A STUDY OF THE RELATIONSHIP OF SELECTED PERSONAL AND ENVIRONMENTAL FACTORS TO ACADEMIC SUCCESS

A Project

Presented to

the Faculty of the Department of Education

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In Partial Fulfillment

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of Master of Education

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by

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CHAPTER I

THE INTRODUCTION TO THE PROBLEM

I. THE PROBLEM

Statement of the problem. It is the purpose of this study to make an analysis of the records of one-half of the entering freshmen in the College of William and Mary over the five-year period 1945-1949 in order to determine (1) the student's degree of academic success as measured in terms of quality point average; and (2) how this degree of success may be associated with certain personal factors, such as, intelligence, high school principal's rating, age, sex, veteran or non-veteran status, achievement in high school and environmental factors, such as, the size of the school, home state, occupation of parent, and field of concentration while attending the College of William and Mary.

Limitations of the problem. This project was limited to an analysis of the records of one-half of the freshmen entering the College of William and Mary in the fall terms of the years 1945-1949 inclusive. In the case of freshmen who entered the College in the fall term of 1945, the records were analyzed over the full four-year period of enrollment. The project was limited to the five-year period 1945-1949 and to students enrolled in the College of William and Mary for at least one semester because (1) the statistics derived from the records of one-half of the entering freshmen should represent a large enough sampling of the students to be considered reliable and to satisfy the purposes of the study;[1] (2) the five-year period is of sufficient length to satisfy the purposes of the study; (3) information concerning students enrolled in the College for less than one semester would not furnish data complete enough to satisfy the purposes of the study; and (4) information concerning one class of entering freshmen over the full four-year period of enrollment was considered sufficient to determine four-year trends should there be reason for any to become evident.

Significance of the problem. The investigator felt that information could be obtained from this study which would be of use in counseling students, and trends revealed which would be significant enough to be of some benefit to the Committee on Admissions when screening applications for admission to the College of William and Mary.

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[1]Allen L. Edward, Statistical Analysis, (New York: Rinehart & Company, Inc., 1948), pp. 282 ff.

II. DEFINITIONS OF TERMS USED

Academic success in college. In this project academic success in college was measured in terms of quality point average.

Character of secondary schools. The character of the secondary schools was decided by their size (as determined by the size of the high school class in which the student was graduated) and location of state.

Student personal factors. The student personal factors considered in this study were intelligence (as determined by the student's score on the A.C.E. Test or by the score on the Ohio Psychological Test), academic success in college, the high school principal's rating, age, sex, veteran or non-veteran status, and achievement in high school (as determined by the student's rank in the high school class in which he was graduated).

Environmental factors. Throughout this study, the term "environmental factors" includes the character of the school in which the student was graduated, the student's home state, the occupation of the student's parent, and the student's field of concentration while attending the College of William and Mary.

III. METHOD OF PROCEDURE

Collection of the data. The cases were selected from Kardex cards which are on file in the Registrar's office. The Kardex cards contain the student's name, age, home address, the name of the secondary school which the student attended, the status of the student as to armed forces service, the size of the student's high school graduation class and the student's rank in that class. Quality point averages, the number of semesters in college and the student's field of concentration were taken from the permanent record files which are filed in the vault located in the Registrar's office. The high school principal's rating and the father's occupation were secured from the individual student's personal folder in the Registrar's office. Test marks for the American Council on Education and the Ohio State Psychological Examinations were obtained from records in the Counselor's office.

Selection of the sample. The cases were chosen at random. The method employed was the selection of every other freshman entering the College of William and Mary in the fall semester of the years 1945 through 1949 who remained in residence at least one semester. The cases were selected from the alphabetized Kardex cards on file in the Registrar's office and those cases which were found to be atypical, such as a student enrolling for only one or two courses, were rejected.

Tabulation of the data. As the information was gathered it was tabulated on forms which were printed for this purpose. (Appendix A.) The information was coded to facilitate its recordation on International Business Machine cards. The International Business Machines were then used to treat the information statistically and make the analysis.

Method of coding. It was necessary to code the data collected on the 958 cases quantitatively in order to transfer the information to International Business Machine cards. The coding for each step was done in the following manner:

1. Year Entered. It was necessary to record one number to indicate the year in which a student entered the College. For example, the recorded number five (5) represents the year 1945, number six (6) represents the year 1946 and so on through 1949.

2. Quality Point Average. The method of determining quality point average in this study varied from that used in the College of William and Mary. Both methods assign three quality points for

each credit of "A" grade work, two quality points for each credit of "B" grade work, one quality point for each credit of "C" grade work, and no quality points for "D" grade work. The difference in methods appears in the treatment of "F" or failure grades. When determining quality point averages for this study, the investigator assigned a minus one quality point for each credit of "F" grade work. The method used by the College administration is to assign no quality points to "F" grade work. The penalty invoked for an "F" grade is that no credit is given for the failed courses taken or the time spent in taking a failed course.

R. Brooks states, in an unpublished report, that he ran two correlations using the same group of test scores (scores made on the Ohio State Psychological Examination by the entering freshmen in the fall of 1949), but using the two different methods of determining quality point average. He reports a correlation coefficient of .60 between the test scores and quality point average when no penalty for failure was deducted, and a correlation coefficient of .64 between the same test scores and quality point average when the penalty for failure of courses was invoked as described above. Further, the distribution of the higher correlation was more normal than that of the lower correlation which was skewed at the lower end of the distribution.[2]

When determined, the quality point average was recorded exactly as it occurred. There was no necessity for substituting other symbols for the quality point average.

3. Sex. This is indicated numerically by the number one (1) for male, number two (2) for female.

4. Age. The coding of the age of the students included in this study was accomplished by determining their actual age in years at the time of entrance to the College of William and Mary and recording it exactly as it occurred.

5. Veteran or non-veteran status. This factor was indicated numerically by the number one (1) for students with a non-veteran status and a number two (2) for students with a veteran status.

6. Intelligence. This was recorded in a numerical score. The score recorded was the actual raw score

[2] R. Brooks, Unpublished Report, (Williamsburg: College of William and Mary, 1950).

achieved on the American Council of Education Psychological Examination for College Freshmen or the Ohio State University Psychological Test, whichever test was administered to the student. The American Council on Education Psychological Examination for College Freshmen was administered to the freshmen entering the College of William and Mary in the years 1945, 1946 and 1947. The Ohio State University Psychological Test was administered to the entering freshmen in the years 1948 and 1949. Both are widely used in testing the intelligence of college freshmen.[3]

7. Achievement in high school. This factor was determined by the student's rank in the high school class in which he was graduated. The rank in graduation class was transmuted into a score by means of a formula which determines a per cent position.[4] A table called The Transmutation of Orders of Merit into Units of Amounts or "Scores"[5] transmutes the percentage

[3] J. L. Mursell, Psychological Testing, (New York: Longmans, Green and Co., 1949), p. 165.

[4] H. E. Garrett, Statistics in Psychology and Education, (New York: Longmans, Green and Co., 1947), p. 171 f.

[5] Ibid., p. 173. This table was taken from Hull, C.L., "The Computation of Pearson's r from Ranked Data", Journal of Applied Psychology, (1922), 6, pp. 385-390.

position into a score. As these scores were obtained for each case they were recorded as they occurred.

8. Principal's rating. The principal's rating appears on the student's application for entrance to the College of William and Mary. The principal is requested to rate the student's academic potential in one of four categories: excellent, good, fair, or poor. For the purpose of this study, the four ratings were given numerical values of the number one (1) for excellent; number two (2) good; number three (3) fair; and number four (4) poor.

9. Parent's occupation. The Barr Scale of occupational intelligence was used for the purpose of assigning a scale value to the parents' occupations. Mr. F. E. Barr constructed a list of one hundred and twenty-four (124) occupations which was designed to cover the entire range of occupations and, then, definitely and concretely described each. He enlisted the aid of twenty judges who rated the specified occupations on a scale of zero (0) to one hundred (100) according to the grade of intelligence which each was believed to demand. The ratings were distributed and P.E. values computed for each of the occupations. The P.E. values transmuted to the scale, express, in the case

of each occupation, the number of units of intelligence which, according to the composite opinion of the twenty judges, the occupation demands for ordinary success.[6]

Terman used Barr's scale of occupational intelligence in his Genetic Studies of Genius. Regarding the use of the scale, he said:

"In the use of the scale it is only necessary to compare the occupation which is to be rated with the occupations whose scale values are known, and to assign it the value possessed by the scaled occupation which it most nearly matches. Intermediate values may be used in rating occupations which do not appear in the scale. It cannot be claimed that Barr Scale values correspond exactly to the facts, but they unquestionably approximate the facts more closely than would the judgments of any one individual."[7]

Terman cites several investigations, among them studies by Cattell and Edwin L. Clarke, which show that social class is highly correlated with adult achievement; Terman's study shows that social class is highly correlated with intelligence in fairly early childhood.[8] However, he does not report a coefficient of correlation.

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[6]L. M. Terman, editor, Genetic Studies of Genius, (Stanford University, Stanford University Press, 1926), Vol. I, p. 66.

[7]Ibid., p. 67.

[8]Ibid., p. 83.

10. Student's home state. The state from which a student came to the College of William and Mary was coded by assigning a number to each state. This was done by listing the states alphabetically and, beginning with numeral ten (10), assigning the numbers ten (10) through fifty-seven (57) in consecutive order. In addition to the forty-eight (48) states, code numbers were assigned to Washington, D.C., U. S. Possessions, Canada, Europe, Far East, Near East and South America. (Appendix B.)

11. Size of graduating class. The size of the graduation class, as shown on the student's application for entrance to the College of William and Mary, was broken down by the investigator into intervals of twenty-five (25). Each interval was assigned a number beginning with the number one (1) for a graduating class of less than twenty-five (25) students; number two (2) for a class numbering twenty-five (25) through forty-nine (49) students; and so forth. (Appendix C.)

12. Field of concentration. This information was obtained from the permanent record files. It was coded by using the code assigned to each

classification by the College of William and Mary. (Appendix D.) This code was applied only to those cases studied for the full four-year period.

13. Semesters completed. This code indicates the number of semesters the student completed at the College of William and Mary. In the case of a student completing one semester, the number one (1) was assigned; two semesters, the number two (2) was assigned; and so forth. This code was applied only to those cases studied for the full four-year period.

Statistical treatment of the data. The data were recorded on International Business Machine cards and the International Business Machine Company equipment was used for the major part of the statistical work. This was done to facilitate the handling of the extensive statistical work involved in determining the relationship of the factors studied to academic success in college.

The investigator attempted to analyze the data only in so far as it satisfied the purpose of the study. No attempt was made to glean all of the information from the data collected.

The method of determining the relationship of a selected factor to academic success was to correlate the factor with quality point average and then determine the significance of the correlation.

The results of the statistical analysis are reported in Chapter III.

IV. ORGANIZATION OF THE REPORT

The remainder of this report is organized as follows:

The second chapter consists of a review of material related to this problem.

The third chapter consists of a statistical analysis of the data collected for the solution of the problem.

The fourth chapter consists of the investigator's conclusions and suggestions of problems for future studies.

CHAPTER II

A REVIEW OF THE LITERATURE RELATED TO THE PROBLEM

Hundreds of studies have been made to determine the degree of correlation that exists between various factors and academic success in college.[9] The material presented in this chapter was selected for citation by the investigator because it is related to the several factors studied in this project. The chapter is separated into sections; each section covering material related to a factor studied in the project.

Sex. Several early studies report a sharp contrast between the intelligence of the male and female sexes. These reports favor the men but this is probably due to the lack of refined procedures of investigation and the presence of personal bias on the part of the investigator. Early investigations reported a definite male superiority but with the introduction of psychological and educational experimentation, the emphasis in the matter of female inferiority shifted and attention was directed to the scarcity of women among

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[9] H. R. Douglass, Organization and Administration of Secondary Schools, (New York: Ginn and Company, 1945), p. 604.

the persons who achieve eminence.[10] A. L. Windsor, reporting on the variability of the sexes, found that there were more males in both the upper and lower extremes of the distributions than there were females. This was taken to mean that there were more extremely incompetent mentalities and more extremely gifted mentalities among the males. The exact ratios of boys to girls have differed from study to study, but practically all agree in finding a greater percentage of intelligent males.[11]

Terman, in his Genetic Studies of Genius, found in a group of 676 children that the ratio of extremely gifted boys to extremely gifted girls was 116:100. In another group of 356 children, the ratio found was 123.9:100, while in a high school group of 378 pupils the ratio found was 212:100.[12]

The true cause or causes of sex differences found among children of exceptionally superior mentality and those of exceptionally inferior mentality have not been determined, but whatever the causes, the male sex is

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[10] F. S. Freeman, Individual Differences, (New York: Henry Holt and Company, 1934), pp. 187 ff.

[11] A. L. Windsor, "The Relative Variability of Boys and Girls," The Journal of Educational Psychology, vol. 18, 1927, pp. 327-36.

[12] Terman, op. cit., pp. 49 ff.

more variable at least in the extremes.[13]

> "At the same time, the central tendencies of the sexes in the measures of 'general ability' are so close as to warrant the conclusion that in respect to the mass of individuals there are not very significant disparities attributable to sex as such. The more important features being the very great overlapping of the sexes and variations within each sex."[14]

Age. Monroe states, in reviewing the literature concerning this factor, that "the literature reveals a negative relationship between age and freshmen scholastic success. In other words, the younger the student, the more likely he is to succeed in college."[15] Monroe cites a study by Dwyer, whose results were considered typical. They showed a negative trend up to a college entering age of 21 and a positive trend beyond the age of 21. "When students enter college beyond the age of 21, they are more likely to succeed just as they are more likely to succeed if they enter at a very early age." According to Monroe, this trend appears more pronounced for men than for women.[16]

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[13]Freeman, op. cit., p. 213.

[14]Ibid., p. 215.

[15]Walter S. Monroe, editor, Encyclopedia of Educational Research, (New York: The MacMillan Company, 1941), p. 849.

[16]Loc. cit.

Veteran or non-veteran status. R. E. Sykes states the following conclusions in his "A Study of Scholastic Achievement of Selected Veterans at the College of William and Mary":

"1. The veteran at the College of William and Mary is about a college generation older than the typical student attending colleges and universities prior to the war.

"2. A small percentage of veterans withdrew because of academic deficiency. Most are doing good enough work to remain in college.

"3. The veteran who was a student at the College of William and Mary prior to entry into service is doing better work at the College since his return.

"4. Veterans did slightly poorer work the second semester in school than they did the first semester in school after service.

"5. Married veterans make significantly better grades than do unmarried veterans."[17]

Sykes reported the average age for 144 veteran freshmen in the school year 1945-1946 to be 23.3 years[18] and the mean quality point average for 32 veterans the end of the first semester in the same year was found to be 0.86.[19]

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[17] Roland E. Sykes, "A Study of Scholastic Achievement of Selected Veterans at the College of William and Mary," Unpublished Thesis, 1948, p. 53.

[18] Sykes, Ibid., p. 36.

[19] Sykes, Ibid., p. 43.

Sykes' outstanding conclusion was that married veterans make significantly better grades than do unmarried veterans. He was unable to draw any significant conclusion as to the relationship of academic success in the College of William and Mary and a student's veteran status.

George E. Simmons in his study, "The Veterans As I See Them," reports difficulty in uncovering any evidence that veterans achieved academic success to any unusual degree.[20]

Loren S. Hadley reported results similar to Simmons' in his study entitled, "To What Extent Will Colleges Adjust to the Needs of Veterans?"[21]

Intelligence. Herbert L. Bridges, in his dissertation, Admission Policies of Virginia Colleges, says that the function of the entrance examination is to secure a rating of mental ability of the college applicant rather than secure information about his knowledge.[22]

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[20]George E. Simmons, "The Veterans As I See Them," June 1946, vol. 17, pp. 315-18.

[21]Loren S. Hadley, "To What Extent Will Colleges Adjust to the Needs of the Veterans?", School and Society, May 4, 1946, vol. 63, p. 324.

[22]Bridges, Herbert Lee, Jr., Admission Policies of Virginia Colleges, Charlottesville, Va., Unpublished Doctor's Dissertation at University of Virginia, June 1948, p. 204.

Douglass reports an average coefficient correlation between College Entrance Examination Board examinations and average college marks for the first year or two years of .50. Between intelligence or college aptitude tests and average college marks for the same period, Douglass reports an average coefficient of correlation of .42.[23]

Bridges reports a coefficient of correlation between the American Council of Education Psychological Examination for College Freshmen and quality points earned by freshmen the first semester at Mary Baldwin College during the school year 1944-1945 of .44.[24]

R. Brooks of the College of William and Mary, in an unpublished report, states that he obtained a coefficient of correlation between the Ohio State Psychological Examination and first semester quality point average of .64 for the entering freshmen in the fall of 1949.[25]

When a psychological test or entrance test is correlated with quality point average and the coefficient of correlation is less than .40, it is worthless when

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[23]Douglass, op. cit., p. 605

[24]Bridges, op. cit., p. 152.

[25]Brooks, loc. cit.,

used alone to predict college success. Even those between .60 and .80 are not highly accurate though they may be very useful.[26]

Some institutions rely almost exclusively on tests in admitting students, though 90 per cent of 650 institutions studied by Fine use tests after the student is admitted.[27]

Achievement in high school. Monroe cites a study by Segel who summarized a variety of studies reporting coefficients of correlation between college scholarship and average high school marks and obtained a median coefficient of .55. This coefficient was .11 higher than the median coefficient between intelligence tests and college scholarship. The coefficients ranged from .29 to .77 between high school achievement and college scholarship and were more variable than the coefficients between scholastic aptitude or general intelligence tests and college scholarship. Segel attributes this greater variability to the fact that marks given at different high schools do not have the

[26] Douglass, loc. cit., p. 605.

[27] B. Fine, Admission to American Colleges (New York: Harper and Brothers, 1946), p. 102.

same meaning whereas tests given to students from different schools yield more stable values.[28]

Douglass reports a correlation coefficient of .55 between average high school mark and average college mark of the first year or two years.[29]

High scholastic achievement in high school was considered desirable by nearly two-thirds of the colleges polled in Fine's study. "High school graduates in the upper third of their classes are preferred by most colleges."[30] A reason for this is the assumption that intelligence tests provide a more accurate basis for predicting college scholarship than any other single factor.[31]

Principal's rating. The investigator was unable to find evidence of actual coefficients of correlation between the principal's rating and quality point average; however, the principals of the thirty secondary schools that took part in the experiment in progressive education which has since become known as The Eight Year Study were required by the participating colleges to furnish a recommendation as to the character, intelligence and

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[28]Monroe, op. cit., p. 848.

[29]Douglass, loc. cit., p. 605.

[30]Fine, op. cit., p. 58.

[31]Douglass, op. cit., p. 604.

purpose of the students requesting admission to the college. The students that participated in this experiment were admitted to the colleges on the basis of the principals' ratings along with selected records.

Fourteen hundred and seventy-five (1475) pairs of students were studied by use of official college records, lists of honors or prizes won, reports of instructors, samples of written work, results of various types of tests given by the college and by frequent interviewing.[32]

A comparison of the records of the students who were admitted on principal's recommendation, primarily, with those of other students of equal intelligence reveals that, without question, they achieved as good a scholastic record in college as those with whom they were compared.[33]

<u>Parent's occupation</u>. Terman cites several investigations, among them studies by Cattell and Edwin L. Clark, which show that social class is highly correlated with adult achievement. In these studies social class was determined by the person's occupation or the father's occupation. Terman's study of the

[32]W. M. A

[32]W. M. Aikin, <u>Adventure in American Education</u>, vol. 1, "The Story of the Eight Year Study," (New York: Harper and Brothers, 1942), pp. 12-16.

[33]Douglass, <u>op. cit.</u>, p. 604.

relationship of social class to intelligence showed a high correlation, but he does not report the correlation coefficient. Terman's study was the first study to indicate the high correlation between social class and intelligence in fairly early childhood.[34] Summing up the several studies which he cites, Terman says, "Notwithstanding minor discrepancies, all of these investigations agree as to the existence of a very striking social hierarchy with respect to the production of superior individuals."[35]

<u>Student's home state</u>. This factor was included in the study in order to determine the relative academic success of state and out-of-state students while attending the College of William and Mary.

The investigator was unable to locate any specific information regarding this factor but Douglass made the following generalizations in respect to the differences of the scores made on the American Council on Education Psychological Examination by the college students tested throughout the country:

> "1. The student bodies of Southern colleges on the whole are inferior to those of Eastern colleges, as judged by the American Council on Education Psychological Examinations.

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[34]Terman, *loc. cit.*, p. 83.

[35]*Ibid.*, p. 66.

"2. Teachers'-college student bodies are, on the average, inferior to those of other types of institutions.

"3. Small independent arts colleges vary most widely, including among their numbers some with very superior groups of students--indeed the topmost--and also some at the other end of the scale.

"4. The well-endowed colleges and universities, including Harvard, Chicago, Yale, Stanford, Duke, and Princeton, have student bodies of very superior abilities.

"5. The larger state universities, including Michigan, California, Minnesota, Illinois, have student bodies of superior ability.

"6. The smaller universities and agricultural and engineering colleges range, in general, through the middle."[36]

<u>Size of graduation class</u>. This factor was included as an indication of the size of the high schools from which the students were graduated. The small high school is found in relatively large numbers in all sections of the United States.

In spite of the many opportunities in the smaller high school for the development of the individual, the school is under many disadvantages that impair its effectiveness. The impossibility of a teacher's specializing, low salaries, poor teachers in many cases, and a less diversified curriculum are a few of these disadvantages.[37]

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[36] Douglass, <u>op. cit.</u>, p. 606 f.

[37] J. B. Edmonson, J. Roemer, and F. L. Bacon, <u>The Administration of the Modern Secondary School</u>, (New York: The MacMillan Company, 1948), pp. 547 ff.

Douglass says, "Students from very small high schools, though these schools send a smaller percentage of their graduates to college, do not do quite so well either on college aptitude tests or college marks."[38]

Field of concentration. This factor was included in the study in order to determine any particular four-year trends should there be reason for any to become evident. Concerning field of concentration, Monroe states that it is very difficult to predict probable success in any given field of concentration unless it is done on the basis of one or more years of college marks.[39]

Semesters completed. This factor was included in the study in order to determine any particular four-year trends should there be reason for any to become evident.

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[38] Douglass, *op. cit.*, p. 604.

[39] Monroe, *op. cit.*, p. 848.

CHAPTER III

STATISTICAL ANALYSIS OF THE DATA

Following the collection of the data, the 958 cases were analyzed in order to determine how many of the cases are male or female and how many veterans are included in the study. Of the total 958 cases, 515 are male and 443 are female. Of the 515 male cases, 177 are veterans of World War II. Only five of the female cases are veterans of World War II. This number is considered insufficient to be treated statistically as a separate group and they are, therefore, included in the total of the female cases. (A further breakdown of the cases is found in Tables I and II.)

The relationship between the factors considered and academic success in college will be stated in terms of coefficients of correlation and significance at the one degree or the five degree levels.

Guilford, writing on correlations, says:

> "A coefficient of correlation is a single number that tells us to what extent two things are related; to what extent variations in the one go with variations in the other."[40]

The significance of the various coefficients of correlation was determined by using the Wallace-Snedecor

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[40] J. P. Guilford, <u>Fundamental Statistics in Psychology and Education</u>, (McGraw-Hill Book Company, Inc., 1950), p. 154.

TABLE I

A BREAKDOWN OF THE SAMPLE

BY YEAR OF ENTRANCE AND SEX

YEAR ENTERED	1945	1946	1947	1948	1949	TOTAL CASES
MEN	45	178	96	87	109	515
WOMEN	104	29	88	94	128	443
TOTAL BY YEAR	149	207	184	181	237	958

Note: This table breaks down the 958 cases into the number of students and the sex of the students studied for each year of the five-year period, 1945-1949 inclusive.

TABLE II

A BREAKDOWN OF THE MALE CASES STUDIED

BY YEAR OF ENTRANCE AND VETERAN AND NON-VETERAN STATUS

YEAR ENTERED	1945	1946	1947	1948	1949	TOTAL CASES
NON-VETERAN	42	57	69	71	99	338
VETERAN	3	121	27	16	10	177
TOTAL BY YEAR	45	178	96	87	109	515

Note: This table breaks down the 515 male cases into the classification of veteran or non-veteran for each year of the five-year period studied.

tables.[41] These tables indicate the significance of a correlation at the one and five degree levels without necessitating the use of a t score formula. When the statement is made that a coefficient of correlation is significant at the five degree level, it means that the coefficient of correlation could be expected to occur by chance less than five per cent of the time. A coefficient of correlation significant at the one degree level could be expected to occur by chance less than one per cent of the time.[42]

<u>The relationship of sex to academic success in college</u>. The correlation between male and female and quality point average is $r_{bis} = .07$. This is not considered significant at the one degree nor the five degree level.

<u>The relationship of age to academic success in college</u>. The correlation between age and quality point average is $r = .02$. This is not considered significant at the one degree nor the five degree level.

<u>The relationship of veteran or non-veteran status to academic success in college</u>. The correlation between veteran or non-veteran status and quality point average is $r = .03$.$_{bis}$ This is not considered significant at the one degree nor the five degree level.

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[41] <u>Ibid.</u>, p. 609.

[42] Edwards, <u>op. cit.</u>, p. 177.

<u>The relationship of achievement, as expressed by rank in high school graduation class, to academic success in college.</u> The correlation between achievement in high school and quality point average is $r = .35$. This is significant at the one degree level of competence.

<u>The relationship of parent's occupation to academic success in college.</u> The correlation between parent's occupation and quality point average is $r = .18$. This is significant at the one degree level of competence.

<u>The relationship of location of home (in or out of state) to academic success in college.</u> The biserial correlation between home and quality point average is $r_{bis} = .34$. This is significant at the one degree level of competence.

<u>The relationship of the size of the high school graduating class to academic success in college.</u> The correlation between size of graduating class and quality point average is $r = .14$. This is significant at the one degree level of competence.

<u>The relationship of scholastic aptitude, as measured by tests, to academic success in college.</u> In this case, there are two coefficients of correlation because of the change from the American Council on

Education Psychological Examination for College Freshmen to the Ohio State Psychological Examination. The correlation between the A.C.E. test and the quality point average was r = .55. The correlation between the Ohio Psychological Test and quality point average was r = .71. These are both considered significant at the one degree level of concentration.

Table III is a summary of the results of the statistical analysis of the data.

TABLE III

SUMMARY OF RESULTS

OF THE STATISTICAL ANALYSIS

N	VARIABLES	r
958	Q.P.A. - SEX	$.07_{bis}$
958	Q.P.A. - AGE	.02
177 Vets. 779 Other	Q.P.A. - VETERAN OR NON-VETERAN STATUS	$.03_{bis}$
958	Q.P.A. - STATE AND OUT OF STATE	$.34_{bis}$
844	Q.P.A. - HIGH SCHOOL ACHIEVEMENT	.35
887	Q.P.A. - SIZE OF GRADUATION CLASS	.14
764	Q.P.A. - PARENTS' OCCUPATION	.18
402	Q.P.A. - A.C.E. TEST	.55
382	Q.P.A. - OHIO STATE PSYCH. EXAM.	.71

CHAPTER IV

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

In view of the results of the various correlations with academic success in college, the following conclusions are drawn:

1. Sex. The sex of the entering freshmen is not related significantly to academic success in the College of William and Mary.

2. Age. The age of the entering freshmen is not related significantly to academic success in the College of William and Mary.

3. Veteran or non-veteran status. The veteran or non-veteran status of the entering freshmen is not related significantly to academic success in the College of William and Mary.

4. Scholastic aptitude. The scholastic aptitude of the student, as determined by the score obtained on the A.C.E. test, correlates positively with academic success in college, and the qualitative evaluation of the coefficient of correlation would be considered moderate.[43]

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[43] Guilford, *op. cit.*, p. 165.

The intelligence, as determined by the score on the Ohio State University Psychological Examination, correlates positively with academic success in the College of William and Mary. The qualitative evaluation of the coefficient of correlation would be considered high.[44]

5. Achievement in high school. The students' achievement in high school, as determined by the students' rank in the high school class in which they were graduated, correlates positively in favor of the students who achieved the highest scholastic standing. However, the qualitative evaluation of the coefficient of correlation would be considered low.[45]

6. Parents' occupation. Their parents occupations correlate positively with the students' academic success in the College of William and Mary. While the correlation is in a positive direction toward the higher rated occupations, the qualitative evaluation of the coefficient would be considered very slight.[46]

7. Size of graduation class. The size of the high school class in which the students were graduated correlates positively with academic success in the College of William and Mary in favor of the larger high

[44] *Loc. cit.*

[45] *Loc. cit.*

[46] *Loc. cit.*

school graduation classes, but the qualitative evaluation of the coefficient of correlation would be considered slight.[47]

8. Students' home state. The coefficient of correlation between the status of in- and out-of-state residence and academic success in college suggests a positive relationship in favor of the out-of-state students. Though there is a slightly better likelihood of the out-of-state student succeeding in the first semester of the freshman year, the qualitative evaluation of the correlation would be considered low.[48]

The investigator offers the following suggestions for future studies related to this problem:

1. That a formula be constructed for predicting the probable success of a student at the College of William and Mary.

2. That an occupation rating scale be constructed for the purpose of rating occupations of the parents of students at the College of William and Mary. The investigator believes that a scale could be constructed which would be more selective than the Barr Scale which was used for rating that factor in this study.

3. That a complete analysis be made of the information collected in connection with this study but which was not included in the analysis of this problem.

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BIBLIOGRAPHY

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APPENDIX

APPENDIX B

CODING OF

STUDENTS' HOME STATES

CODE	STATE	CODE	STATE	CODE	STATE
10	ALABAMA	28	MASSACHUSETTS	46	RHODE ISLAND
11	ARIZONA	29	MICHIGAN	47	SOUTH CAROLINA
12	ARKANSAS	30	MINNESOTA	48	SOUTH DAKOTA
13	CALIFORNIA	31	MISSISSIPPI	49	TENNESSE
14	COLORADO	32	MISSOURI	50	TEXAS
15	CONNECTICUT	33	MONTANA	51	UTAH
16	DELAWARE	34	NEBRASKA	52	VERMONT
17	FLORIDA	35	NEVADA	53	VIRGINIA
18	GEORGIA	36	NEW HAMPSHIRE	54	WASHINGTON
19	IDAHO	37	NEW JERSEY	55	WEST VIRGINIA
20	ILLINOIS	38	NEW MEXICO	56	WISCONSIN
21	INDIANNA	39	NEW YORK	57	WYOMING
22	IOWA	40	NORTH CAROLINA	58	WASHINGTON, D.C.
23	KANSAS	41	NORTH DAKOTA	59	U.S. POSSESSIONS
24	KENTUCKY	42	OHIO	60	CANADA
25	LOUISIANNA	43	OKLAHOMA	61	EUROPE
26	MAINE	44	OREGON	62	FAR EAST
27	MARYLAND	45	PENNSYLVANIA	63	NEAR EAST
				64	SOUTH AMERICA

APPENDIX A

NAME____

1.	Entered	1 ______
2.	Q.P.A.	2 ______ 3 ______ 4 ______
5.	Sex	5 ______
6.	Age	6 ______ 7 ______
8.	Vet or Non-Vet	8 ______
9. 10 11	Intelligence	9 ______ 10 ______ 11 ______
12. 13 14 15	Achievement in High School	12 ______ 13 ______ 14 ______ 15 ______
16.	Principal's Rating	16 ______
17. 18 19 20	Parent's Occupation	17 ______ 18 ______ 19 ______ 20 ______
21. 22	Student's Home State	21 ______ 22 ______
23. 24 25	Size of Graduation Class	23 ______ 24 ______ 25 ______
26. 27	Field of Concentration	26 ______ 27 ______
28.	Semesters Completed	28 ______

APPENDIX C

CODING OF

SIZE OF SECONDARY SCHOOLS

AS REFLECTED BY SIZE OF GRADUATING CLASS

CODE	SIZE OF CLASS	CODE	SIZE OF CLASS
1	0 - 24	21	500 - 524
2	25 - 49	22	525 - 549
3	50 - 74	23	550 - 574
4	75 - 99	24	575 - 599
5	100 - 124	25	600 - 624
6	125 - 149	26	625 - 649
7	150 - 174	27	650 - 674
8	175 - 199	28	675 - 699
9	200 - 224	29	700 - 724
10	225 - 249	30	725 - 749
11	250 - 274	31	750 - 774
12	275 - 299	32	775 - 799
13	300 - 324	33	800 - 824
14	325 - 349	34	825 - 849
15	350 - 374	35	850 - 874
16	375 - 399	36	875 - 899
17	400 - 424	37	900 - 924
18	425 - 449	38	925 - 949
19	450 - 474	39	950 - 974
20	475 - 499	40	975 -1000

APPENDIX D

CODING OF

STUDENTS' FIELD OF CONCENTRATION

CODE	CONCENTRATION	CODE	CONCENTRATION
01	Ancient Languages	11	Mathematics
02	Biology	12	M.I.T. Plan
0B	Biology (Pre-Med)	13	Modern Languages
03	Business Administration	14	Philosophy
04	Chemistry	15	Physical Education - Men
0D	Chemistry (Pre-Med)	16	Physics
05	Economics	16A	Physics (MIT)
23	Education	17	Pre-Dentistry
06	English	18	Pre-Engineering
07	Fine Arts	19	Pre-Medical
08	Government	20	Psychology
09	History	21	Sociology
10	Jurisprudence	22	None Selected