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SCHOLASTIC APTITUDE TEST IN GEORGIA.

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A STUDY OF SELECTED CHARACTERISTICS AND COLLEGE
SUCCESS OF HIGH AND LOW-ACHIEVING NEGRO
STUDENTS ON CEEB SCHOLASTIC APTITUDE
TEST IN GEORGIA

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SUBMITTED TO THE GRADUATE FACULTY
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degree of
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ROBERT THREATT
Norman, Oklahoma
1963

A STUDY OF SELECTED CHARACTERISTICS AND COLLEGE
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APPROVED BY

Glenn Snider
Claude Kelly
W B Ragan
Wayne Weaver
DISSERTATION COMMITTEE

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CHAPTER I

THE PROBLEM: ITS BACKGROUND AND SCOPE

Introduction

Prior to being admitted to any public college in Georgia, every student must take the Scholastic Aptitude Test (hereafter referred to as SAT) of the College Entrance Examination Board (CEEB). This is a regulation which was instituted in 1957 by the Board of Regents of the University System of Georgia.¹ The Board is the legal agency set up by the Georgia State Legislature to administer and supervise institutions of higher education in the state.

The major purpose of this entrance requirement is to provide data about the scholastic aptitude of the student as it relates to his chances of success in college. If increasing enrollment becomes

¹John R. Hills et al., Freshman Norms for the University System of Georgia, 1960-61 (Atlanta: Regents of the University System of Georgia, 1962), p.v.

a problem to the extent that shortage of facilities and personnel will not permit accommodation of all applicants, the CEEB Scholastic Aptitude Test (SAT) may become a part of the selective admission standards for Georgia Institutions.¹ Presently, however, SAT is primarily used for purposes of guidance.

Because SAT is often used as an instrument for predicting collegiate academic success, it may be well to briefly state some of its characteristics. This particular test is a timed-test made up of five, 30 minute sub-tests. Parts I, II, and III assess verbal aptitude by use of completion items, opposite analogies, and paragraph comprehension exercises. Parts IV and V assess quantitative aptitude by measuring comprehension of concepts related to the fields of arithmetic, algebra, and elementary plane geometry. Each portion, both verbal and quantitative, has its own set of norms.³

Another description of SAT is derived from a brochure published by the College Entrance Examination Board. SAT is a measure of a student's verbal and numerical proficiencies which have been acquired through the years in and out of school. Reasoning ability rather than remembered facts is the factor which SAT purports to measure. There is a close relationship between the performance of a student on SAT and his academic achievement in high school and college. The range of possible scores on SAT is 200 to 800 with scores between 400 to 600

¹John R. Hills, "College Admission Studies," College and University XXIV (1960-61), p. 519.

²J.T. Dailey, "College Entrance Examination Board Scholastic Aptitude Test," The Fifth Mental Measurement Yearbook, ed. O.K. Buros (Highland Park, New Jersey: The Gryphon Press, 1959), p. 319.

being achieved by two-thirds of the students who take the test.¹

It appears, in light of the preceding descriptions, that SAT is a sound instrument for affording information concerning the academic ability of a student. The Board of Regents of the University System of Georgia, however, does not restrict itself to data secured from the standardized aptitude test. Information about high-school grade-point average of the student is also requested. This permits a combination of these two scholastic measures about the student in estimating his chance for succeeding in college. The basic assumption for including the two devices is that they have more accurate predictive value as a composite than either one used singly. As individual indicators, however, average grade obtained in high school has been shown to be slightly superior to SAT score in reliability.²

Despite the efficiency of the SAT score and the high-school average for predicting college success, these factors are not used exclusively to determine the admission status of a student to one of the three public colleges for Negroes in Georgia. Consideration is given to other factors. It appears that admission to any of the three public colleges is generally determined by this policy: "Every applicant is evaluated in terms of test scores, high school grades, social and psychological adjustment in an effort to determine the probability of his completing requirements for a college degree at Albany State

¹College Entrance Examination Board, College Board Score Reports: A Guide for Counselors (Princeton: Educational Testing Service, 1961), pp. 4-5.

²John R. Hills, Freshman Norms for the University System of Georgia, 1960-61 (Atlanta: Regents of the University System of Georgia,) p.v.

College."¹

It is reasonable to assume that a student's performance on SAT is of little consequence for college admission if he is rated satisfactorily in the areas of high school grade-point average, and social and psychological adjustment. The assumption is further supported by the fact that none of the three public colleges is known to have a cut-off score on SAT as a prerequisite for admittance. It is expected, therefore, that these colleges do admit students who have scored at various levels on SAT.

Need for the Study

There are two reasons which seem to point up a need for this study. Even though at the present time only a score is required on the Scholastic Aptitude Test for college admission, increasing enrollment and radical changes in social relations indicate that the time may be drawing near when admittance to college will be determined on the basis of the score made on this or some similar scholastic aptitude test. This will, in effect, prevent many students from entering college. Such a requirement may close the doors of public higher education to many Negro students who fall short in terms of performance on standardized tests.² A reason for low performance of many Negro students has been given:

¹Albany State College, Announcements for 1962-1963 (Albany: Albany State College, 1962), p. 19.

²Carroll L. Miller, "Educational Opportunities and the Negro Child in the South," Harvard Educational Review, XXX (Summer, 1960), pp 195-208.

Mediocrity of environmental experiences, low socio-economic status, and indifferent attitudes toward education may result in such poor educational motivation that children from these backgrounds appear intellectually inferior.¹

Evidence to support the preceding explanation is reflected in many reports about academic improvement of Negro students when they were placed in more favorable circumstances.² The point to be made in this discussion is that conditions which may impair the performance of Georgia Negro students on the Scholastic Aptitude Test need to be seriously examined.

A further need for the study is reflected in the set of factors which relate to the persistence of Negro students after admission to college. A question to be asked is: What kinds of experiences do these students have in college? Another question to be posed is: How well do they succeed in college? For example, a look at the persistence of students in respect to the length of time they spend in school is a point for concern. In one sense, this may reveal that many students with relatively high aptitude are victims of attrition which, if so, would indicate a considerable waste for those who might be highly contributive in contemporary American society.³ A knowledge of these

¹Thelma H. Anderson, "Dimensions of the Characteristics Related to the High- and Low-Achievement of a Selected Group of Negro College Students", Unpublished Ed.D. dissertation, University of Oklahoma, 1961, p. 4.

²J.W. Wrightstone, "Demonstration Guidance Project in New York City," Harvard Educational Review, XXX (Summer, 1960), pp. 237-251.

³Educational Policies Commission, Manpower and Education (Washington: National Education Association, 1956).

factors may have important implications for the guidance program of the public school in reducing those causes which militate against persistence.

In view of the preceding discussion, the need for this study seems clear. It represents a necessity for investigating some of those factors which may be useful in determining success on the Scholastic Aptitude Test as well as in college. Being largely non-intellectual in nature, the factors are believed to be found in the pre-collegiate background as well as in the college environment of the students.

Statement of Problem

The problem of this study is to analyze selected characteristics of high- and low-achieving Negro students on the Scholastic Aptitude Test of the College Entrance Examination Board and discover the relationship, if any, between test performance and success in three public colleges in Georgia. More specifically, it is intended to:

1. Determine the differences between high achievers and low achievers with regard to selected personal and background characteristics.
2. Determine the differences between high achievers and low achievers with regard to selected factors in college.
3. Determine the differences between high achievers and low achievers with regard to grades obtained in college.

4. Determine the differences between high achievers and low achievers by sex with regard to selected personal and background characteristics, selected factors in college, and grades obtained in college.

Basic Assumptions

Four basic assumptions are established for this study:

1. The selected characteristics are important factors which may affect the scholastic performance of students.
2. The College Entrance Board Scholastic Aptitude Test is an index of achievement as well as aptitude.
3. The group mean and standard deviation are sound statistical measures for application to an array of Scholastic Aptitude Test scores in order to derive a high-achieving group and low-achieving group.
4. The frequency distribution of students is a valid procedure for determining differences between two groups of subjects.

General and Specific Hypotheses

The study centers upon three general hypotheses, each of which contains several specific null hypotheses. The first general hypothesis established is: There are no statistically significant differences in personal and background characteristics of Negro college students who are high achievers and low achievers on the Scholastic Aptitude Test. Included in this general hypothesis are these specific hypotheses:

1. Sex does not produce a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test.

2. Age does not produce a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test.

3. Occupational category of parent does not produce a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test.

4. Number of siblings in family does not yield a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test.

5. Size of home community does not result in a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test.

6. Classification as to urban or rural community does not result in a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test.

7. Geographical origin as determined by the student's home Congressional District does not result in a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test.

8. Accreditation status of high school does not statistically affect the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test.

9. Size of high school graduating class does not statistically affect the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test.

10. High school grade-point average does not result in a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test.

The second general hypothesis established is: There are no statistically significant differences resulting from selected factors in the college environment of students who are high achievers and low achievers on the Scholastic Aptitude Test. Embraced in this general hypothesis are the following specific null hypotheses:

1. Boarding status does not result in a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test.

2. Source of financial support does not result in a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test.

3. Selection of major field does not result in a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test.

4. Number of subjects failed does not result in a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test.

5. Persistence does not result in a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test.

6. Attrition quarter does not result in a statistically significant difference in the frequency of college students who are high

achievers and low achievers on the Scholastic Aptitude Test.

7. Reason for dropout does not result in a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test.

8. Average load taken by graduates does not result in a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test.

9. Number of quarters in residence taken for graduation does not result in a statistically significant difference, at the 0.05 level of significance, in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test.

The third general hypothesis established is: There are no statistically significant difference resulting from grades obtained in college of students who are high achievers and low achievers on the Scholastic Aptitude Test. Emanating from this general hypothesis are these specific hypotheses:

1. Major field grade-point average does not result in a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test.

2. Cumulative grade-point average for graduates does not result in a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test.

Definition of Terms

To establish a common frame of reference, the following definitions of terms are given:

1. College Entrance Examination Board Scholastic Aptitude Test.---

A standardized test which is administered to all freshman students prior to admission to a public institution of higher learning in Georgia. Quantitative and verbal abilities are measured by this test which was developed by the Educational Testing Service.¹

2. College Success.--- Academic achievement of the students in the study who graduated from college. Achievement was restricted to grade-point average obtained during the last two years of college and cumulative grade-point average for the entire period spent in college.

3. High Achievers.--- Those students in the study whose scores on the Scholastic Aptitude Test of the College Entrance Examination Board were at least one-half standard deviation above the mean score obtained for the entire group of 513 Negro students who took the test for college admission during the fall quarter of the 1957-58 school year were considered high achievers.

4. Low Achievers.--- Those students whose scores on the Scholastic Aptitude Test of the College Entrance Examination Board were at least one-half standard deviation below the mean score obtained for 513 Negro students who took the test for college admission during the fall quarter of the 1957-58 school year were described as low achievers.

¹ Educational Testing Service, Box 592, Princeton, New Jersey.

5. Non-intellectual Characteristics.-- Those personal, background, and collegiate factors include the following: (1) sex, (2) age, (3) occupational classification of parent, (4) number of siblings in family, (5) size of community, (6) classification of community, (7) Congressional District of community, (8) accreditation status of high school, (9) size of high school graduating class, (10) boarding status, (11) source of financial support, (12) selection of major field, (13) number of subjects failed, (14) persistence, (15) attrition, (16) reason for dropout, (17) average load, and (18) number of quarters in residence taken for graduation.

6. Grade-Point Average.--The mean numerical grade received by a student as a result of his academic performance at different times in a single subject or for different subjects taken during a given period was the grade-point average. Included in this study were: (1) high school average, (2) average obtained in major field for last two years of college, and (3) cumulative average for graduates.

Limitations of the Study

1. The sample was taken from freshman students who were enrolled for the first time in the three public colleges for Negroes in Georgia during the fall quarter of the 1957-58 school year. The three institutions were Albany State College, Fort Valley State College and Savannah State College.

2. The subjects were limited to those who had graduated from a public high school in Georgia.

3. Subjects classified as high achievers were those who had

scores at least one-half standard deviation above the group mean for all Negroes who took the Scholastic Aptitude Test for admission to the three public colleges for Negroes in Georgia during the fall quarter of the 1957-58 school year. Twenty high achievers who had scores less than one-half standard deviation above the mean were selected to replace those students eliminated for various reasons.

4. Subjects classified as low achievers were those who had scores at least one-half standard deviation below the group mean for all Negroes who took the Scholastic Aptitude Test for admission to the three public colleges for Negroes in Georgia during the fall quarter of the 1957-58 school year. Twenty low achievers who had scores less than one-half standard deviation below the mean were selected to replace those students eliminated for various reasons.

5. The subjects who graduated from college were the only ones used when comparison was made between high achievers and low achievers on these factors: (1) average load, (2) number of quarters in residence taken for graduation, (3) grade-point average in major field, and (4) cumulative grade-point average.

6. Significance in difference was tested at the 0.05 level.

Value of the Study

The present study should prove valuable in the following ways:

1. It reveals information about characteristics which seem to distinguish between high achievers and low achievers on the Scholastic Aptitude Test of the College Entrance Examination Board. This may serve as a basis for developing similar studies on Negroes who attend

the three public colleges for Negroes in Georgia.

2. The findings of the study may be helpful to high school counselors and college personnel workers in their efforts to improve the intellectual achievement of students.

3. The results may be useful to those educators serving at the state level in the public education structure of Georgia. The Georgia State Department of Education may have at its disposal data about factors which appear to make for good and poor schools. The Regents of the University System of Georgia may know more about the long-range effectiveness of the Scholastic Aptitude Test as a measure for prediction of college success.

Organization of the Study

The study includes five chapters and a bibliography. Chapter One provides the background of the study, states the problem and its value, presents hypotheses, defines terms, and points out limitations and assumptions of the study. Chapter Two is devoted to a review of selected literature which is related to this study and Chapter Three includes an explanation of the selection of the sample, description of categories used for each selected characteristic, and methods used in the collection and treatment of data. Chapter Four contains a presentation of data which are analyzed through tables and discussion. The summary, conclusions, and recommendations of the study are given in Chapter Five.

CHAPTER II

REVIEW OF SELECTED RELATED LITERATURE

A review of selected literature pertinent to this study is presented below under two captions: (1) studies related to personal and background factors, and (2) studies related to non-intellectual factors in college. Both groups of studies have some relationship to scholastic aptitude or academic attainment. In each division, an attempt has been made to place as closely together as possible and in chronological sequence those pieces of research which were concerned with the same factor. Each study was considered in light of the nature of the problem, the procedure utilized, the sample used, and the findings.

Studies on Personal and Background Factors

Caliver, several decades ago, examined a group of Negro students in background status and behavior in college. During the initial part of the study, attention was given to these factors: (1) geographical distribution, (2) type of preparatory school, (3) age distribution, (4) paternal occupation, (5) extracurricular activities, and (6) mortality of parents. The second phase of the study related to comparison of characteristics: (1) sex differences and psychological

test scores, (2) persistence and intelligence, (3) intelligence and dropout reason, (4) paternal occupation and scholastic aptitude, (5) intellectual status and type of school, and (6) intelligence and size of family.

Included in the sample were 450 freshman students who entered Fisk University during the years of 1926, 1927, and 1928. The procedure included the preparation of a questionnaire for students, securing data from standardized tests, and obtaining information on scholastic achievement in high school and college. Caliver reported these findings: (1) female subjects were higher in intelligence and earned better grades than men, (2) students from the top four occupational groups were found to be intellectually superior to students from other occupations, (3) intelligence of students was in inverse ratio to number of children per family, (4) dropouts related to intelligence, those at the lowest rung having the highest number and those at the top having the least number, and (5) low group had highest number in all the reasons given for dropout including low aptitude, poor scholarship, and lack of finance.¹

An investigation by Moore was concerned with a group of students who had completed high school two years earlier than the average student. The major purposes were to determine if the students were academically gifted and experiencing a problem of adjustment. The sample consisted of 308 subjects who were selected from a statewide group of

¹ Ambrose Caliver, A Personnel Study of Negro College Students (New York: Bureau of Publications, 1931).

27,219 high school seniors. In comparing the subjects with the statewide group, attention was focused on several factors: (1) sex, (2) nationality of parents, (3) occupation of father, (4) education of parents, (5) intelligence, (6) college attendance, (7) college achievement, (8) college major, and (9) occupational choice.

Among the findings of Moore were: (1) performance on intelligence and achievement tests favored the younger group, (2) school size did not make a difference between groups, (3) the younger group came from homes of higher occupational and educational status, (4) more of the younger group members whose college majors in history, mathematics, and science whereas English, science, and social studies were selected more frequently by the statewide group, and (5) the members of the younger group were more inclined toward professional occupations than were those of the statewide group.¹

Pierson investigated the hypothesis that there is a positive correlation between age of college students and quality of academic success. A sample of 600 Michigan State College students were selected and separated into four different age groups. The procedure involved: (1) determining differences in ability on the basis of results of ACE Psychological Examination, (2) computing average grade for each group, and (3) comparing the four groups in terms of sex, marital status, and military status.

Pertinent findings reported by Pierson were: (1) the youngest group, those 18 years old or less, earned the highest grade, and (2)

¹Margaret W. Moore, A Study of Young High School Graduates (New York: Bureau of Publications, 1933).

the second highest grades were achieved by the oldest group, those 25 years old or older. It was concluded that age of students at Michigan State College was of little significance in academic performance.¹

D'Amico conducted a study of the personal and social characteristics and academic achievement of 265 students at Xavier University. They were examined for the entire period spent in college. Variables relating to major subject area, paternal occupation, high school attended, and age were compared with academic performance of subjects. Drop-out was also given attention.

Among the findings noted by D'Amico were: (1) students from semi-skilled paternal occupations achieved the highest median credit-point ratio and those with the lowest median credit-point ratio came from unskilled paternal occupations; and (2) students who were 22 years of age or older had the highest median grade whereas those at 20 years of age were lowest in median grade. D'Amico concluded that most students were able to realize a fair measure of success in college in spite of poor background in socioeconomic status and educational training.²

Centi made an investigation of differences between high-ranking and low-ranking students in regard to certain personal and family characteristics and use of time. The subjects consisted of 64 full-time students who were attending a large urban university. Based on first

¹R.R. Pierson, "Age Versus Academic Success in College Students," School and Society, LXVIII (August 7, 1948), pp. 94-95.

²Louis M. D'Amico, "Characteristics of Students Admitted to Xavier University in 1951 and a Follow-up of Their Achievement," Journal of Educational Research, LI (January, 1958), pp. 361-366.

semester grade-point average achieved in college, the subjects were divided into high and low groups. Data were analyzed by use of analysis of variance and chi square.

Among the findings of Centi were: (1) there was no significant difference between high-ranking and low-ranking groups in terms of sex, occupation of father, parental education, family size, and full-time and part-time work, and (2) there was some difference in age in that the members of the high-ranking group were slightly younger. The non-intellectual factors investigated, according to Centi, had no significant effect on the level of achievement of students.¹

Mohandessi and Runkei examined the relationship between socioeconomic factors and academic aptitude. A general hypothesis was proposed that aptitude levels of schools in various communities varied according to socioeconomic characteristics of communities. Six specific hypotheses were formulated: (1) that more schools in the first quarter would be closer to larger communities, (2) that more schools in the first quarter would be in larger communities, (3) that more schools in the first quarter would be farther away from coal mines, (4) that more schools in the first quarter would be located where value was greater for land and building per farm, (5) that more schools in first quarter would be of large size, and (6) that more schools in first quarter would be private in control.

The authors ranked schools on the basis of test scores achieved

¹Paul Centi, "Highest and Lowest Ranking Students at the School of Education of a Large Urban University," Personnel and Guidance Journal, XXXVIII (1958-59), pp. 457-459.

by students on the Differential Aptitude Tests which were administered by the high schools of Illinois. Even though schools were divided into four different aptitudinal groups, comparisons were made only between first and last groups. All six of the hypotheses were accepted which indicated that socioeconomic factors of communities were related to aptitude level of school.¹

The question of rural-urban difference in intelligence was explored by Lehman who established two hypotheses: (1) there were no differences between two groups in respect to IQ and MA, and (2) there was no difference between urban and rural children in response to test items on the Revised Stanford-Binet. A random selection of 44 rural and 44 urban children were used as subjects. Analysis of variance, analysis of co-variance, and chi-square were the statistical methods used to determine differences. Lehman noted that IQ and MA of urban group were higher than the rural group, and, even though the difference was not significant, the urban group had more correct responses to test items than the rural group.²

The relationship between academic performance and non-intellectual factors was the nature of an investigation conducted by Washburne. His proposal was that a significant relationship existed between scholastic achievement and the two factors of family socioeconomic status and urbanism. The sample consisted of 200 students, 50 per cent of

¹Khossrow Mohandessi and Philip J. Bunkel, "Some Socioeconomic Correlates of Academic Aptitude," Journal of Educational Psychology, XLIX (1958), pp. 47-52.

²I.J. Lehman, "Rural-Urban Differences in Intelligence," Journal of Educational Research, XLIII (October, 1959), pp. 62-66.

whom were enrolled in public college located in a sparsely settled community and the other 50 per cent of students were in attendance at a private college situated in a metropolitan area. Parental educational level was identified with socioeconomic status of student and urbanism was determined by size of community and its closeness to larger areas. Statistical procedures used to test relationships were coefficient of correlation and the scattergram.

The major findings of Washburne were: (1) socioeconomic status was not significantly related to academic performance of either group, and (2) urbanism was positively correlated with achievement of private college students.¹

The study by Bunger was focused on background factors of students which affected the "fallibility of college entrance test scores as predictors of college success." Major characteristics examined were type of high school, teaching staff of high school, financial support of school, and community economic structure. Three crucial hypotheses were proposed: (1) that there was a relationship between College Qualification Test scores (part scores and total score) and academic success at the University of Kentucky, (2) that there was a relationship between type of school-community from which freshman came and their success at the University, and (3) that there was a relationship between CQT scores (part scores and total score) and type of school-community. Included in the sample were 1,089 freshmen who represented 231 high

¹N.F. Washburne, "Socioeconomic Status, Urbanism and Academic Performance in College," Journal of Educational Research, LIII (December, 1959), pp. 130-137.

schools. On the basis of first semester grade-point average, the subjects were divided into three groups: probation, middle, and non-probation. High schools from which students graduated were assigned those three levels of status. The subjects were further classified into five different groups as indicated by their performance on CQT. The comparison was conducted on a three-dimension scale: five groups according to aptitude level, school status with respect to being probation, middle, and non-probation, and school-community variables. Chi square was used to determine relationships.

Two major conclusions of Bunger were: (1) the numerical part of CQT was the best single predictor of probationary status of freshman students at the end of the first semester at the University of Kentucky, and (2) there were inconsistent patterns of relationships when separate CQT scores were compared with community characteristics and types of schools.¹

Pettengill studied high school size in relationship to scholastic aptitude. The problem was to determine if significant differences existed between students from various sizes of high schools and their percentile rank on the Minnesota College Aptitude test. The subjects were 1,568 college freshmen who had graduated from public schools in two distinct communities. There were 417 subjects from schools in cities and towns of less than 5,000 population, and 1,151 subjects from the larger cities of Minneapolis and St. Paul.

¹Fred A. Bunger, Cultural Forces and Academic Success in College (Lexington; Bureau of School Services, 1960).

Pettengill discovered that school size did significantly affect the performance of subjects on the MCA test. According to results of performance, the Minneapolis and St. Paul Freshmen had an average of 43.95 which was 4.96 points higher than 38.99 average percentile rank of freshmen from schools in communities with less than 5,000 population.¹

The influence of high school size upon academic achievement was examined by Saupe. The assumption that graduates from large high schools were better prepared to succeed in college than graduates from small high schools was challenged by the investigator. A sample of 818 students were selected from among 1,321 freshmen enrolled at the University of Missouri. Based on results from College Aptitude Test and Ohio State Psychological Examination Form 18, the subjects were divided into an average group and a superior group. The number of subjects in the average and superior groups were 462 and 356, respectively.

Size of high school was determined by the number in the high school graduating class and size of community in which the high school was located. Enrollment in three different college programs, sex, and achievement were the factors used in comparing the two groups. Saupe noted that urban schools and large schools were not producing students who were superior in achievement over students from small schools. In fact, students from small schools tended to perform slightly better than

¹True E. Pettengill, "Size of High School and Predictive Value of Class Rank and Aptitude Test Rank," Bulletin of American Association of Collegiate Registrars, IX (1933-34), pp. 190-193.

urban-large school students.¹

Mollenkopf discovered that some of the variables were common to both aptitude and achievement whereas other factors were found to be unique to each. Substantial relationships were noted for aptitude with respect to (1) instructional support per pupil, (2) presence or absence of community library, (3) community size, (4) geographical region, (5) per cent of support from state, and (6) per cent of fathers who were high school graduates. Achievement was substantially related to: (1) size of special staff, (2) size of average class, (3) presence or absence of community library, (4) per cent of graduates in college, (5) per cent of fathers who were high school graduates, (6) per cent of fathers who were professional workers, (7) community size, and (8) geographical region.²

Kerr analyzed high school records, test scores and college grades of 870 college freshmen at the University of Arkansas. The purpose of the analysis was to discover information which would be useful in establishing a reliable criterion for selective admission. Grades were assigned numerical values and ACE scores were designated percentile ranks. Comparisons made were of four kinds: (1) high school grades and college grades, (2) ACE scores and college grades, (3) type of high school and college attainment, and (4) size of high school and

¹Mildred W. Saupe, "Size of High School as a Factor in the College Success of Average and Superior Graduates," Journal of American Association of Collegiate Registrars, XVII (1941-42), pp. 45-57.

²W.G. Mollenkopf, "A Study of Secondary School Characteristics as Related to Test Scores," Educational Testing Service (Annual Report to the Board of Trustees, 1955-56), pp. 128-129.

college attainment.

Pertinent results revealed by Kerr were: (1) there was a fair degree of correlation between ACE scores and college grades, (2) type of school did not make a difference in performance, (3) students from larger high schools had lower college average than students from small schools, and (4) high school grades had higher correlation with college grades than ACE scores had with achievement in college.¹

High school size and academic success were given attention by Hoyt who posed two questions for consideration: (1) How do students from high schools of different size compare with regard to (a) ability for college work and (b) actual performance in college? (2) Should high school rank be interpreted differently, depending upon size of high school involved? The sample was comprised of 884 freshman students and the number of seniors in the graduating class determined the size of the high school. Scholastic ability and academic achievement were based on first year college grade-point average, American Council Examination raw scores, and high school rank. The statistical treatment of data included an analysis of variance and co-variance.

Hoyt reported these findings: (1) size of high school did not make a difference in aptitude of subjects to do college work, (2) size of high school did not affect academic achievement in college, (3) average high school rank of male students from small high schools tended to be higher than average high school rank of male students from large high schools, and (4) average high school rank and average

¹Fred L. Kerr, "Studies on the Freshman Class of 1956 at the University of Arkansas, College and University, XXIV (1958-59), pp. 186-189.

first year college grade were higher for females than for males.¹

A study of the relationship between achievement and high school accreditation status was conducted by Smith. The subjects were 92 freshman students enrolled at the Albany State College. An equal division of the subjects was based on their having graduated from high schools which were or were not accredited by the Southern Association of Colleges and Secondary Schools. The two groups were compared according to first year grade-point average in college and score on the CEEB Scholastic Aptitude Test. Aptitude scores revealed a significant difference between the two groups: (1) the accredited school group had a higher average in verbal performance, and (2) the non-accredited group scored significantly higher in mathematics.²

Studies on Non-Intellectual Factors in College

Non-intellectual factors in the college environment and their effect upon academic success of students was the subject of several studies. Many of the investigations were restricted to one class of students whereas others covered several classes. The subsequent review will include both kinds of investigations.

A comprehensive study of various characteristics relating to Negro students in college was undertaken by Caliver many years ago.

¹Donald P. Hoyt, "Size of High School and College Grade," Personnel and Guidance Journal, XXXVII (1958-59), pp. 569-573.

²Paul M. Smith, "Accredited Versus Non-Accredited High Schools," College and University, XXXVI (1960-61), pp. 96-99.

The subjects were 1,880 college freshmen who represented 33 colleges located in 16 states and the District of Columbia. Questionnaire and ACE Psychological Examination were the major means employed in gathering data about the subjects in respect to social, economic, cultural, academic, and intellectual factors.

Pertinent findings by Caliver were: (1) younger students were decidedly superior to older students in scholastic aptitude, (2) women, on the average, were younger than men, (3) freshman males had higher scholastic aptitude than freshman females, (4) men had a relatively greater number of failures in subjects than women, (5) there was negligible difference between the superior group and inferior group in number of subjects failed, (6) the most frequently chosen major field was education, followed by English and home economics, (7) in terms of median aptitude level of those selecting education as a major, education ranked fifteenth among 20 different fields, (8) sixty per cent of the students expected to finance in part or all of their support for college, and (9) the ratio of girls to boys was three-to-two.¹

Charles investigated a group of top-quarter high school graduates who attended the University of Nebraska. The study was centered on these questions: (1) What kind of persons were they when they entered the University? (2) What was the level of their ability as measured by the Pre-Registration Guidance Examination? (3) What was their

¹Ambrose Caliver, A Background Study of Negro College Students, U.S. Office of Education Bulletin No. 8 (Washington: U.S. Government Printing Office, 1933).

academic performance in terms of hours, subjects, and grades? (4) How long did they stay in school and what percentage were awarded degrees? (5) What proportion of honors did they win? The sample consisted of a total of 300 subjects; an equal number of which were selected at random from freshman classes of three terms, 1941-42, 1942-43, and 1943-44. High school rank served as a basis for establishing performance level.

The findings of Charles revealed: (1) that about two-thirds of the subjects came from graduating classes of less than 50 students, (2) that the subjects were above the university average in academic performance at time of entrance, (3) that the subjects earned generally less than thirty hours per year, and (4) that one-third of the subjects dropped out of the University.¹

Shaw and Brown investigated selected factors and their relationship to under-achievement of high ability students. The problem was to discover why the academic performance of high ability college freshman students was not commensurate with their aptitude. The sample of high ability students was selected and placed into two groups, achievers and underachievers, on the basis of academic performance in class. A comparison of the groups was made with regard to number of units carried, size of community, and educational level of parents.

The findings of Shaw and Brown revealed: (1) that three-fourths of the achievers carried greater than normal load whereas less than

¹Don C. Charles, "College Performance of Top-Quarter High School Graduate," Journal of Educational Psychology, XXXIX (1948), pp. 82-91.

half of the underachievers did so, (2) that more than twice as many underachievers than achievers carried smaller than normal academic load, (3) that achievers tended to come from communities of greater population than underachievers, and (4) that the tendency was for parents of achievers to have more education than parents of under-¹achievers.

Schwilck explored the relationship between class load and academic success of college students. The hypothesis was tested that students enrolled in six subjects in the absence of a study period would achieve equally as well as students of the same scholastic aptitude who were enrolled in fewer subjects and had one or more study periods. A sample of 501 college freshmen was selected. In order to determine load, subjects were weighted according to these criteria: (1) English, two points, (2) algebra, science, and foreign language, three points, (3) remaining full credit subjects, two points, and (4) half credit subjects, one point. The scholastic aptitude of students was determined by the Otis Quick Scoring Mental Test, Gamma, Form B4, from which three levels of subjects were classified: (1) 120 or above IQ, (2) 100-119 IQ, and (3) below 100 IQ.

Four significant findings reported by Schwilck were: (1) students with below average scholastic aptitude earned grades inversely proportional to their academic load, (2) higher scholastic aptitude students selected heavier academic loads, (3) achievement and aptitude

¹Merville C. Shaw and Donald J. Brown, "Scholastic Underachievement of Bright College Students," Personnel and Guidance Journal, XXXVI (1957-58), pp. 195-199.

were significantly related to each other, (4) as a group, those who carried heavier academic loads were higher achievers than those who carried lighter loads, and (5) students with average and above average and scholastic aptitude performed at a given level without regard to their academic loads.¹

Class load and academic success was also considered in a study conducted by Merrill and Osborn. Being concerned with over-load, the investigators posed three questions: (1) What is the relationship between over-load and general academic success of students? (2) What is the relationship between over-load and general academic success of academically superior students? (3) What is the relationship between over-load and general academic success of academically deficient students? A sample of 474 students was selected and ranked as a superior group and as a deficient group according to cumulative grade-point average. An over-load was considered to exist when an excess of 18 quarter hours was carried. Coefficient of correlation was the method used to analyze the data.

Merrill and Osborn reported these findings: (1) students performed much the same during the quarter or semester of over-load as during any other period, and (2) there was a trend which approached significant proportion for academically deficient students to perform less well during an over-load period.²

¹Gene L. Schwilck, "Academic Achievement of Freshman College Students in Relationship to Class Load and Scholastic Aptitude," Personnel and Guidance Journal, XXVII (1958-59), pp. 455-456.

²Reed M. Merrill and Hal W. Osborn, "Academic Over-Load and Scholastic Success," Personnel and Guidance Journal, XXVII (1958-59), pp. 509-510.

The findings of several other studies noted that students of various levels of aptitude and achievement were victims of mortality, but those hurt most frequently were found at the bottom level. The results of an investigation made by Iffert indicated that 56 per cent of entering freshmen who were in the top fifth of their high school class graduated from college whereas the bottom fifth in high school rank had only 13 per cent of its number to graduate.¹ Slocum reported that the enrolled students at Washington State College had an average percentile rank in high school of 73 and an ACE average score of 55 whereas those who were dropouts had an average percentile rank and ACE score of 58 and 42, respectively.²

Halladay and Andrew summarized many studies which were related to mortality of students at Arkansas colleges. Included in the report were data pertaining to dropout of high-ability and high-achieving students. Halladay and Andrew noted that 15 per cent of the dropouts scored above average on ability and achievement tests and five to eight per cent were very capable students.³

The persistence of academically talented students at the University of Wisconsin was examined by Little. The problem entailed exploring seven questions: (1) What was the quality of the entering class?

¹Robert E. Iffert, "Study of College Student Retention and Withdrawal," College and University, XXXI (1955-56), pp. 435-447.

²W.L. Slocum, "Social Factors Involved in Academic Mortality," College and University, XXXII (1956-57), pp. 53-65.

³D.W. Halladay and D.C. Andrew, "Drop-Outs from Arkansas Colleges," Personnel and Guidance Journal, XXXVII (1958-59), pp. 212-213.

(2) How many persisted in university studies? (3) How many students did not persist? (4) Why did students not persist? (5) Who were those who showed high persistence? (6) What was the relationship between size of high school and persistence in college? (7) Did occupation of parents make a difference in persistence?

Little investigated 1,949 freshman students over a four-year period. Scholastic aptitude and academic achievement in high school of subjects were compared. The findings included: (1) in aptitude, 52 per cent ranked in the top fourth of all Wisconsin high school graduates whereas 48 per cent obtained the position in academic achievement, (2) slightly less than one per cent of the subjects finished in less time than four years, (3) the withdrawal represented about one-half of one per cent of the subjects, (4) a greater percentage of withdrawals came from the top 30 per cent in aptitude than from the same level in academic achievement, (5) smaller high schools had a higher percentage who did not persist than larger size high schools, and (6) occupation of parents made little difference in persistence of students.¹

Wolfle examined scholastic aptitude of students in relationship to their selection of major field. The average scholastic aptitude of a group of college graduates who were working in various fields was compared with average scholastic aptitude of the college. Wolfle's findings were: (1) engineering, language, physical science, and psychology majors were above the college average, (2) biological science

¹Kenneth Little, "The Persistence of Academically Talented Youth in University Studies," Educational Record, XL (1959), pp. 237-241.

and art majors were nearly equal to the college average, and (3) those engaged in agriculture, business, and education were below the college average.¹

A comprehensive statement relating to scholastic aptitude of students and their choice of major field was presented by Sanford in this manner:

The kind of difference among groups of students in various major fields that has been most definitely established is the one that, as it now stands, has the least meaning. Several large scale studies of the general intelligence of undergraduate students have produced remarkably consistent findings: the average intelligence test scores of major groups regularly fall into an order with the physical sciences, engineering, and mathematics at the top, followed by literature and the social sciences, with the applied fields, agriculture, business, home economics, and education at the bottom. An obvious explanation of this ordering is that it reflects the varying difficulty of the subjects as they are usually taught at the undergraduate level. The order has, in fact, been found to be substantially correlated with the reputation for difficulty that these fields enjoy among undergraduate students. It is for this reason that the average scores, though they may be of practical importance, have little theoretical significance.²

In commenting on the question of whether some fields have more intrinsic appeal than others to students of superior ability, Sanford stated:

Of the 911 gifted students studied by Terman, 38% specialized in social sciences, 29% in natural sciences and engineering, and 26% in humanities. There were marked sex differences, however, with the men mainly choosing majors in one of the science areas and women choosing social sciences

¹ Dael Wolfe, "Intellectual Ability of Students Entering Different Fields of Science," Science, CXV (1952), p. 489.

² Nevitt Sanford, The American College (New York: John Wiley & Sons, Inc., 1962), p. 564.

or humanities.¹

Differences in academic dismissal and academic performance of students who ranked highest and lowest on the ACE Psychological Examination was the problem examined by Williams. A sample of 60 subjects was chosen from among 261 students at the Savannah State College and was divided into two groups of equal size. The procedure included securing test results and data from scholastic and personal records of subjects.

Williams found that the members of the low ranking group: (1) had the higher mortality rate, (2) withdrew more often because of academic reasons, (3) graduated from college less frequently in a four year period, and (4) were decisively lower in academic achievement.²

A survey by the National Association of the college population in America reported several characteristics of the group, among which were these: (1) two-thirds of the enrollment were men, (2) more than one-third of the students came from urban communities, (3) enrollments between freshman and sophomore and junior years reflected a steady decline but the enrollment for the senior year was about the same as that for the junior year, (4) the rank in order of importance, from high to low, for sources of financial support was parents, self or work, and scholarship, (5) major fields most frequently chosen, in descending order, were education, business, biological and physical

¹Ibid.

²E.K. Williams, "Comparative Academic Achievement of Students Ranking the Highest and the Lowest on the ACE Test," Faculty Research Edition of the Savannah State College Bulletin, IV (December, 1962), pp. 10-14.

sciences, and engineering, (6) twice as many women as men were majoring in education, (7) the biological sciences and humanities were being chosen more often by women than by men, and (8) more men, in contrast to women, were majoring in business, engineering, and physical sciences.¹

The preceding review of literature related to the problem of this investigation was concerned primarily with those studies that focused on the relationship of various factors to scholastic aptitude and achievement. The major factors were usually those of a non-intellectual nature, consisting of personal, background, and college characteristics of students. Findings noted herein tended to reflect disagreement about the relationship between most of the non-intellectual factors and academic ability and performance. Dropout status and selection of major fields appeared to have been the two factors that were most consistently shown to have relationship to ability and achievement. The findings suggested that additional research was needed in order to shed more light on factors which are relevant to the achievement of college students.

¹"College Attendance and Youth," NEA Research Bulletin, XL (February, 1962), pp. 18-21.

CHAPTER III

PROCEDURE OF THE STUDY

The problem of this study was to analyze selected characteristics of high-and low-achieving Negro students on the Scholastic Aptitude Test of the College Entrance Examination Board and discover the relationship, if any, between test performance and success in three public colleges in Georgia. More specifically, it was intended to:

1. Determine the differences between high achievers and low achievers with regard to selected personal and background characteristics.
2. Determine the differences between high achievers and low achievers with regard to selected college factors.
3. Determine the differences between high achievers and low achievers with regard to grades obtained in college.
4. Determine the differences between high achievers and low achievers by sex with regard to selected personal and background characteristics, selected factors in college, and grades obtained in college.

Sample

The subjects were selected from 513 students who took the College

Entrance Examination Board Scholastic Aptitude Test for admission during the fall quarter of 1957 to the three public colleges for Negroes in Georgia. The name, Scholastic Aptitude Test score, and college attended for each of the 513 students were secured from the Director of Guidance and Testing Office for the Regents of the University System of Georgia. Even though the test scores were given in two parts, quantitative and verbal, a composite score for each student was obtained. It was felt that a composite score was a more accurate index for selecting the sample since either of the part-scores may have tended to favor the quantitatively talented or the verbally talented.

The Scholastic Aptitude Test scores for the total group of Negro students were treated in order to determine the subjects in the sample. The procedure involved the following steps: (1) test scores were arranged in order from highest to lowest, (2) range in scores was determined by obtaining the difference between the highest score, 981, and the lowest score, 435, and subtracting one from the remainder, 546 which yielded a spread of 545, (3) the number of class intervals, 19, and the size of each interval, 30, were established, (4) each score was assigned to an appropriate class-interval level, (5) the Short Method was used to calculate the Mean 568, and the Standard Deviation 64, for the array of test scores, (6) one-half of the Standard Deviation was taken so as to obtain a value of 32. (7) the value of 32 was added to and deducted from the Mean 568, which resulted in

the respective figures of 600 and 536, (8) scores that were equal to or above 600 were selected to represent high achievers, and (9) scores which were equal to or below 536 were selected to represent low achievers.¹

The selective process resulted in a total of 302 subjects who were classified as follows: (1) 100 high achievers, (2) 175 low achievers, and (3) 27 eliminated. In order to replace those eliminated, an additional 20 subjects for each group of achievers was selected, representing the next highest and lowest scoring members within the one-half Standard Deviation limit. The final number of subjects selected for each group, therefore, was 120 high achievers and 195 low achievers.

Elimination of Subjects

The 27 subjects referred to above were eliminated for these reasons: eighteen attended out-of-state high schools, two attended private high schools, three transferred from another college, and inadequate data were available for four. A distribution of the total number eliminated indicated 52 per cent to be high achievers and 48 per cent to be low achievers on the Scholastic Aptitude Test.

Source and Nature of Data

Several sources provided data for this study. The data below were secured from the office of Guidance and Testing of the Regents

¹Henry E. Garrett, Statistics in Psychology and Education (New York: Longmans, Green and Co., 1941), pp. 4-6, 26-29, 44-46.

of the University System of Georgia:

1. Roster of students who attended the three public colleges.
2. Scholastic Aptitude Test scores of students.
3. Sex of students.
4. Names of colleges attended by students.

The information listed below was obtained from files in the office of the Registrar at the three public colleges:

1. Age of each student.
2. Hometown of each student.
3. Occupation of parent of each student.
4. Name of high school attended by each student.
5. High School grade-point average of each student.
6. Number of siblings in family of each student.
7. Residence status of each student.
8. Source of financial support for each student.
9. Major field selected by each student.
10. Survival status of each student.
11. Reason for dropout of each student.
12. Total number of credit hours earned by each student.
13. Number of quarters in residence taken for each student to graduate.
14. Grade-point average obtained in major field by each student.
15. Cumulative grade-point average of each student.

The following information was secured from files in the office of Bursars at the three public colleges:

1. Scholarships granted to student.

2. Loans granted to student.
3. Work-aid granted to student.

The data below were secured from records and bulletins of the Georgia State Department of Education:

1. Size of high school attended by student.
2. Accreditation status of high school attended by student.

Classification of Data

There were 19 factors used in this study to determine whether or not differences existed between the 315 high- and low-achieving students on the Scholastic Aptitude Test. Each of the 19 factors was divided into specific categories which varied in size according to the nature of the factor. Subsequent statements in this report will describe the procedure used in the classification of categories and names of categories in each factor except the sex factor.

In deriving an appropriate classification for the age factor, the average age for high school graduation was arbitrarily placed at 18 years of age. The categories established for the age factors were: 17 years or less, 18 years, 19 years, and 20 years or more.

The occupational classification factor was categorized in accordance with the grouping prescribed by the Dictionary of Occupational Titles. A "None reported" category was used for cases in which an occupation was not listed. In the absence of paternal occupation being recorded, maternal occupation was selected where reported. Categories for the occupational classification factor were: (1) Professional and Managerial, (2) Clerical and Sales, (3) Service,

(4) Agriculture, Fishery, Forestry, and Kindred, (5) Skilled, (6) Unskilled, (7) Semiskilled, and (8) None Reported.¹

In setting up categories for the number of siblings factor, an effort was made to secure an equal distribution in frequency of achievers among the categories. The categories derived were 1-3, 4-6, and 7 or more.

The size of the community factor was sub-divided in accordance with the classification system for population used by the United States Bureau of Census.² Since the frequency of subjects was very small for communities beyond the 50,000 population class, this class was taken as the highest category. The categories selected for size of community factor were: (1) less than 1,000, (2) 1,000-2,500, (3) 2,500-5,000, (4) 5,000-10,000, (5) 10,000-25,000, (6) 25,000-50,000, and (7) more than 50,000. The community classification factor was categorized according to the system used by the United States Bureau of Census where in a community of less than 2,500 population is identified as rural and a community with more than 2,500 is identified as urban. The community classification factor was categorized into (1) Urban and (2) Rural.

Categories for Congressional District geographical factor were predetermined by the fact that the number was already established.

¹A.H. Edgerton, Your Career Information Kit and How to Use It (Chicago: Science Research Associates, Inc., 1959), p. 9.

²U.S. Bureau of the Census, Eighteenth Census of the United States: 1960. Population, I, pp. 12-23.

Since the reason for using this factor was to discover if there were differences between the frequencies of high achievers and low achievers from a Congressional District, the original number was not modified.

The categories for the Congressional District geographical factor were: (1) First, (2) Second, (3) Third, (4) Fourth, (5) Fifth, (6) Sixth, (7) Seventh, (8) Eighth, (9) Ninth, and (10) Tenth.

The high school accreditation status factor was circumscribed by the number of different types which existed. Since there were three kinds of accreditation, the categories for the factor were: (1) Regional (Southern Association of Colleges and Secondary Schools), (2) State (Georgia), and (3) None.

The categories for size of high school factor were patterned after the classification used by Lunn.¹ Size of high school was based on the number of members in the graduating class. Four categories were set up for this factor: (1) 1-49, (2) 50-99, (3) 100-199, and (4) 200 or more.

The high school grade-point average factor was given categories on the basis of the highest average and lowest average obtained by the 315 subjects. It was also known that public high schools in Georgia use a four-point grade scale in which the highest average possible is 4.0. The categories established for the high school grade-point average factor were: (1) 1.50-2.00, (2) 2.00-2.50, (3) 2.50-3.00, (4) 3.00-3.50, and (5) 3.50-4.00.

¹Mervel S. Lunn, Jr., "The Prediction of Success of Students Enrolled in Professional Education Courses at the University of Oklahoma" Unpublished Ed. D. dissertation, Graduate College, University of Oklahoma, p. 73.

Categories for boarding (residence status factor were arbitrarily divided into divisions of two: (1) lived on campus, and (2) lived off campus. Categories for the source of financial support factor were determined by tabulating the frequency distribution of 315 subjects among the nine different sources of finance reported. Since the frequencies were small for sources of "G.I. Bill, "Self-Support," "Husband," and "Georgia Vocational Rehabilitation," these were combined and referred to as "others." The categories used in the study for the source of financial support factor, therefore, were: (1) parent, (2) relative, (3) loan, (4) scholarship, and (5) others.

Categories for major field selection factor were based upon tabulation of frequency distribution of 315 subjects among 22 major fields. In order to give more meaning to the distribution, the fields were combined into broad areas. For purposes of this presentation, the specific areas of concentration were described as follows: (1) Elementary Education which included special education and the middle grades, (2) Business which included business education, business administration, and secretarial science, (3) Social Science which included sociology, political science, history, economic, (4) Humanities which included English, French, and Music, (5) Natural Science which included chemistry, biology, physics, general science, and mathematics, (6) Other Areas which included agriculture, health and physical education, home economics, nursing, industrial education; and (7) Undeclared.

Categories for the number of subjects failed factors were determined by a frequency distribution which permitted a reasonable size of

the 315 subjects to be represented in each category. The categories were: (1) none, (2) one, (3) two, and (4) three or more.

In deciding upon the categories for the persistence factor, the intent was to picture the 315 subjects in a general fashion with regard to their tenure in college. The classifications used were: (1) dropped out, (2) graduated, and (3) presently enrolled.

The mortality quarter factor was divided into categories in which each one reflected a college year. The categories were: (1) 1-3, (2) 4-6, (3) 7-9, and (4) 10 or more.

Categories for the dropout reason factor were established in accordance with data found on the record of dropout subject. An exception was the classification of "others" which included "military service" and "marriage" as reasons for dropout. Categories used in the study were: (1) academic, (2) financial, (3) others, and (4) unknown.

An average load that was in excess of or less than 16 credit hours was regarded as unusual. Categories used were: (1) less than 16 hours, (2) 16 hours, and (3) 17 or more hours.

Categories for the number of quarters in residence taken for graduation factor were based on the general rule that 12 quarters or four years represented the average period for graduation from college with a different total of quarters for graduation viewed as abnormal. Since there was not a single subject who graduated before the twelve-quarter period, the following categories were used: (1) 12 quarters, (2) 13 quarters, and (3) 14 or more quarters.

Categories for the major field grade-point average factor were

determined by the grading system used in the three public colleges, namely, a three-point system in which one was the lowest value and three was the highest. The classifications used in this study were: (1) 1.00-1.50, (2) 1.50-2.00, (3) 2.00-2.50, and (4) 2.50-3.00.

Categories for the cumulative average factor were established in agreement with the three-point grading system used in the three public colleges. Categories used in the study were: (1) 1.00-1.50, (2) 1.50-2.00, (3) 2.00-2.50, and (4) 2.50-3.00.

Statistical Method of Analysis

In analyzing the data of this study, two statistical methods were used: (1) Chi square and (2) normal standardized deviate "z" score (referred to hereafter as "z" or "z" statistic). Chi square was used to determine if there was a significant difference between the frequency of the two groups of achievers regarding the selected characteristics and grade-point averages. Chi square was considered to be an appropriate tool since the frequency distribution among the various categories of each factor was the basis for comparing the two groups of achievers. In view of the null hypothesis which indicated that no significant difference existed in the distribution, Chi square revealed the extent to which the actual distribution digressed from the expected distribution.² Significance was established at the 0.05 level which indicated the value of Chi square in terms of reject-

¹Henry E. Garrett, Statistics in Psychology and Education (New York: Longmans, Green and Co., 1941), p. 387.

²J.P. Guilford, Fundamental Statistics in Psychology and Education (New York: McGraw-Hill Book Company, Inc., 1950), pp. 273-278.

ing or accepting the null hypothesis. When the obtained Chi square was greater than the value given in the Chi-Square Table at the 0.05 level of significance and the appropriate number of degrees of freedom, the null hypothesis was rejected. It was then interpreted that the independent variable, one of the selected factors, did result in a significant difference between high achievers and low achievers. In as much as the difference was not specified, another statistical method, "z", was applied.

The appropriateness of "z" lay in the fact that the data represented uncorrelated proportions.¹ An application of "z" was made to every pair of frequencies in each category of a factor wherein a significant difference had been established. The results of "z" reflected the category in which the difference was occurring as well as the frequency of the group that was favored by the difference. Level of confidence for "z" was set at the 0.05 level which required a value that was equal to or greater than 1.96 for significance.²

¹Palmer O. Johnson, Statistical Methods in Research (New York: Prentice-Hall, Inc., 1949), pp. 80-81.

²Guilford, op. cit., pp. 209, 228, 229.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

The first general concern of the study is that of ascertaining if there are any significant differences in the background and personal characteristics of high achievers and low achievers on the Scholastic Aptitude Test of the College Entrance Examination Board. To guide the investigation, ten specific null hypotheses are formulated. The data are also analyzed to determine if the sex factor is a significant contributor to the results for the two levels of achievers. Each specific hypothesis, therefore, ~~has~~ yielded two subsidiary hypotheses with the exception of the first one which is related specifically to the sex factor.

Hypotheses 1 and 2 pertain to personal information (age and sex); hypotheses 3 and 4 relate to family characteristics (occupational classification and number of siblings); hypotheses 5 through 7 pertain to facets of the home community (size, classification, and Congressional District); and hypotheses 8 through 10 are related to characteristics of the high school from which the subject graduated (size, accreditation status, and grade-point average). Significant differences for the two groups of achievers are tested at the 0.05 level of signifi-

cance. Cases that reveal significant differences are further analyzed by the "z" statistic to determine which category produces the difference and difference vector. The level of significance for "z" is again set at 0.05.

Personal Information

Sex

Table 1 is the contingency table for the sex factor of high achievers and low achievers on the Scholastic Aptitude Test. Hypothesis 1 is: Sex does not produce a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test. The obtained Chi square was 10.90, and, as such, was significant at the 0.05 level. Thus, the null hypothesis was rejected, indicating that sex apparently made a significant difference between the two groups of achievers.

In order to locate the specific differences and their vectors between the sex factor of high achievers and low achievers on the Scholastic Aptitude Test, the "z" statistic was used. The results were: "z" values of 3.31 in favor of male high achievers and -3.31 in favor of female low achievers. These "z" values were statistically significant at the 0.05 level.

Therefore, it was concluded that the sex factor yielded a significant difference between high achievers and low achievers on the Scholastic Aptitude Test. The difference tended to favor the male subjects whose proportionate number among high achievers was significantly larger than that of the female subjects. The female subjects,

on the other hand, had a larger proportion among low achievers than the male subjects.

TABLE 1.-- Frequency distribution of high achievers and low achievers on the Scholastic Aptitude Test according to sex

Achievers	Male	Female	Total
High	53	67	120
Low	51	144	195
Total	104	211	315

Age

Table 2 is the contingency table for the age factor of high achievers and low achievers on the Scholastic Aptitude Test. Hypothesis 2 was: Age does not produce a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test. The obtained Chi square was 19.04 which was significant at the 0.05 level. Therefore, the null hypothesis was rejected, suggesting that the age factor yielded a significant difference between the two groups of achievers.

The "z" statistic was applied in order to find the specific differences and their directions between the age factor of high achievers and low achievers on the Scholastic Aptitude Test. The "z" values derived were: 3.32 which favored the high achievers in category "17 or less years old; " and -3.74 which favored the low achievers in the

category "19 years old." Both values were statistically significant at the 0.05 level.

It was concluded, therefore, that the age factor made a significant difference between high achievers and low achievers on the Scholastic Aptitude Test. One difference tended to occur in the group that was 17 years old or younger wherein the proportionate number of high achievers exceeded significantly the represented number of low achievers. Conversely, the low achievers tended to have a significantly larger proportion in the 19 years old group than the high achievers.

TABLE 2.- Frequency Distribution of high achievers and low achievers on the Scholastic Aptitude Test according to age

Age	High Achievers	Low Achievers	Total
17 or less years old	58	58	116
18 years old	36	74	110
19 years old	7	42	49
20 or more years old	19	21	40
Total	120	195	315

Sex: High Achievers.- The age factor of male high achievers and female high achievers is shown in Table 3. Hypothesis 2a was: Age does not yield a statistically significant difference in the frequency

of college students who are male high achievers and female high achievers on the Scholastic Aptitude Test. The obtained Chi square was 9.52 which was significant at the 0.05 level. The null hypothesis was rejected, and this indicated that the age factor did make a significant difference between male high achievers and female high achievers.

TABLE 3.- Frequency Distribution of male high achievers and female high achievers on the Scholastic Aptitude Test according to age

Age	Male	Female	Total
17 or less years old	22	36	58
18 years old	13	23	36
19 years old	3	4	7
20 or more years old	15	4	19
Total	53	67	120

In order to fix the specific difference and its vector, "z" was applied to the age factor of male high achievers and female high achievers on the Scholastic Aptitude Test. The result was a "z" value of 3.33 which favored male high achievers in the "20 or more years old" category. This value was statistically significant at the 0.05 level.

Consequently, it was concluded that the age factor tended to yield a significant difference between the sex of high achievers. The difference was that a significantly larger proportion of male high achievers

was found among the oldest age group than female high achievers.

Sex: Low Achievers.— Table 4 portrays the age factor of male low achievers and female low achievers. Hypothesis 2b: was: Age does not yield a statistically significant difference in the frequency of college students who are male low achievers and female low achievers on the Scholastic Aptitude Test. The obtained Chi square was 13.21 which represented significance at the 0.05 level. The null hypothesis was rejected, thus, implying that the age factor produced a significant difference between the two groups of low achievers.

TABLE 4.— Frequency Distribution of male low achievers and female low achievers on the Scholastic Aptitude Test according to age

Age	Male	Female	Total
17 or less years old	11	47	58
18 years old	13	61	74
19 years old	16	26	42
20 or more years old	11	10	21
Total	51	144	195

An application of "z" revealed differences in three of the age categories of male low achievers and female low achievers on the Scholastic Aptitude Test. The "z" values were: -2.14 which favored female low achievers in the "18 years old" category; and 1.99 and 2.87 which

avored male low achievers in the respective categories of "19 years old" and "20 or more years old." All three values were statistically significant at the 0.05 level.

Therefore, it was concluded that the age factor appeared to make a significant difference between male low achievers and female low achievers on the Scholastic Aptitude Test. A significantly larger number of male subjects were found in the older age categories than female subjects. Female low achievers, on the other hand, were more often found in the younger group than male low achievers.

Family Characteristics

Occupational Classification

Table 5 is the contingency table for the occupational classification factor of high achievers and low achievers on the Scholastic Aptitude Test. Hypothesis 3 was: Occupational classification of parent does not produce a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test. The Chi square obtained was 10.91 which was not significant at the 0.05 level. Thus, the null hypothesis was accepted, suggesting that the occupational classification factor did not produce a significant difference between the two levels of achievers.

Sex: High Achievers.— The occupational classification factor of male high achievers and female high achievers is depicted in Table 6. Hypothesis 3a was: Occupational classification of parent does not produce a statistically significant difference in the frequency of college

students who are high achievers and low achievers on the Scholastic Aptitude Test. The obtained Chi square of 11.25 was not significant at the 0.05 level. Hence, this meant an acceptance of the null hypothesis, which indicated that the factor of occupational classification did not produce a significant difference between the two groups of high achievers.

TABLE 5.- Frequency Distribution of high achievers and low achievers on the Scholastic Aptitude Test according to occupational classification

Occupational Classification	High Achievers	Low Achievers	Total
Professional and Managerial	15	13	28
Clerical and Sales	2	5	7
Service	16	24	40
Agriculture, Fishery Forestry, and Kindred	19	52	71
Skilled	37	51	88
Semiskilled	3	9	12
Unskilled	23	28	51
None Reported	5	13	18
Total	120	195	315

TABLE 6.- Frequency Distribution of male high achievers and female high achievers on the Scholastic Aptitude Test according to occupational classification

Occupational Classification	Male	Female	Total
Professional and Managerial	7	8	15
Clerical and Sales	0	2	2
Service	8	8	16
Agriculture, Fishery, Forestry, and Kindred	8	11	19
Skilled	13	24	37
Semiskilled	1	2	3
Unskilled	11	12	23
None Reported	5	0	5
Total	53	67	120

Sex: Low Achievers. - The occupational classification factor of male low achievers and female low achievers is shown in Table 7. Hypothesis 3b was: Occupational classification of parent does not produce a statistically significant difference in the frequency of college students who are male low achievers and female low achievers on the

Scholastic Aptitude Test. The obtained Chi square of 25.06 was significant at the 0.05 level. This indicated that the occupational classification factor yielded a significant difference between the two groups of low achievers and the null hypothesis was rejected.

TABLE 7.- Frequency Distribution of male low achievers and female low achievers on the Scholastic Aptitude Test according to occupational classification

Occupational Classification	Male	Female	Total
Professional and Managerial	5	7	12
Clerical and Sales	2	8	10
Service	7	3	10
Agriculture, Fishery, Forestry, and Kindred	11	17	28
Skilled	13	41	54
Semiskilled	3	38	41
Unskilled	5	6	11
None Reported	5	24	29
Total	51	144	195

The "z" statistic was used to locate the differences and their

vectors between the occupational classification factor of male low achievers and female low achievers on the Scholastic Aptitude Test. The "z" values derived were: 8.68 which favored male low achievers in the "service" category; and -3.11 which favored female low achievers in the category of "semiskilled." Both "z" values were statistically significant at the 0.05 level.

Hence, it was concluded that the occupational classification factor tended to make a difference between male low achievers and female low achievers on the Scholastic Aptitude Test. The male subjects were the target of one difference when their proportion in the service occupation significantly exceeded that of the female subjects. Conversely, the female low achievers had a significantly greater number over male low achievers in the semiskilled occupation.

Number of Siblings

Table 8 is the contingency table for the number of siblings factor of high achievers and low achievers on the Scholastic Aptitude Test. Hypothesis 4 was: Number of siblings in family does not yield a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test. The Chi square obtained was 1.24 which was not significant at the 0.05 level. Thus, the null hypothesis was accepted, indicating that the number of siblings factor did not produce a significant difference between the two groups of achievers.

Sex: High Achievers. - The number of siblings factor of male high achievers and female high achievers is shown in Table 9. Hypothesis

TABLE 8.- Frequency Distribution of high achievers and low achievers on the Scholastic Aptitude Test according to number of siblings

Number of Siblings	High Achievers	Low Achievers	Total
1 - 3	41	57	98
4 - 6	40	76	116
7 or more	39	62	101
Total	120	195	315

4a was: Number of siblings in family does not yield a statistically significant difference in the frequency of college students who are male high achievers and female high achievers on the Scholastic Aptitude Test. The obtained Chi square of 1.19 was found not to be a significant difference between the two groups of high achievers.

Sex: Low Achievers. - The number of siblings factor of male low achievers and female low achievers is shown in Table 10. Hypothesis 4b stated: Number of siblings in family does not yield a statistically significant difference in the frequency of college students who are male low achievers and female low achievers on the Scholastic Aptitude Test. The derived Chi square, 0.33 was not significant at the 0.05 level. Thus, the null hypothesis was accepted, suggesting that the number of siblings factor did not produce a significant difference between the two groups of low achievers.

TABLE 9.- Frequency Distribution of male high achievers and female high achievers on the Scholastic Aptitude Test according to number of siblings

Number of Siblings	Male	Female	Total
1 - 3	17	25	42
4 - 6	20	19	39
7 or more	16	23	39
Total	53	67	120

TABLE 10. - Frequency Distribution of male low achievers and female low achievers on the Scholastic Aptitude Test according to number of siblings

Number of Siblings	Male	Female	Total
1 - 3	17	43	60
4 - 6	20	56	76
7 or more	14	45	59
Total	51	144	195

TABLE 11.- Frequency Distribution of high achievers and low achievers on the Scholastic Aptitude Test according to size of community

Size of Community	High Achievers	Low Achievers	Total
Less than 1,000	15	41	56
1,000 - 2,500	12	27	39
2,500 - 5,000	20	25	45
5,000 - 10,000	16	31	47
10,000 - 25,000	14	21	35
25,000 - 50,000	13	19	32
More than 50,000	30	31	61
Total	120	195	315

Home Community Characteristics

Community Size

Table 11 is the contingency table for the size of community factor of high achievers and low achievers on the Scholastic Aptitude Test. Hypothesis 5 was: Size of community does not result in a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test. The Chi square established was 8.34 which did not attain significance at the

0.05 level. This was an indication that the size of community factor did not result in a significant difference between the two levels of achievers, and the null hypothesis was, therefore, accepted.

TABLE 12.- Frequency Distribution of male high achievers and female high achievers on the Scholastic Aptitude Test according to size of community

Size of Community	Male	Female	Total
Less than 1,000	7	8	15
1,000 - 2,500	6	6	12
2,500 - 5,000	12	8	20
5,000 - 10,000	7	9	16
10,000 - 25,000	7	7	14
25,000 - 50,000	0	13	13
More than 50,000	14	16	30
Total	120	195	315

Sex: High Achievers.- The size of community factor of male high achievers and female high achievers is reflected in Table 12. Hypothesis 5a noted: Size of community does not result in a statistically significant difference in the frequency of college students who are male high

achievers and female high achievers on the Scholastic Aptitude Test. The established Chi square of 12.76 was found to be significant at the 0.05 level. Hence, the null hypothesis was rejected, denoting that the size of community factor resulted in a significant difference between the two groups of high achievers.

The "z" statistic was applied to establish the precise variations and their directions between the size of community factor of male high achievers and female high achievers on the Scholastic Aptitude Test. The resulting value of "z" was found to be -3.40 which favored male high achievers in the "25,000 - 50,000" category. At the 0.05 level, this value was significant.

Therefore, it was concluded that the community size factor did result in a significant difference between male high achievers and female high achievers on the Scholastic Aptitude Test. Female subjects were favored by the difference. They tended to have a larger representation than the male subjects in communities with population between 25,000 and 50,000.

Sex: Low Achievers.— The size of community factor of male low achievers and female low achievers is depicted in Table 13. Hypothesis 5b was: Size of community does not result in a statistically significant difference in the frequency of college students who are male low achievers and female low achievers on the Scholastic Aptitude Test. The derived Chi square of 3.25 was not significant at the 0.05 level. Consequently, the null hypothesis was accepted, suggesting that the size of community factor did not result in a significant difference between the two groups of low achievers.

TABLE 13.- Frequency Distribution of male low achievers and female low achievers on the Scholastic Aptitude Test according to size of community

Size of Community	Male	Female	Total
Less than 1,000	10	31	41
1,000 - 2,500	9	18	27
2,500 - 5,000	8	17	25
5,000 - 10,000	8	23	31
10,000 - 25,000	3	18	21
25,000 - 50,000	6	13	19
More than 50,000	7	24	31
Total	51	144	195

Community Classification

Table 14 is the contingency table for the community classification factor of high achievers and low achievers on the Scholastic Aptitude Test. Hypothesis 6 stated: Classification of community does not result in a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test. The derived Chi square of 4.44 was

significant at the 0.05 level. Thus, the null hypothesis was rejected, implying that the community classification factor resulted in a significant difference between the two levels of achievers.

TABLE 14.- Frequency Distribution of high achievers and low achievers on the Scholastic Aptitude Test according to community classification

Community Classification	High Achievers	Low Achievers	Total
Rural	26	65	91
Urban	94	130	224
Total	120	195	315

In order to find the specific differences and their vectors between the community classification factor of high achievers and low achievers on the Scholastic Aptitude Test, "z" was used. The "z" values obtained were: -5.83 for low achievers in the "rural" category, and 2.04 which favored high achievers in the category of "urban." Both "z" values were statistically significant at the 0.05 level.

Therefore, it was concluded that the community classification factor appeared to result in a significant difference between high achievers and low achievers on the Scholastic Aptitude Test. The proportionate number of high-achieving subjects was significantly higher in the urban community than that of low-achieving subjects. For the rural community, however, the number of low achievers exceeded that

of high achievers.

Sex: High Achievers.— The community classification factor of male high achievers and female high achievers is shown in Table 15. Hypothesis 6a was: Classification of community does not result in a statistically significant difference in the frequency of college students who are male high achievers and female high achievers on the Scholastic Aptitude Test. The derived Chi square of 0.05 was not significant at the 0.05 level. Hence, the null hypothesis was accepted, suggesting that the factor of community classification did not result in a significant difference between the two groups of high achievers.

TABLE 15.— Frequency Distribution of male high achievers and female high achievers on the Scholastic Aptitude Test according to community classification

Community Classification	Male	Female	Total
Rural	12	14	26
Urban	41	53	94
Total	53	67	120

Sex: Low Achievers.— The community classification factor of male low achievers and female low achievers is reflected in Table 16. Hypothesis 6b stated: Classification of community does not result in a statistically significant difference in the frequency of college students who are male low achievers and female low achievers on the

Scholastic Aptitude Test. The calculated Chi square was 0.12 which did not equal significance at the 0.05 level. This indicated that the factor of community classification did not result in a significant difference between the two groups of low achievers and the null hypothesis was, therefore, accepted.

TABLE 16.- Frequency Distribution of male low achievers and female low achievers on the Scholastic Aptitude Test according to community classification

Community Classification	Male	Female	Total
Rural	18	47	65
Urban	33	97	130
Total	51	144	195

Congressional District

Table 17 is the contingency table for the Congressional District factor of high achievers and low achievers on the Scholastic Aptitude Test. Hypothesis 7 stated: Congressional District does not result in a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test. The obtained Chi square of 13.08 was not significant at the 0.05 level. The Congressional District factor did not effect a significant difference between the two levels of achievers and the null hypothesis was accepted.

TABLE 17.- Frequency Distribution of high achievers and low achievers on the Scholastic Aptitude Test according to Congressional District

Congressional District	High Achievers	Low Achievers	Total
First	25	44	69
Second	24	44	68
Third	23	40	63
Fourth	5	17	22
Fifth	1	1	2
Sixth	12	20	32
Seventh	1	7	8
Eighth	13	12	25
Ninth	3	2	5
Tenth	13	8	21
Total	120	195	315

Sex: High Achievers.- The Congressional District factor for male high achievers and female high achievers is depicted in Table 18.

Hypothesis 7a stated: Congressional District does not result in a statistically significant difference in the frequency of college stu-

TABLE 18.- Frequency Distribution of male high achievers and female high achievers on the Scholastic Aptitude Test according to Congressional District

Congressional District	Male	Female	Total
First	11	14	25
Second	7	17	24
Third	9	14	23
Fourth	2	3	5
Fifth	0	1	1
Sixth	7	5	12
Seventh	1	0	1
Eighth	6	7	13
Ninth	1	2	3
Tenth	9	4	13
Total	53	67	120

dents who are male high achievers and female high achievers on the Scholastic Aptitude Test. An obtained Chi square of 10.22 was not significant at the 0.05 level. Therefore, the null hypothesis was accepted,

suggesting that the Congressional District factor did not effect a significant difference between the two groups of high achievers.

Sex: Low Achievers.-- The Congressional District factor for male low achievers and female low achievers is shown in Table 19. Hypothesis 7b was: Congressional District does not result in a statistically significant difference in the frequency of college students who are male low achievers and female low achievers on the Scholastic Aptitude Test. A derived Chi square of 9.67 was not significant at the 0.05 level. Consequently, the null hypothesis was accepted, denoting that the Congressional District factor did not result in a significant difference between the two groups of low achievers.

High School Characteristics

Accreditation Status

Table 20 is the contingency table, showing the high school accreditation factor of high achievers and low achievers on the Scholastic Aptitude Test. Hypothesis 8 stated: Accreditation status of high school does not statistically affect the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test. The obtained Chi square of 0.70 failed to reach significance at the 0.05 level. Thus, the null hypothesis was accepted, indicating that the factor of high school accreditation status did not cause a significant difference between the two levels of achievers.

Sex: High Achievers.-- The high school accreditation status factor of male high achievers and female high achievers is reflected in Table 21. Hypothesis 8a stated: Accreditation status of high school does

TABLE 19.- Frequency Distribution of male low achievers and female low achievers on the Scholastic Aptitude Test according to Congressional District

Congressional District	Male	Female	Total
First	9	35	44
Second	11	33	44
Third	11	29	40
Fourth	5	12	17
Fifth	1	0	1
Sixth	3	17	20
Seventh	2	5	7
Eighth	4	8	12
Ninth	0	2	2
Tenth	5	3	8
Total	51	144	195

not affect a statistically significant difference in the frequency of college students who are male high achievers and female high achievers on the Scholastic Aptitude Test. A derived Chi square of 2.22 was

not significant at the 0.05 level. The hypothesis was, therefore, accepted that the factor of high school accreditation status did not cause a significant difference between the two groups of high achievers.

TABLE 20.-- Frequency Distribution of high achievers and low achievers on the Scholastic Aptitude Test according to high school accreditation status

Accreditation Status	High Achievers	Low Achievers	Total
Regional	33	49	82
State	30	57	87
None	57	89	146
Total	120	195	315

TABLE 21.-- Frequency Distribution of male high achievers and female high achievers on the Scholastic Aptitude Test according to high school accreditation status

Accreditation Status	Male	Female	Total
Regional	11	22	33
State	14	16	30
None	28	29	57
Total	53	67	120

Sex: Low Achievers.— The high school accreditation status factor of male low achievers and female low achievers is shown in Table 22. Hypothesis 8b stated: Accreditation status of high school does not statistically affect a statistically significant difference in the frequency of college students who are male low achievers and female low achievers on the Scholastic Aptitude Test. An obtained Chi square of 0.23 was not significant at the 0.05 level. Consequently, the null hypothesis was accepted, and this suggested that the factor of high school accreditation status made no significant difference between the two groups of low achievers.

TABLE 22.— Frequency Distribution of male low achievers and female low achievers on the Scholastic Aptitude Test according to high school accreditation status

Accreditation Status	Male	Female	Total
Regional	14	35	49
State	14	43	57
None	23	66	89
Total	51	144	195

High School Size

Table 23 is the contingency table for the high school size factor of high achievers and low achievers on the Scholastic Aptitude Test. Hypothesis 9 was: Size of high school graduating class does not affect

a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test. The obtained Chi square of 3.52 was not significant at the 0.05 level. Therefore, the null hypothesis was accepted indicating that the factor of high school size did not affect a significant difference between the two levels of achievers.

TABLE 23.- Frequency Distribution of high achievers and low achievers on the Scholastic Aptitude Test according to size of high school graduating class

Size of Graduating Class	High Achievers	Low Achievers	Total
1 - 49	31	66	97
50 - 99	50	75	125
100 - 199	9	18	27
200 or more	30	36	66
Total	120	195	315

Sex: High Achievers.- The high school size factor of male high achievers and female high achievers is reflected in Table 24. Hypothesis 9a was: Size of high school graduating class does not affect a statistically significant difference in the frequency of college students who are male high achievers and female high achievers on the Scholastic Aptitude Test. A derived Chi square of 3.36 failed to meet

the criterion of significance at the 0.05 level. Thus, the null hypothesis was accepted, indicating that the factor of high school size did not affect a significant difference between the two groups of high achievers.

TABLE 24.- Frequency Distribution of male high achievers and female high achievers on the Scholastic Aptitude Test according to size of high school graduating class

Size of Graduating Class	Male	Female	Total
1 - 49	15	16	31
50 - 99	25	25	50
100 - 199	4	5	9
200 or more	9	21	30
Total	53	67	120

Sex: Low Achievers. - The high school size factor of male low achievers and female low achievers is depicted in Table 25. Hypothesis 9b was: Size of high school graduating class does not affect a statistically significant difference in the frequency of college students who are male low achievers and female low achievers on the Scholastic Aptitude Test. The obtained Chi square of 1.26 was not significant at the 0.05 level. This led to an acceptance of the null hypothesis which suggested that the factor of high school size did not affect a significant difference between the two groups of low achievers.

TABLE 25.- Frequency Distribution of male low achievers and female low achievers on the Scholastic Aptitude Test According to size of high school graduating class

Size of Graduating Class	Male	Female	Total
1 - 49	20	46	66
50 - 99	17	58	75
100 - 199	4	14	18
200 or more	10	26	36
Total	51	144	195

High School Average

Table 26 is the contingency table for the high school average factor of high achievers and low achievers on the Scholastic Aptitude Test. Hypothesis 10 stated: High school grade-point average does not result in a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test. The obtained Chi square of 34.17 was found to be significant at the 0.05 level. Consequently, the null hypothesis was rejected, and this indicated that the factor of high school average resulted in a significant difference between the two levels of achievers.

The "z" statistic was applied in order to locate the specific differences and their vectors between the high school average factor of

high achievers and low achievers on the Scholastic Aptitude Test. The "z" results were: -4.23 which favored low achievers in the "2.00-2.50" category, and 2.44 and 3.55 which favored the high achievers in the respective categories of "3.00-3.50" and "3.50-4.00." All three values of "z" were statistically significant at the 0.05 level.

TABLE 26.- Frequency Distribution of high achievers and low achievers on the Scholastic Aptitude Test according to high school grade-point average

Grade-Point Average	High Achievers	Low Achievers	Total
1.50 - 2.00	20	48	68
2.00 - 2.50	14	64	78
2.50 - 3.00	47	58	105
3.00 - 3.50	24	20	44
3.50 - 4.00	15	5	20
Total	120	195	315

Therefore, it was concluded that the factor of high school average did result in a significant difference between high achievers and low achievers. Low achievers were found more frequently in the category which contained the poorer grades in high school performance. High achievers, on the other hand, were in a dominant proportion in the category which contained the higher averages of high school grades.

Sex: High Achievers.-- The high school average factor of male high achievers and female high achievers is revealed in Table 27. Hypothesis 10a stated: High school grade-point average does not result in a statistically significant difference in the frequency of college students who are male high achievers and female high achievers on the Scholastic Aptitude Test. An obtained Chi square of 16.83 was found to be significant at the 0.05 level. The null hypothesis, therefore, was rejected, indicating that the factor of high school average resulted in a significant difference between the two groups of high achievers.

In order to determine the areas and directions of specific differences between the factor of high school average of male high achievers and female high achievers on the Scholastic Aptitude Test, "z" was applied. The "z" values obtained were: 2.57 and 2.19 which favored male high achievers in the respective categories of "1.50-2.00" and "2.00-2.50." Both values attained significance at the 0.05 level. It should be mentioned that female high achievers were favored by a value of -1.954, slightly below the criterion level for significance, in the category of "3.50-4.00."

Therefore, it was concluded that the high school average factor did result in a significant difference between male high achievers and female high achievers on the Scholastic Aptitude Test. Male subjects were found more frequently with the poorer high school grade-point averages.

Sex: Low Achievers.-- The factor of high school average of male low achievers and female low achievers is shown in Table 28. Hypothesis 10b stated: High school grade-point average does not result in a

statistically significant difference in the frequency of college students who are male low achievers and female low achievers on the Scholastic Aptitude Test. An obtained Chi square of 7.50 failed to attain significance at the 0.05 level. Therefore, the null hypothesis was accepted, indicating that the high school average factor did not result in a significant difference between the two groups of low achievers.

TABLE 27.- Frequency Distribution of male high achievers and female high achievers on the Scholastic Aptitude Test according to high school grade point average

Grade-Point Average	Male	Female	Total
1.50 - 2.00	14	6	20
2.00 - 2.50	10	4	14
2.50 - 3.00	19	28	47
3.00 - 3.50	8	16	24
3.50 - 4.00	2	13	15
Total	53	67	120

Selected College Factors

Introduction

The second purpose of this study is to ascertain if there are any significant differences between selected college factors of high achievers and low achievers on the Scholastic Aptitude Test of the

College Entrance Examination Board. To guide the investigation, nine specific null hypothesis are developed. Attention is given to the sex factor in this phase of the study in the same manner that the factor is treated in the initial part. This, then, extends each specific hypothesis to include two subsidiary hypotheses.

TABLE 28.- Frequency Distribution of male low achievers and female low achievers on the Scholastic Aptitude Test according to high school grade-point average

Grade-Point Average	Male	Female	Total
1.50 - 2.00	16	22	48
2.00 - 2.50	20	44	64
2.50 - 3.00	12	46	58
3.00 - 3.50	1	18	19
3.50 - 4.00	2	4	6
Total	51	144	195

The various factors represented in the null hypotheses are: Hypothesis 1, boarding status; hypothesis 2, source of financial support; hypothesis 3, major field selection; hypothesis 4, number of subjects failed; hypotheses 5 through 7, survival status (persistence, mortality quarter, and dropout reason); and hypotheses 8 and 9, characteristics of graduates (average load and number of quarters required

for graduation).

Distinguishing differences between the two groups of achievers are established at the 0.05 level of significance. When significant differences occur, the cases are analyzed further by the "z" statistic in order to determine the location and direction of the differences. Significance for the "z" results is also set at the 0.05 level.

TABLE 29.- Frequency Distribution of high achievers and low achievers on the Scholastic Aptitude Test according to boarding status

Boarding Status	High Achievers	Low Achievers	Total
Lived on campus	73	104	177
Lived off campus	47	91	138
Total	120	195	315

Boarding Status

Table 29 is the contingency table for the boarding status factor of high achievers and low achievers on the Scholastic Aptitude Test. The first hypothesis was: Boarding status does not result in a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test. The derived Chi square of 1.70 was insufficient for significance at the 0.05 level. Therefore, the null hypothesis was accepted, and this denoted that the boarding status factor did not result in a significant difference between the two levels of achievers.

Sex: High Achievers.— The boarding status factor of male high achievers and female high achievers is depicted in Table 30. The first subsidiary hypothesis was: Boarding status does not result in a statistically significant difference in the frequency of college students who are male high achievers and female high achievers on the Scholastic Aptitude Test. The Chi square obtained was 1.62. Since the value was less than the criterion for significance at the 0.05 level, the null hypothesis was accepted. This indicated that the factor of boarding status did not result in a significant difference between the two groups of high achievers.

TABLE 30.— Frequency Distribution of male high achievers and female high achievers on the Scholastic Aptitude Test according to boarding status

Boarding Status	Male	Female	Total
Lived on campus	36	37	73
Lived off campus	17	30	47
Total	53	67	120

Sex: Low Achievers.— The boarding status factor of male low achievers and female low achievers is shown in Table 31. The second subsidiary hypothesis was: Boarding status does not result in a statistically significant difference in the frequency of college students who are male low achievers and female low achievers on the

Scholastic Aptitude Test. The Chi square derived was 0.34. Because the value was not significant at the 0.05 level, the null hypothesis was accepted. This suggested that the factor of boarding status did not result in a significant difference between the two groups of low achievers.

TABLE 31.- Frequency Distribution of male low achievers and female low achievers on the Scholastic Aptitude Test according to boarding status

Boarding Status	Male	Female	Total
Lived on campus	29	75	104
Lived off campus	22	69	91
Total	51	144	195

Source of Financial Support

Table 32 is the contingency table for the source of financial support factor of high achievers and low achievers on the Scholastic Aptitude Test. The second hypothesis was: Source of financial support does not result in a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test. The obtained Chi square was 54.61 which was found to be significant at the 0.05 level. Thus, the null hypothesis was rejected, indicating that the factor of source of financial support resulted in a significant difference between the high-

and low-achieving groups.

TABLE 32.- Frequency Distribution of high achievers and low achievers on the Scholastic Aptitude Test according to source of financial support

Source	High Achievers	Low Achievers	Total
Parent	62	156	218
Relative	3	18	21
Loan	21	4	25
Scholarship	17	6	23
Others	17	11	28
Total	120	195	315

An application of the "z" statistic located the particular differences and their directions between the source of financial support factor of high achievers and low achievers on the Scholastic Aptitude Test. The results of "z" test were: -5.25 and -13.36 which favored the low subjects in the respective categories of "parent" and "relative;" and 4.98, 3.70, and 2.58 which favored the high subjects in the "loan," "scholarship," and "others" categories, respectively. All "z" values were significant at the 0.05 level.

Therefore, it was concluded that source of financial support did result in a significant difference between high achievers and low

achievers on the Scholastic Aptitude Test. A greater number of low subjects tended to be supported by parents and relatives. On the other hand, the number of high subjects represented, apparently, a large proportion in the loan, scholarship, and other sources of support.

TABLE 33.- Frequency Distribution of male high achievers and female high achievers on the Scholastic Aptitude Test according to source of financial support

Source	Male	Female	Total
Parent	25	37	62
Relative	1	2	3
Loan	11	10	21
Scholarship	3	14	17
Others	13	4	17
Total	53	67	120

Sex: High Achievers.- The source of financial support factor of male high achievers and female high achievers is reflected in Table 33. The first subsidiary hypothesis was: Source of financial support does not result in a statistically significant difference in the frequency of college students who are male high achievers and female high achievers on the Scholastic Aptitude Test. The Chi square obtained was 13.12. Since the value was significant at the 0.05 level,

the null hypothesis was rejected. This denoted that source of financial support as a factor resulted in a significant difference between the high-achieving males and females.

The location of specific differences and their vectors between the source of financial support factor of male high achievers and female high achievers on the Scholastic Aptitude Test was established by the "z" statistic. The "z" results were: -2.38 which favored female subjects in the "scholarship" category, and 2.90 which pointed to male subjects in the category of "others."

It was concluded that the factor of source of financial support did result in a significant difference between male high achievers and female high achievers on the Scholastic Aptitude Test. Female subjects had a larger number with scholarship support while male subjects tended to have a larger proportion who were self-supporting and receiving support from sources other than those identified in Table 33.

Sex: Low Achievers.- The source of financial support factor of male low achievers and female low achievers is shown in Table 34. The second subsidiary hypothesis was: Source of financial support does not result in a statistically significant difference in the frequency of college students who are male low achievers and female low achievers on the Scholastic Aptitude Test. The Chi square obtained was 11.61. In as much as the value met the criterion for significance at the 0.05 level, the null hypothesis was rejected. This suggested that the factor, source of financial support, did result in a significant difference between the low-achieving males and females.

TABLE 34.- Frequency Distribution of male low achievers and female low achievers on the Scholastic Aptitude Test according to source of financial support

Source	Male	Female	Total
Parent	39	117	156
Relative	2	16	18
Loan	2	2	4
Scholarship	1	5	6
Others	7	4	11
Total	51	144	195

The nature and direction of the difference between the source of financial support factor of male low achievers and female low achievers on the Scholastic Aptitude Test was established by application of the "z" statistic. The derived "z" value of 2.88 favored the male subjects who were situated in the "other" category and was significant at the 0.05 level.

Thus, it was concluded that source of financial support as a factor did result in a significant difference between male low achievers and female low achievers on the Scholastic Aptitude Test. A larger proportion of male subjects tended to depend upon self and other means for support than female subjects.

TABLE 35.-- Frequency Distribution of high achievers and low achievers on the Scholastic Aptitude Test according to selection of major field

Major Field	High Achievers	Low Achievers	Total
Business	15	34	49
Elementary Education	13	45	58
Humanities	19	11	30
Natural Science	21	8	29
Social Science	14	19	33
Other Areas	28	30	58
Undeclared	10	48	58
Total	120	195	315

Major Field Selection

Table 35 is the contingency table for the major field selection factor of high achievers and low achievers on the Scholastic Aptitude Test. The third hypothesis was: Selection of major field does not result in a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test. The Chi square obtained was 43.30 which was significant at the 0.05 level. Thus, the null hypothesis was re-

jected, suggesting that major field selection factor resulted in a significant difference between the high- and low-achieving students.

The "z" statistic was used to find the specific differences and their directions between the major field selection factor of high achievers and low achievers on the Scholastic Aptitude Test. The "z" values derived were: 3.00 and 3.94 which favored high achievers in the respective categories of "humanities" and "natural science," and -3.62 which favored low achievers in the "undeclared" category. All values were significant at the 0.05 level.

It was, therefore, concluded that the factor, selection of major field, did result in a significant difference between high achievers and low achievers on the Scholastic Aptitude Test. High subjects were in larger proportions in the science and humanities' areas whereas the low subject's category had a greater number with an undeclared major.

Sex: High Achievers.— The major field selection factor of male high achievers and female high achievers is found in Table 36. The first subsidiary hypothesis was: Selection of major fields does not result in a statistically significant difference in the frequency of college students who are male high achievers and female high achievers on the Scholastic Aptitude Test. The obtained Chi square was 17.43 and since the value was not significant at the 0.05 level, the null hypothesis was rejected. This signified that the factor, selection of major field, resulted in a significant difference between the high-achieving males and females.

TABLE 36.- Frequency Distribution of male high achievers and female high achievers on the Scholastic Aptitude Test according to selection of major field

Major Field	Male	Female	Total
Business	4	11	15
Elementary Education	0	13	13
Humanities	9	10	19
Natural Science	15	16	31
Social Science	7	7	14
Other Areas	11	7	18
Undeclared	7	3	10
Total	53	67	120

An application of "z" accentuated the difference and its direction between the major field selection factor of male high achievers and female high achievers on the Scholastic Aptitude Test. The "z" value derived was -3.40 which favored female subjects in the category of "elementary education." The value was significant at the 0.05 level.

Therefore, it was concluded that the major field selection factor did result in a significant difference between male high achievers and female high achievers on the Scholastic Aptitude Test. The difference

occurred in the area of elementary education in which the female subjects were more frequently represented than the male subjects.

TABLE 37.- Frequency Distribution of male low achievers and female low achievers on the Scholastic Aptitude Test according to selection of major field

Major Field	Male	Female	Total
Business	66	28	94
Elementary Education	6	39	45
Humanities	3	8	11
Natural Science	3	5	8
Social Science	8	11	19
Other Areas	15	15	30
Undeclared	10	38	48
Total	51	144	195

Sex: Low Achievers.-- The major field selection factor of male low achievers and female low achievers is depicted in Table 37. The second subsidiary hypothesis was: Selection of major field does not result in a statistically significant difference in the frequency of college students who are male low achievers and female low achievers on the Scholastic Aptitude Test. A derived Chi square of 15.37 was

significant at the 0.05 level. Thus, the null hypothesis was rejected, indicating that the major field selection factor did result in a significant difference between the low-achieving male and females.

In order to discover the specific differences and their vectors between the major field selection factor of male low achievers and female low achievers on the Scholastic Aptitude Test, the "z" statistic was used. The "z" values derived were: -2.22 which favored female low subjects in the "elementary education" category, and 3.22 which favored male low subjects in the category of "other areas." Both values were significant at the 0.05 level. Therefore, it was concluded that the selection of major field factor did result in a significant difference between male low achievers and female low achievers on the Scholastic Aptitude Test. Where the female subjects tended to have a dominant proportion in the field of elementary education, the male subjects were more prevalent in the "non-academic" areas.

Number of Subjects Failed

Table 38 is the contingency table for the number of subjects failed factor of high achievers and low achievers on the Scholastic Aptitude Test. The fourth hypothesis was: Number of subjects failed does not result in a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test. A Chi square of 37.10 was obtained, and this was found to be significant at the 0.05 level. Thus, the null hypothesis was rejected, indicating that the number of subjects failed factor resulted in a significant difference between the two levels of

achievers.

TABLE 38.- Frequency Distribution of high achievers and low achievers on the Scholastic Aptitude Test according to number of subjects failed

Number of Subjects Failed	High Achievers	Low Achievers	Total
None	72	55	127
One	20	43	63
Two	15	28	43
Three or more	13	69	82
Total	120	195	315

In order to locate the specific difference and their vectors between the number of subjects failed factor of high achievers and low achievers on the Scholastic Aptitude Test, the "z" statistic was used. The "z" results were: 5.58 which favored high achievers in the "none" category; and -4.81 which favored low achievers in the category of "three or more." Both values were significant at the 0.05 level.

The conclusion was reached, therefore, that the number of subjects failed factor resulted in a significant difference between high achievers and low achievers on the Scholastic Aptitude Test. High-achieving students had a greater proportion without failures than low-achieving students. Conversely, low-achieving students dominated the category listing the most subjects failed.

TABLE 39.- Frequency Distribution of male high achievers and female high achievers on the Scholastic Aptitude Test according to number of subjects failed

Number of Subjects Failed	Male	Female	Total
None	25	47	72
One	11	9	20
Two	9	6	15
Three or more	8	5	13
Total	53	67	120

Sex: High Achievers.- The number of subjects failed factor of male high achievers and female high achievers is shown in Table 39. Subsidiary hypothesis one stated: Number of subjects failed does not result in a statistically significant difference in the frequency of college students who are male high achievers and female high achievers on the Scholastic Aptitude Test. The Chi square obtained was 6.68 and because the value was not significant at the 0.05 level, the null hypothesis was accepted. This suggested that the number of subjects failed factor did not result in a significant difference between the two groups of high achievers.

Sex: Low Achievers.- The number of subjects failed factor of male low achievers and female low achievers is shown in Table 40. Subsidiary hypothesis two stated: Number of subjects failed does not

result in a statistically significant difference in the frequency of college students who are male low achievers and female low achievers on the Scholastic Aptitude Test. The Chi square obtained was 5.07 and since the value was not significant at the 0.05 level, the null hypothesis was accepted. This demonstrated that the number of subjects failed factor did not result in a significant difference between the two groups of low achievers.

TABLE 40.- Frequency Distribution of male low achievers and female low achievers on the Scholastic Aptitude Test according to number of subjects failed

Number of Subjects Failed	Male	Female	Total
None	12	43	55
One	7	36	43
Two	9	19	28
Three or more	23	46	69
Total	51	144	195

Survival Status: Persistence

Table 41 is the contingency table for the persistence factor of high achievers and low achievers on the Scholastic Aptitude Test. The fifth hypothesis was: Persistence does not result in a statistically significant difference in the frequency of college students

who are high achievers and low achievers on the Scholastic Aptitude Test. The obtained Chi square was 41.60 which proved to be significant at the 0.05 level. Thus, the null hypothesis was rejected, suggesting that the persistence factor resulted in a significant difference between the two levels of achievers.

TABLE 41.- Frequency Distribution of high achievers and low achievers on the Scholastic Aptitude Test according to persistence

Quality of Persistence	High Achievers	Low Achievers	Total
Dropped out	48	139	187
Graduated	72	48	120
Presently Enrolled	0	8	8
Total	120	195	315

In order to discover the specific differences and their directions between the persistence factor of high achievers and low achievers on the Scholastic Aptitude Test, the "z" statistic was applied. The "z" values derived were: -5.49 and -2.28 which favored the low achievers in "dropped out" and "presently enrolled" categories, respectively, and 6.32 which favored high achievers in the "graduated" category. All three values were significant at the 0.05 level.

It was, therefore, concluded that persistence resulted in a significant difference between high achievers and low achievers on the

Scholastic Aptitude Test. The data revealed that low achievers were much more prone to terminate tenure in school before graduation and take a longer period for completion than high achievers. High achievers, on the other hand, were more highly represented among the graduated group than low achievers.

Sex: High Achievers.— The persistence factor of male high achievers and female high achievers is shown in Table 42. Subsidiary hypothesis one stated: Persistence does not result in a statistically significant difference in the frequency of college students who are male high achievers and female high achievers on the Scholastic Aptitude Test. The Chi square obtained was 1.10. Since this value was not significant at the 0.05 level, the null hypothesis was accepted. This suggested that the persistence factor did not result in a significant difference between the two groups of high achievers.

TABLE 42.— Frequency Distribution of male high achievers and female high achievers on the Scholastic Aptitude Test according to persistence

Quality of Persistence	Male	Female	Total
Dropped out	24	24	48
Graduated	29	43	72
Total	53	67	120

Sex: Low Achievers.— The persistence factor of male low achievers and female low achievers is depicted in Table 43. Subsidiary hypothesis two was: Persistence does not result in a statistically significant difference in the frequency of college students who are male low achievers and female low achievers on the Scholastic Aptitude Test. The obtained Chi square was 0.51. Because the value fell below significant at the 0.05 level, the null hypothesis was accepted. This indicated that the persistence factor did not result in a significant difference between the two groups of low achievers.

TABLE 43.— Frequency Distribution of male low achievers and female low achievers on the Scholastic Aptitude Test according to persistence

Quality of Persistence	Male	Female	Total
Dropped out	35	104	139
Graduated	14	34	48
Presently enrolled	2	6	8
Total	51	144	195

Survival Status: Mortality Quarter

Table 44 is the contingency table for the mortality quarter factor of high achievers and low achievers on the Scholastic Aptitude Test. The sixth hypothesis was: Attrition quarter does not result in

a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test. The obtained Chi square of 9.19 was significant at the 0.05 level and the null hypothesis was rejected. This suggested that the mortality quarter factor resulted in a significant difference between the two levels of achievers.

TABLE 44.-- Frequency Distribution of high achievers and low achievers on the Scholastic Aptitude Test according to mortality quarter

Mortality Quarter	High Achievers	Low Achievers	Total
1 - 3	22	65	87
4 - 6	11	40	51
7 - 9	9	7	16
10 or more	6	27	33
Total	48	139	187

The "z" statistic was used to locate the specific difference and its direction between the mortality quarter factor of high achievers and low achievers on the Scholastic Aptitude Test. The "z" value derived was 2.90 which favored high achievers in the "7 - 9" category. The test of significance at the 0.05 level was met by the value.

Therefore, it was concluded that the mortality quarter factor resulted in a significant difference between high achievers and low achievers on the Scholastic Aptitude Test. High Achievers were represented in higher proportion in the mortality that occurred during the third year. Differences of an insignificant nature occurred during the other mortality periods and they favored the low achievers.

Sex: High Achievers.— The mortality quarter factor of male high achievers and female high achievers is found in Table 45. Subsidiary hypothesis one stated: Attrition quarter does not result in a statistically significant difference in the frequency of college students who are male high achievers and female high achievers on the Scholastic Aptitude Test. The obtained Chi square was 8.14 and because of the value attained significance at the 0.05 level, the null hypothesis was rejected. This suggested that the factor of mortality quarter resulted in a significant difference between the two groups of high achievers.

In order to ascertain the specific differences and their vectors between the mortality quarter factor of male high achievers and female high achievers on the Scholastic Aptitude Test, the "z" statistic was used. Derived values of "z" were: 2.32 which favored male high achievers in the "1 - 3" category, and -2.41 which favored female high achievers in category "4 - 6." Both "z" values were significant at the 0.05 level.

Therefore, it was concluded that mortality quarter factor resulted in a significant difference between male high achievers and female high achievers on the Scholastic Aptitude Test. The significant differences occurred during the first two years in college. Male high achievers

had a higher mortality during the freshman year whereas the female high achievers constituted the higher proportion during the sophomore year.

TABLE 45.- Frequency Distribution of male high achievers and female high achievers on the Scholastic Aptitude Test according to mortality quarter

Mortality Quarter	Male	Female	Total
1 - 3	15	7	22
4 - 6	2	9	11
7 - 9	5	4	9
10 or more	2	4	6
Total	24	24	48

Sex: Low Achievers.- The mortality quarter factor of male low achievers and female low achievers is given in Table 46. Subsidiary hypothesis two stated: Attrition quarter does not result in a statistically significant difference in the frequency of college students who are male low achievers and female low achievers on the Scholastic Aptitude Test. The obtained Chi square was 2.49. Because the value was not significant at the 0.05 level, the null hypothesis was accepted, indicating that the mortality quarter factor did not result in a significant difference between the two groups of low achievers.

TABLE 46.- Frequency Distribution of male low achievers and female low achievers on the Scholastic Aptitude Test according to mortality quarter

Mortality Quarter	Male	Female	Total
1 - 3	18	45	63
4 - 6	11	29	40
7 - 9	1	6	7
10 or more	4	23	27
Total	34	103	137

Survival Status: Dropout Reason

Table 47 is the contingency table for the dropout reason factor of high achievers and low achievers on the Scholastic Aptitude Test. The seventh hypothesis was: Reason for dropout does not result in a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test. The obtained Chi square of 8.43 was significant at the 0.05 level. Thus, the null hypothesis was rejected, implying that the dropout reason factor resulted in a significant difference between the two levels of achievers.

In order to discover the points and directions of the differences between the dropout reason factor of high achievers and low achievers

on the Scholastic Aptitude Test, the "z" statistic was used. The "z" results were: -2.87 which favored low achievers in the "academic" category, and 2.50 which favored high achievers in the "unknown" category. Both values were significant at the 0.05 level.

TABLE 47.-- Frequency Distribution of high achievers and low achievers on the Scholastic Aptitude Test according to reason for dropout

Dropout Reason	High Achievers	Low Achievers	Total
Academic	14	75	89
Financial	2	4	6
Others	5	11	16
Unknown	27	49	76
Total	48	139	187

Therefore, it was concluded that the dropout reason factor resulted in a significant difference between high achievers and low achievers on the Scholastic Aptitude Test. A larger proportion of low achievers were victims of mortality due to peer scholarship than the number of high achievers. High achievers, on the other hand, left college in a larger proportion for reasons unknown than low achievers.

Sex: High Achievers.— The dropout reason factor for male high achievers and female high achievers is shown in Table 48. Subsidiary

hypothesis one stated: Reason for dropout does not result in a statistically significant difference in the frequency of college students who are male high achievers and female high achievers on the Scholastic Aptitude Test. The derived Chi square was 4.06. In view of the fact that the value was not significant at the 0.05 level, the null hypothesis was accepted. Apparently, the dropout reason factor did not result in a significant difference between the high-achieving males and females.

TABLE 48.- Frequency Distribution of male high achievers and female high achievers on the Scholastic Aptitude Test according to reason for dropout

Dropout Reason	Male	Female	Total
Academic	5	9	14
Financial	0	2	2
Others	3	2	5
Unknown	16	11	27
Total	24	24	48

Sex: Low Achievers.- The factor relating to reason for dropout of male low achievers and female low achievers is depicted in Table 49. Subsidiary hypothesis two stated: Reason for dropout does not result in a statistically significant difference in the frequency of

college students who are male low achievers and female low achievers on the Scholastic Aptitude Test. The obtained Chi square was 2.14. Because the value did not meet the criterion 0.05 level of significance, the null hypothesis was accepted. This suggested that the dropout reason factor did not result in a significant difference between the low-achieving males and females.

TABLE 49.- Frequency Distribution of male low achievers and female low achievers on the Scholastic Aptitude Test according to reason for dropout

Dropout Reason	Male	Female	Total
Academic	21	54	75
Financial	1	3	4
Others	4	7	11
Unknown	9	40	49
Total	35	104	139

Average Load

Table 50 is the contingency table for average load factor of high achievers and low achievers on the Scholastic Aptitude Test. The eighth hypothesis was: Average load taken by graduates does not result in a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Sche-

lastic Aptitude Test. The obtained Chi square of 7.50 was significant at the 0.05 level. Thus, the null hypothesis was rejected, suggesting that average load factor resulted in a significant difference between the two levels of achievers.

TABLE 50.-- Frequency Distribution of high achievers and low achievers on the Scholastic Aptitude Test according to average load

Average Load (Credit Hours)	High Achievers	Low Achievers	Total
Less than 16 hours	26	24	50
16 hours	25	20	45
17 or more hours	21	4	25
Total	72	48	120

In order to ascertain the specific difference and its direction between the average load factor of high achievers and low achievers on the Scholastic Aptitude Test, "z" was applied. A "z" value of 2.74 was derived and it favored high achievers in the "17 or more hours" category. The value attained significance at the 0.05 level.

Therefore, it was concluded that the average load factor did result in a significant difference between high achievers and low achievers on the Scholastic Aptitude Test. A larger number of high achievers were found to be carrying more than an average load. On the other hand, there was a tendency for the load of low achievers to be below average.

Sex: High Achievers.— The average load factor of male high achievers and female high achievers is shown in Table 51. Subsidiary hypothesis one stated: Average load taken by graduates does not result in a statistically significant difference in the frequency of college students who are male high achievers and female high achievers on the Scholastic Aptitude Test. The Chi square obtained was 1.14. Because the value was not significant at the 0.05 level, the null hypothesis was accepted. This indicated that the average load factor did not result in a significant difference between the two groups of high achievers.

TABLE 51.— Frequency Distribution of male high achievers and female high achievers on the Scholastic Aptitude Test according to average load

Average Load (Credit Hours)	Male	Female	Total
Less than 16 hours	12	14	26
16 hours	8	17	25
17 or more hours	9	12	21
Total	29	43	72

Sex: Low Achievers.— The average load factor of male low achievers and female low achievers is revealed in Table 52. Subsidiary hypothesis two stated: Average load taken by graduates does not result in a statistically significant difference in the frequency of college students who

are male low achievers and female low achievers on the Scholastic Aptitude Test. The Chi square derived was 4.86. Since the value was not significant at the 0.05 level, the null hypothesis was accepted. This suggested, therefore, that the factor of average load did not result in a significant difference between the two groups of low achievers.

TABLE 52.- Frequency Distribution of male low achievers and female low achievers on the Scholastic Aptitude Test according to average load

Average Load (Credit Hours)	Male	Female	Total
Less than 16 hours	7	17	24
16 hours	4	16	20
17 or more hours	3	1	4
Total	14	34	48

Number of Quarters for Graduation

Table 53 is the contingency table for number of quarters for graduation factor of high achievers and low achievers on the Scholastic Aptitude Test. The ninth hypothesis was: Number of quarters in residence taken for graduation does not result in a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test. The obtained Chi square was 0.44 which reflected that the difference was not significant at the 0.05 level. Consequently, the null hypothesis was accepted, suggesting

that the factor, number of quarters in residence taken for graduation, did not result in a significant difference between the two levels of achievers.

TABLE 53.- Frequency Distribution of high achievers and low achievers on the Scholastic Aptitude Test according to number of quarters in residence taken for graduation

Number of Quarters	High Achievers	Low Achievers	Total
Twelve	28	16	44
Thirteen	30	21	51
Fourteen or more	14	11	25
Total	72	48	120

Sex: High Achievers.- The number of quarters in residence for graduation factor of male high achievers and female high achievers is depicted in Table 54. Subsidiary hypothesis one stated: Number of quarters in residence taken for graduation does not result in a statistically significant difference in the frequency of college students who are male high achievers and female high achievers on the Scholastic Aptitude Test. The Chi square obtained was 1.23. In as much as the value failed to meet the criterion for significance at the 0.05 level, the null hypothesis was accepted. As a result, this indicated that the number of quarters in residence for graduation factor did not result in a significant difference between the groups of high achievers.

TABLE 54.- Frequency Distribution of male high achievers and female high achievers on the Scholastic Aptitude Test according to number of quarters in residence taken for graduation

Number of Quarters	Male	Female	Total
Twelve	12	16	28
Thirteen	10	20	30
Fourteen or more	7	7	14
Total	29	43	72

Sex: Low Achievers.- The number of quarters in residence for graduation factor of male low achievers and female low achievers is shown in Table 55. Subsidiary hypothesis two was: Number of quarters in residence taken for graduation does not result in a statistically significant difference in the frequency of college students who are male low achievers and female low achievers on the Scholastic Aptitude Test. The obtained Chi square was 2.70. Since the value was not significant at the 0.05 level, the null hypothesis was accepted. This suggested, therefore, that the number of quarters in residence for graduation factor did not result in a significant difference between the two groups of low achievers.

College Grade-Point Averages

Introduction

The final purpose of this study is to determine if there are any

significant differences between college grade-point averages of high achievers and low achievers on the Scholastic Aptitude Test of the College Entrance Examination Board. Two null hypotheses are established for this phase of the study. Because the sex factor was found to reflect a difference, revealed earlier in this chapter, this factor is used as an additional test for each of the two hypotheses.

TABLE 55.- Frequency Distribution of male low achievers and female low achievers on the Scholastic Aptitude Test according to number of quarters in residence taken for graduation

Number of Quarters	Male	Female	Total
Twelve	7	9	16
Thirteen	4	17	21
Fourteen or more	3	8	11
Total	14	34	48

Both hypotheses are restricted to grade-point averages achieved by the subjects who graduated from college. Hypothesis 1 is concerned with grade-point average attained in the major field or during the junior and senior years of college. Hypothesis 2 is related to the cumulative grade-point average for the total period the subjects were enrolled in college.

The statistical techniques employed in the two major previous discussions contained in this chapter are also employed in the test-

ing of these hypotheses. Chi square and the "z" statistic are the devices, with both statistical measures testing significance of difference at the 0.05 level.

Major Field Grade-Point Average

Table 56 is the contingency table for the major field grade-point average factor of high achievers and low achievers on the Scholastic Aptitude Test. Hypothesis one was: Major field grade-point average does not result in a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test. The obtained Chi square of 11.31 proved to be significant at the 0.05 level. Thus, the null hypothesis was rejected, suggesting that the major field grade-point average factor resulted in a significant difference between the two levels of achievers.

In order to locate the specific difference and its vector between the major field grade-point average factor of high achievers and low achievers on the Scholastic Aptitude Test, the "z" test was applied. The "z" value of 2.55 was derived in favor of high achievers in the "2.50 - 3.00" category and was value significant at the 0.05 level.

Therefore, it was concluded that the major field grade-point average factor resulted in a significant difference between high achievers and low achievers on the Scholastic Aptitude Test. The significant difference was found to be in favor of high achievers whose proportion was greater than low achievers in the category of the highest grade-point average for major field. There was a tendency,

though not significant, for high achievers to be favored by the second highest grade-point average and for low achievers to be favored by the two lowest grade-point averages in the major field.

TABLE 56.- Frequency Distribution of high achievers and low achievers on the Scholastic Aptitude Test according to major field grade-point average

Grade-Point Average	High Achievers	Low Achievers	Total
1.00 - 1.50	23	22	45
1.50 - 2.00	23	21	44
2.00 - 2.50	17	5	22
2.50 - 3.00	9	0	9
Total	72	48	120

Sex: High Achievers.- The major field grade-point average factor of male high achievers and female high achievers is shown in Table 57. The first subsidiary of hypothesis one stated: Major field grade-point average does not result in a statistically significant difference in the frequency of college students who are male high achievers and female high achievers on the Scholastic Aptitude Test. The obtained Chi square of 9.67 was significant at the 0.05 level. The null hypothesis was rejected, and this indicated that the major field grade-point average factor resulted in a significant difference between the two

groups of high achievers.

The "z" statistic was applied in order to ascertain the specific variations and their directions between the major field grade-point average factor of male high achievers and female high achievers on the Scholastic Aptitude Test. A determination of "z" revealed these values: 2.44 which honored male subjects in the "1.00 - 1.50" category, and -2.01 which favored female subjects in the category of "2.00 - 2.50". Both "z" values were significant at the 0.05 level.

TABLE 57.- Frequency Distribution of male high achievers and female high achievers on the Scholastic Aptitude Test according to major field grade-point average

Grade-Point Average	Male	Female	Total
1.00 - 1.50	14	9	23
1.50 - 2.00	10	13	23
2.00 - 2.50	5	17	22
2.50 - 3.00	0	4	4
Total	29	43	72

It was, therefore, concluded that the factor of major field grade-point average did result in a significant difference between male high achievers and female high achievers on the Scholastic Aptitude Test. Female subjects were in a larger proportion in the second

highest grade-point average category whereas the male subjects were the significant majority in the lowest grade-point average category. There was also a tendency for female subjects to be dominant in the class with the highest grade-point average and for male subjects to be more prevalent in the group with the second lowest grade-point average in the major field.

Sex: Low Achievers.— The major field grade-point average factor of male low achievers and female low achievers is depicted in Table 58. The second subsidiary of hypothesis one stated: Major field grade-point average does not result in a statistically significant difference in the frequency of college students who are male low achievers and female low achievers on the Scholastic Aptitude Test. The obtained Chi square of 7.67 attained significance at the 0.05 level. Thus, the null hypothesis was rejected, intimating that the major field grade-point average factor resulted in a significant difference between the two groups of low achievers.

An application of the "z" statistic was used to discover the specific difference and its vector between the major field grade-point average factor of male low achievers and female low achievers on the Scholastic Aptitude Test. A "z" value of -2.63 derived in favor of female subjects in the "1.50 - 2.00" category. The value was significant at the 0.05 level.

Therefore, it was concluded that the major field grade-point average factor did result in a significant difference between male low achievers and female low achievers on the Scholastic Aptitude Test.

There were more females than males in the low-achieving group who attained the second highest grade-point average in major field. There was a tendency, though not significant, for male low achievers to constitute a larger number at the lowest level of major field grade-point average.

TABLE 58.- Frequency Distribution of male low achievers and female low achievers on the Scholastic Aptitude Test according to major field grade-point average

Grade-Point Average	Male	Female	Total
1.00 - 1.50	9	13	22
1.50 - 2.00	2	19	21
2.00 - 2.50	3	2	5
2.50 - 3.00	0	0	0
Total	14	34	48

Cumulative Average

Table 59 is the contingency table for the cumulative grade-point average factor of high achievers and low achievers on the Scholastic Aptitude Test. Hypothesis two was: Cumulative grade-point average for graduates does not result in a statistically significant difference in the frequency of college students who are high achievers and low achievers on the Scholastic Aptitude Test. The obtained Chi square

of 15.72 met the criterion for significance at the 0.05 level. Hence, the null hypothesis was rejected, suggesting that the cumulative grade-point average factor resulted in a significant difference between the two levels of achievers.

TABLE 59.- Frequency Distribution of high achievers and low achievers on the Scholastic Aptitude Test according to cumulative grade-point

Grade-Point Average	High Achievers	Low Achievers	Total
1.00 - 1.50	24	31	55
1.50 - 2.00	28	15	43
2.00 - 2.50	13	2	15
2.50 - 3.00	7	0	7
Total	72	48	120

In order to locate the nature and directions of the differences between the cumulative grade-point average factor of high achievers and low achievers on the Scholastic Aptitude Test, the "z" statistic was employed. The derived "z" values were: -3.36 which favored low achievers in the category of "1.00 - 1.50," and 2.24 and 2.21 which favored high achievers in the respective categories of "2.00 - 2.50" and "2.50 - 3.00." All three values were significant at the 0.05 level.

Therefore, it was concluded that cumulative grade-point average factor did result in a significant difference between high achievers and low achievers on the Scholastic Aptitude Test. A dominant proportion of low achievers was found in the category which contained the lowest cumulative grade-point average. The two categories which reflected the highest cumulative grade-point average had a larger representation of high achievers.

Sex: High Achievers.-- The cumulative grade-point average factor of male high achievers and female high achievers is shown in Table 60. The first subsidiary of hypothesis two stated: Cumulative grade-point average for graduates does not result in a statistically significant difference in the frequency of college students who are male high achievers and female high achievers on the Scholastic Aptitude Test. The obtained Chi square of 15.40 was significant at the 0.05 level. Thus, the null hypothesis was rejected, indicating that the cumulative grade-point average factor resulted in a significant difference between the two groups of high achievers.

The "z" statistic was applied in order to determine the specific differences and their directions between the cumulative grade-point average factor of male high achievers and female high achievers on the Scholastic Aptitude Test. The "z" values derived were: 3.75 which favored male subjects in the "1.00 - 1.50" category, and -2.03 which favored female subjects in the category of "2.00 - 2.50." Both values were significant at the 0.05 level.

It was, therefore, concluded that the cumulative grade-point average factor did result in a significant difference between male

high achievers and female high achievers on the Scholastic Aptitude Test. Male high achievers were found to be a larger proportion in the lowest cumulative grade-point average category. The category of the second highest cumulative grade-point average was numerically dominated by female high achievers. In fact, the data revealed a tendency for female high achievers to have a larger distribution in the categories of the three highest cumulative grade-point averages.

TABLE 60.- Frequency Distribution of high achievers and female high achievers on the Scholastic Aptitude Test according to cumulative grade-point average

Grade-Point Average	Male	Female	Total
1.00 - 1.50	17	7	24
1.50 - 2.00	9	19	28
2.00 - 2.50	2	11	13
2.50 - 3.00	1	6	7
Total	29	43	72

Sex: Low Achievers.- The cumulative grade-point average factor of male low achievers and female low achievers is depicted in Table 61. The subsidiary of hypothesis two stated: Cumulative grade-point average for graduates does not result in a statistically significant difference in the frequency of college students who are male low a-

chievers and female low achievers on the Scholastic Aptitude Test. The Chi square obtained was 1.18. Since the value was not significant at the 0.05 level, the null hypothesis was accepted. This suggested that the cumulative grade-point average factor did not result in a significant difference between the two groups of low achievers.

TABLE 61.-- Frequency Distribution of male low achievers and female low achievers on the Scholastic Aptitude Test according to cumulative grade-point average

Grade-Point Average	Male	Female	Total
1.00 - 1.50	10	21	31
1.50 - 2.00	3	12	15
2.00 - 2.50	1	1	2
2.50 - 3.00	0	0	0
Total	14	34	48

Summary

The preceding analysis was an exploration of the basic hypothesis that there were no significant differences in the selected characteristics of high achievers and low achievers on the Scholastic Aptitude Test. Four general hypotheses served as bases for testing the fundamental proposition. Significant differences were established at the 0.05 level in the employment of Chi square and standardized deviate

score, "s," as the statistical measures for analysis. An evaluation of the tests made on the four general hypotheses indicated a rejection of the basic hypothesis.

The first general hypothesis related to personal and background characteristics of high achievers and low achievers. As stated in Chapter One, it read: There are no statistically significant differences in personal and background characteristics of Negro college students who are high achievers and low achievers on the Scholastic Aptitude Test. Statistical analyses revealed these significant differences: (1) more high achievers were males than females, (2) more high achievers were less than 18 years of age whereas more low achievers were 19 years of age, (3) high achievers were found more frequently to reside in urban communities whereas more low achievers had domicile in rural communities, and (4) in high school average, more high achievers attained grade-points between 3.00 and 4.00 whereas low achievers were found to be a larger number which attained a grade-point average between 2.00 and 2.50. Significant differences were not discovered for the background factors of occupational classification, number of siblings, size of community, Congressional District, size of high school graduating class, and accreditation status of high school. The evidence suggested, then, that the hypothesis be rejected with regard to the personal factors and two of the background factors of high achievers and low achievers.

Selected factors in the college environment of high achievers and low achievers were the concern of the second general hypothesis. The hypothesis was: There are no statistically significant differences resulting from selected factors in college environment of students who are

high achievers and low achievers on the Scholastic Aptitude Test. Differences of a significant nature were not discovered between the two levels of achievers in the factors of boarding status and number of quarters in residence for graduation. There were established, however, these differences: (1) as sources of financial support, high achievers had a greater number receiving scholarships and loans whereas low achievers as a group received more support from parents and relatives, (2) more high achievers chose the humanities and natural sciences as major fields whereas low achievers were more frequently undecided in the selection of a major field, (3) more high achievers tended not to experience academic failure whereas more low achievers tended to be deficient in three or more subjects, (4) whereas a larger number of high achievers graduated from college, low achievers were more often victims of attrition, (5) more high achievers dropped out during the third year of college than low achievers, (6) more high achievers were found to drop out from college for reasons unknown whereas low achievers were dropout casualties more frequently for academic reasons and (7) high achievers carried more frequently an average load of 17 or more hours whereas a larger number of low achievers carried an average load of less than 16 hours in college. The second general hypothesis was, therefore, rejected since seven of the nine factors in the college environment resulted in significant differences between high achievers and low achievers on the Scholastic Aptitude Test.

The third general hypothesis was: There are no statically significant differences resulting from grades obtained in college of students who are high achievers and low achievers on the Scholastic Aptitude Test.

Grade-point average in major field and cumulative grade-point average constituted the two factors used to test the general hypothesis. The results revealed that a significantly larger number of high achievers attained grade-point averages of two points or better in a three-point system for both major field and cumulative performances while similar achievements for a significant number of low achievers were grade-point averages of one point. These results, then, led to a rejection of the general hypothesis and suggested that grades obtained in college did result in significant differences between high achievers and low achievers.

An implied general hypothesis for each of the twenty selected factors was: there are no statistically significant differences in the sex of high achievers and low achievers on the Scholastic Aptitude Test resulting from selected personal and background characteristics, selected factors in college environment, and grades obtained in college. Three of the nine personal and background factors revealed significant differences: (1) High- and low-achieving males were found to be in greater number among the older students whereas high- and low-achieving females were more frequently among the younger students. (2) More high-achieving females than high-achieving males came from communities with population sizes which ranged from 25,000 to 50,000. (3) The high school grade-point averages of 2.50 or below in a four-point system were more often attained by high-achieving males than high-achieving females.

Three of nine selected factors in the college environment produced a significant difference in the sex of high achievers and low

achievers: (1) High-achieving females were the dominant number of students who received scholarships and loans as sources of financial support whereas high- and low-achieving males were more often dependent upon other sources such as work and the G.I. Bill. (2) High- and low-achieving females selected elementary education more often as a major field while more low-achieving males chose such majors as agriculture, health and physical education, and industrial arts. (3) High-achieving males were mortality victims more frequently during the freshman year whereas high-achieving females constituted the major portion of the casualties during the sophomore year. The differences were not significant for the college environmental factors of boarding status, number of subjects failed, persistence, dropout reason, average load, and number of quarters in residence for graduation.

Both factors pertaining to grades obtained in college yielded a significant difference in the sex of high achievers and low achievers: (1) A greater number of high-achieving males earned in the major field a grade-point average between 1.00 and 1.50 on a three-point scale whereas high-achieving females had a larger number achieving between 2.00 and 2.50 as a grade-point average in the major field. Low-achieving females, on the other hand, were in a larger proportion over low-achieving males in achieving between 1.50 and 2.00 as a grade-point average in major field. (2) More high-achieving females earned between 2.00 and 2.50 as a cumulative grade-point average while high-achieving males were more frequent in the attainment of a cumulative grade-point average between 1.00 and 1.50.

The evidence, therefore, supported the rejection of the general

hypothesis and suggested that selected personal and background characteristics, selected factors in college environment, and grades obtained in college did yield a significant differences in the sex of high achievers and low achievers on the Scholastic Aptitude Test.

Relationship of Findings to Previous Studies

The preceding analysis and summary indicated that several of the selected characteristics resulted in a significant difference between the high achievers and low achievers on the Scholastic Aptitude Test. The discriminating factors were: (1) sex, (2) age, (3) academic performance in both high school and college, (4) source of financial support, (5) selection of major field, (6) number of subjects failed, (7) survival status, and (8) average load. The relationship of the findings of this study to similar results of other investigations is noted below.

The sex factor yielded a difference which indicated that male subjects were found more often than female subjects to be among those with higher scholastic aptitude. This finding is not fully supported by the results reported in other studies such as these by Caliver¹ and Centi.² A significant difference in the age factor revealed that younger

¹Ambrose Caliver, A Background Study of Negro College Students, U.S. Office of Education Bulletin No. 8 (Washington: U.S. Government Printing Office, 1933).

²Paul Centi, "Highest and Lowest Ranking Students at the School of Education of a Large Urban University," Personnel and Guidance Journal, XXXVII (1958-59), pp. 457-459.

subjects were more frequently found among high achievers than low achievers. The investigations by Moore¹ as well as those conducted by the two preceding investigators, Caliver and Centi, corroborated the finding. On the other hand, D'Amico concluded from his study that those students who achieved the highest median credit-point ratio were in the older age category whereas the younger age group achieved the lowest grade.²

The finding that number of subjects failed resulted in a significant difference between high achievers and low achievers on the Scholastic Aptitude Test is contrary to the results noted by Caliver. Where Caliver found negligible differences between the inferior and superior group in subjects failed, the present study revealed that the number of failures in one or two subjects were about the same for both high achievers and low achievers. In another vein, however, far more of the high group members were free from failure while a greater number of the low group members failed three or more subjects. The results obtained in this study were no different than those expected.

The significant difference in the grade-point average factor for high school and college of the two levels of achievers indicated the existence of a positive correlation between scholastic aptitude and

¹M.W. Moore, A Study of Young High School Graduates (New York: Bureau of Publications, 1933).

²Louis A. D'Amico, "Characteristics of Students Admitted to Xavier University in 1951 and a Follow-Up of Their Achievement," Journal of Educational Research, LI (January, 1958), pp. 361-366.

academic achievement. Kerr¹ and Schwilck² are among the researchers who have provided evidence to support the close identity found between ability and achievement. It should be stated here, however, that this relationship tends to become distorted when the sex factor is taken into consideration.³

The source of financial support resulted in a significant difference between high achievers and low achievers. Even though a significant larger number of low achievers were dependent upon parental source, most members in either group depended upon this source of support. This finding was in accord with the NEA study to which previous reference was made.⁴ The difference revealed in the selection of major field reflected that high achievers entered the sciences and humanities more frequently than did low achievers. This finding is compatible with Sanford⁵ and Welfle⁶ who noted that the fields of natural science and humanities tended to attract more people of a high intellectual level than did the other fields.

¹Fred L. Kerr, "Studies on the Freshman Class of 1956 at the University of Arkansas," College and University, XXIV (1958-59), pp. 186-199.

²Gene L. Schwilck, "Academic Achievement of Freshman High School Students in Relationship to Class Load and Scholastic Aptitude," Personnel and Guidance Journal, XXXVII (1958-59), pp. 455-456.

³W.B. Waetjen, "Is Learning Sexless?," NEA Journal, LI (May, 1962), pp. 12-14.

⁴"College Attendance and Youth," NEA Research Bulletin, XL (February, 1962), pp. 18-21.

⁵Nevitt Sanford, The American College (New York: John Wiley & Son, Inc., 1962).

⁶Dael Welfle, "Intellectual Ability of Students Entering Different Fields of Science," Science, CXV (1952), p. 489.

The significant findings that low achievers were more frequent dropouts and the reason most often given for dropout was academic were supported by the research analyzed earlier by Williams¹ and Slocum.² The results appeared to be rather conclusive. The average load factor yielded a significant difference which concurred with the finding of Schwilck that higher scholastic aptitude students selected heavier academic loads.

Several of the factors which did not reveal a significant difference between high achievers and low achievers on the Scholastic Aptitude Test were compatible with similar findings by other investigators. Included among the factors were characteristics relating to the family, community, and high school of subjects.

Numerous factors were examined in this study in order to discover some characteristics, if any, which were unique to high achievers or low achievers on the Scholastic Aptitude Test. Most of the findings were found to be in agreement with the results of other investigations. The fact that this study was concerned with both kinds of factors, those in the background as well as those in the college community of students, provided it with a mark of distinction from other studies. As a major purpose, this study was designed to identify those factors or characteristics which appear to need

¹E.K. Williams, "Comparative Academic Achievement of Students Ranking the Highest and Lowest on the ACE Test," Faculty Research Edition of the Savannah State College Bulletin, XVI (December, 1962),

²W.L. Slocum "Social Factors Involved in Academic Mortality," College and University, XXXII (1956-57), pp. 53-64.

serious and sustained attention in order to improve the opportunity of academic success for more children and youth enrolled in public high schools and colleges.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The major problem of this study was to analyze selected characteristics of high- and low-achieving Negro students on the Scholastic Aptitude Test of the College Entrance Examination Board and discover the relationship, if any, between test performance and success in college. More specifically, it was intended to:

1. Determine if there were differences between high achievers and low achievers with regard to selected personal and background characteristics.
2. Determine if there were differences between high achievers and low achievers with regard to selected college factors.
3. Determine if there were differences between high achievers and low achievers with regard to grades obtained in college.
4. Determine if there were differences between sex of high achievers and low achievers with regard to selected personal and background characteristics, selected factors in college, and grades obtained in college.

The preceding four specific sub-problems were formulated as gen-

eral null hypotheses to the effect that there were no significant differences between high achievers and low achievers with regard to selected characteristics and to grades obtained in college. The general hypotheses were divided into twenty-one specific null hypotheses, extending the fourth which was derived as a result of the sex factor. A total of sixty-one specific null hypotheses were developed to guide the study in the determination of differences between high achievers and low achievers.

The sample included 315 subjects selected from among 513 freshman students who matriculated in three Georgia colleges, Albany State College, Fort Valley State College, and Savannah State College, during the fall quarter of 1957-8 school year. As a facet of college admission requirements, the students were administered the College Entrance Examination Board Scholastic Aptitude Test. The subjects used in this study comprised those students who achieved a Scholastic Aptitude Test score which was at or in excess of one-half standard deviation above the group mean, and those students who achieved a Scholastic Aptitude Test score which was at or more than one-half standard deviation below the group mean. There were 120 subjects who were identified as high achievers because of their rank above the group mean and 195 subjects who were classified as low achievers due to their rank below the group mean. Twenty additional subjects for each group were selected for purposes of possible replacement of subjects in the sample and represented subjects closest to those chosen in the initial selection.

Conclusion

The major conclusions resulting from this study were:

1. A significantly larger proportion of high achievers on the Scholastic Aptitude Test were male students.
2. A greater number of high achievers on the Scholastic Aptitude Test were younger in age.
3. Both high- and low-achieving females on the Scholastic Aptitude Test were represented in greater number among the younger subjects.
4. A greater number of high achievers on the Scholastic Aptitude Test came from urban communities.
5. More high achievers on the Scholastic Aptitude Test were represented among those receiving the better grades in high school. Fewer male achievers were found more often to attain better high school grades than male achievers.
6. A significantly larger proportion of low achievers received support from parents and relatives while the high-achieving group had a significantly higher proportion receiving loans, scholarships, and other support.
7. High- and low-achieving females were in significant higher proportion among those who benefited from scholarship and parental support; more high- and low-achieving males were self-supporting.
8. High achievers on the Scholastic Aptitude Test were found more frequently among those who selected the humanities and natural sciences as major fields. High- and low-achieving females were represented in significantly larger proportion in elementary education as a major field while male low achievers were predominant in the non-academic areas such as agriculture and physical education.

9. Low achievers on the Scholastic Aptitude Test were found in larger proportions among the dropouts and those presently enrolled while high achievers had a greater proportion among graduates.

10. There was no significant difference in the number of Negro students enrolled in the public colleges of Georgia who dropped out from the high-achieving group and low-achieving group on the Scholastic Aptitude Test.

11. High-achieving males on the Scholastic Aptitude Test were more likely to be earlier dropouts from the three public colleges for Negroes in Georgia than the high-achieving females.

12. The reason for dropout from the three public colleges for Negroes in Georgia was more likely to be unknown for those students who were high achievers on the Scholastic Aptitude Test.

13. High achievers on the Scholastic Aptitude Test represented a majority of those who carried a heavier than normal load in college.

14. High achievers on the Scholastic Aptitude Test were in significantly greater proportion among those with the best cumulative grade-point average. A significantly larger majority of those receiving the higher cumulative grade-point averages were female subjects.

15. The differences were not significant in the frequency of college students who were high achievers and low achievers on the Scholastic Aptitude Test with regard to these factors: (1) occupational classification, (2) number of siblings, (3) size of community, (4) Congressional District, (5) high school accreditation status, (6) high school size, (7) boarding status, and (8) number of resi-

dence quarters for graduation.

Recommendations

The preceding analysis, summary, and conclusions of this study suggest the following recommendations:

1. That the college explore the possibility of establishing an accelerated program for the academically able students. There was not a single case among the subjects in this study in which a student finished college in less than twelve quarters or four years. In fact, it took more than twelve quarters for most of the subjects to graduate.
2. That the college personnel workers make a careful study of the dropout problem. Nearly sixty per cent of the subjects were dropouts of which forty per cent were high achievers and slightly more than seventy per cent were low achievers.
3. That the criteria for admission to public colleges in Georgia continue to include scholastic aptitude test results and high school grade-point average. A combined use of these two devices along with other pertinent data constitutes a better basis for the admission of students to college. This suggestion results from the tendency for male students to show superiority in scholastic aptitude whereas the female students reflect a high degree of success in classroom achievement in both high school and college. Knowledgeable people in guidance and counseling also knew that better decisions are likely to be made when all adequate-pertinent data are available.
4. That counseling in the public school be more directive with

respect to those students having a combination of low aptitude and low motivation for academic success. These students should be frankly discouraged from matriculating in a liberal arts college.

5. That a similar investigation of this nature be conducted for both Negro and white students in Georgia or in other states in order to determine the affects of the factors studied in this investigation with regard to race.

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