

## PREDICTING THE COLLEGE SUCCESS OF STUDENTS AT THE UNIVERSITY OF CHICAGO

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Studies have shown that discouragingly large numbers of students who are admitted to college by methods of selective admission fail in their college work. The study reported in this paper was undertaken with the purpose of analyzing the effectiveness of certain methods which are, or might be, used in the University of Chicago in selecting high-school graduates who are to be admitted to college.

The methods of selection under examination aim to anticipate success or failure in college work by reference to the following items: capacity to learn; earlier achievement, or educational background; and certain character traits. A statistical study was made of the entering class of 1924 at the University of Chicago. Analyses of individual cases were also made of members of this class and of other classes in order to verify and amplify the conclusions reached in the statistical study.

At the time of their matriculation, the members of the entering class of 1924 were given the Psychological Examination which is issued by the National Research Council Committee on Personnel Research. The score which a student made on this test was used as a measure of his capacity to learn. The student's high-school average was employed as a measure of his earlier achievement, and his average grade for the first two years of college work was used as a measure of his college success.

The validity of certain methods of selective admission was investigated by using the records for the class at the University of Chicago in order to determine the following facts: first, how many students who failed in their college work would be denied admission if a given method of selection were employed; second, how many students who were successful in college would not be admitted. Obviously a satisfactory method of selection should bar from college as large a number as possible of students likely to fail, and as small a number as possible of students likely to succeed.

The validity of the requirement that a certain minimum psychological score be made in order to secure admission to college was determined in the manner just described. The study showed that no

matter what psychological score might be required for admission, a large number of failing students could be barred from the University only if many successful students were denied admission at the same time. If the psychological score required for admission were placed low enough to bar only a negligible number of successful students, the number of failing students barred would also be small.

In order to secure admission to the University of Chicago, each member of the entering class of 1924 was required to have an average grade of at least 81.25 in his high-school subjects, the grade of 75 being considered the passing mark of the school. This class, therefore, contained no students with high-school averages below 81.25. The study showed that a fairly large number of successful students would be barred from the University if any average higher than 81.25 were required for admission. The high-school average did not, at any point, distinguish sharply between successful and failing students.

While admission to college is sometimes determined by making use of the psychological score alone, or of the high-school average alone, it is possible also to combine these two methods. One way of effecting the combination is to construct a regression equation in which both the high-school average and the psychological score are used to predict the college average. It is then possible to require of a student that his records justify a certain minimum predicted college average. The extent to which such a procedure would actually select successful college students was determined by finding out how many successful students, and how many failing students, it would bar from the University. The results showed that no matter what predicted college average might be required for admission to college, a large number of failing students could be barred only if many successful students were denied admission at the same time. If a sufficiently low predicted college average were required for admission, a negligible number of successful students would be barred, but the number of failing students who would be denied admission would also be small.

A comparison of the average grade which a student made during his first quarter of residence at the University of Chicago with his average grade in the first two years of college work showed that the average for the first quarter constituted, in most cases, an accurate indication of success or failure during the longer period. Those who made low averages during the first quarter were very likely to continue doing so, some students with a low first-quarter average having only one chance in twenty for ultimate success. To require that a certain minimum first-quarter average be made in order to continue with college work would remove from the University a fairly large number of

students who have failing averages for the two-year period and a very small number of students who ultimately succeed.

Reference has already been made to the ineffectiveness of the high-school average in distinguishing between successful and failing students. The method of anticipating success or failure in college by reference to earlier achievement was investigated further by making analytical studies of individual students who failed in college work. These analyses were made with the following purposes in view: first, to discover any deficiencies in the student's elementary-school and high-school training; second, to find out the causes of the deficiencies; and, third, to determine the effect of the deficiencies upon success in college work. The facts were obtained by interviewing the unsuccessful student, administering to him appropriate tests, and consulting available records of his school work.

The analyses revealed the following deficiencies in the students' earlier training: slow rate and poor comprehension in reading; inability in arithmetic and English composition; inadequate foundation in history, algebra, and foreign languages; and poor study habits. The high-school average, in almost all cases, gave no direct indication of the presence of these shortcomings. The deficiencies were caused by the following factors: shifting frequently from one school to another; being absent from school frequently or for long periods; skipping grades; receiving poor instruction; and failing to devote the necessary time and effort to school work.

Deficiency in earlier school work was found to be a direct cause of failure in college. Success in college courses depends upon certain skills and backgrounds which should be supplied by the earlier training. Reading, English composition, and methods of study are employed in practically all college courses; arithmetic, algebra, history, and foreign languages serve as foundations for many phases of college work. Because of these relationships, students whose earlier schooling was deficient experience difficulty in college work.

The results of these analytical studies made it clear that plans of selective admission should take into account the factors mentioned. Marked deficiencies, sometimes present in the student's earlier training, are directly related to failure in college. Consequently, a knowledge of these deficiencies in any individual case is very valuable in predicting success or failure in college work.

The remainder of the investigation was concerned with three methods of selective admission which aim to anticipate success or failure in college by reference to certain character traits. These methods of selection assume that college success depends in part upon sufficient appli-

cation and persistent devotion to studies. The methods differ as to the manner in which the strength of the traits is estimated.

An applicant for admission to the University of Chicago must secure from one of his high-school teachers a statement describing his character traits. This statement is used, together with other data, in deciding whether or not the applicant shall be granted admission to the University.

The validity of this method of selection was determined by comparing the statements made for students who succeeded in college work with the statements made for those who failed. The comparison showed that students who failed in college were frequently characterized by their high-school teachers in just as favorable a manner as were students who succeeded. This method of selection, therefore, admitted to the University certain students who were expected to succeed but who really failed.

The misleading character of the teachers' statements was found to be due to the following factors: In the first place, the teacher had been so strongly impressed by some outstandingly favorable trait which the student possessed but which had no direct influence upon college success that the teacher overlooked, or underestimated, the unfavorable traits which led to failure in college work. Second, in estimating the student's traits, the teacher employed standards which were too low, so that a student who was thought to possess sufficient amounts of the traits to succeed in college failed because his traits were, in fact, too weak. In the third place, the teacher had not had sufficient contact with the student to make accurate estimates of his traits. Estimates in such cases were often unduly favorable.

An applicant for admission to the University of Chicago must supply certain information relative to the extent to which he has been, and will be, dependent upon himself for support. It is assumed that the facts relative to self-support furnish some indication of the applicant's character traits, but the exact value of such information in selective admission has been uncertain. Because of this uncertainty, analytical studies were made of individual students who supported themselves by working while attending college, or who worked for one or more years after graduating from high school before entering college. The purpose of these studies was to determine the effect which the activities of earning a living before or after college entrance had upon college success. The necessary facts were obtained by interviewing the students and their college instructors, and by consulting the college records.

The studies showed that most of the students who were earning their entire support had done so for many years, and had faced hardships in order to secure an education through their own efforts. They labored under conditions so adverse that only the most persistent and the most seriously intentioned tended to survive. They realized the value of a college education and were genuinely interested in intellectual pursuits. Some of the self-supporting students, however, failed in their college work because they devoted too little time to study and too much time to gainful employment. Others failed because they engaged in occupations which required frequent and unexpected interruptions to their study or undue strain upon their physical capacities. A few self-supporting students were interested chiefly in social or athletic activities and not in securing an education.

It was evident that the mere fact of self-support is not a certain indication of success in college work. The relationship between self-support and college success varies with the nature, extent, and purpose of the activities which self-support involves. Consequently, all of the detailed facts must be discovered and analyzed for the individual student if they are to be employed effectively in selective admission.

An applicant for admission to the University of Chicago must supply information relative to the nationality, occupation, and education of his parents. It is assumed that these facts may have some bearing upon the fitness of the applicant to undertake college work, but the exact value of such information in selective admission has been uncertain. A statistical study showed that neither the nationality nor the occupation of the father was closely related to the student's college success. The study did show that students whose fathers were college graduates were much more likely to succeed in college than were the offspring of non-graduates. The advantages which the children of college graduates have in undertaking a higher education were determined by making analyses of the facts for individual students.

The studies revealed the following facts: The influences exerted by the college-bred parent and by the home environment were such that the student developed genuine intellectual interests, a strong realization of the value of a college education, and an unusual desire to succeed in college work. The student aspired to academic honors and achievements because his father had attained them. The parents supervised the development of the student's study habits, and assisted him with his earlier school work in such a way as to provide him with an adequate background for the pursuit of college work.

The favorable influences which these college-bred parents exert upon their children are not necessarily present in every home which is established by a college graduate, nor are all of these favorable influences absent in the home of a non-graduate. The presence or absence of such influences must be determined by analytical studies of individual cases. Because these studies are helpful in anticipating success or failure in college work, they may be used in selective admission.