF ENTRANCE TEST SCORES OF GRADUATES AND DROP-OUTS

The purpose of this chapter was to present the findings concerning what would have actually happened at Appalachian State Teachers College if the scores from the three placement tests given to all freshmen at the time of entrance had been used as a screening or selecting device. Nine-hundred and four of the 1,245 students taking the placement examinations during the years 1950, 1951, 1952, and 1953 were included in this study. These 904 students were divided into two groups. The first group consists of 584 students who graduated from Appalachian State Teachers College and who had scores on all three placement tests. The second group consists of 320 drop-outs who had a quality point rating below 175 at the time they quit school and who had test scores on all three placement tests.

The three placement tests given to all entering freshmen during the school years of 1950, 1951, 1952, and 1953 were the Inglis Vocabulary Test, the Barrett-Ryan-Schrammel English Test, and the American Council of Education Psychological Test. In the analysis of the test scores the local norms were used on all three placement tests, and the national norms were used on the ACE and the BRS. National norms were not given for the Inglis Vocabulary Test. The local norms were considered as well as national norms, because it was the feeling of the Guidance Director of Appalachian State Teachers College that the local norms might be better predictors

for Appalachian State Teachers College students and, therefore, a more valid basis for screening than would be the national norms. The local norms were obtained from the scores of the 1,245 students taking the three placement tests during the school years of 1950, 1951, 1952, and 1953.

The 10th, 15th, and 25th percentiles on both the local and national norms were selected as cut-off points to be studied in relation to the placement tests. The points were recommended by administrators and guidance personnel at Appalachian State Teachers College. Some studies have used the 50th percentile as a cut-off point. Most investigators and the personnel of Appalachian State Teachers College felt that this point was too high for any practical elimination purposes; therefore, it was not used in the study. Some state universities use the 10th percentile as the cut-off point. By using the 10th, 15th, and 25th percentiles as cut-off points, it is reasonable to hope that this study would determine whether or not any one of these might have been used as a fair cut-off point for the screening or selecting of students who entered Appalachian during the years of 1950, 1951, 1952, and 1953. The value of any one of these three selected percentiles for screening purposes will be determined by whether the percentile selected would have eliminated students who fell below that selected point on the placement examinations and dropped out of college before graduation because of low quality points and, at the same time, did not eliminate students who graduated from college.

It might be well to mention that in the analysis of placement test scores in relation to certain cut-off points that a test or a

cut-off point would be considered to be a good one when it eliminates those students who drop out of school because of academic problems and, at the same time, eliminates none or very few graduates. Therefore, in analyzing the data, a search will be made for the tests or the combination of tests and a percentile on the tests that would eliminate a large percentage of the drop-outs and, at the same time, eliminate none or a very small percentage of the graduates.

In order to draw out findings in relation to both graduates and drop-outs and, at the same time, to make comparisons between the tests and the probable cut-off points for both graduates and drop-outs, the tables will be presented in pairs. Each time a table is presented which analyzes date concerning graduates a corresponding table for drop-outs will be presented.

The first two tables to be presented, one dealing with graduates and the other drop-outs, will analyze the placement tests individually in terms of the local 10th, 15th, and 25th percentiles. The findings from each of these tables will be drawn out separately and then compared. Table I is concerned with the findings of the total number and percentage of graduates making scores below the local 10th, 15th, and 25th percentiles on any one of the three placement tests. Table II is concerned with the findings of the total number and percentage of drop-outs making scores below the local 10th, 15th, and 25th percentiles on any one of the three placement tests.

TABLE I. NUMBER AND PERCENTAGE OF THE 584 GRADUATES MAKING SCORES BELOW CERTAIN LOCAL PERCENTILES ON ANY ONE OF THE THREE PLACEMENT TESTS.

Local Percentile	IV		BRS		ACE	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
10 per cent*	34	5.8	73	12.5	34	5.8
15 per cent	41	7.0	90	15.4	48	8.2
25 per cent	79	13.5	129	22.1	90	15.4

*This table reads as follows: Of the 584 graduates 34, or 5.8 per cent, made scores below the local tenth percentile on the IV; 73, or 12.5 per cent, made scores below the local 10th percentile on the BRS; and 34, or 5.8 per cent, made scores below the local 10th percentile on the ACE.

TABLE II. NUMBER AND PERCENTAGE OF THE 320 DROP-OUTS MAKING SCORES BELOW CERTAIN LOCAL PERCENTILES ON ANY ONE OF THE THREE PLACEMENT TESTS.

Local Percentile	IV		BRS		ACE	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
10 per cent*	59	18.4	57	17.8	89	27.8
15 per cent	89	27.8	71	25.3	117	36.6
25 per cent	125	39.0	118	36.9	154	48.1

*This table reads as follows: Of the 320 drop-outs 59, or 18.4 per cent, made scores below the local 10th percentile on the IV; 57, or 17.8 per cent, made scores below the local 10th percentile on the BRS; 89, or 27.8 per cent, made scores below the local 10th percentile on the ACE.

Findings For Table I: 1. Using the local 10th percentile as a cut-off point, the least number of graduates, 34, or 5.8 per cent, would have been eliminated by either the ACE or IV scores.

2. Using the local 10th percentile as a cut-off point, the greatest number of graduates, 73, or 12.5 per cent, would have been eliminated by the BRS scores.

3. Using the local 15th percentile as a cut-off point, the least number of graduates, 41, or 7.0 per cent, would have been eliminated by the IV scores.

4. Using the local 15th percentile as a cut-off point, the greatest number of graduates, 90, or 15.4 per cent, would have been eliminated by the BRS scores.

5. Using the local 25th percentile as a cut-off point, the least number of graduates, 79, or 13.5 per cent, would have been eliminated by the IV scores.

6. Using the local 25th percentile as a cut-off point, the greatest number of graduates, 129, or 22.1 per cent, would have been eliminated by the BRS scores.

7. It is interesting to note that at all three cut-off points, the local 10th, 15th, and 25th percentiles, the IV scores eliminated the least number of graduating students; whereas at all three cut-off points, the BRS test scores eliminated the greatest number of graduating students.

Findings For Table Number II: 1. Using the local 10th percentile as a cut-off point, the greatest number of drop-outs, 89, or 27.8 per cent, would have been eliminated by the ACE scores.

2. Using the local 10th percentile as a cut-off point, the least number of drop-outs, 57, or 17.8 per cent, would have been eliminated by the BRS scores.

3. Using the local 15th percentile as a cut-off point, the greatest number of drop-outs, 117, or 36.6 per cent, would have been eliminated by the ACE scores.

4. Using the local 15th percentile as a cut-off point, the least number of drop-outs, 71, or 25.3 per cent, would have been eliminated by the BRS scores.

5. Using the local 25th percentile as a cut-off point, the greatest number of drop-outs, 154, or 48.1 per cent, would have been eliminated by the ACE scores.

6. Using the local 25th percentile as a cut-off point, the least number of drop-outs, 118, or 36.9 per cent, would have been eliminated by the BRS scores.

7. It is interesting to note that at all three cut-off points, the local 10th, 15th, and 25th percentiles, the ACE scores eliminated the greatest number of drop-outs; whereas at all three cut-off points, the BRS scores eliminated the least number of drop-outs.

Findings By Comparison Of Tables I and II. 1. The IV scores eliminated the least number of graduates at all three cut-off points except the local 10th percentile where there was a tie with the ACE; whereas the ACE scores eliminated the greatest number of drop-outs at all three cut-off points.

2. Using the local 10th percentile as a cut-off point on the ACE gave the best percentage ratio of drop-outs to graduates: this ratio being approximately five drop-outs eliminated to one graduate eliminated. However, when considering the actual number, in order to have eliminated 89 drop-outs by using the local 10th percentile as a cut-off point on the ACE, one would have eliminated 34 students who graduated.

Tables I and II analyzed each test individually according to local norms. The next two tables will be concerned with the analysis of a combination of any two of the placement tests. Table III is concerned with the findings of the total number and percentage of graduates making scores below the local 10th, 15th, and 25th percentiles on any two of the three placement tests. Table IV is concerned with the findings of the total number and percentage of drop-outs making scores below the local 10th, 15th, and 25th percentiles on any two of the three placement tests.

TABLE III. NUMBER AND PERCENTAGE OF THE 584 GRADUATES MAKING SCORES BELOW CERTAIN LOCAL PERCENTILES ON ANY TWO OF THE THREE PLACEMENT TESTS.

Local Percentile	IV and BRS		IV and ACE		BRS and ACE	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
10 per cent*	8	1.4	7	1.2	11	1.9
15 per cent	12	2.1	20	3.4	23	3.9
25 per cent	32	5.7	41	7.0	44	7.5

*This table reads as follows: Of the 584 graduates 8, or 1.4 per cent, made scores below the local 10th percentile on the IV and BRS; 7, or 1.2 per cent, made scores below the local 10th percentile on the IV and ACE; 11, or 1.9 per cent, made scores below the local 10th percentile on both the BRS and ACE.

TABLE IV. NUMBER AND PERCENTAGE OF THE 320 DROP-OUTS MAKING SCORES BELOW CERTAIN LOCAL PERCENTILES ON ANY TWO OF THE THREE PLACEMENT TESTS.

Local Percentile	IV and BRS		IV and ACE		BRS and ACE	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
10 per cent*	22	6.9	23	7.2	28	8.8
15 per cent	33	10.3	47	14.7	43	13.4
25 per cent	73	22.8	88	27.5	86	26.9

*This table reads as follows: Of the 320 drop-outs 22, or 6.9 per cent, made scores below the local 10th percentile on the IV and BRS; 23, or 7.2 per cent, made scores below the local 10th percentile on the IV and ACE; 28, or 8.8 per cent, made scores below the local 10th percentile on both the BRS and ACE.

Findings For Table III. 1. Using the local 10th percentile as a cut-off point, the least number of graduates, 7, or 1.2 per cent, would have been eliminated by the IV and ACE scores.

2. Using the local 10th percentile as a cut-off point, the greatest number of graduates, 11, or 1.9 per cent, would have been eliminated by the BRS and ACE scores.

3. Using the local 15th percentile as a cut-off point, the least number of graduates, 12, or 2.1 per cent, would have been eliminated by the IV and BRS scores.

4. Using the local 15th percentile as a cut-off point, the greatest number of graduates, 23, or 3.9 per cent, would have been eliminated by the BRS and the ACE scores.

5. Using the local 25th percentile as a cut-off point, the least number of the graduates, 32, or 5.7 per cent, would have been eliminated by the IV and BRS scores.

6. Using the local 25th percentile as a cut-off point, the greatest number of the graduates, 44, or 7.5 per cent, would have been eliminated by the BRS and ACE scores.

7. It is interesting to note that all three cut-off points, the local 10th, 15th, and 25th percentiles, the BRS and ACE scores would have eliminated the greatest number of graduating students.

8. It is also interesting to note that at the local 15th and 25th percentiles the IV and BRS scores would have eliminated the least number of graduating students.

Findings For Table IV. 1. Using the local 10th percentile as a cut-off point, the greatest number of drop-outs, 28, or 8.8 per cent,

would have been eliminated by the BRS and ACE scores.

2. Using the local 10th percentile as a cut-off point, the least number of drop-outs, 22, or 6.9 per cent, would have been eliminated by the IV and BRS scores.

3. Using the local 15th percentile as a cut-off point, the greatest number of drop-outs, 47, or 14.7 per cent, would have been eliminated by the IV and ACE scores.

4. Using the local 15th percentile as a cut-off point, the least number of drop-outs, 33, or 10.3 per cent, would have been eliminated by the IV and BRS scores.

5. Using the local 25th percentile as a cut-off point, the greatest number of drop-outs, 88, or 27.5 per cent, would have been eliminated by the IV and ACE scores.

6. Using the local 25th percentile as a cut-off point, the least number of drop-outs, 73, or 22.8 per cent, would have been eliminated by the IV and BRS scores.

7. It is interesting to note that the IV and BRS scores would have eliminated the least number of drop-outs at all three cut-off points.

8. Along the same line of thought, the IV and ACE scores would have eliminated the greatest number at the 15th and 25th percentiles.

Findings By Comparison Of Table III and Table IV. 1. Using the local 10th percentile as a cut-off point, the IV and ACE would have eliminated the least number of graduates, whereas the BRS and ACE would have eliminated the most drop-outs.

2. Using the local 15th percentile as a cut-off point, the IV and BRS would have eliminated the least number of graduates, whereas the IV and ACE would have eliminated the greatest number of drop-outs.

3. Using the local 25th percentile as a cut-off point, the IV and BRS would have eliminated the least number of graduates, whereas the IV and ACE would have eliminated the greatest number of drop-outs.

4. Using the local 10th percentile as a cut-off point, the ACE and IV gave the best percentage ratio of drop-outs to graduates: the ratio being 6 drop-outs eliminated to one graduate eliminated. However, when considering actual numbers in order to have eliminated 23 drop-outs one would have eliminated 7 students who graduated.

Table III and Table IV compared numbers and percentages of graduates and drop-outs at the local 10th, 15th, and 25th percentiles by a combination of any two of the three placement test scores. Table V is concerned with the total number and percentage of graduates making scores below the local 10th, 15th, and 25th percentiles on all three of the placement tests. Table VI is concerned with the total number and percentage of drop-outs making scores below the local 10th, 15th, and 25th percentiles on all three of the placement tests.

TABLE V. NUMBER AND PERCENTAGE OF THE 584 GRADUATES MAKING SCORES BELOW CERTAIN LOCAL PERCENTILES ON ALL OF THE THREE PLACEMENT TESTS.

Local Percentile	IV and BRS and ACE	
	Number	Per Cent
10 per cent*	4	.7
15 per cent	8	1.4
25 per cent	24	4.1

*This table reads as follows: Of the 584 graduates 4, or .7 per cent, made scores below the local 10th percentile on all of the three placement tests.

TABLE VI. NUMBER AND PERCENTAGE OF THE 320 DROP-OUTS MAKING SCORES BELOW CERTAIN LOCAL PERCENTILES ON ALL OF THE THREE PLACEMENT TESTS.

Local Percentile	IV and BRS and ACE	
	Number	Per Cent
10 per cent*	10	3.1
15 per cent	24	7.5
25 per cent	56	17.5

*This table reads as follows: Of the 320 drop-outs 10, or 3.1 per cent, made scores below the local 10th percentile on all of the three placement tests.

Findings of Table V. 1. Four, or .7 per cent, of the graduates made scores below the local 10th percentile on all three of the placement tests.

2. Eight, or 1.4 per cent, of the graduates made scores below the local 15th percentile on all three of the placement tests.

3. Twenty-four, or 4.1 per cent, of the graduates made scores below the local 25th percentile on all three of the placement tests.

4. It is interesting to note that the number of graduates below the 15th percentile is double the number of graduates below the 10th percentile on all three of the placement tests scores.

5. Along the same line of thought, the number of graduates below the 25th percentile is three times as great as the number of graduates below the 15th percentile on all three of the placement tests scores.

Findings For Table VI. 1. Ten, or 3.1 per cent, of the drop-outs made scores below the local 10th percentile on all three placement tests.

2. Twenty-four, or 7.5 per cent, of the drop-outs made scores below the local 15th percentile on all three placement tests.

3. Fifty-six, or 17.5 per cent, of the drop-outs made scores below the local 25th percentile on all three of the placement tests.

4. It is interesting to note that the number of drop-outs below the 15th percentile is 2.4 times as great as the number of drop-outs below the 10th percentile on all three of the placement tests scores.

5. Along the same line of thought, the number of drop-outs below the 25th percentile is 2.3 times as great as the number of drop-outs below the 15th percentile on all three of the placement tests scores.

Findings By Comparison of Table V and Table VI. 1. When considering a combination of all three tests and using the local 10th percentile as a cut-off point, 4, or .7 per cent, of the graduates and 10, or 3.1 per cent, of the drop-outs would have been eliminated.

3. When considering a combination of all three tests and using the local 25th percentile 24, or 4.1 per cent, of the graduates and 56, or 17.1 per cent, if the drop-outs would have been eliminated.

The first six tables have been concerned with an analysis of all three placement test scores on the basis of local norms. The next four tables will be concerned with the analysis of test data on two placement tests, the ACE and the BRS, on the basis of national norms. The IV test is not included because national norms do not exist for this test. The next two tables will be concerned with the analysis of test scores made on each of the two tests. Table VII is concerned with the number and percentage of graduates making scores below the national 10th, 15th, and 25th percentiles on any one of two placement tests. Table VIII is concerned with the number and percentage of drop-outs making scores below the national 10th, 15th, and 25th percentiles on any one of the two placement tests.

TABLE VII. NUMBER AND PERCENTAGE OF THE 584 GRADUATES MAKING SCORES BELOW CERTAIN NATIONAL PERCENTILES ON ANY ONE OF THE TWO PLACEMENT TESTS.

National Percentile	BRS		ACE	
	Number	Per Cent	Number	Per Cent
10 per cent*	143	24.5	46	7.9
15 per cent	203	34.8	75	12.8
25 per cent	309	52.9	127	21.7

*This table reads as follows: Of the 584 graduates 143, or 24.5 per cent, made scores below the national 10th percentile on the BRS; 46, or 7.9 per cent, of the graduates made scores below the national 10th percentile on the ACE.

TABLE VIII. NUMBER AND PERCENTAGE OF THE 320 DROP-OUTS MAKING SCORES BELOW CERTAIN NATIONAL PERCENTILES ON ANY ONE OF THE TWO PLACEMENT TESTS.

National Percentile	BRS		ACE	
	Number	Per Cent	Number	Per Cent
10 per cent*	117	36.6	113	35.3
15 per cent	190	59.9	146	45.6
25 per cent	240	70.5	182	56.9

*This table reads as follows: Of the 320 drop-outs 117, or 36.6 per cent, made scores below the national 10th percentile on the BRS; 113, or 35.3 per cent, made scores below the national 10th percentile on the ACE.

Findings of Table VII. 1. Using the national 10th percentile as a cut-off point, the least number of graduates, 46, or 7.9 per cent, would have been eliminated by the ACE score.

2. Using the national 10th percentile as a cut-off point, the greatest number of graduates, 143, or 24.5 per cent, would have been eliminated by the BRS scores.

3. Using the national 15th percentile as a cut-off point, the least number of graduates, 75, or 12.8 per cent, would have been eliminated by the ACE score.

4. Using the national 15th percentile as a cut-off point, the greatest number of graduates, 203, or 34.8 per cent, would have been eliminated by the BRS scores.

5. Using the national 25th percentile as a cut-off point, the least number of graduates, 127, or 21.7 per cent, would have been eliminated by the ACE scores.

6. Using the national 25th percentile as a cut-off point, the greatest number of graduates, 309, or 52.9 per cent, would have been eliminated by the BRS scores.

7. At all three cut-off points the greatest number of graduates would have been eliminated by the BRS scores.

8. At all three cut-off points the least number of graduates would have been eliminated by the ACE scores.

9. It is interesting to note the differences of the BRS and ACE scores at the 10th percentile; the elimination ratio is more than three to one.

10. It may be noted that at the 15th percentile the elimination ratio between the BRS and the ACE scores is about three to one.

Findings For Table VIII. 1. Using the national 10th percentile as a cut-off point, the greatest number of drop-outs, 117, or 36.6 per cent, would have been eliminated by the BRS scores.

2. Using the national 10th percentile as a cut-off point, the least number of drop-outs, 113, or 35.3 per cent, would have been eliminated by the ACE scores.

3. Using the national 15th percentile as a cut-off point, the greatest number of drop-outs, 190, or 59.9 per cent, would have been eliminated by the BRS scores.

4. Using the national 15th percentile as a cut-off point, the least number of drop-outs, 146, or 45.6 per cent, would have been eliminated by the ACE scores.

5. Using the national 25th percentile as a cut-off point, the greatest number of drop-outs, 240, or 70.5 per cent, would have been eliminated by the BRS scores.

6. Using the national 25th percentile as a cut-off point, the least number of drop-outs, 182, or 56.9 per cent, would have been eliminated by the ACE scores.

7. It is interesting to note that at all three cut-off points the BRS scores would have eliminated the greatest number of drop-outs.

8. It is interesting to note that at all three cut-off points the ACE scores would have eliminated the least number of drop-outs.

9. The number and per cent of drop-outs eliminated by both the BRS scores and ACE scores are approximately the same when using the 10th percentile as a cut-off point.

Findings By Comparison of Table VII and Table VIII. 1. Based on national norms the ACE scores eliminated the least number of graduates and drop-outs at all three cut-off points.

3. The best percentage ratio of graduates to drop-outs is shown by using the national 10th percentile as a cut-off point on the ACE for both graduates and drop-outs. The percentage ratio is four and one-half drop-outs eliminated to each graduate eliminated. However, when considering the actual number, in order to have eliminated 11 drop-outs, one would have eliminated 46 graduates.

4. Comparing graduates and drop-outs on the basis of national norms, it is interesting to note that the scores on the BRS would eliminate about the same number of graduates as drop-outs at all three cut-off points, the actual percentage ratio being about one and one half drop-outs eliminated to each graduate eliminated.

The next pair of tables to be presented, one dealing with graduates and the other with drop-outs, will analyze the placement tests, BRS and ACE, together in terms of the national 10th, 15th, and 25th percentiles. Table IX is concerned with the findings of the total number and percentage of graduates making scores below the national 10th, 15th, and 25th percentiles on both the BRS and the ACE. Table X is concerned with the findings of the total number and percentage of drop-outs making scores below the national 10th, 15th, and 25th percentiles on both the BRS and the ACE.

TABLE IX. NUMBER AND PERCENTAGE OF THE 584 GRADUATES MAKING SCORES BELOW CERTAIN NATIONAL PERCENTILES ON BOTH THE TWO PLACEMENT TESTS.

National Percentile	BRS and ACE	
	Number	Per Cent
10 per cent*	29	5.0
15 per cent	50	8.6
25 per cent	100	17.1

*This table reads as follows: Of the 584 graduates 29, or 5.0 per cent, made scores below the national 10th percentile on both the BRS and the ACE.

TABLE X. NUMBER AND PERCENTAGE OF THE 320 DROP-OUTS MAKING SCORES BELOW CERTAIN NATIONAL PERCENTILES ON BOTH THE TWO PLACEMENT TESTS.

National Percentile	BRS and ACE	
	Number	Per Cent
10 per cent*	68	21.3
15 per cent	95	29.7
25 per cent	160	50.0

*This table reads as follows: Of the 320 drop-outs 68, or 21.3 per cent, made scores below the 10th national percentile on both the BRS and ACE.

Findings For Table IX. 1. Twenty-nine, or 5.0 per cent, of the graduates made scores below the national 10th percentile on both the BRS and ACE.

2. Fifty, or 8.6 per cent, of the graduates made scores below the national 15th percentile on both the BRS and ACE.

3. One hundred, or 17.1 per cent, of the graduates made scores below the national 25th percentile on both the BRS and ACE.

4. It is interesting to note that the number of students making scores below the national 15th percentile on both tests is almost double the number of students making scores below the national 10th percentile on both tests.

5. Again, the number of students making scores below the national 25th percentile on both tests is double the number of students making scores below the national 15th percentile on both tests.

Findings For Table X. 1. Sixty-eight, or 21.3 per cent, of the drop-outs made scores below the national 10th percentile on both the BRS and ACE.

2. Ninety-five, or 29.7 per cent, of the drop-outs made scores below the national 15th percentile on both the BRS and ACE scores.

3. One hundred and sixty, or 50.0 per cent, of the drop-outs made scores below the national 25th percentile on both the BRS and ACE scores.

Findings By Comparison of Table IX and Table X. 1. Using the national 10th percentile as a cut-off point, 29, or 5.0 per cent, of the graduates and 68, or 21.3 per cent, of the drop-outs are eliminated when both BRS and ACE scores are considered. The percentage ratio between the graduates and the drop-outs is approximately one graduate to four drop-outs.

2. Although the percentage ratio is only 4 to one, it is interesting to note that if the national 10th percentile on both the ACE and BRS was used as a cut-off point, 29 graduates would have been eliminated along with 68 drop-outs.

3. Using the national 15th percentile as a cut-off point, 50, or 8.6 per cent, of the graduates and 95, or 29.7 per cent, of the drop-outs are eliminated when both the BRS and ACE scores are considered. The percentage ratio between the graduates and drop-outs is approximately one graduate to three and one half drop-outs.

4. Using the national 25th percentile as a cut-off point, 100, or 17.1 per cent, of graduates and 160, or 50.0 per cent, of the drop-outs are eliminated when both the BRS and ACE scores are considered. The percentage ratio between the graduates and drop-outs is approximately one graduate to three drop-outs.

Whereas, the previous four tables have been concerned with the analysis of the number and percentage of graduates and drop-outs based on both the BRS and ACE placement test scores at the national 10th, 15th, and 25th percentiles. The next two tables, one dealing with the total number of graduates and the other with the total number of drop-outs, will analyze the BRS and ACE individually according to the year of entrance into college. Table XI is concerned

with the number and percentage of graduates making scores below the national 10th percentile on the BRS and the ACE scores taken by year of college entrance. Table XII is concerned with the number and percentage of drop-outs making scores below the national 10th percentile on the BRS and the ACE taken by year of college entrance.

TABLE XI. NUMBER AND PERCENTAGE OF 584 GRADUATES MAKING SCORES BELOW THE NATIONAL TENTH PERCENTILE TAKEN BY YEAR OF COLLEGE ENTRANCE.

Year the class entered	Total number graduates	Number and per cent making scores below the national 10th percentile.			
		BRS		ACE	
		Number	Per Cent	Number	Per Cent
1950*	82	14	17.0	6	7.3
1951	140	71	50.7	10	14.0
1952	166	26	15.6	13	7.8
1953	196	32	16.3	17	8.7
Total	584	143	24.5	46	7.9

*This table reads as follows: Of the 82 graduates who entered school in 1950, 14, or 17.0 per cent, made scores below the national 10th percentile on the BRS test; 6, or 7.3 per cent, made scores below the national 10th percentile on the ACE test.

TABLE XII. NUMBER AND PERCENTAGE OF 320 DROP-OUTS MAKING SCORES BELOW THE NATIONAL TENTH PERCENTILE TAKEN BY YEAR OF COLLEGE ENTRANCE.

Year the class entered	Total number of drop-outs having quality point rating below 175.	Number and per cent making scores below the national 10th percentile.			
		BRS		ACE	
		Number	Per Cent	Number	Per Cent
1950*	91	40	44.0	22	24.1
1951	56	15	26.7	13	23.2
1952	80	27	33.7	22	27.5
1953	93	35	37.6	56	60.2
Total	320	117	36.6	113	35.3

*This table reads as follows: Of the 91 drop-outs with quality point rating below 175 who entered school in 1950, 40, or 44.0 per cent, made scores below the national 10th percentile on the BRS test; 22, or 24.1 per cent, made scores below the national 10th percentile on the ACE.

Findings For Table XI. 1. Of the 82 graduates who entered school in 1950, 14, or 17.0 per cent, would have been eliminated by using the national 10th percentile as a cut-off point on the BRS; whereas 6, or 7.3 per cent, would have been eliminated at this same cut-off point by the ACE. At this cut-off point the BRS scores would have eliminated approximately two and one half graduates to each one eliminated by the ACE test.

2. Of the 140 graduates who entered school in 1951, 71, or 50.7 per cent, would have been eliminated by using the national 10th percentile as a cut-off point on the BRS; whereas 10, or 14.0 per cent,

would have been eliminated at this same cut-off point by the ACE. At this cut-off point the BRS scores would have eliminated three and six tenths graduates to each one graduate eliminated by the ACE.

3. Of the 166 graduates who entered school in 1952, 26, or 15.6 per cent, would have been eliminated by using the national 10th percentile as a cut-off point on the BRS; whereas 13, or 7.8 per cent, would have been eliminated at this same cut-off point by the ACE. At this cut-off point the BRS scores would have eliminated two graduates to each graduate eliminated by the ACE.

4. Of the 196 graduates who entered school in 1953, 32, or 16.3 per cent, would have been eliminated by using the national 10th percentile as a cut-off point on the BRS; whereas 17, or 8.7 per cent, would have been eliminated by using the same cut-off point on the ACE. At this cut-off point the BRS scores would have eliminated approximately two graduates to each graduate eliminate by the ACE.

5. Using the national 10th percentile as a cut-off point, 143, or 24.5 per cent, of the 584 graduates would have been eliminated by their scores on the BRS.

6. Using the national 10th percentile as a cut-off point, 46, or 7.9 per cent, of the 584 graduates would have been eliminated by their scores on the ACE.

7. The ratio of elimination between the BRS scores and the ACE scores at the national 10th percentile is approximately three to one for the total number of graduates.

8. It is interesting to note that while the per cent of graduates below the 10th percentile on the BRS and ACE scores for the years 1950, 1952, and 1953 are similar, there is an increase in the BRS per cent for 1951 and a marked difference in the ACE per cent of 1951 from the other three years.

Findings For Table XII. 1. Using the national 10th percentile as a cut-off point, 40, or 44.0 per cent, of the 90 drop-outs who entered school in 1950, would have been eliminated by their scores on the BRS; whereas 22, or 24.1 per cent, would have been eliminated by their scores on the ACE.

2. Using the national 10th percentile as a cut-off point, 15, or 26.7 per cent, of the 56 drop-outs who entered school in 1950 would have been eliminated by their scores on the BRS test; whereas 13, or 23.2 per cent, would have been eliminated by their scores on the ACE.

3. Using the national 10th percentile as a cut-off point, 27, or 33.7 per cent, of the 80 drop-outs entering college in 1952 would have been eliminated by their scores on the BRS; whereas 22, or 27.5 per cent, would have been eliminated by their scores on the ACE.

4. Using the national 10th percentile as a cut-off point, 35, or 37.6 per cent, of the drop-outs entering college in 1953 would have been eliminated by their scores on the BRS; whereas 56, or 60.2 per cent, would have been eliminated by their scores on the ACE.

5. Using the 10th percentile as a cut-off point and considering all 320 drop-outs who entered college during the four year period, it is interesting to note that 117, or 36.6 per cent, would have been eliminated by their scores on the ACE and 113, or 35.3 per cent, would have been eliminated by their scores on the BRS.

6. Using the scores on the ACE and the 10th percentile as a cut-off point 56, or 60.2 per cent, of all drop-outs who entered in the Fall of 1953 would have been eliminated; whereas during any one of the other three years approximately 25 per cent of drop-outs would have been eliminated by scores on the ACE.

Findings By Comparison of Table XI and Table XII. 1. For the class entering college in 1950, on the BRS scores 14, or 17.0 per cent, of the graduates and 40, or 44.0 per cent, of the drop-outs made scores below the national 10th percentile and on the ACE scores 6, or 7.3 per cent, of the graduates and 22, or 24.1 per cent,of the drop-outs made scores below the national 10th percentile.

2. For the class entering college in 1951, on the BRS scores 71, or 50.7 per cent, of the graduates and 15, or 26.7 per cent, of the drop-outs made scores below the national 10th percentile; on the ACE scores, 10, or 14.0 per cent, of the graduates and 13, or 23.2 per cent, of the drop-outs made scores below the national 10th percentile.

3. For the class entering college in 1952, on the BRS scores, 22, or 15.6 per cent, of the graduates and 27, or 33.7 per cent, of the drop-outs made scores below the national 10th percentile; on the

ACE test scores 13, or 17.8 per cent, of the graduates and 22, or 27.5 per cent, of the drop-outs made scores below the national 10th percentile.

4. For the class entering college in 1953, on the BRS test scores, 32, or 16.3 per cent, of the graduates and 35, or 37.6 per cent, of the drop-outs made scores below the national 10th percentile; on the ACE scores, 17, or 8.7 per cent, of the graduates and 56, or 60.2 per cent, of the drop-outs made scores below the national 10th percentile.

5. For all four classes entering college in 1950, 1951, 1952, and 1953 on the BRS scores, 143, or 24.5 per cent, of the graduates and 117, or 36.6 per cent, of the drop-outs made scores below the national 10th percentile; on the ACE scores, 46, or 7.9 per cent, of the graduates and 113, or 35.3 per cent, of the drop-outs made scores below the national 10th percentile.

6. Using the national 10th percentile as a cut-off point and the scores on the BRS, it is interesting to note that for the entering class of 1951, 71, or 50.7 per cent, of the graduates would have been eliminated; whereas only 15, or 26.7 per cent, of the drop-outs would have been eliminated.

7. Using the scores on the ACE and the national 10th percentile as a cut-off point, it is interesting to note that for the entering class of 1953, 56, or 60.2 per cent, of the drop-outs would have been eliminated and only 17, or 8.7 per cent, of graduates would have been eliminated. This gives a percentage ratio of seven drop-outs to one graduate eliminated.

8. In 1950 the total number of graduates is 82 as compared with the total number of 91 drop-outs: a ratio of slightly less than one graduate to one drop-out.

9. In 1951 the total number of graduates is 140 as compared with the total number of 56 drop-outs: a ratio of approximately two and one-half graduates to one drop-out.

10. In 1952 the total number of graduates is 166 as compared with the total number of 80 drop-outs: a ratio of approximately two graduates to one drop-out.

11. In 1953 the total number of graduates is 196 as compared with the total number of 93 drop-outs: a ratio of approximately two graduates to one drop-out.

12. In 1950, 1951, 1952, and 1953 the total number of graduates is 584 as compared with the total number of 320 drop-outs: a ratio of approximately one and eight tenths graduates to one drop-out.

The findings in the previous tables have been concerned with number and percentage of graduates and drop-outs making scores below certain local and national percentiles on the placement tests used at Appalachian State Teachers College. In an attempt to determine a pattern which might appear in the scores made by drop-outs making below certain local or national percentiles that serve as cut-off points, the drop-outs have been divided into two groups: Those drop-outs with quality point ratings from 0-99 and those drop-outs with quality point ratings from 100-175. Table XIII is concerned with

the number and percentage of the 113 drop-outs having a quality point rating from 0-99 and making scores below a certain local percentile on any one of the three placement tests given at Appalachian State Teachers College. Table XIV is concerned with the 207 drop-outs having a quality point rating from 100-175 and making scores below a certain local percentile on any one of the three placement tests given at Appalachian State Teachers College.

TABLE XIII. NUMBER AND PERCENTAGE OF THE 113 DROP-OUTS HAVING QUALITY POINT RATINGS FROM 0-99 AND MAKING SCORES BELOW CERTAIN LOCAL PERCENTILES ON ANY ONE OF THE THREE PLACEMENT TESTS.

Local Percentile	IV		BRS		ACE	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
10 per cent*	21	18.6	21	18.6	28	24.8
15 per cent	37	32.7	25	22.1	40	35.4
25 per cent	49	43.4	46	40.7	56	49.6

*This table reads as follows: Of the 113 drop-outs who had a quality point rating from 0-99, 21, or 18.6 per cent, made scores below the local 10th percentile on the IV; 21, or 18.6 per cent, made scores below the local 10th percentile on the BRS; 28, or 24.8 per cent, made scores below the local 10th percentile on the ACE.

TABLE XIV. NUMBER AND PERCENTAGE OF THE 207 DROP-OUTS HAVING QUALITY POINT RATINGS FROM 100-175 AND MAKING SCORES BELOW CERTAIN LOCAL PERCENTILES ON ANY ONE OF THE THREE PLACEMENT TESTS.

Local Percentile	IV		BRS		ACE	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
10 per cent*	38	18.3	36	12.6	61	29.5
15 per cent	50	24.1	46	22.2	77	37.2
25 per cent	70	36.7	72	34.8	104	50.2

*This table reads as follows: Of the 207 drop-outs having a quality point rating from 100-175, 38, or 18.3 per cent, of the drop-outs made scores below the local 10th percentile on the IV; 36, or 12.6 per cent, made scores below the local 10th percentile on the BRS; 61, or 29.5 per cent, made scores below the national 10th percentile on the ACE.

Findings For Table XIII. 1. Considering drop-outs with quality point ratings of 0-99 and using the local 10th percentile as a cut-off point, the IV and BRS would have eliminated the least and the same number of drop-outs; the ACE would have eliminated the greatest number of drop-outs.

2. Considering drop-outs with quality point ratings from 0-99 and using the local 15th percentile as a cut-off point, the BRS would have eliminated the least number of drop-outs; the ACE would have eliminated the greatest number of drop-outs.

3. Considering drop-outs with quality point ratings from 0-99 and using the local 25th percentile as a cut-off point, the BRS would have eliminated the least number of drop-outs; the ACE would have eliminated the greatest number, or almost fifty per cent, of the drop-outs.

4. Considering drop-outs with quality point ratings of 0-99 and using the local 10th, 15th, and 25th percentiles as cut-off points, the ACE would have eliminated the greatest number of drop-outs at all three cut-off points.

5. Considering drop-outs with quality point ratings of 0-99 and using the local 10th, 15th, and 25th percentiles as cut-off points, the BRS would have eliminated the least number of drop-outs at all three cut-off points.

Findings For Table XIV. 1. Considering drop-outs with quality point ratings from 100-175 and using the local 15th percentile as a cut-off point, the BRS would have eliminated the least number of

drop-outs; the ACE would have eliminated the greatest number.

2. Considering drop-outs with quality point ratings from 100-175 and using the local 15th percentile as a cut-off point, the BRS would have eliminated the least number of drop-outs; the ACE would have eliminated the greatest number.

3. Considering drop-outs with quality point ratings from 100-175 and using the local 25th percentile as a cut-off point, the IV would have eliminated the least number of drop-outs; however, the BRS was similar. The ACE would have eliminated the greatest number, or approximately fifty per cent, of the drop-outs.

4. Considering drop-outs with quality point ratings from 100-175 and using the local 10th, 15th, and 25th percentiles as cut-off points, the ACE would have eliminated the greatest number of drop-outs at all three cut-off points.

5. Considering drop-outs with quality point ratings from 100-175 and using the local 10th and 15th percentiles as cut-off points, and BRS would have eliminated the least number of drop-outs at these two cut-off points.

Findings By Comparison of Table XIII and Table XIV. 1. The number of drop-outs having quality point ratings from 0-99 is approximately one-half the number of drop-outs having quality point ratings from 100-175.

2. The ACE scores eliminated the greatest number and percentage of both groups of drop-outs at all three cut-off points.

3. The BRS scores eliminated the least number and percentage of both groups of drop-outs at all three cut-off points except at the 10th percentile for the group having quality point ratings of 0-99.

4. It is interesting to note that the ACE eliminates approximately the same per cent of drop-outs having a quality point rating from 0-99 as it does for the drop-outs having a quality point rating from 100-175.

Tables XIII and XIV pointed out the scores that were made on any one of the three placement tests below certain local percentiles for the number and percentage of drop-outs having quality point ratings from 0-99 and 100-175. The next two tables to be presented are similar in interest except that they are concerned with the scores that were made on any two of the three placement tests.

Table XV is concerned with the number and percentage of the 113 drop-outs having a quality point rating from 0-99 and making scores below a certain local percentile on any two of the three placement tests. Table XVI is concerned with the number and percentage of the 207 drop-outs having quality point ratings from 100-175 and making scores below a certain local percentile on any two of the three placement tests.

TABLE XV. NUMBER AND PERCENTAGE OF THE 113 DROP-OUTS HAVING QUALITY POINT RATINGS FROM 0-99 AND MAKING SCORES BELOW CERTAIN LOCAL PERCENTILES ON ANY TWO OF THE THREE PLACEMENT TESTS.

Local Percentile	IV and BRS		IV and ACE		BRS and ACE	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
10 per cent*	8	7.1	9	8.0	10	8.9
15 per cent	13	11.5	22	19.5	11	14.2
25 per cent	32	28.3	38	33.6	36	31.8

*This table reads as follows: Of the 113 drop-outs having a quality point rating from 0-99, 8, or 7.1 per cent, made a score below the local 10th percentile on both the IV and BRS; 9, or 8.0 per cent, made a score below the local 10th percentile on both the IV and ACE; 10, or 8.9 per cent, made a score below the local 10th percentile on both the BRS and ACE.

TABLE XVI. NUMBER AND PERCENTAGE OF THE 207 DROP-OUTS HAVING QUALITY POINT RATINGS FROM 100-175 AND MAKING SCORES BELOW CERTAIN LOCAL PERCENTILES ON TWO OF THE THREE PLACEMENT TESTS.

Local Percentile	IV and BRS		IV and ACE		BRS and ACE	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
10 per cent*	13	6.3	14	6.8	18	8.7
15 per cent	20	9.7	25	12.1	27	13.0
25 per cent	41	20.0	50	24.1	53	25.6

*This table reads as follows: Of the 207 drop-outs having a quality point rating from 100-175, 13, or 6.3 per cent, made scores below the local percentile on both the IV and BRS; 14, or 6.8 per cent, made scores below the local 10th percentile on both the IV and the ACE; 18, or 8.7 per cent, made scores below the local 10th percentile on both the BRS and ACE.

Findings For Table XV. 1. Considering drop-outs with quality point ratings of 0-99 and using the local 10th percentile as a cut-off point, the BRS and ACE would have eliminated the greatest number of drop-outs; the IV and BRS would have eliminated the least number of drop-outs.

2. Considering drop-outs with quality point ratings of 0-99 and using the local 15th percentile as a cut-off point, the IV and ACE would have eliminated the greatest number of drop-outs; the IV and BRS would have eliminated the least number of drop-outs.

3. Considering drop-outs with quality point ratings of 0-99 and using the local 25th percentile as a cut-off point, the IV and ACE would have eliminated the greatest number of drop-outs; the IV and BRS would have eliminated the least number of drop-outs.

4. Considering drop-outs with quality point ratings of 0-99 and using the local 10th, 15th, and 25th percentiles as cut-off points, the IV and BRS would have eliminated the least number of drop-outs at all three cut-off points.

5. Considering drop-outs with quality point ratings of 0-99 and using the local 15th and 25th percentiles as cut-off points, the IV and ACE would have eliminated the greatest number of drop-outs at both cut-off points.

Findings For Table XVI. 1. Considering drop-outs with quality point ratings of 100-175 and using the local 10th percentile as a cut-off point, the BRS and ACE would have eliminated the greatest number of drop-outs; the IV and BRS would have eliminated the least

number of drop-outs.

2. Considering drop-outs with quality point ratings of 100-175 and using the local 15th percentile as a cut-off point, the BRS and ACE would have eliminated the greatest number of drop-outs; the IV and BRS would have eliminated the least number of drop-outs.

3. Considering drop-outs with quality point ratings of 100-175 and using the local 25th percentile as a cut-off point, the BRS and ACE would have eliminated the greatest number of drop-outs; the IV and BRS would have eliminated the least number of drop-outs.

4. Considering drop-outs with quality point ratings of 100-175 and using the local 10th, 15th, and 25th percentiles as cut-off points, the BRS and ACE would have eliminated the greatest number of drop-outs at all three cut-off points.

5. Considering drop-outs with quality point ratings of 100-175 and using the local 10th, 15th, and 25th percentiles as cut-off points, the IV and BRS would have eliminated the least number of drop-outs at all three cut-off points.

Findings By Comparison of Table XV and Table XVI. 1. A combination of the BRS and the ACE scores would have eliminated the greatest percentage of drop-outs of both groups when the local 10th percentile is used as a cut-off point. However, when the local 15th and 25th percentiles are used as cut-off points, a combination of the ACE and IV would have eliminated the greatest percentage of drop-outs having quality point ratings from 0-99; and a combination of the ACE and the BRS would have eliminated the greatest percentage of drop-outs

having quality point ratings from 100-175.

2. Although the combination of the BRS and ACE have a slight edge in the number and percentage of drop-outs who would have been eliminated, this difference is not big enough to justify the use of the BRS and ACE over any other combination of two of the three tests.

4. The percentage of drop-outs that would have been eliminated by any combination of two of the three tests is slightly higher at all three cut-off points for the group having quality point ratings from 0-99. Except for the combination of the IV and ACE at the 15th and the 25th percentiles, the difference is not large enough to be significant.

Whereas the last two tables have been concerned with the number and percentage of drop-outs having quality point ratings from 0-99 and 100-175 and making scores below certain local percentiles on any two of three placement tests, the next two tables are similar in interest except they are concerned with drop-outs who make scores below certain cut-off points on all of the three placement tests.

Table XVII presents the number and percentage of the 113 drop-outs having a quality point rating from 0-99 and making scores below a certain local percentile on all of the three placement tests. Table XVIII is concerned with the number and percentage of 207 drop-outs having a quality point rating from 100-175 and making scores below certain local percentiles on all of the three placement tests.

TABLE XVII. NUMBER AND PERCENTAGE OF THE 113 DROP-OUTS HAVING QUALITY POINT RATINGS FROM 0-99 AND MAKING SCORES BELOW CERTAIN LOCAL PERCENTILES ON ALL OF THE THREE PLACEMENT TESTS.

Local Percentile	IV and BRS and ACE	
	Number	Per Cent
10 per cent*	5	4.4
15 per cent	12	10.6
25 per cent	26	23.0

*This table reads as follows: Of the 113 drop-outs having quality point ratings from 0-99, 5, or 4.4 per cent, made below the local 10th percentile on all of the three placement tests.

TABLE XVIII. NUMBER AND PERCENTAGE OF THE 207 DROP-OUTS HAVING QUALITY POINT RATINGS FROM 100-175 AND MAKING SCORES BELOW CERTAIN LOCAL PERCENTILES ON ALL OF THE THREE PLACEMENT TESTS.

Local Percentile	IV and BRS and ACE	
	Number	Per Cent
10 per cent*	5	2.4
15 per cent	12	5.8
25 per cent	30	14.5

*This table reads as follows: Of the 207 drop-outs having a quality point rating from 100-175, 5, or 2.4 per cent, made scores below the local 10th percentile on all of the three placement tests.

Findings For Table XVII. 1. Using the local 10th percentile as a cut-off point, a combination of the IV, BRS, and ACE would have eliminated 5, or 4.4 per cent, of the drop-outs having quality point ratings of 0-99.

2. Using the local 15th percentile as a cut-off point, a combination of the IV, BRS, and ACE would have eliminated 12, or 10.6 per cent, of the drop-outs having quality point ratings of 0-99.

3. Using the local 25th percentile as a cut-off point, a combination of the IV, BRS, and ACE would have eliminated 26, or 23.0 per cent, of the drop-outs having quality point ratings of 0-99.

Findings For Table XVIII. 1. Using the local 10th percentile as a cut-off point, 5, or 2.4 per cent, of the drop-outs having a quality point rating of 100-175 would have been eliminated by a combination of all three placement tests.

2. Using the local 15th percentile as a cut-off point, 12, or 5.8 per cent, of the drop-outs having quality point ratings of 100-175 would have been eliminated by a combination of all three placement tests.

3. Using the local 25th percentile as a cut-off point, 30, or 14.5 per cent, of the drop-outs having quality point ratings of 100-175 would have been eliminated by a combination of all of the three placement tests.

Findings By Comparison of Table XVII and Table XVIII. 1. Considering a combination of all three placement tests and using the 10th, 15th and 25th percentiles as cut-off points, the percentage of drop-outs having quality point ratings from 0-99 is approximately twice as great as for the drop-outs having quality point ratings from 100-175.

2. Considering a combination of all three placement tests and using the 10th, 15th, and 25th percentiles as cut-off points, the number of drop-outs having quality point ratings from 0-99 is approximately the same as for the drop-outs having a quality point rating from 100-175.

The two previous tables pointed out the number and percentage of drop-outs having quality point ratings from 0-99 and 100-175 and making scores below certain local percentiles on all of the three placement tests. The next two tables are concerned with the number and percentage of drop-outs having quality point ratings from 0-99 and from 100-175 and making scores below a certain national percentile on any one of two placement tests. The Inglis Vocabulary test is not used because national norms are not available. Table XIX is restricted to the number and percentage of the 113 drop-outs having quality point ratings from 0-99 and making scores below a certain national percentile on any one of the two placement tests. Table XX is concerned with the number and percentage of the 207 drop-outs having quality point ratings from 100-175 and making scores below a certain national percentile on either of the two placement tests.

TABLE XIX. NUMBER AND PERCENTAGE OF THE 113 DROP-OUTS HAVING QUALITY POINT RATINGS FROM 0-99 AND MAKING SCORES BELOW CERTAIN NATIONAL PERCENTILES ON ONE OF THE TWO PLACEMENT TESTS.

National Percentile	BRS		ACE	
	Number	Per Cent	Number	Per Cent
10 per cent*	46	40.7	40	35.4
15 per cent	60	53.1	50	44.2
25 per cent	88	77.9	66	58.4

*This table reads as follows: Of the 133 drop-outs having a quality point rating from 0-99, 46, or 40.7 per cent, made scores below the national 10th percentile on the BRS; 40, or 35.4 per cent, of the drop-outs made scores below the national 10th percentile on the ACE.

TABLE XX. NUMBER AND PERCENTAGE OF THE 207 DROP-OUTS HAVING QUALITY POINT RATINGS FROM 100-175 AND MAKING SCORES BELOW CERTAIN NATIONAL PERCENTILES ON ONE OF THE TWO PLACEMENT TESTS.

National Percentile	BRS		ACE	
	Number	Per Cent	Number	Per Cent
10 per cent*	71	34.3	73	35.3
15 per cent	115	55.6	89	42.1
25 per cent	152	73.4	116	56.0

*This table reads as follows: Of the 207 drop-outs having a quality point rating from 100-175, 71, or 34.4 per cent, made scores below the national 10th percentile on the BRS; 73, or 35.3 per cent, made scores below the national 10th percentile on the ACE.

Findings For Table XIX. 1. When considering the drop-outs with quality point ratings from 0-99 and using the national 10th percentile as a cut-off point the BRS scores and the ACE scores would have eliminated approximately the same number and per cent of the drop-outs. The BRS scores eliminated 46, or 40.7 per cent, and the ACE eliminated 40, or 35.4 per cent, of the drop-outs.

2. As the cut-off point is increased from the national 10th to the national 15th percentile and from the national 15th to the national 25th percentile the number and per cent of drop-outs eliminated by the BRS increases over that eliminated by the ACE for those having quality point ratings from 0-99.

Findings For Table XX. 1. When considering the drop-outs with quality point ratings between 100-175 and using the national 10th percentile as a cut-off point, the ACE scores would have eliminated 73, or 35.3 per cent, of the drop-outs; and the BRS scores would have eliminated practically the same number and per cent, 71, or 34.3 per cent.

2. When considering this same group of drop-outs and using the national 15th and 25th percentiles as cut-off points, the BRS scores would have eliminated the greatest number and per cent of drop-outs: The BRS scores eliminating 152, or 73.4 per cent, of these 207 drop-outs when the national 25th percentile was used as the cut-off point.

Findings By Comparison of Table XIX and Table XX. 1. When comparing the two groups of drop-outs on the basis of national norms, it is interesting to note that the ACE scores would have eliminated approximately the same percentage of drop-outs in both groups at all three cut-off points. For example, when using the national 10th percentile as a cut-off point, the ACE scores would have eliminated 35.4 per cent of those drop-outs having quality point ratings of 0-99 and 35.3 per cent of those drop-outs having quality point ratings from 100-175.

2. The BRS scores would have eliminated the greatest per cent of both groups of drop-outs at all cut-off points except at the national 10th percentile for the drop-outs having quality point ratings from 100-175.

The last two tables presented findings concerning the number and percentage of drop-outs having quality point ratings from 0-99 and 100-175 and making scores below a certain national percentile on either of the two placement tests. Table XXI and Table XXII are concerned with the number and percentage of 113 drop-outs having quality point ratings from 0-99 and the 203 drop-outs having quality point ratings from 100-175 and making scores below the national 10th, 15th, and 25th percentiles on both of the two placement tests.

Table XXI is concerned with the number and per cent of 113 drop-outs having quality point ratings from 0-99 and making scores below a certain national percentile on both placement tests. Table XXII is concerned with the number and percentage of the 207 drop-outs

having quality point ratings from 100-175 and making scores below a certain national percentile on both placement tests.

TABLE XXI. NUMBER AND PERCENTAGE OF THE 113 DROP-OUTS HAVING QUALITY POINT RATINGS FROM 0-99 AND MAKING SCORES BELOW CERTAIN NATIONAL PERCENTILES ON THE TWO PLACEMENT TESTS.

National Percentile	BRS and ACE	
	Number	Per Cent
10 per cent*	27	23.9
15 per cent	35	30.9
25 per cent	58	51.3

*This table reads as follows: Of the 113 drop-outs having a quality point rating from 0-99, 27, or 23.9 per cent, made scores below the national 10th percentile on both the BRS and ACE.

TABLE XXII. NUMBER AND PERCENTAGE OF THE 207 DROP-OUTS HAVING QUALITY POINT RATINGS FROM 100-175 AND MAKING SCORES BELOW CERTAIN NATIONAL PERCENTILES ON THE TWO PLACEMENT TESTS.

National Percentile	BRS and ACE	
	Number	Per Cent
10 per cent*	41	20.0
15 per cent	61	29.5
25 per cent	102	49.3

*This table reads as follows: Of the 207 drop-outs having a quality point rating from 100-175, 41, or 20 per cent, made scores below the national 10th percentile on both the BRS and ACE test scores.

Findings For Table XXI. 1. Using the national 10th percentile as a cut-off point, a combination of the BRS and ACE would have eliminated 27, or 23.9 per cent, of the drop-outs having quality point ratings from 0-99.

2. Using the national 15th percentile as a cut-off point, a combination of the BRS and ACE would have eliminated 35, or 30.9 per cent, of the drop-outs having quality point ratings from 0-99.

3. Using the national 25th percentile as a cut-off point, a combination of the BRS and ACE would have eliminated 58, or 51.3 per cent, of the drop-outs having quality point ratings from 0-99.

Findings For Table XXII. 1. Using the national 10th percentile as a cut-off point, a combination of the BRS and ACE would have eliminated 41, or 20.0 per cent, of the drop-outs having quality point ratings from 100-175.

2. Using the national 15th percentile as a cut-off point, a combination of the BRS and ACE would have eliminated 61, or 29.5 per cent, of the drop-outs having quality point ratings from 100-175.

3. Using the national 25th percentile as a cut-off point, a combination of the BRS and ACE would have eliminated 102, or 49.3 per cent, of the drop-outs having quality point ratings from 100-175.

Findings By Comparison of Table XXI and Table XXII. 1. It is again interesting to note in comparing the percentage of drop-outs who would have been eliminated that for each group this percentage is approximately the same. A combination of the BRS and ACE scores

would have eliminated approximately the same percentage of drop-outs having quality point ratings from 0-99 as drop-outs having quality point ratings from 100-175.

SUMMARY

The data in this chapter have been presented to show (1) the number and per cent of graduates who would have been eliminated by the scores made on any one or any combination of the three placement tests if certain cut-off points had been used as a screening device, (2) the number and per cent of drop-outs who would have been eliminated by the scores made on any one or any combination of the three placement tests if certain cut-off points had been used as a screening device, and (3) a comparison between graduates and drop-outs according to certain cut-off points on any one or any combination of the three placement tests.

CHAPTER IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

For the school years of 1950, 1951, 1952, and 1953 a total of 1245 students entered Appalachian State Teachers College as freshmen. Of these 1245 freshmen 584, or 46.9 per cent, remained in school and completed a four year program and graduated. Of the other 661, or 53.1 per cent, of the students, 56, or 4.5 per cent, are still pursuing a college education at Appalachian State Teachers College. Of the remaining 605 students some transferred to other institutions and others dropped out of school for various reasons. It is known that of the 605 students, who did not complete their four year program at Appalachian State Teachers College, 320 students leaving college had a quality point rating below 175 and 113 of these 320 students had a quality point rating below 100.

This study was concerned with 904 Appalachian State Teachers College students: 584 students who graduated and 320 students who dropped out of school with quality point ratings below 175.

The purpose of this study was to determine to what extent the scores from the three placement tests given to all freshmen could have been used as an effective device for screening and selecting students at Appalachian State Teachers College. This final chapter gives a brief summary of the problem, a review of the findings, discussion of the results, state of conclusion, and recommendations.

Chapter I presented a statement of the problem, its purpose, its major aspects, and the importance of the study. The problem of the study was to analyze data provided by the placement test scores and to use the findings as a basis for recommendation for the use of placement tests as possible screening and selecting devices for freshmen entering Appalachian State Teachers College.

The method of investigation, which was described in Chapter I, involved the collection of data from the records on file in the registrar's office and the personnel office at Appalachian State Teachers College. The findings of this study were based on an analysis and classification of the test scores according to graduate and drop-outs who made scores below certain selected cut-off points. This study was further extended to include the quality point rating of drop-outs. In Chapter I the method of classifying the data was described, the extent to which the data was restricted, the scope of the study, and the reliability and validity of the data were discussed.

In Chapter II a summary of previous studies was given. Since the field of related studies was not generally restricted to test scores alone, several of the studies that were reviewed included other factors that might contribute to the prediction of academic success in college. Several of these factors were presented and discussed.

In Chapter III was presented the findings concerning what would have actually happened at Appalachian State Teachers College if the scores from the three placement tests given to all students entering college had been used as screening and selecting devices.

Graduates and drop-outs were compared as to the number and the percentage making scores below certain points for both local and national norms. Findings were, also, presented concerning drop-outs having certain quality point ratings.

Based on analysis of the data presented in Chapter III, the major findings were as follows:

1. Regarding the extent that test scores and certain cut-off points eliminated the least number of graduates. The test that would have eliminated the least per cent of graduates at all three cut-off points, the local 10th, 15th, and 25th percentiles, was the IV. The difference, however, between the IV and the ACE was very small--ranging from zero to 2.1 per cent at the three cut-off points. The combination of tests that would have eliminated the least number of graduates using the local 10th percentile as a cut-off point was the IV and ACE and using the local 15th and 25th percentiles as a cut-off point was the IV and BRS. When a combination of all three tests was used the number of graduates that would have been eliminated using the local 10th, 15th, and 25th percentiles was less than when using any single test or any combination of two tests compared at the same percentiles.

The scores used for cut-off points at all three percentiles were somewhat higher for the national norms than for the local norms; therefore, more students will fall below the national percentiles than fell below the local percentiles. By using national norms the ACE would have eliminated the least number of graduates when using all three national percentiles as cut-off points. When a combination

of the BRS and ACE was used the number of graduates that would have been eliminated using the local 10th, 15th, and 25th was less than when using any single test at the same percentiles.

2. Regarding the extent that tests scores and certain cut-off points eliminate the greatest number of drop-outs. The test that would have eliminated the greatest number of drop-outs using all three of the local cut-off points, 10th, 15th, and 25th percentiles, was the ACE. The combinations of any two tests that would have eliminated the greatest number of drop-outs when using the local 10th percentile as a cut-off point was the BRS and ACE and when using the local 15th and local 25th percentiles as cut-off points the IV and ACE. When a combination of all three tests was used the number of drop-outs that would have been eliminated by using the local 10th, 15th, and 25th percentiles was less than when using any single or any combination of two tests.

Based on national norms the BRS scores would have eliminated the greatest number of drop-outs at all three cut-off points, although the ACE eliminated almost as many at the 10th percentile.

3. Regarding the ratio between per cents of graduates and drop-outs. One of the major aspects of this study was to find the ratio that would have eliminated the least number of graduates and the greatest number of drop-outs. Using the local 10th percentile as cut-off point, the ACE gave the best percentage ratio of drop-outs to graduates: this ratio being approximately five (5) drop-outs eliminated to one (1) graduates eliminated. However, when considering the actual number, in order to have eliminated eighty nine (89)

drop-outs, one would have eliminated thirty four (34) students who graduated. Of the 904 students involved in this study when using the local 10th percentile on the ACE as the cut-off point, 123 students would not have been admitted to Appalachian State Teachers College. When using a combination of two of the three tests, the IV and the ACE at the local 10th percentile gave the best percentage ratio of drop-outs to graduates: the ratio being six (6) drop-outs eliminated to one (1) graduate. However, when considering actual numbers, in order to have eliminated twenty three (23) drop-outs, seven (7) graduates would have been eliminated. Of the 904 students considered in this study when using the local 10th percentile on the IV and ACE as a cut-off point, thirty (30) students would not have been admitted to Appalachian State Teachers College. A combination of all three tests gave the best percentage ratio by using the local 15th percentile: for every five (5) drop-outs eliminated one (1) graduate would have been eliminated.

Considering tests individually and using national norms, the best percentage ratio was given by using the national 10th percentile as a cut-off point on the ACE. The percentage ratio is four and one half ($4\frac{1}{2}$) drop-outs eliminated to each graduate eliminated. However, when considering the actual number, in order to have eliminated the 113 drop-outs, forty six (46) graduates would have been eliminated. Of the 904 students considered in this study when using the national 10th percentile as a cut-off point on the ACE, 159 students would not have been admitted to Appalachian State Teachers College. Comparing drop-outs and graduates on the basis of national norms, it is interesting to note that the scores on the BRS would have eliminated

approximately one graduate to each one half drop-out eliminated. The best percentage ratio using a combination of the BRS and ACE is found by using the national 10th percentile as a cut-off point. The percentage ratio is four (4) drop-outs eliminated to each graduate eliminated. However, when considering actual numbers in order to have eliminated sixty eight (68) drop-outs, twenty nine (29) graduates would have been eliminated. Of the 904 students considered in this study when using the national 10th percentile as a cut-off point on a combination of the BRS and ACE scores, ninety-seven (97) students would not have been allowed admission to Appalachian State Teachers College.

4. Regarding the extent that ACE and BRS tests scores and the national 10th percentile as a cut-off point would have eliminated the least number of graduates and the greatest number of drop-outs according to year of entrance. The percentage ratio between graduates and drop-outs using the national 10th percentile as a cut-off point on the BRS was the same for the years 1950, 1952, and 1953: the ratio was one graduate eliminated to two drop-outs eliminated. However, for the year 1951 the ratio was reversed: two graduates were eliminated to each drop-out eliminated. The ratio between the total number of graduates and the total number of drop-outs when using the national 10th percentile as a cut-off point on the BRS for all four years was approximately one graduate eliminated to one and one half drop-outs eliminated.

The percentage ratio between graduates and drop-outs using the national 10th percentile as a cut-off point on the ACE was as follows: (1) for the years 1950 and 1952, the ratio was one graduate eliminated to three drop-outs eliminated; (2) for the year 1951, the ratio was one graduate eliminated to two drop-outs eliminated; (3) for the year 1953, the ratio was one graduate eliminated to seven drop-outs eliminated; (4) the ratio for the total number of graduates and total number of drop-outs was one graduate eliminated to four and one half drop-outs eliminated.

In comparing the two tests, the BRS and ACE, as possible predictors, it is interesting to note that when using the national 10th percentile as a cut-off point the BRS scores would have eliminated approximately three graduates to each graduate eliminated by the ACE scores; whereas the BRS scores would have eliminated approximately the same number of drop-outs as would have the ACE scores.

When considering the per cent of graduates eliminated according to years by each test, the BRS scores at the national 10th percentile would have eliminated from fifteen (15) to seventeen (17) per cent of the graduates entering school during the years of 1950, 1952, and 1953 and would have eliminated 50.7 per cent of all graduates entering school in 1951; whereas the ACE scores would have eliminated from seven (7) to fourteen (14) per cent of all graduates entering school during the four year period. When considering the per cent of drop-outs eliminated by years, the BRS scores at the national 10th percentile would have varied from twenty six and seven

tenths (26.7) per cent of the drop-outs eliminated who entered school in 1951 to fourty four (44) per cent eliminated who entered school in 1952. The ACE scores would have varied from twenty four and one tenth (24.1) per cent of the drop-outs eliminated who entered school in 1950 to sixty and two tenths (60.2) per cent eliminated who entered school in 1953.

5. Regarding the extent that tests scores and cut-off points eliminated drop-outs with quality point ratings from 0-99 and drop-outs with quality point ratings from 100-174. The number of drop-outs having quality point ratings from 0-99 was approximately one half the number of drop-outs having quality point ratings from 100-175.

It was found that when considering drop-outs with quality point ratings from 0-99 and 100-175 using the local 10th, 15th, and 25th percentiles as cut-off points, the ACE scores would have eliminated the greatest number of drop-outs at all cut-off points. It was interesting to note at all three cut-off points the ACE eliminated a slightly less per cent of drop-outs having quality point ratings from 0-99 than for drop-outs having quality point ratings from 100- 175.

When considering a combination of any two of the three tests with local norms, it was found that a combination of the BRS and the ACE scores at the 10th percentile eliminated the greatest per cent of drop-outs having quality point ratings from 0-99; whereas a combination of the ACE and IV scores at the local 15th and 25th percentiles eliminated the greatest per cent of drop-outs with the same quality point ratings. For drop-outs having a quality point rating of

100-175, a combination of the BRS and ACE scores using local norms eliminated the greatest per cent at all three cut-off points.

In considering a combination of all three placement tests using the local 10th, 15th, and 25th percentiles as a cut-off point, the percentage of drop-outs having a quality point rating from 0-99 is approximately twice as great as for the drop-outs having a quality point rating from 100-175. However, the number and percentage of drop-outs who made scores below the three cut-off points on all three tests were very small.

It was found in comparing the two groups of drop-outs on the basis of national norms that the ACE would have eliminated approximately the same per cent of drop-outs in each group. With one exception: The BRS would have eliminated the greatest per cent of drop-outs having quality point ratings of 100-175 when using the national 10th percentile as a cut-off point. Again, it is noted that the per cent of drop-outs eliminated in each of the two groups was approximately the same at all three cut-off points when a combination of the scores on the BRS and ACE was used with the national norms.

DISCUSSION OF RESULTS

This study has been confined to the collection, classification, and analysis of the data which were secured from the offices of the registrar and personnel director concerning students who entered Appalachian State Teachers College. Therefore, the conclusions and recommendations growing out of the analysis of these data will be

most significant to Appalachian State Teachers College and to other colleges having similar characteristics and purposes.

In collecting and organizing these data into categories, precaution and care was taken to (1) include all students falling into the two classifications, (2) use cut-off points recommended by investigators to be the most likely points for screening and selecting students, and (3) eliminate all possible error in computation of figures by double checking all mathematical computations.

An indication of the validity of the findings of this study is the similarity of finding to other studies of a similar nature. For example, the findings of this study are in accord with those of Smith's[43] study as to the use of test scores as a basis for screening or selecting students.

CONCLUSIONS

The conclusions which appear to be most justifiable in considering the limitations of the present study and the steps that have been taken to control these limitations are as follows:

1. Based on local norms the individual test that would have eliminated the least number of graduates was the IV with the ACE a very close second. The difference between the number of graduates eliminated by each of these tests is really not significant.

---

[43] George B. Smith, "Who Would Be Eliminated. A Study of Selective Admission to College," Kansas Studies in Education, December, 1956, University of Kansas Publications, School of Education, Lawrence, Kansas.

2. At the local 10th percentile the combination of tests that would have eliminated the least number of graduates was the IV and ACE.

3. On an average the students who entered Appalachian State Teachers College made scores on both the ACE and BRS that were well below the national norms. Therefore, the number and per cent of both graduates and drop-outs who would be eliminated by certain cut-off points based on national norms would be much greater than would the number and per cent of both graduates and drop-outs eliminated when these same cut-off points were based on local norms.

4. Based on national norms the individual test that would have eliminated the least number of graduates at all three cut-off points was again, the ACE.

5. Based on local norms the ACE scores would have eliminated the greatest number and per cent of drop-outs at all three cut-off points. Again, when considering a combination of tests with local percentiles, the ACE in combination with either of the other two tests tend to eliminate the greatest number of drop-outs.

6. At the same time based on national norms, the BRS would have eliminated the greatest number of drop-outs. The difference in conclusion No. 4 and No. 5 may be better understood when one refers to conclusion No. 3 which brings out the point that cut-off scores on national norms were much higher than the cut-off scores on local norms.

7. The ACE was the one test that give the best percentage ratio of drop-outs to graduates: This ratio at the local 10th

percentile was five (5) drop-outs eliminated to one (1) graduate eliminated and at the national 10th percentile four and one half ($4\frac{1}{2}$) drop-outs eliminated to each graduate eliminated. The ACE scores at the local 10th percentile would have eliminated eighty nine (89) of the 320 drop-outs; but at the same time it would have eliminated thirty four (34) of the 584 graduates. At the national 10th percentile the ACE would have eliminated 113 of the 320 drop-outs and fourty six (46) of the 584 graduates.

8. A combination of the test scores on the ACE and IV with the local 10th percentile as a cut-off point gave the best percentage ratio of drop-outs to graduates: This ratio was six (6) drop-outs eliminated to one (1) graduate eliminated. This combination of tests at the local 10th percentile eliminated twenty three (23) of the 320 drop-outs and seven (7) of the 584 graduates.

9. Based on the previous conclusion, none of the three tests or any combination of them could have safely been used at any of the cut-off points for the purpose of screening or selecting students at Appalachian State Teachers College.

10. Of the three tests the ACE was the one that has some value as a predictive or screening device.

11. The BRS should not be used for screening purposes either by itself or in combination with other tests. For example, in 1951 the BRS test would have eliminated 50 per cent of the students who later graduated and only 25 per cent of the students who later dropped out of college.

12. In studying the entering classes by years it is evident that these four classes varied considerably both in achievement and in ability to achieve.

13. The graduates entering with the class of 1951 were considerably more deficient in achievement than the graduates who entered at the other three years. At the same time the drop-outs who entered with the class of 1953 were considerably more deficient in ability to achieve than were the drop-outs who entered in the other three years.

14. When considering the two groups of drop-outs, those having quality point ratings from 0-99 and those having quality point ratings from 100-175, the percentage of drop-outs that would have been eliminated by any one test or combination of tests is approximately the same at all three cut-off points on both local and national norms.

RECOMMENDATIONS FOR A PROGRAM OF SCREENING, PLACEMENT, AND GUIDANCE AT APPALACHIAN STATE TEACHERS COLLEGE

Based on the findings of this investigation and the conclusions that have been drawn concerning the value of placement tests as instruments for screening, the following recommendations are made in relation to the selection, placement, guidance of students:

1. <u>That none of the placement tests analyzed in this study be used individually or as a combination for the purpose of screening or selecting students at Appalachian State Teachers College</u>.

On the basis of the information revealed in this study it is recommended that, as far as possible, students be allowed to enter college and through the help of a good guidance program be given a chance to prove themselves academically.

In the present study the ACE using the local 10th percentile gave the best percentage ratio of drop-outs to graduates. In establishing such a cut-off point to be used for screening the administrators of Appalachian State Teachers College would have to be willing to sacrifice 34 of the 584 graduates in order to eliminate 89 of the 320 drop-outs. Such a sacrifice of college graduates trained for a career in teaching where the supply of qualified teachers is already short would be a great loss. This is especially true when one considers the fact that by sacrificing 34 deserving students, one would only have eliminated 89 of 320 students who could not meet the academic standards at Appalachian State Teachers College.

2. That if screening or selecting of students becomes necessary due to lack of facilities or in order to obtain students of high academic ability, an investigation should be made concerning the use of high school percentile rank or high school average marks to be used in combination with the ACE or SCAT.

This study shows that tests used alone or in combination are not reliable enough predictors to be used by themselves as screening devices. Many related studies rate high school percentile rank as the best single predictor of academic success; but they, also, conclude that a combination of high school percentile rank and a

scholastic aptitude test is the best predictor of college success. All related studies show that the ACE or the SCAT are the tests that have the greatest predictive value when predicting college success. Therefore, if the administration finds it necessary to screen students for entrance to the college, a combination using the national 10th percentile on the SCAT might be combined with the high school percentile rank of 40 or above as a possible basis for screening. An applicant who fell below the national 10th percentile on the SCAT and fell below the 40th percentile rank in his graduating class would be eliminated. This would need careful study and further investigation before being put into force.

3. That the giving of placement tests at Appalachian State Teachers College be continued and broadened in scope and that the tests be more extensively used for the purpose of placement, guidance, and the improvement of instruction.

The use of the three placement tests given at Appalachian State Teachers College, so far, have been restricted to placement and guidance. Used as such, these tests are an integral and vital part of the instructional program.

This present study shows that the BRS has no value as a predictor of college success; yet it has a definite value to students, instructors, and administrators when it is used for guidance, placement, and as a basis for remedial work.

4. That in light of the low scores made by students on the placement tests the guidance services, and personnel be increased

and that a special one quarter section of a non-credit remedial nature be established in each department.

Although the BRS and IV scores indicate that students entering Appalachian State Teachers College, on the average, have a poor background in certain skill subjects, the ACE seems to indicate that many of these same students have the potential to do college work; therefore, a one-quarter concentrated program of review and teaching of certain academic skills might prove very valuable.

5. That, in light of the low scores made by entering students on the placement tests, the college continue, broaden, and strengthen its program of encouraging outstanding high school seniors to consider teaching as a career and to come to Appalachian State Teachers College for their education.

Since most of the students who enter Appalachian State Teachers College come from high schools in Northwestern North Carolina, it would be of great benefit to the college if these schools were given additional assistance in improving and raising the standards of instruction in each of these schools. A program of inservice education that would help these schools improve their program of instruction would, in time, raise the achievement level of those students entering the college.

SUGGESTIONS FOR FURTHER STUDY

A need for the following types of studies growing out of this investigation or investigations related to it was revealed by this

investigation:

1. Investigation to determine devices that might be effective in selecting students for the teacher education program at Appalachian State Teachers College. In light of other research, a study combining the SCAT with high school percentile rank as a possible screening device would be very revealing and worthwhile.

2. An investigation to determine the factors that contributed to the successful graduation of the students who fell below certain cut-off points on the placement tests, but who remained in school to graduate.

3. An investigation to determine the factors that contributed to 341 students with quality point ratings above 175 leaving school, and who were not included in this study because of classification reasons. It could be noted that of these 341 students, it is known that 58 are still pursuing an education at Appalachian State Teachers College.

4. An investigation to determine why, on an average, students entering Appalachian State Teachers College fall well below the national average on the placement tests.

5. An investigation to determine the extent of use of placement test scores at Appalachian State Teachers College in the programs of guidance, placement, and instruction.

BIBLIOGRAPHY

BIBLIOGRAPHY

Berdie, R. F., "From High School to University in Two Countries," Personnel and Guidance Journal, 36:402-407, February, 1958.

Berdie, R. F., "Improving Evaluation in Student Recruitment and Selection," Personnel and Guidance Journal, 34:481-486, April, 1956.

Byrns, Ruth K., "Beward of the Stay-in-School Bandwagon," Personnel and Guidance Journal, 36:493-496, March, 1958.

Centi, Paul J., "A Comparitive Study of Certain Characteristics of Highest Ranking and Lowest Ranking Enrolled in the Day Session of the School of Education of a Large Urban University." Unpublished Doctor's Dissertation, Fordham University, 1956.

Cowdery, Karl M., "Stanford University Admission Method," Bulletin of The American Association of Collegiate Registrars, 5:95-100, April, 1930.

Crawford, A. C., "Forecasting Freshmen Achievement," School and Society, 31:125-132, January, 1930.

Doane, K. R. and Scanian, J. W., "Future Teachers are Recruited and Plans Made for a Teacher Training Group in the St. Paul, Minnesota Schools," National Association of Secondary School Principals' Bulletin, 42:94-114, January, 1958.

Douglass, Harl R., The Relation of High School Preparation and Certain Factors to Academic Success at the University of Oregon. Publication Series III, No. 1. Eugene, Oregon: University of Oregon, 1931.

Drasgow, J., "Psychological Breakdown Among College Students," Journal of Higher Education, 28:143-146, March, 1957.

Dunkel, H. B., "Holding Power," School Review, 65:235-237, June, 1957.

Durfliner, Glenn W., "Prediction of College Success: A Summary of Recent Findings," Journal of the American Association of Collegiate Registrars, 19:68-78, October, 1943.

Dwyer, Paul S., "The Correlation Between Age at Entrance and Success in College," Journal of Educational Psychology, 30:251-263, April, 1939.

Fricke, B. G., "Prediction, Selection, Morality, and Quality Control," College and University, No. 1, 32:34-52, 1956.

Garrett, H. F., "A Review and Investigation of Factors Related to Scholastic Success in Colleges of Arts and Sciences and Teachers Colleges," Journal of Experimental Education, 18:113, December, 1949.

Gladfelter, Millard E., "The Value of Several Criteria in Predicting College Success," Bulletin of the American Association of Collegiate Registrars, 11:187-195, April, 1936.

Grace, H. A., "Personality Factors and College Attrition," Peabody Journal of Education, 35:36-40, July, 1957.

Hawks, Lena J., "Certain Relationships Between Scholarship in High School and College," John Hopkins University Studies in Education, Baltimore: The John Hopkins Press, 1931.

Hodnett, E., "Elitism Versus Education for All," Journal of Higher Education, 27:179-181, April, 1956.

Holt, W. G. and others, "Evidenced Relationship Between the A. C. E. and The Wesman Personnel Classification Test," Journal of Educational Research, 51:71-77, September, 1957.

Kieney, B. C., "Relieving College Enrollment Pressures," School and Society, 85:315-316, October 26, 1957.

Kille, Frank R., "A Dean Looks at Admission," College Board Review, No. 14, May, 1951.

Koelsche, C. L., "Study of Student Drop-out Problem at Indiana University," Journal of Educational Research, 49:357-364, January, 1956.

Landray, H. A., "Relative Prediction Value of Certain College Entrance Criteria," Journal of Experimental Education, 5:256-260, March, 1937.

Landskov, Norvin Lawrence, "Suggested Student Survival Techniques Tried Out at the University of Minnesota," College and University, 23:234-244, January, 1948.

Langhorne, N. C., "A University Takes Inventory," Journal of the American Association of Collegiate Registrars, 15:119-124, January, 1940.

Lein, Arnold Juel, "A Comparative Predictive Study of Students in the Four Curricula of a Teacher Education Institution," Journal of Experimental Education, 21:31-219, December, 1952.

Lin, L. J., "Probability Approach to Forecasting University Success with Measured Grades as the Criterion," Educational and Psychological Measurements, 10:386-391, Autumn, 1950.

Losee, Lillian LeNora, "The Prediction of Academic Success from Ninth-Grade Achievement Records." Unpublished Master's Thesis, University of Utah, 1957.

MacRae, James B., "Responsibility of the Colleges for the Welfare of the Students," National Conference on Higher Education, Current Issues in Higher Education, National Education Department of Higher Education, 1950.

McConnell, T. R., "Diversification of American Higher Education: A Research Program," Educational Research, 38:300-315, October, 1957.

McNeely, James H., "College Student Mortality Studies," Journal of the American Association of Collegiate Registrars, 15:119-124, January, 1940.

Millet, J. D., "Restrictive Admission in State Supported Higher Education," Journal of Higher Education, 27:175-178, April, 1956.

National Education Association Research Division, "Teacher Education," National Education Association Research Bulletin, 35:171-174, December, 1957.

Parres, John George, "Prediction of Academic Success in the Undergraduate Schools of the University of Pennsylvania." Unpublished Doctor's Dissertation, The University of Pennsylvania, 1955.

Pierson, Roland R., "Age Versus Academic Success in College Students," School and Society, 48:94-95, August, 1948.

Plumb, Valworth Rice, "The Prediction of Academic Success at the University of Minnesota, Duluth Branch." Unpublished Doctor's dissertation, University of Wisconsin, 1950.

Read, C. B., "Prediction of School Success in a Municipal University," School and Society, 48:187-188, August, 1938.

Regan, Paul C., "A Comparison of Cooperative Test Scores on Entrance Examination Scores as Measure For Predicting Scholastic Success in a Teacher College." Unpublished Doctor's dissertation, Colorado State College, 1951.

Segal, David, "Prediction of Success in College," United States Office of Education Bulletin, No. 15, Washington, D. C.: Government Printing Office, 1934.

Shepherd, G. Q., "Effectiveness of Certain Techniques in the Selection of Student Teachers, A dissertation abstract," Journal of Educational Research, 49:715-718, May, 1956.

Smith, George B., Who Would Be Eliminated. A Study of Selective Admission to College. Kansas Studies in Education. University of Kansas Publications, School of Education, Lawrence, Kansas. December, 1956.

Smith, L. M., "Correlations of the Miller Analogies Tests," School and Society, 85:286-287, October 12, 1957.

Stout, R. A., "Selective Admission and Retention Practices in Teacher Education," Journal of Teacher Education, 8:299-317, 422-432, September, December, 1957.

Superintendent of Documents, Education Beyond the High School. Report on President's Committee on Education Beyond the High School. Washington, D. C.: United States Government Printing Offices, July, 1957.

Thomann, Don F., "Relationship Between the High School and College Editions of the A. C. E. Psychological Examination and Relative Value in Predicting College Achievement," Journal of the American Association of Collegiate Registrars, 23:217-233, January, 1948.

Thresher, B. A., "Some Principles of Selective Admission," College and University, No. 4, 31:495-499, 1956.

Turnbull, W. W., "How Can Academic Ability Be Identified and Made Known?" Educational Research, 37:90-92, April, 1956.

Wagner, Mazie E., Prediction of College Performance. The University of Buffalo Studies Vol. 9. Buffalo, New York: The University, May, 1934.

Walters, J. E., Individual Education. New York: John Wiley and Sons, 1935.

Weaver, L. G. and Stokes, S. M., "New College Entrance Examination Board Examination," Journal of Higher Education, 16:37-38, January, 1945.

Weber, C. O., "Old and New College Board Scores and Grades of College Freshmen," Journal of Higher Education, 16:37-38, January, 1945.

Wood, B. Dek, and North, R. D., "Teachers' Colleges Can Select and Hold Superior Students," Journal of Higher Education, 27:419-461, November, 1956.