This paper considers many of the studies that have been conducted regarding the prediction of college success. The table of contents includes: (1) "Prediction of Academic Success," which discusses the results of several standardized tests and their ability to predict success in college; (2) "Prediction of Academic Failure," which looks at study skills and their relation to academic failure; (3) "Variables Related to College Attrition," which discusses sex, minority students, disadvantaged, and academic ability; and (4) "Special Programs," which reports the results of some of the studies evaluating college reading programs. Included are 72 footnote references, a topical bibliography, and a general bibliography of books, government documents, journals and periodicals, and reports.
Abstract

The predictions of college success, failure, or attrition are difficult and crucial. It is of great importance to administrators, of greater importance to teachers, and of greatest importance to students. The latter can profit most or least, and not just in terms of the education or training but in terms of the credential. (For an interesting discussion, see McClelland, American Psychologist, Jan., 1973.)

Concerning these predictions, the abilities of persons may be critical (e.g., achievements; attitudes; intuitions; temperaments, adjustments, maturities; interests, preferences, values; study habits, motivations; creativities). And one of the most important abilities has been reading, a basic skill, and of prime concern to educators. Reading has often been studied in academe. However, other variables have to be considered, also, such as sex, race, and poverty.

In this paper, many studies are considered, often with contradictory subsets. Included are 72 footnote references, a topical bibliography (subsumed within the footnotes), and a general bibliography at the end of the paper. A Table of Contents follows.
READING, ACHIEVEMENT, APTITUDE
AND THE PREDICTIONS OF COLLEGE
SUCCESS, FAILURE, ATTRITION

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Prediction of Academic Success

Educational administrators have always found it beneficial in the decision making process to be able to predict behaviors. As early as the 1920's it was recognized that there were many variables which could be used to predict a student's success in college--intelligence, \(^1\) past performance in high school, \(^2\) ability to read, \(^3\) scores on achievement tests in English, \(^4\) mathematics, physics, chemistry, etc., \(^5\)

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\(^3\) Kornhauser, loc. cit.; see also Stalnaker, loc. cit.

\(^4\) Kornhauser, ibid.

\(^5\) Stalnaker, loc. cit.
ability to study, mental health, and motivation.

It soon became apparent that many factors had variable success in being able to predict overall scholarship and scholarship in a particular field. Using Cooperative Test Service Scores, CEEB Verbal scores, CEEB mean scores, and the mean of secondary school (grade 12) final grades, Landry found considerable variation existed in the predictive ability of the various measures for the different subject matter fields and for the different colleges studied. Nelson concluded that when all students were considered, the Denny Reading Test seemed superior to English tests and to high school content exams for the prediction of scholarship, while Schmitz found that the criteria in a battery of tests were approximately of equal value in predicting college success. Preas found that high school records were


7Stalnaker, loc. cit.


generally the best predictors of college GPA, English GPA, and mathematics GPA, but SAT scores were specifically the best predictors for college GPA. Astin found low level correlations between SAT scores and success in completing work for the baccalaureate degree. In a more recent report he discussed research findings which did not support the traditional admissions practices adhered to by colleges and universities and suggested using alternative methods, e.g., a lottery, for admissions. Thus, conflicting reports were and continue to be published concerning the predictive value of specific and general area and aptitude tests for college success and as part of the admissions procedure.

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Several of the studies which report using achievement and/or aptitude tests to predict academic success have found that verbal factors are extremely important; these verbal factors typically involve some type of reading skills.


A number of studies considering the predictive value of reading scores, per se, have been published, but with conflicting results. For example, Gutekunst; Friedman; Knafie; and Cortis found reading scores did predict student success in college,\(^\text{17}\) while Kimball; Marks, Vairo, and Zeigler; Brown; and Preston and Tuft found just the opposite.\(^\text{18}\) Thus, the relationships between reading ability and college success is also unclear.

**Prediction of Academic Failure**

The prediction of academic failure is an important aspect of administration at institutions of higher education. There have been several studies which suggested that reading ability is related to poor grades, but as seen with predicting college success, variable results have been reported.

Pepper researched the relationship between study skills and academic achievement for marginal admissions students. Although the


marginal students did not do as well as the regularly admitted students, he found the relationship between the skills measured and academic achievement to be unclear. Lanigan correlated scores on three different tests with grades in six subject matter fields for 163 Boston University freshmen. She found that the Minnesota Speed of Reading Test did not differentiate well between high and low achieving students. Breen was concerned about the relation of reading ability to college mortality of freshmen at the University of Washington. Using three reading scores and grades in twenty-six subject areas, he found that students with test scores below the means on the three reading subtests had a 50-50 chance of achieving an all-school average of 2.00; other students had about a 3-1 chance. The total mortality for the subjects was about one-third and Breen concluded that reading may have contributed considerably to this figure. Wellington found that the most academically successful men were more likely to make higher scores on the Ohio State Psychological Exam and on the vocabulary and reading comprehension sections of the Nelson Denny Reading Test than were the most academically unsuccessful men.

19 R. Pepper, "The Study Skills and Academic Achievement of Marginal Admission Students" (paper read at the National Reading Conference, Dec., 1969, Atlanta, Georgia), (ERIC Clearinghouse of Reading, 1969).


22 J. A. Wellington, "Factors Related to the Academic Success of Resident Freshmen Men at a Midwestern Liberal Arts College During the Academic Year 1952-53," Dissertation Abstracts, 16:69, no. 1, 1956.
Variables Related to College Attrition

Sex

Several studies have been reported which indicate sex differences in scholastic abilities, \(^{23}\) "but these have generally been regarded as evident sex differences in acquired aptitudes; for example, women do better in language, men in arithmetic, etc." \(^{24}\) Studies which investigated various criteria for predicting academic success have revealed sex differences. Boyd found that while correlation coefficients for men and women ranged from .400 to .581 and from .379 to .609, respectively, the rank order of the criteria by size of coefficient differed markedly in some instances. \(^{25}\) Michael, et al., found that correlations between the predictors of high school grades and CEEB scores with college success were higher for women than men; \(^{26}\) using different predictors, Irvine and Lindsay and Althouse found r's and multiple R's were higher for women. \(^{27}\) Correlation


coefficients between SAT scores and college grades were studied over a three year period for freshmen who attended predominantly non-Negro co-ed colleges. Analysis of variance indicated that the three main effects of sex, year, and college made significant contributions to the variance, with sex contributing 50%. The correlation coefficients obtained were consistently higher among women. Flora found that the academic success of college men could be predicted from high school averages, but in order to predict the success of college women, verbal test scores were necessary. Using disadvantaged minority students, Cherdack found that SAT-V correlations with GPA were generally higher for minority and White females than for males.

Minority Students
Gordon traced the history of accessibility of higher education for Blacks and noted that progress had been made since the middle 60's and the development of the National Defense Education Act. A search for academic talent was forthcoming with the initiation of the National Scholarship Service and Fund for Negro Students. However, this search


for exceptional students who were able to meet traditional admissions standards was a failure. Consequently, some schools found it necessary to modify admissions requirements for these students. \textsuperscript{32} Flaugher found that Blacks showed small but consistent tendencies to perform better, relative to White groups, on three non-traditional measures: tests of inductive reasoning, spatial scanning, and associative memory. It was also indicated that these measures showed somewhat less discrepancy between the groups than did tests of the more traditional verbal and mathematical aptitudes. \textsuperscript{33} Hall noted that Negroes showed significantly lower aptitude and achievement scores than Whites, but there were no significant differences between the two groups in terms of motivation. \textsuperscript{34} In a study of test construction, Green concluded that test item selection was biased against persons belonging to certain racial and ethnic groups, i.e., those groups not similar to the majority of persons in the try out samples. \textsuperscript{35} Gordon noted that while the resources allocated by colleges and universities for disadvantaged and minority students have been limited "few...have failed to revise their admission procedures to include a broader range of

\textsuperscript{32}Ibid.


In a study of higher education's response to Black students, McDaniel and McKee found that White institutions had not responded in meaningful ways to these students' needs and that they were unwilling or unable to change. Coupled with these problems is the fact that White institutions have a negative attitude toward Black students in some institutions have a negative attitude toward Black students. Coupled with these problems is the fact that White institutions have a negative attitude toward Black students.

In a study of low socioeconomic status at the University of Michigan, feelings of antagonism and resentment toward the university developed after a period of attendance. It should be noted that much of the research dealing with minority students pertains to disadvantaged students as well.

Disadvantaged/Financially Needy

In a study which investigated the predictive ability of the Scholastic Aptitude Test (SAT) for disadvantaged/minority students, Cherdack found that the SAT-Verbal score was a more consistent positive predictor for White than for disadvantaged minority students. He also found that the predictor variables correlated poorer for the "risk" admission status group in the Educational Opportunity Program than for other groups. Ford and Turpin found that standardized tests did not

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36 E. W. Gordon, op. cit., p. 10.


40 Cherdack, loc. cit.
accurately reveal the intellectual potential of culturally disadvantaged freshmen at a predominantly Negro College.41

Stanley noted that while some researchers maintain that SAT scores of disadvantaged students are not clearly related to college grades, many researchers have found the opposite to be true. Stanley's study revealed that aptitude scores and high school grades, taken together, predicted academic success equally well for disadvantaged students and other students. He also suggested that regardless of ethnic or socioeconomic background, admission to college should be based substantially on test scores and high school grades.42

The accessibility of higher education is a definite concern when discussing disadvantaged students. Lane indicated that the poor and minority students are typically sparsely represented and participate "largely through special programs with group specific disqualifications."43 In a study of 20 universities, it was found that two-thirds of the students who were admitted but did not enroll were unable to enroll because of financial reasons.44 Ferrin's study identified


financial reasons as one of the barriers to higher education.\textsuperscript{45} In a study of disadvantaged students enrolled in two year colleges, it was found that these students typically came from a minority, were underrepresented in institutions of higher education, had little economic support, and were characterized by marginal traditional academic qualifications.\textsuperscript{46} Soares and Soares suggested that, on the basis of their comparison of advantaged and disadvantaged boys, the disadvantaged may be less realistic and more variable than advantaged about future achievement levels because of their previous inconsistent patterns of achievement and lower achievement motivation.\textsuperscript{47} In a California study, "stopouts" (i.e., students who completed one or more terms before withdrawing, as opposed to dropouts, students who withdrew during their first semester) perceived the following area as needing improvement--increasing financial aid to a larger proportion of students who need it.\textsuperscript{48}

Academic Ability

Ikenberry studied 530 Michigan State University students who


had entered the university at the same time; he compared the 250 students that remained at the end of the first year with the 330 students who dropped out during the year. He found three functions (one being achievement) differed significantly between the groups and he noted that scores on a reading test were positively related to all three functions. In his study of comparisons of good and poor readers, Neville found that "predictions of success or failure among poor readers could be made with limited accuracy." And in a study using a group of dean's list students and a group on academic probation, no significant differences were found between the groups on reading rate or vocabulary. However, the former group was found to be significantly superior in verbal comprehension. Jellison studied two groups of dropouts, those with good academic potential and those with poor academic potential. When questioned about what influenced them to dropout, the latter group mentioned "not learning how to study in high school, and poor reading ability significantly more often than the other group."

In a seven year comprehensive study, Hara and Anderson found


that 36% of all dropouts were apparently capable of succeeding in college as indicated by CEEB scores. Astin noted that the major predictors of persistence in college were high school grades and scores on tests of academic ability, while White found that a significant factor in attrition was first semester GPA. Effert and Clark's study revealed that 45% of college dropouts attributed their withdrawal to academic difficulties.

Special Programs

To meet the needs of marginal students and hopefully reduce attrition, universities have developed special programs. Typically, these are reading programs designed to strengthen the students academic skills. Variable results have been reported with regard to their effectiveness.

Many of the studies evaluating college reading programs use only improved reading skills as the criterion. For example, test score gains have been reported for participants in reading programs.

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at the University of Wisconsin, Quinsigamond Junior College, University of Maryland, University of Southern Mississippi, and Fordham University. There are fewer studies which utilize grade point average as the criterion of success, but extremely variable results are reported. Studies done at the University of Minnesota, Washington State University, University of Pennsylvania, and Lincoln College revealed improved grade point averages for students taking read-in courses; whereas Losak, Wilson, Regensburg, and Colvin reported contrary findings.


Thompson showed that a reading course might not enhance reading ability but that students taking such a course would be less likely than their counterparts, who received no guidance, to fail courses. Kilby's 1945 study revealed that the amount of benefit from college remedial reading programs showed no relationship to a student's reading ability at the start of the program, scholastic aptitude, high school achievement, or predicted grade and that the remedial reading training resulted in greater improvement in verbal courses than in quantitative courses. O'Bear studied the changes in the academic achievement of matched groups of remedial reading and non-remedial reading students at Indiana University. His investigation revealed that the remedial course students achieved poorer grades than the non-remedial course students in all areas and that the highest grades earned by the remedial course students were during the semester they were enrolled in the reading course. Studies completed by McDonald, and Schoenbeck, and Sawyer revealed college reading programs increased student grades and reduced the number of dropouts.

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60 W. Thompson, "Experiment in Remedial Reading," *School and Society*, 34:156-158, Feb., 1931.


Studying the effects of a reading/study skills improvement course and reduced credit load on achievement and persistence of failure prone college freshmen, Ikenberry found that students who took the reading course and simultaneously had a reduced credit load profited more than other students, i.e., they had higher GPA's and a lower withdrawal rate. However, Scheller's investigation indicated that while reading programs may improve reading skills, it does not necessarily follow that grades will be improved.

Other types of programs have been tried with variable success. At the end of one program designed to change study habits and attitudes of high risk minority students, the students reported more negatively on their study habits and attitudes than at the beginning of the program. Wright found that students predicted lowest in achievement appeared to profit least from tutoring or did not take advantage of it:


while Biskin noted that substantial gains were made in academic achievement by students in projects initiated by the Center for Urban Affairs and Equal Opportunity Programs. Thus, diversified results and conclusions drawn from studies concerned with college programs suggest that many variables must be taken into account in order to determine the effectiveness of the programs, e.g., methods used, mechanical devices, materials used, and permanence of gains.

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D. REPORTS


