

A COMPARISON OF THREE TEST SCORES
USED AS PREDICTORS OF COLLEGE SUCCESS

by

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A COMPARISON OF THREE TEST SCORES USED AS PREDICTORS OF COLLEGE SUCCESS

CHAPTER I

INTRODUCTION

Psychological tests are valuable instruments---- usable tools through which important aspects of the individual may be studied. Psychological tests are measuring instruments, instruments which sample the behavior of the individual. Tests, therefore, do not tell the whole story; however, they reveal significant parts of the behavior of the human organism. Thus, test scores are not the final answer, yet test results may be used as indicators of present abilities or predictors of future potentialities.

Intelligence tests, as the name suggests, attempt to measure intelligence. However, what is intelligence? It is generally agreed that intelligence is not a single entity, nor a single function (35, p.439). Intelligence is not identical for all individuals and for all situations. Intelligence may even change, at least scores on intelligence tests change. Intelligence cannot be measured completely or directly, and some aspects of general intelligence cannot be measured at all.

Intelligence is complex and might be defined as a composite of an individual's adjustive techniques and abilities in relation to varied aspects of his environment. It is his ability to respond to new directions, to symbols, and to new experiences. These techniques and abilities are partly determined by native potentialities and

partly determined by potentialities built up during the individual's experiences with his environment. Intelligence is made up of many interacting factors. Intelligence is best observed in terms of an individual's behavior, although, this is not the complete story.

Scholastic aptitude is an important part of intelligence, a part which plays a valuable role in the field of psychological testing today. Measurements in this area offer a basis for the prediction of academic success. Such measurements may be of considerable value in the solution of educational and vocational guidance problems today. Such measurements may be of considerable value to those individuals directly and indirectly concerned with these problems. To prospective students and administrators and guidance personnel, the solution of educational and vocational guidance problems is an important one.

But what is scholastic aptitude? According to Warren (54, p.18), an aptitude is:

a condition or set of characteristics regarded as symptomatic of an individual's ability to acquire with training some (usually specified) knowledge, skill, or set of responses, such as the ability to speak a language, to produce music, etc.

Therefore, scholastic aptitude would be an individual's ability to acquire knowledge, skill, or a set of responses in relation to academic subjects. In other words, scholastic aptitude is the individual's present ability to acquire skills essential to future academic and scholastic performance.

An aptitude test, according to Crawford (8, p.15),

...reliably measures qualities essential in successful future performance, by sampling previously acquired skills associated or antecedent to those qualities, but without introducing elements which can only be acquired from the proposed future study. Such examinations attempt to forecast subsequent progress by evaluating its known precursors.

Therefore, a scholastic aptitude test attempts to measure those qualities essential to future academic progress and success. Hull (23, p.19) states:

Among testing experts there is a growing tendency to admit that what usually have been called 'general intelligence' tests are in reality tests of scholastic aptitude, i.e., a kind of general average of the various aptitudes for learning the different school subjects.

Purpose of the Study

It is assumed that scholastic aptitude, as measured by aptitude tests, has a constant relationship to scholastic performance in college. This study is directed towards a better understanding of this relationship and the value of three scholastic aptitude or general intelligence tests in predicting academic success at the college level.

It is hoped that this study may contribute to the ever-increasing amount of material available in the field of academic prognosis. It is hoped that this study may be of some practical value to guidance personnel in educational and vocational counseling situations. It is hoped that this study will not be merely (17, p.118),
...a form of academic shadow-boxing in a vague statistical alley.

Statement of Problem

Specifically, this study aims at determining the value of the American Council on Education Psychological Examination, the Army General Classification Test, and the Ohio State Psychological Test in predicting academic success at the college level, as indicated by grade-point averages of the subjects employed in this study. The problem includes an investigation of the predictive value of each test in relation to scholastic achievement, and a comparison of the three test scores used as predictors of academic success.

Subjects and Location of the Study

The subjects employed in this study were 143 freshmen students enrolled at Oregon State College in the fall of 1949. The subjects were enrolled in various fields of study, including Agriculture, Business and Technology, Education, Engineering, Forestry, Home Economics, Lower Division, Pharmacy, and Science. A more extensive description of the subjects is included in Chapter III.

Procedures of the Study

The statistics employed in relation to academic achievement are based on the total grade-point averages of all marks in all courses received at the end of the first term of the freshman year and at the end of the third term of the freshman year.

The Pearson product-moment method of correlation was used with

the Marchant Model M Calculator to find the relationship between each of the three test scores and grade-point averages of the subjects included in the study.

Limitations of the Study

There are many factors which need to be taken into consideration in the formulation and evaluation of a correlation study concerned with the prognosis of academic success. A few of these points have been mentioned previously in this study; however, other factors should be recognized and remembered in regard to predictions of academic success.

First of all, tests as instruments have an important yet limited value. Tests do not measure all the factors in an individual's environment; tests measure a limited part of the individual's environment. Thus, many aspects of an individual's experiences, active aspects outside the testing room itself, may influence an individual's performance. Uncontrolled elements, such as health, educational interests, study habits, and so on, may affect the individual's test scores and grade-point averages. As Fusfeld notes (17, p.117-18):

There are too many qualifying factors that beset the student as he makes the four-year academic journey.

Such factors, many of them unknown, need to be remembered in evaluating academic achievement and test scores.

Secondly, the testing situation may be a favorable or an unfavorable one, depending upon the individual or individuals. A controlled environment is the ideal; however, tests are often

administered in situations which do not provide equal distractions and opportunities for all.

Thirdly, instructor's marks seem to lack high reliability. Roger's (39, p.760) reports:

The average reliability of term grades for the eight semesters of college is .66. There is a higher average of the correlation at the beginning of the college course than at the end of the college course.

The latter statement is pertinent to the present study in which first and third-term grade-point averages were employed, rather than grade-point averages achieved at the end of the complete four-year college course. Crawford and Burnham state (9, p.384):

The colleges, after all, must realize that they can improve methods of selection only as far as the reliability of their own marking systems will permit. As these become more accurate, better predictions of the individual attainments, as so measured, can in turn be developed. Then by intelligent utilization of all the evidence thus made available, it should seem possible to approximate the true aim of selection---admission to college of those students whose educability will best enable them to profit by the intellectual opportunities of higher education.

Fourthly, selective factors in regard to the subjects employed in prognostic studies need to be understood and considered. In regard to this particular investigation, selective factors influenced the size of the sample, the age of the sample, the general level of educational training of the sample, and so on. A more detailed description of the sample is included in Chapter III.

Fifthly, the predictive value of scholastic aptitude tests varies from one institution to another. McGeehee (31, p.88) notes:

It is entirely possible for test X to be a good prognostic technique in college A and just a waste of time in college B.

In a sense, each educational institution must settle the problem for itself.

CHAPTER II

HISTORICAL BACKGROUND

Numerous studies have been recorded in the area of academic prognosis. Despite the abundance of such projects, no one instrument or combination of instruments has yet reached the point of perfection in the prediction of academic success. Segel describes one of the educational and vocational problems facing guidance personnel and students today. Segel (41, p.2) states:

It is true that the most valid method for finding out whether a student can achieve a certain scholastic standing or be successful in an occupation is for him to try it... This trial and error method however is costly for both the individual and for society. For the individual it is a costly procedure because he may spend much time in trying out various lines of work. In failing at jobs for which he is actually unfitted, he comes to believe that he is unfitted for any job.

It is costly for society to spend time and effort in educating individuals to do tasks which they, at best, will perform on a very low level of efficiency. Both the individual and society have a stake in education.

Thus, it would be advantageous to the individual and to society to determine beforehand the individual's prospects for success or failure in whatever endeavor concerned. The purpose of investigations in the ever-expanding area of academic prognosis is to afford reality to the above advantage. Many of these investigations contain significant findings and suggestions. It is, therefore, important to review past successes and failures in this area, if one is to effectively formulate, interpret, and evaluate future studies.

Because of the aforementioned fact that research studies in relation to the prediction of academic success are numerous, only those studies which supply information pertinent to the American Council on Education Psychological Examination (ACE), the Army General Classification Test (AGCT), and the Ohio State Psychological Test, and those studies which concern themselves with a problem similar to the problem of this study, have been selected for reference.

A fair sample, perhaps a select sample, however, will be reported with the hope that the data will give sufficient evidence of the wealth of material available in the field of academic prognosis, and the general trend of the correlations derived from these investigations. Many of the correlations reported in this study are by-products of studies directed toward an investigation of various aspects of prediction which are not directly related to this particular study. The by-products, however, are closely related to this study and are valuable.

In order to accurately interpret the following correlations, one must take into consideration several facts concerning the meaning of a correlation coefficient.

Firstly, a correlation coefficient is an index of relationship between two sets of variables, between abilities, traits, or various characteristics. In a study such as this (29, p.144-5),

...it is essential that the description of relationship be reduced to a single numerical index which can be conveniently interpreted and readily compared with other indices.

And this is what the correlation coefficient accomplishes in this study.

Secondly, it is generally agreed that the following coefficients of correlation indicate particular degrees of relationship (11, p.70). A correlation of .80 and up indicates a very high correlation. A correlation of .50 to .80 indicates a substantial degree of relationship. A correlation of .30 to .50 indicates some degree of relationship. A correlation of .20 to .30 indicates a slight degree of relationship, and a correlation of .00 to .20 indicates practically no relationship.

Thirdly, it is generally agreed, according to Segel (41, p.38), that a relationship exists between various correlation coefficients and various percentages of forecasting efficiency. The following information is taken from his report (41, p.38).

TABLE I
Percentages of Forecasting Efficiency for Various Coefficients of Correlation

<u>Correlation Coefficient</u>	<u>X</u>	<u>Correlation Coefficient</u>	<u>X</u>
.10	1	.50	13
.20	2	.60	20
.30	5	.70	29
.40	8	.80	40

The American Council on Education Psychological Examination

The American Council on Education Psychological Examination has been and still is one of the most widely used tests of general

scholastic aptitude. According to Super (47, p.123),

There is probably more material concerning its educative significance than there is for any other single test. It is a reliable and valid test of scholastic aptitude or general intelligence at the college level.

Because of its usefulness, many investigations concerning its predictive value have been made.

Stalmaker (45, p.87) reports from Purdue University a correlation of .57 between the 1926 edition of the American Council on Education Psychological Examination administered during the academic year 1926-27 and first-semester grade-point averages of 982 freshmen students.

In 1929-30, Holcomb and Laslett (22, p.112) obtained a correlation of .55 between American Council on Education Psychological Examination scores and grade-point averages for two quarters. The sample consisted of students enrolled in the School of Engineering at Oregon State College.

Gerberich (20, p.607) correlated the grade-point averages of all students enrolled as freshmen in the fall of 1930 at the University of Arkansas. Correlation coefficients in this study ranged from .17 to .81. The author states that this index is unusually high and unusually wide for the University of Arkansas. The usual correlations range from .40 to .55. For example, in 1929 the correlation for entering freshmen and first-semester grade-point averages was .47.

At Oklahoma Agricultural and Mechanical College, Rigg (38, p.397)

correlated American Council on Education Psychological Examination scores and first-semester and fourth-year grade-point averages for seven successive graduating classes. The results are contained in the following table (38, p.397):

TABLE II

American Council on Education Psychological Examination Scores and Grade-Point Average Correlations for Seven Successive Graduating Classes at Oklahoma Agricultural and Mechanical College
1930-1938

<u>Classes</u>	<u>Intelligence and First-Semester's Scholarship</u>		<u>Intelligence and Four Years' Scholarship</u>	
	<u>N</u>	<u>r</u>	<u>N</u>	<u>r</u>
1	112	.50	32	.41
2	105	.60	37	.53
3	85	.36	36	.32
4	82	.63	27	.41
5	77	.38	36	.46
6	77	.64	31	.67
7	77	.54	29	.22
	615	.52 average	228	.43 average

Quaid (37, p.353) studied 140 freshmen at Phillips University who had taken the American Council on Education Psychological Examination in September, 1934. He found a correlation of .41 at the end of the first semester, and a correlation of .41 at the end of the second semester.

In a study of entering freshmen during 1934-35 at St. Benedict's College at Atchison, Kansas, Schmitz (40, p.466) found a correlation of .58 between the American Council on Education Psychological Examination and grade-point averages for the entire freshman year.

McGehee (30, p.223) conducted a study of the relationship between academic grades for the school year of 1936-37 and American Council on Education Psychological Examination scores at North Carolina State College. This investigation was based on a sample of 589 freshmen students. The following table seems to indicate a relationship between the higher American Council on Education Psychological Examination scores and higher grades. This table is excerpted from his study (30, p.224).

TABLE III

Percentage of Grades at Each Grade Level of the
Total Number of Each Type of Grade Given

<u>Grades</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>F</u>
ACE Deciles 8-10	63.44	47.85	30.81	21.94	14.08
ACE Deciles 4-7	26.54	39.47	47.95	47.79	42.61
ACE Deciles 1-3	9.96	13.65	21.24	30.25	43.34

The author of this study states: (30, p.224)

The indications from this preliminary study of the relationship of scores on the American Council Examination to academic grades and survival at North Carolina State College are that in predicting academic success during the freshman year at college. Its value, perhaps, is greater in predicting success or failure of students who score in the higher and the lower ranges than in the middle ranges of the examination and in predicting high or low rather than middle scholastic grades.

Thomson (49, p.231) found a correlation of .58 and .57 between American Council on Education Psychological Examination scores on the 1935 form and 1937 form and first-semester grade-point averages.

The sample was composed of 106 college freshmen who took the 1935 form as seniors in Minnesota high schools and the 1937 form as entering freshmen at Carleton College in 1937.

In 1937, Leaf (27, p.303), in a study of 97 freshmen at LaSalle-Peru-Oglesby Junior College, obtained a correlation of .57 between American Council on Education Psychological Examination scores and the grade-point averages for the entire school year.

During the same year, Votaw (52, p.216) made a similar study at Southwest State College. He found a correlation of .53 between grade-point averages at the end of the freshman year and American Council on Education Examination scores for 412 freshmen.

In 1939, Kirkpatrick (25, p.38) reported a correlation of .52 and .57 on the 1937 edition and the 1938 edition of the American Council on Education Examination respectively for a sample of 154 freshmen at Bethany College at the end of the first semester.

During the school year 1939-40, McGhee (31, p.89) conducted a study of 700 students at North Carolina State College of Agriculture and Engineering. He found a correlation of .44 between grade-point averages for the freshman year and American Council on Education Psychological Examination scores.

At the University of Minnesota, Berdie (2, p.242) found a relationship of .21 between the American Council on Education Psychological Examination scores and grade-point averages based on the entire freshman year for 497 students entering the Institute of Technology. In comparison to other reports, this correlation seems unusually low.

An intensive study was made at Wilson College (1, p.318) by a group of research workers using a sample of 112 freshmen girls. Two forms of the American Council on Education Psychological Examination were administered to the students in 1941. The 1940 form was administered the day after the students arrived at college. Six weeks later, the 1941 form was administered. The results were as follows (1, p.321):

TABLE IV

Correlations between the 1940 and 1941 Forms of
The American Council on Education Psychological Examination
and First-Semester and First-Year Grades

	<u>1940 Form</u>	<u>1941 Form</u>
First Semester	.48	.54
First Year	.49	.55

Thomann (48, p.224), at the University of Illinois, reported a correlation of .44 between the American Council on Education Psychological Examination scores and grade-point averages for the freshman year. The sample consisted of 566 junior and senior high school students who took the test prior to entering the University of Illinois. This study was made during 1942-46.

In 1946, Osborne, Sanders, and Greene (36, p.110) studied 958 freshmen at the University of Georgia. Coefficients of correlation of .48 for men and .54 for women were found at the end of the freshman year for the above group of students.

At Long Beach City College in 1947, Brown (5, p.117) selected 208 freshmen students from a sample of 1048 entering freshmen. One hundred and twenty-four students were finally used in the study. American Council on Education Psychological Examination scores and grade-point averages for the freshman year were correlated, and a coefficient of .40 was obtained.

In 1947, Wallace (53, p.24) collected data on 323 freshmen entering the University of Michigan. A correlation of .41 was obtained as a result of correlating American Council on Education Psychological Examination scores and grade-point averages for the freshman year. The author states (53, p.24):

Such a relatively low predictive value for the success in beginning courses at an institution of the type of the University of Michigan suggests a warning as to the emphasis to be given the results of this examination alone in the selection of students for admission to similar institutions... It remains one of the best single predictors of academic success in higher education. Attention is called, however, to the smallness of the relationship between results of this test and achievement as measured by first-year college grades...

At Oregon State College during 1946-47, Cooprider (7, p.51) obtained a correlation of .51 between American Council on Education Psychological Examination scores and grade-point averages for 362 freshmen students. For the majority of the students involved in this study, grade-point averages for the first two terms of college work were employed.

It may be concluded from the data reported in the above studies that the correlation between American Council on Education Examination scores and grade-point averages are relatively low. Few of the

coefficients exceed .60; few of the coefficients seem to be below .45. The majority of the correlation coefficients seem to be approximately .50. Thus, some relationship is present, and some significance should be attached to the correlations. Table V summarizes the above studies.

The Ohio State Psychological Test

Another guide in predicting academic success is the Ohio State Psychological Test. Garrett notes (19, p.495, 493):

The Ohio State Test scores are the second best single predictors of college success...the Ohio State Test is a work-limit test, in which the testee has all the time he needs and is encouraged to attempt every item. This increases the validity of the resulting score. The test is highly linguistic and demands reading ability of a high order, traits necessary for success in college courses.

The Ohio State Psychological Test, although not as frequently cited as the American Council on Education Psychological Examination, has been the object of many studies in relation to academic success.

Edgerton (14, p.19, 38) in 1924-25 and 1925-26, correlated freshmen scores on the Ohio State Psychological Test and grades for the first six quarters at Ohio State University. The author secured correlations of .52 for the 2039 sample of freshmen in 1924, and a correlation of .49 for the 2071 sample of freshmen in 1925. In 1924, the correlations ranged from .45 (males) to .65 (females). In 1925, the correlations ranged from .40 (females) to .61 (females).

Byrns (6, p.716) obtained a correlation of .48 for 1774 freshmen scores on the Ohio State Psychological Test and total grade-point averages for the first semester of the freshman year at the

University of Wisconsin. A correlation of .43 for 1452 freshmen scores on the Ohio State Psychological Test and total grade-point averages for the entire freshman year was obtained in the same study. This investigation was conducted during the 1929-30 period.

Hartson (21, p.156) at Oberlin College in 1931-34 correlated Ohio State Psychological Test scores and first-semester grade-point averages for 511 males and 609 females. Correlations of .60 (males) and .57 (females) were secured.

At New York State College for Teachers, Morris (34, p.475) correlated Ohio State Psychological Test scores and first-semester grade-point averages for 190 freshmen students. A correlation coefficient of .42 was found. The author also correlated Ohio State Psychological Test scores and grade-point averages for the last two years of college. A correlation of .33 was obtained for 190 students.

In 1934-35 at Phillips University, Quaid (37, p.353) found a correlation of .52 and .56 between Ohio State Psychological Test scores and first and second-semester grade-point averages for 140 freshmen.

Garrett (19, p.492) made an intensive study of 200 students from Warren High School in Ohio during the years 1935-1940 who had taken the Ohio State Psychological Test, and who had completed one semester of college work in Ohio. A correlation of .61 was obtained for the graduates of Warren High School and students of a diversified sample of colleges in Ohio.

At Bethany College, Kirkpatrick (25, p.38) secured a coefficient

of correlation of .58 for a sample of 154 freshmen. First-semester grade-point averages were employed for this investigation in 1939.

Cooprider (7, p.51) obtained a correlation of .45 for a sample of 356 freshmen students at Oregon State College. Scores on the Ohio State Psychological Test and grade-point averages during 1946-47 were used in this study. For the majority of the students employed in this investigation, grade-point averages for the first two terms of college work were employed.

It may be concluded from the data from the above studies that the correlations between the Ohio State Psychological Test and grade-point averages are similar to the correlations obtained for the American Council on Education Psychological Examination. Thus, the correlations are relatively low; however, some significant positive relationship does exist. Table V summarizes the above studies.

The Army General Classification Test

The Army General Classification Test, a test of general learning ability, may be a practical yardstick in the prediction of academic success at the college level.

The Army General Classification Test is a measuring device which demonstrates an individual's ability to learn. The test attempts to answer the question, "What can the individual learn at the present time?" Bingham states (3, p.150):

The Army General Classification Test is valid in the military situation...It tells, at least approximately and in a usable way, what it purports to tell about a man's capacity to learn.

TABLE V

Summary of Investigations in the Prediction of
Academic Success Reported in the Study

<u>Investigator</u>	<u>Approx. Year</u>	<u>Institution</u>	<u>Test</u>	<u>Criterion Grades</u>	<u>Sample</u>	<u>r</u>
Anderson, et al.	1941	Wilson College	ACE form 1940	1st semester	112	.48
---		---	ACE form 1940	1st year	112	.49
---		---	ACE form 1941	1st semester	112	.54
---		---	ACE form 1941	1st year	112	.55
Berdie	1941	University of Minnesota	ACE	1st year	154	.21
Brown	1947	Long Beach City College	ACE	1st year	124	.40
Cooprider	1948	Oregon State College	ACE	2 terms	362	.51
Edgerton	1924- 1925	Ohio State University	Ohio State	6 quarters	2039	.52
---	1925- 1926	---	Ohio State	6 quarters	2071	.49
Garrett	1935- 1940	Warren High School Ohio colleges	Ohio State	1st semester	200	.61

<u>Investigator</u>	<u>Approx. Year</u>	<u>Institution</u>	<u>Test</u>	<u>Criterion Grades</u>	<u>Sample</u>	<u>r</u>
Gerberich	1930	Arkansas Colleges	ACE	1st semester	Freshmen 2300	.17 - .81
Byrnes	1929-	University of Wisconsin	Ohio State	1st semester	1774	.48
---	1930	---	Ohio State	1st year	1452	.43
Hartson	1931-	Oberlin College	Ohio State	1st semester	511 609	.60 .57
Holcomb & Laslett	1929- 1930	Oregon State College	ACE	2 terms	School of Engineering	.55
Kirkpatrick	1939	Bethany College	Ohio State	1st semester	154	.58
---	1939	---	1937			
---	1939	---	ACE form	1st semester	154	.52
---	1939	---	1938			
---	1939	---	ACE form	1st semester	154	.57
Leaf	1937- 1938	LaSalle-Peru Oglesby Jr. College	ACE	1st year	97	.57
McGhee	1939- 1940	North Carolina State College	ACE	1st year	700	.44
Morris	1934	New York State College for Teachers	Ohio State	1st semester	190	.42
---	1934	---	Ohio State	last 2 years	190	.33

<u>Investigator</u>	<u>Approx. Year</u>	<u>Institution</u>	<u>Test</u>	<u>Criterion Grades</u>	<u>Sample</u>	<u>r</u>
Osborne, Sanders and Greene	1946	University of Georgia	ACE	1st year	958	.48 men .54 women
Quaid	1934-					
	1935	Phillips University	Ohio State	1st semester	140	.52
---	1934-					
	1935	---	ACE	1st semester	140	.41
---	1934-					
	1935	---	Ohio State	1st year	140	.56
---	1934-					
	1935	---	ACE	1st year	140	.41
Rigg	1930-	Oklahoma Agricultural				
	1938	& Mechanical College	ACE	1st semester	615	(.52
---	1930-					average
	1938	7 successive classes	ACE	4 years	228	(.43
Schmitz	1934-					
	1935	St. Benedict's College	ACE	1st year	Freshmen	.58
Stalmaker	1926-					
	1927	Purdue University	ACE	1st semester	982	.57
Thomann	1942-					
	1946	University of Illinois	ACE	1st year	566	.44
Thomson	1937	Carleton College	ACE form 1935	1st semester	106	.57
---	1937	---	ACE form 1937	1st semester	106	.58
						N

<u>Investigator</u>	<u>Approx. Year</u>	<u>Institution</u>	<u>Test</u>	<u>Criterion Grades</u>	<u>Sample</u>	<u>r</u>
Vetaw	1937-	Southwest Texas	ACE	1st year	412	.53
	1938	State College				
Wallace	1947	University of Michigan	ACE	1st year	323	.41

According to the Staff of the Personnel Research Section of the Adjutant General's Office (44, p.766), who are responsible for the development of the Army General Classification Test, the major usefulness of the test in the military situation has stemmed from its ability to select men for special training courses. The test seems to effectively distinguish those individuals of high and low learning ability (12, p.143). Thus, it would seem probable that such a measuring device might successfully predict ability to learn in the academic field.

In the Army situation, the Army General Classification Test fulfilled the need to conserve manpower and to expedite training (43, p.473). In the educational situation, the Army General Classification Test may accomplish the same task, that is, in predicting future failure or success in academic subjects. In the Army, the test is only a part of the classification system. In education, the Army General Classification Test probably should be one among other instruments of prediction. As yet, however, this test has not been used extensively in the prediction of academic success.

CHAPTER III

THE STUDY

The purpose of this study was directed towards a better understanding of three scholastic aptitude or general intelligence tests in predicting academic success at the college level. The study included an investigation and determination of the predictive value of each test and the relationships between the scores on each test and academic achievement.

Measuring Devices Used in the Study

The American Council on Education Psychological Examination was used as one of the measuring instruments in this study. The American Council on Education Psychological Examination is a general scholastic aptitude test widely employed by educational institutions throughout the country to select, to classify, and to plan academically for entering students.

In 1919, the American Council on Education Psychological Examination first appeared as the Thurstone Psychological Examination for High School Seniors and College Freshmen under the authorship of L. L. Thurstone and T. G. Thurstone. During the following years, the test items were revised and selected, and in 1924, the test was officially adopted by the American Council on Education. Since that date, the test has been published annually, each edition having only one form. Today, the American Council on Education Psychological

Examination is published by the Educational Testing Service, Princeton, New Jersey.

The American Council on Education Psychological Examination consists of six sub-tests grouped into quantitative and linguistic categories. The two general portions are alternated in the test booklet and are sub-divided into the following portions:

Arithmetic Reasoning

Completion

Figure Analogies

Same-Opposite

Number Series

Verbal Analogies

The quantitative portions of the test consist of 80 possible items, and the linguistic portions consist of 120 possible items. Thus, the American Council on Education Psychological Examination is weighted in favor of linguistic abilities. Practice items accompany each group and must be completed by the subject before beginning each sub-test.

A quantitative and linguistic score plus a total score may be reported for each subject. According to the manual of directions, it is not recommended that the separate sub-test scores be used for selecting or classifying students, although the total score may be used. The manual also states (33, p.2-3):

While the scores do show roughly the mental alertness of the student, they should not be thought of as measuring mentality with high accuracy. The scores are

roughly indicative of the level of mental alertness of the student, but they should not be taken so seriously as to exclude other evidences of intelligence and talent in individual cases...Generally, the best usefulness of the test is in combination with other evidences of ability such as grades in high school and in content examinations that are given uniformly to all students.

The norms of the American Council on Education Psychological Examination consist of percentiles for (47, p.115),

...freshmen in liberal arts, teacher training, and junior colleges, a type of norm more helpful in the guidance of high school seniors planning further education than comparison with freshmen in colleges in general. The numbers in each group tend to be about 60,000, 12,000, and 12,000 respectively.

The norms are prepared by the Educational Testing Service on the basis of reports sent in from colleges who are using the test. The norms include percentiles for the total scores, the linguistic scores, and the quantitative scores. Preliminary norms showing the amount of relationship between two forms of the test are published in the fall. These norms are sent to all colleges using the test. In the spring, comprehensive norms are published.

The reliability on both portions of the American Council on Education Psychological Examination is high, being in the area of .90 (11, p.99).

Studies in the general validity of the American Council on Education Psychological Examination indicate that the test is a valid one in most situations; however, it is suggested that the validity be locally determined. Correlations tend to be approximately .50 between academic achievement and the American Council on Education Psychological Examination.

The Ohio State Psychological Test was also used as one of the measuring instruments in this study. The test was first constructed and published in 1920. Today, Form 21 exists as a revised and improved outgrowth of the earlier editions.

The Ohio State Psychological Test, the author of which is Herbert A. Toops, originally grew out of a need to discriminate at the college level between high and low academic ability. The Army Alpha did not seem to perform the duty adequately. Thus, a revision was attempted, and the Ohio State Psychological Test was the result. Today, the test is published by Science Research Associates.

According to the manual of directions (32, p.1), the Ohio State Psychological Test

...is designed to evaluate that aspect of general intelligence usually referred to as scholastic aptitude. This test is of the work-limit or power type and provides a much more accurate appraisal of a student's scholastic potentiality than would a similar time-limit test.

The Ohio State Psychological Test consists of three parts: same-opposites, word relationships, and reading comprehension. A total score plus a reading score may be reported for each subject.

The reliability coefficient of the Ohio State Psychological Test is relatively high. On Form 21, a coefficient of .93 was reported in the manual of directions based on 300 cases.

According to the manual of directions, a validity coefficient of .68 was found. Freshmen grades for 36 weeks of the freshman year for a sample of 1031 students were employed in this study.

High school and college norms are published for the total test

scores and for the reading test scores. The college norms for Form 21 are based on the performance of 3889 Ohio College freshmen men and women who were tested in the fall of 1940 (32, p.4).

The Army General Classification Test was also used as one of the measuring devices in this study.

The Army General Classification Test first appeared in 1940. Prior to that time, the Group Examination Alpha or Army Alpha was employed to aid in the elimination of incompetents from the armed services. A more effective instrument was needed, and, in 1940, a group of Army technicians devised a new classification test. The new test was not to place emphasis on speed or factors which might be greatly influenced by schooling or cultural background. On the other hand, the technicians were instructed to include verbal and non-verbal items, particularly emphasizing spatial visualization and quantitative reasoning. This was to be a test designed to distinguish ability to learn.

During 1940, the Army General Classification Test was administered to 2,675 Regular Army enlisted men and CCC enrollees for standardization. The outcome was the development of Army Standard Scores consisting of five grade levels, as follows (42, p.207):

TABLE VI
Interpretation of Army Standard Scores

<u>Grade Level</u>	<u>Standard Score</u>	<u>Learning Ability</u>
I	130 and above	very rapid learners
II	110-129	rapid learners
III	90-109	average learners
IV	60-89	slow learners
V	59 and below	very slow learners

The following grade distributions were obtained in 1940-44 based on a sample of 8,293,879 cases (44, p.764):

TABLE VII
Grade Distribution of Men Processed
Through Reception Centers in 1940-44

<u>Army Grade Level</u>	<u>Standard Score</u>	<u>Percentage of Total</u>
I	130 and above	6.0
II	110-129	26.5
III	90-109	30.5
IV	60-89	27.7
V	59 and below	9.3

In 1940, four forms of the Army General Classification Test were published for literates, and three forms were published for illiterates. The directions for the latter three forms were to be given in pantomime. In April, 1945, the Army General Classification

Test forms 1a, 1b, 1c, and 1d were replaced by AGCT-3, a revised form which exists today. The original form may now be used for civilians.

The Army General Classification Test contains three types of items in spiral-omnibus form: vocabulary, arithmetic, and block-counting. Thirty practice items are given for the entire test which are to be completed prior to beginning the test. The test contains 150 items in all; each sub-test contains 50 items.

Reliabilities of the Army General Classification Test are consistently high. According to the manual, under good administration the reliability is not less than .95. Also, the relationship with other tests of general mental ability is generally high. Some correlations are as follows (44, p.766):

American Council on Education .65

American Council on Education .79

Grades Employed in the Study

The total grade-point averages of all marks in all courses received at the end of the first term of the freshman year and at the end of the third, or last term, of the freshman year at Oregon State College were employed in this study. The grade-point values for each hour of credit at Oregon State College are as follows: A equals four; B equals three; C, two; D, one; and F, zero. An accumulative of 2.00 grade-point average is required in order to remain at Oregon State College. A student is allowed three terms to achieve a 2.00 accumulative grade-point average.

Subjects Employed in the Study

The 143 subjects employed in this study were selected from a total sample of 199 freshmen students who came to the Oregon State College Counseling and Testing Bureau during the period July 1, 1949 to June 30, 1950. Thus, the group is a select one due to this initial selection and other factors which influenced their grouping.

Firstly, the sample constitutes a select group because they came to the Counseling and Testing Bureau, a group seeking answers to educational, vocational, or personal problems. It might be mentioned here that those individuals in the group who had one, two, or three high school deciles were sent personal letters suggesting that they take advantage of the services of the Oregon State College Counseling and Testing Bureau. This may be an influential factor in the academic achievement of the group of individuals who did come to the counseling bureau.

Secondly, the 143 subjects were chosen from the total group of 199 students because complete records were available for them. The other 56 students either did not complete their testing program at the counseling bureau, did not take the particular tests involved in this study, or did not complete their freshman year at Oregon State College.

Other selective factors influenced the grouping of the sample employed in this study. The subjects, in order to be admitted to Oregon State College, were high school graduates. Some of the

subjects were coming to college following work experience; therefore, varying amounts of time may have elapsed between high school graduation and college entrance. In general, however, the students were approximately 18 years old. The majority of the subjects were pre-entrance freshmen.

Procedures of the Study

The procedure of this study was that of correlating individual test scores on the American Council on Education Psychological Examination, the Ohio State Psychological Test, and the Army General Classification Test with individual grade-point averages for the first and the third term. The total scores were used for the American Council on Education Psychological Examination and the Army General Classification Test. The total scores and the reading scores were used for the Ohio State Psychological Test.

Following the correlations of the test scores and grade-point averages for the first and the third term grade-point averages for the 143 subjects, fourteen students were selected from the total group on the basis of the irregularity of their test scores and grade-point averages. The individual folders employed at the Counseling and Testing Bureau were consulted for the fourteen students. Thus, the counselor's comments and recommendations and the student's autobiographical inventory and test scores were studied. Information concerning the student's high school decile was supplied by the Personnel Coordinator's Office.

Results of the Study

The tests used in this study showed correlations with first-term and third-term grade-point averages ranging from .25 to .48, as shown in Table VIII. The Ohio State Psychological Test total score revealed the highest correlation with third-term grade-point averages. The test showed a correlation of .48 with third-term grade-point averages of the subjects used in this study. The Army General Classification Test revealed the lowest correlations. The test showed correlations of .25 with first-term grade-point averages and .31 with third-term grade-point averages. Correlations between third-term grade-point averages and scores on all tests were higher than the correlations between first-term grade-point averages and scores on all tests.

TABLE VIII

Correlations between First and Third-Term
Grade-Point Averages and Scores on Selected Tests

<u>Test</u>	<u>First-Term</u>	<u>Third-Term</u>
American Council on Education Psychological Examination Scores	.34	.40
Ohio State Psychological Test Total Scores	.41	.48
Ohio State Psychological Test Reading Scores	.34	.44
Army General Classifica- tion Test Scores	.25	.31

The grade-point averages for the total group of students for the first term ranged from 3.00 and above to .99 and below and clustered around 1.50 to 2.00, as shown in Tables IX, XI, XIII, and XV. The grade-point averages for the total group of students for the third term ranged from 3.00 and above to 1.00 and clustered around 1.50 to 2.00, as shown in Tables X, XIII, XIV, and XVI.

The correlations between the American Council on Education Psychological Examination scores and first and third-term grade-point averages ranged from .34 to .40 respectively. Further analysis of the relationship between American Council on Education Psychological Examination decile scores and grade-point averages is given in Tables IX and X.

In the total group, 56 students received American Council on Education Psychological Examination scores in the first through the third deciles; 37 students received scores in the fourth through the sixth deciles; 50 students received scores in the seventh through the tenth deciles, as shown in Tables IX, X, and XVII.

In the total group of 143 subjects, seventeen students in the seventh through the tenth deciles received a 1.99 or below grade-point average for the first term. Fifteen students in the seventh through the tenth decile received a 1.99 or below grade-point average for the third term.

On the other hand, 33 students in the seventh through the tenth deciles received a 2.00 or above grade-point average for the first term. Thirty-five students in the seventh through the tenth deciles

received a 2.00 or above grade-point average for the third term. The above distributions on the American Council on Education Psychological Examination are shown in Tables IX and X.

TABLE IX

**Relationship between American Council on Education
Psychological Examination Scores and First-Term Grade-Point
Averages of the Subjects Used in the Study**

First-Term Grade-Point Averages								
ACE Deciles	ACE Decile Totals	3.00 and above	2.50- 2.99	2.00- 2.49	1.99- 1.50	1.49- 1.00	.99 and below	
7-10	50	7	11	15	13	2	2	
4-6	37	2	9	9	11	4	2	
1-3	56	1	5	13	27	9	1	
Total 143								

TABLE X

**Relationship between American Council on Education
Psychological Examination Scores and Third-Term Grade-Point
Averaged of the Subjects Used in the Study**

Third-Term Grade-Point Averages								
AGE Deciles	AGE Decile Totals	3.00 and above	2.50- <u>2.99</u>	2.00- <u>2.49</u>	1.99- <u>1.50</u>	1.49- <u>1.00</u>	.99 and below	
7-10	50	6	9	20	14	1		
4-6	37	1	8	14	12	2		
1-3	<u>56</u>	2	2	21	28	3		
Total	143							

The correlations between the Ohio State Psychological Test total scores and first and third-term grade-point averages ranged from .41 to .48 respectively. Further analysis of the relationship between Ohio State Psychological Test percentile total scores and grade-point averages is given in Tables XI and XII.

In the total group, 58 students received Ohio State Psychological Test total scores in the first through the thirtieth percentiles; 48 students received total scores in the thirty-first through the sixtieth percentiles; 37 students received total scores in the sixty-first through the one hundredth percentiles, as shown in Tables XI, XII and XVII.

In the total group of 143 subjects, seven students in the sixty-first through one hundredth percentiles received a 1.99 or below grade-point average for the first term. Six students in the sixty-first through one hundredth percentiles received a 1.99 or below grade-point average for the third.

On the other hand, 30 students in the sixty-first through the one hundredth percentiles received a 2.00 or above grade-point average for the first term. Thirty-one students in the sixty-first through one hundredth percentiles received a 2.00 or above grade-point average for the third term. The above distributions on the Ohio State Psychological Test total scores are shown in Tables XI and XII.

The correlations between the Ohio State Psychological Test reading scores and first and third-term grade-point averages ranged from .34 to .44 respectively. Further analysis of the relationship between

Ohio State Psychological Test percentile reading scores and grade-point averages is given in Tables XIII and XIV.

TABLE XI

Relationship between Ohio State Psychological Test Total Scores and First-Term Grade-Point Averages of the Subjects Used in the Study

First-Term Grade-Point Averages								
Ohio Percentiles	Ohio Percentile Totals	3.00 and above	2.50- 2.99	2.00- 2.49	1.50- 1.99	1.00- 1.49	.99 and below	
91-100	7	2	2	2				1
81-90	7	1		3		3		
71-80	13	5	4	3		1		
61-70	10		7	1		1	1	
51-60	13		1	5	6		1	
41-50	17		5	3	7	1	1	
31-40	18	1	1	4	6	4	2	
21-30	33		2	10	16	5		
11-20	12		3	2	5	2		
0-10	13	1		4	6	2		
Total	143							

TABLE XII

Relationship between Ohio State Psychological Test Total Scores and Third-Term Grade-Point Averages of the Subjects Used in the Study

Ohio Percentiles	Percentile Totals	Third-Term Grade-Point Averages					
		3.00 and above	2.50-2.99	2.00-2.49	1.50-1.99	1.00-1.49	.99 and below
91-100	7	2	3	2			
81-90	7	4	1	2	4		
71-80	13		4	5			
61-70	10		3	5	2		
51-60	13		3	3	6	1	
41-50	17		4	8	5		
31-40	18	1	1	7	8	1	
21-30	33			16	15	2	
11-20	12	1		2	8	1	
0-10	13	1		5	6	1	
Total	143						

In the total group, 40 students received Ohio State Psychological Test reading scores in the first through the thirtieth percentiles; 55 students received reading scores in the thirty-first through the sixtieth percentiles; 48 students received reading scores in the sixty-first through the one hundredth percentiles, as shown in Tables XIII, XIV and XVII.

In the total group of 143 subjects, sixteen students in the

sixty-first through the one hundredth percentiles received a 1.99 or below grade-point average for the first term. Fourteen students in the sixty-first through the one hundredth percentiles received a 1.99 or below grade-point average for the third term.

On the other hand, 32 students in the sixty-first through the one hundredth percentiles received a 2.00 or above for the first term. Thirty-four students in the sixty-first through the one hundredth percentiles received a 2.00 or above for the third term grade-point averages. The above distributions on the Ohio State Psychological Test reading scores are shown in Tables XIII and XIV.

The correlations between the Army General Classification Test scores and first and third-term grade-point averages ranged from .25 to .31 respectively. Further analysis of the relationship between Army General Classification Test percentile scores is given in Tables XV and XVI.

In the total group, one student received an Army General Classification score in the first through the thirtieth percentiles; 25 students received scores in the thirty-first through the sixtieth percentiles; 117 students received scores in the sixty-first through the one hundredth percentiles, as shown in Tables XV, XVI and XVII.

TABLE XIII

Relationship between Ohio State Psychological Test Reading Scores and First-Term Grade-Point Averages of the Subjects Used in the Study

Ohio Percentiles	Percentile Totals	First-Term Grade-Point Averages					
		3.00 and above	2.50- 2.99	2.00- 2.49	1.50- 1.99	1.00- 1.49	.99 and below
91-100	10	3	2	3	1		1
81-90	11	1		4	6		
71-80	10	1	4	3	1		1
61-70	17	2	4	5	5	1	
51-60	10	1	6	1	1	1	
41-50	26	1	3	6	13	2	1
31-40	19		3	5	7	2	2
21-30	14		1	3	7	3	
11-20	13	1	1	2	5	4	
0-10	13		1	5	5	2	
Total	143						

TABLE XIV

Relationship between Ohio State Psychological Test Reading Scores and Third-Term Grade-Point Averages of the Subjects Used in the Study

Ohio Percentiles	Percentile Totals	Third-Term Grade-Point Averages					
		3.00 and above	2.50- 2.99	2.00- 2.49	1.50- 1.99	1.00- 1.49	.99 and below
91-100	10	3	4	2	1		
81-90	11			7	4		
71-80	10	1	7		1	1	
61-70	17	1	2	7	7		
51-60	10	1	4	5			
41-50	26	1	7	11	11	1	
31-40	19	1		9	9		
21-30	14			4	8	2	
11-20	13	1		5	6	1	
0-10	13			5	7	1	
Total	143						

TABLE XV

Relationship between Army General Classification Test Scores and First-Term Grade-Point Averages of the Subjects Used in the Study

First-Term Grade-Point Averages								
AGCT Percentiles	AGCT Percentile Totals	3.00 and above	2.50- 2.99	2.00- 2.49	1.50- 1.99	1.00- 1.49	.99 and below	
91-100	52	7	13	13	14	2	3	
81-90	29	2	4	6	13	3	1	
71-80	26		4	8	11	3		
61-70	10		1	3	3	2	1	
51-60	15	1	2	4	4	4		
41-50	6		1	2	2	1		
31-40	4			1	3			
21-30		1			1			
11-20								
0-10								
Total	143							

TABLE XVI

Relationship between Army General Classification Test Scores and Third-Term Grade-Point Averages of the Subjects Used in the Study

AGCT Percentiles	Percentile Totals	Third-Term Grade-Point Averages						.99 and below
		3.00 and above	2.50- 2.99	2.00- 2.49	1.50- 1.99	1.00- 1.49	below	
91-100	52	6	12	19	14	1		
81-90	29	1	4	7	16	1		
71-80	26	1	1	15	8	1		
61-70	10			4	5	1		
51-60	15	1	2	6	5	1		
41-50	6			3	2	1		
31-40	4			1	3			
21-30	1				1			
11-20								
0-10								
Total	143							

TABLE XVII

Distribution of Subjects Used in
the Study by Scores on Selected Tests

<u>Deciles</u>	<u>Percentiles</u>	<u>ACE</u>	<u>AGCT</u>	<u>Ohio Total</u>	<u>Ohio Reading</u>
10	91-100	11	52	7	10
9	81-90	12	29	7	11
8	71-80	21	26	13	10
7	61-70	6	10	10	17
6	51-60	17	15	13	10
5	41-50	14	6	17	26
4	31-40	6	4	18	19
3	21-30	18	1	33	14
2	11-20	25		12	13
1	0-10	13		13	13

In the total group of 143 subjects, 55 students in the sixty-first through the one hundredth percentiles received a 1.99 or below grade-point average for the first term. Forty-seven students in the sixty-first through one hundredth percentiles received a 1.99 or below grade-point average for the third term.

On the other hand, 61 students in the sixty-first through the one hundredth percentiles received a 2.00 or above grade-point average for the first term. Seventy students in the sixty-first through the one hundredth percentiles received a 2.00 or above grade-point average for the third term. The above distributions on the Army General Classification Test are given in Tables XV and XVI.

The distribution of all the subjects employed in this study by test scores on the selected tests is given in Table XVII. Table XVII summarizes the distributions given in Tables IX through XVI.

The records of the fourteen selected students indicated that a majority of the students in this particular group had weaknesses in areas of reading and vocabulary. Some students had weaknesses in the basic background areas of English, math, science and history, as measured by the Iowa High School Content Examination. Some students possessed poor study habits, and a few of the students lacked motivation to do college work.

Five of the students in the selected group of fourteen subjects had high school deciles of one, two or three. Thus, five of the students were sent letters prior to their entrance in Oregon State College suggesting an appointment at the Counseling and Testing Bureau.

CHAPTER IV

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The results of this study indicate that the best single predictor of academic success at the college level at Oregon State College during the period July 1, 1949 through June 30, 1950 for the selected group of subjects was the Ohio State Psychological Test total score. This test showed a correlation of .48 with third-term grade-point averages of the subjects used in this study.

The second best single predictor of academic success at the college level was the Ohio State Psychological Test reading scores. A correlation of .44 was found between this test score and third-term grade-point averages of the 143 freshmen.

The Army General Classification Test showed the least amount of relationship with academic achievement as indicated by grade-point averages for the two terms. Correlations of .25 and .31 were found for this test, using first and third-term grade-point averages.

In general, the coefficients of correlation obtained were relatively low. Table XVIII gives a summary of the correlations between scores on selected tests and grade-point averages for the first and the third terms.

Grade-point averages of the 143 students ranged from 3.00 and above to .99 and below for the first term and 3.00 to 1.00 for the third term. Third-term grade-point averages were generally higher

than first-term grade-point averages. First and third-term grade-point averages clustered in the 1.50 to 2.00 area for the total group.

The percentile scores on the Army General Classification Test were generally higher for all the subjects employed in this study in comparison to the scores on the American Council on Education Psychological Examination and the Ohio State Psychological Test.

The background information for fourteen selected students revealed weaknesses in reading and vocabulary skills, weaknesses in basic background subjects, poor reading habits, and lack of motivation. The above patterns were evidenced in the academic and test results of the fourteen selected students. Five of the students in this group were advised to make an appointment at the Counseling and Testing Bureau due to low high school decile ranks.

Conclusions

It may be concluded from the data collected in this study that for this particular sample of students at Oregon State College, the American Council on Education Psychological Examination, the Ohio State Psychological Test, and the Army General Classification Test did not adequately predict academic success at the college level, as measured by grade-point averages. This may be due to many factors, factors in the sampling of the subjects, factors in the subjects themselves, factors in the tests, factors in the grade-point averages, and so on. Clearly, many factors may have influenced the outcome of the results of this study.

In view of the above conclusions, it would seem impractical to rely on one test or two tests as single predictors of academic success. Some tests seem to predict adequately for some individuals and not for other individuals, as evidenced by the data collected in this study. Other factors need to be taken into consideration, non-academic factors, selective factors, and other factors which may have some effect upon the individuals, the test scores, and grade-point averages.

Recommendations

The following recommendations are made in regard to future investigations in the field of academic prognosis:

1. It is suggested that a larger sample of freshmen students be employed in future studies.
2. It is suggested that a less selected sample of freshmen students be employed in future studies.
3. It is suggested that a more extensive investigation of high school academic backgrounds and the environmental backgrounds be included in future studies. Many predictive factors may be discovered before the student reaches the senior year level.
4. It is suggested that the investigator include fourth-year grade-point averages in future studies. Perhaps, long range predictions may be made. Perhaps, as Tilton (50, p.292) suggests, we do not wait for learning to introduce an

adequate amount of differentiation. Perhaps, particular tests will predict long range academic success.

5. It is suggested that future studies be directed toward the individual rather than the group. The individual is the important factor.

If and when a reliable predictor of academic success at the college level at Oregon State College is discovered, it is recommended that the selected test, or battery of tests, be administered to all high school seniors in Oregon before the end of their senior year in high school (24, p.270). As soon as the results are obtained, it is recommended that the results and interpretations of the results be sent to each individual who took the test or tests. Then, the students may plan more accurately and more realistically.

Finally, it is hoped that future studies in the field of academic prognosis will be made. Such studies are the research adventures which may aid in eliminating many educational and vocational guidance problems which exist so abundantly today.

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APPENDIX

APPENDIX

Raw Data for the Total Group

<u>File Number</u>	<u>ACE Deciles</u>	<u>AGCT Percentiles</u>	<u>Ohio Total Percentiles</u>	<u>Ohio Reading Percentiles</u>	<u>First-Term Grade-Point Averages</u>	<u>Third-Term Grade-Point Averages</u>
577	8	86	44	47	2.81	2.62
580	10	92	95	95	3.67	3.52
581	3	75	26	31	2.31	2.27
586	2	59	27	25	2.00	2.21
587	2	40	12	17	1.78	1.98
590	6	89	46	53	2.67	2.70
591	6	91	63	77	2.69	2.62
594	2	77	66	69	2.50	2.55
595	1	56	36	53	2.82	2.61
597	9	93	63	69	2.33	2.29
604	8	93	51	69	2.13	2.22
605	10	96	99	97	2.71	2.85
607	9	92	67	69	2.53	2.44
609	6	80	37	28	1.80	2.43
613	7	95	28	47	1.94	1.94
614	2	56	21	50	1.87	1.93
615	1	52	11	23	1.57	1.57
616	2	39	3	6	2.21	2.00
619	2	56	24	41	1.20	2.00
623	6	51	9	17	3.20	3.53
627	3	77	25	31	1.21	1.83
628	6	92	42	44	1.88	1.75

<u>File Number</u>	<u>ACE Deciles</u>	<u>AGCT Percentiles</u>	<u>Ohio Total Percentiles</u>	<u>Ohio Reading Percentiles</u>	<u>First-Term Grade-Point Averages</u>	<u>Third-Term Grade-Point Averages</u>
630	1	34	2	2	1.54	1.51
632	7	65	69	61	2.69	2.07
634	3	85	13	23	1.94	1.98
640	4	81	31	20	1.19	1.53
641	9	88	31	17	2.47	2.40
643	9	94	56	74	0.62	1.29
644	1	48	20	20	2.58	2.36
649	6	60	46	59	2.87	2.70
651	3	80	33	38	1.87	2.05
652	5	75	4	2	1.69	2.04
655	5	73	62	52	2.56	2.44
656	2	72	27	28	2.25	2.13
657	3	51	27	31	2.07	2.28
658	3	80	46	50	1.93	2.14
661	5	73	16	15	2.07	2.18
663	5	91	39	44	2.29	2.24
664	5	88	41	38	1.88	1.79
666	6	91	46	50	0.87	1.98
678	2	77	12	15	1.79	1.95
680	10	93	64	53	2.75	2.68
684	6	65	40	34	0.47	1.77
686	3	75	14	38	1.85	1.93
687	9	92	30	47	1.81	1.98
693	10	93	59	77	2.43	2.77
695	5	91	46	44	2.94	2.94

<u>File Number</u>	<u>AGE Deciles</u>	<u>AGCT Percentiles</u>	<u>Ohio Total Percentiles</u>	<u>Ohio Reading Percentiles</u>	<u>First-Term Grade-Point Averages</u>	<u>Third-Term Grade-Point Averages</u>
696	1	33	5	6	1.50	1.83
700	5	89	51	72	2.87	2.57
702	6	93	78	83	3.13	2.43
703	2	52	5	10	1.07	1.48
704	2	80	13	10	2.54	1.95
709	9	89	81	90	2.22	1.98
713	4	80	30	44	2.06	2.20
719	8	91	30	41	1.69	1.85
730	8	85	54	64	2.47	2.36
734	7	91	51	77	1.72	1.98
735	3	75	42	25	2.20	1.76
739	2	43	8	10	1.63	1.71
740	3	75	15	38	2.64	3.15
741	10	93	100	99	.88	2.20
744	5	79	39	34	2.00	2.00
745	6	93	81	83	1.93	2.17
746	10	95	80	74	2.67	2.77
748	5	90	22	53	2.07	2.14
752	1	65	21	41	2.07	2.19
754	2	59	21	15	1.93	1.98
763	6	90	37	47	1.75	1.66
770	4	81	10	9	1.80	1.64
785	3	90	59	51	1.83	2.26
790	2	81	41	21	1.87	1.73
792	9	96	98	95	2.73	2.90
798	9	92	72	57	3.43	3.18

<u>File Number</u>	<u>ACE Deciles</u>	<u>AGCT Percentiles</u>	<u>Ohio Total Percentiles</u>	<u>Ohio Reading Percentiles</u>	<u>First-Term Grade-Point Averages</u>	<u>Third-Term Grade-Point Averages</u>
818	8	80	28	31	1.71	2.15
819	4	69	31	33	1.36	2.33
820	10	94	47	57	1.41	2.33
821	8	92	94	86	2.18	2.30
826	5	87	74	54	2.72	2.49
827	8	91	25	35	2.80	2.42
832	9	96	69	40	2.56	2.48
833	5	88	28	23	1.13	1.76
842	3	50	41	50	2.38	2.49
846	6	80	37	50	2.00	1.17
848	1	30	25	38	1.50	1.60
850	2	69	22	25	1.80	1.73
853	8	92	49	50	2.80	2.11
856	3	69	22	38	2.20	1.91
857	7	86	45	61	2.41	2.25
859	6	94	53	74	2.24	2.75
878	5	91	76	79	2.33	2.96
881	8	93	81	97	1.89	1.94
882	3	85	27	20	1.83	2.28
884	2	86	24	41	1.75	1.69
885	2	59	26	12	1.27	1.72
894	9	94	47	44	1.94	2.37
895	1	63	32	44	1.53	1.63
896	1	75	25	20	1.73	2.19
907	10	96	95	99	3.81	3.77
908	6	91	25	31	1.57	1.83
910	3	72	42	44	1.94	2.02

<u>File Number</u>	<u>ACE Deciles</u>	<u>AGCT Percentiles</u>	<u>Ohio Total Percentiles</u>	<u>Ohio Reading Percentiles</u>	<u>First-Term Grade-Point Averages</u>	<u>Third-Term Grade-Point Averages</u>
916	9	94	78	83	2.12	2.46
919	1	73	11	15	1.23	1.51
920	9	96	78	94	3.53	3.54
921	3	81	31	41	3.26	3.00
922	10	97	59	64	2.47	1.98
926	8	91	62	66	1.33	1.72
931	6	67	1	1	2.15	2.31
938	2	54	5	3	2.23	2.05
939	3	81	31	34	0.93	1.90
941	3	91	73	81	1.88	2.16
942	3	79	55	83	1.79	1.71
945	6	92	29	25	2.50	2.04
947	4	88	23	25	1.65	1.35
948	2	73	5	6	1.47	2.35
957	5	92	23	31	2.00	2.04
958	5	90	36	47	1.13	1.63
962	2	88	10	10	2.44	1.98
964	8	92	57	64	1.87	1.98
967	3	58	33	25	1.36	1.83
969	8	86	60	69	1.65	1.91
971	2	78	23	28	1.55	1.92
972	6	93	71	74	2.94	2.65
973	1	46	14	12	1.27	1.47
991	5	89	37	66	1.69	1.83
992	2	67	28	25	1.38	1.28
1002	10	96	90	87	2.13	1.94
1006	8	91	97	96	2.35	2.66

<u>File Number</u>	<u>ACE Deciles</u>	<u>AGCT Percentiles</u>	<u>Ohio Total Percentiles</u>	<u>Ohio Reading Percentiles</u>	<u>First-Term Grade-Point Averages</u>	<u>Third-Term Grade-Point Averages</u>
1009	4	69	39	61	1.94	1.68
1022	8	81	84	64	3.53	2.84
1023	2	59	6	90	1.64	2.05
1027	8	92	71	64	3.13	3.20
1030	1	56	28	47	2.07	2.18
1032	2	45	49	81	1.80	2.36
1035	8	93	75	94	2.47	2.82
1036	7	88	51	50	1.94	1.82
1039	2	83	29	31	1.80	1.96
1043	1	44	13	8	2.15	1.60
1055	8	91	74	61	2.64	2.21
1063	7	92	78	79	3.44	3.29
1064	10	91	87	94	2.17	2.33
1074	8	93	81	81	1.65	1.91
1078	2	78	29	44	1.87	2.19
1085	8	92	64	61	1.94	1.85