A STUDY OF THE ACADEMIC PROGRESS
OF STUDENTS ADMITTED TO THE UNIVERSITY
OF TEXAS AT AUSTIN UNDER THE
PROVISIONAL ADMISSION PROGRAM 1972-1973

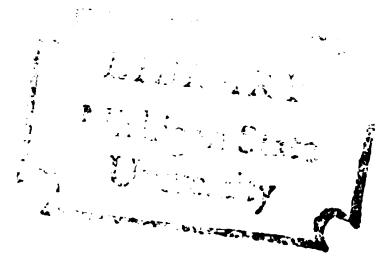*Dissertation for the Degree of Ph.D.*

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DOUGLAS FORREST McCONKEY

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This is to certify that the

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A Study of the Academic Performance of Students
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ABSTRACT

A STUDY OF THE ACADEMIC PROGRESS
OF STUDENTS ADMITTED TO THE UNIVERSITY
OF TEXAS AT AUSTIN UNDER THE
PROVISIONAL ADMISSION PROGRAM
1972-1973

By

Douglas Forrest McConkey

Problem

While college enrollments show signs of leveling, there

continues to be a significant demand for the services offered

by institutions of higher education. And, with more institu-

tions to choose from, the student is faced with important

but complex decisions; similarly, colleges and universities

must continue to address themselves to the development of

effective methods for selecting from prospective students

those who show the highest probability of success in a given

academic setting.

The objective of this study is to gain insight into

some of the factors that influence the academic progress of

marginal students admitted to a moderately selective public

university. This insight can help the university in develop-

ing better programs to assist such students; it can also be

of benefit in developing more useful means of identifying

those students who have an optimal chance for success at the
University.

Significance

With some colleges under pressure to recruit more stu-
dents, there is a noticeable trend away from helping students
find the right institution, to convincing them to select a
particular one. The resultant opening of some institutions
to previously non-admissable students poses serious ethical
questions to the conscientious admissions officer.

Studies such as this one must be continued, and the
results used, in order to help students and institutions
determine the most propitious match for each. The focus must
be away from coercion and toward helping the student find an
institution suitable for his or her abilities and interests.

Population

This thesis examines the progress of four groups of
Provisional Admission students at the University of Texas
at Austin identified by their first semester enrollment.
For comparison purposes, four groups of regular students
admitted to the university in the same semesters are also
studied. Subgroups based on sex and ethnic background are
also identified for the Provisional and regular samples.

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Method of Analysis

Each of the Provisional and regular samples are analyzed according to their high school and SAT performance, and the groups compared accordingly. The college performance is measured by first semester and total grade point averages, as well as a test of the students' persistence in remaining in school. Sex and ethnic identification are used as independent variables.

Analysis of variance with post-hoc comparisons is used to examine the factors that seem to effect college performance.

Finally, multiple regression equations are developed for several measures of ability used to predict first semester and total grade point averages.

Findings and Conclusions

Provisional students enter the university with markedly inferior records when compared to regular students. Provisional males present different qualities in the high school and SAT performances than do Provisional females, but the college performance of each subgroup is about the same.

Although regular students achieve clearly superior college grades, there is not a large difference in the tendency of regular and Provisional students to remain enrolled in school.

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For predicting performance it is clear that high school grades and rank, as well as SAT scores, have varying levels of influence on the college grades of regular and Provisional students.

Continued development of counseling and support services for Provisional students is implied by the findings. The program can reasonably be maintained, but to do so requires that the university pay attention to the special needs of the marginally admissable student. The tenuous nature of predictive techniques is reaffirmed; consequently, the university must be willing to continue lending support to the significant number of students who will encounter academic difficulty.

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CHAPTER   I

INTRODUCTION AND STATEMENT OF THE PROBLEM

Introduction

"With colleges and universities becoming more
accessible to youth from all segments of our society, it is
apparent that indices of probable future success are in-
valuable in assisting admissions officers and counselors at
their tasks. More importantly, educators are becoming
increasingly aware that the validity of existing methods of
selecting students must be scrutinized carefully. Because
our society's demand for technological and intellectual
competence places the stakes quite high, no student should
be unjustly barred from gaining entrance to an institution
of higher education."[1] Thomas and Stanley have set the
framework for this study.

Though the vicissitudes of the employment picture
have brought under some question the market value of a
college degree, and while some colleges are now experiencing
at least a temporary leveling in enrollment, there is still
a significant demand for higher education. The Chronicle of
Higher Education (October 1, 1973)[2] reported that Fall 1973

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enrollment at institutions of higher education was greater
than ever before. And, while the Carnegie Commission has
revised its projections for the 1970's downward,[3] there
remains the expectation that college enrollments will be
one-third higher in 1980 than they were in 1970. Conse-
quently, we may expect to see a continued demand for the
services offered by colleges and universities, particularly
at higher quality institutions with selective admission
policies. We may also expect that those students who have
historically been barred from higher education (marginally
qualified students, minorities, and educationally and
socially disadvantaged) will continue to demand that
colleges and universities become more accessible and respon-
sive to their needs.

To effectively respond to such students, a university
must have current information about their probable degree of
academic success. The university must know which factors in
the backgrounds of these students tend to be strong indica-
tors of success in college, and which factors tend to
indicate probable failure. This study addresses these
questions as they relate to one moderately selective, large,
public university. The overall objective is to make the
university better able to respond to its constituency,
either by encouraging the enrollment of certain types of

marginal students, or through providing better evidence as to why such students should find alternate routes to higher education.

The Problem

The central objective of this study is to examine the academic performance of four groups of students admitted under the Provisional Admission Program at The University of Texas at Austin.

The University can be classified as a moderately selective public university, according to Astin's definition.[4]

In Astin's groupings of various institutions, according to the mean score on the Scholastic Aptitude Test of each student body, The University of Texas at Austin would be placed at roughly the 60th percentile; that is, about 40% of the institutions in Astin's study would have higher mean SAT scores than does the University.

As a moderately selective institution, the University bars some residents of the State of Texas from regular admission because they do not meet the following admission requirements:

Top 10% of graduating class, admitted regardless of SAT

Top half of graduating class, admitted with SAT

total of 800

Bottom half of graduating class, admitted with

SAT total of 1000

The Provisional Admission Program was initiated in the 1960's in response to public demand that students who were denied admission be given an opportunity to attempt courses at the University in an effort to prove their ability to succeed. Thus, a Texas resident who graduates from high school and who has no prior college experience, may begin at The University of Texas at Austin under the Provisional Admission Program, even though the student does not meet the regular admission requirements. The student admitted under this program must enroll in either a Spring or Summer semester. Twelve semester credit hours (four courses) of course work are taken for the first semester (six hours in each of two six-week sessions when the student begins in the Summer semester). The student must maintain an overall 2.0 grade point average during the first semester (on a 4.0 scale), and pass every course to be eligible for continuation as a regularly admitted student in the subsequent semester. The areas from which the student may select courses while under the Provisional program are English, natural sciences, mathematics, and foreign

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languages. Courses in other academic disciplines, such as
social sciences, fine arts, education, etc., normally
available to regularly admitted freshmen, are only avail-
able to Provisional students after the first semester is
successfully completed with at least a 2.0 (C) average.

This study examines the high school records and
Scholastic Aptitude Test scores of Provisional students,
particularly as they relate to subsequent academic perfor-
mance in college. Particular attention is directed toward
the relative value of various types of predictors of
performance. Rank in class, overall and academic high
school grade point averages, SAT Math and Verbal scores,
and various combinations of these criteria are studied as
they relate to college performance. Of interest also is a
comparison of college academic performance of Provisional
students to that of regularly admitted students. Sex and
ethnic background are also used as independent variables.
The overall pattern of academic success in college is
examined, to ascertain those academic disciplines in which
Provisional students seem to meet with the most success.
The objective of the research is to gain a better under-
standing of the type of academic background and tested
ability necessary for successful completion of the Provi-
sional Admission Program and subsequent academic success at
the University. In this way, the research demonstrates the

most helpful criteria upon which to base decisions regarding
the admission of similarly defined "marginal" students in
the future.

A corollary to the above analyses is the comparison
of the performance of two separate groups of Provisional
students admitted for the Summer 1972 and Summer 1973
sessions. The Summer 1973 Provisional students were given
a more in-depth orientation to the University than were the
Summer 1972 students. In particular, services such as
tutoring, counseling, academic advising, and reading and
study skills development programs were introduced. Students
were urged to take advantage of these services, and there
was a more systematic attempt to inform Provisional students
of these various types of academic support services avail-
able on campus. The frequency of use of these services
cannot be compared for the two groups in question because of
lack of available data; however, any noticeable differences
in the degree of success experienced by the two groups of
students are of interest. Whether such differences could
reasonably be attributed to the benefits of the support
programs offered is a related concern.

Theory

The generally accepted notion in the area of
academic prediction is that prior academic performance

(grades and/or rank in class), used in conjunction with a sound test of scholastic aptitude, affords the best available indication of the likelihood of success in college.[5] The success with which a student completes a high school curriculum indicates his or her likelihood of success in similar tasks in the future, particularly a college curriculum. School performance is thus an indication of a person's ability, but also shows something about the motivation of the student. Ability testing may also be an important factor in assessing a student's likelihood of success, since some minimal level of aptitude for college study is necessary regardless of the level of motivation.

There has been considerable discussion over the use of past performance and aptitude tests for restricting admission to colleges and universities. It has been obvious that our prediction methods have been imperfect, particularly since relatively large percentages (50%-70%) of students who begin college fail to graduate.[6] Clearly, not all students for whom we predict academic success do, in fact, succeed. In this respect, an argument can be made in favor of the abandonment or significant alteration of our present methods for determining who is to gain access to our colleges and universities.

Some efforts have been made to develop new criteria upon which to base such decisions. Lavin reports on the

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developments in the areas of personality measures and socio-
logical determinants.[7] However, the findings of such
research have been inconclusive, and certainly not depend-
able enough so that one could base admissions decisions on
them.

As a result, colleges and universities continue to
formulate admission policies relating to past performance
and tested aptitude. The pressing need is to refine these
measures. Research that assesses the conditions at a
particular institution is very valuable. By examining its
own students' performance, an institution can more effective-
ly develop admission policies that serve the interests of
the student and community. Perhaps more refined methods of
predicting college performance would show that marginal
students at some institutions should be treated differently
from other students in the admission process. For example,
Scott reports that we should not weigh the test scores as
heavily for marginal students (his were minority students
only).[8] Hardie and Anderson[9] suggest that we should put
more importance on balanced SAT scores (math and verbal
scores about equal) for marginal students than we do for
higher achieving students.

Evidence such as this implies that further study is
needed to (1) improve the information on which admission
decisions are based, and (2) account for local conditions

that may influence a student's performance at a particular institution. So far, results of research have lead to the use of past academic performance and tested ability with a moderate degree of confidence. Refining these tools so they are more relevant to specific kinds of students and institutions is one area in which continuing research is needed.

Therefore, the focus of this study is an in-depth look at our traditional criteria (tested aptitude and past performance) as they relate to one type of student and one type of institution (in particular--marginal students in a moderately selective public university). It is important to further refine the various types of intellective predictors for marginal students to permit better policy decisions regarding the admission and support of such students. Then an investigation of the usefulness of more subjective and illusive non-intellective measures would be helpful. Most fundamentally, it is essential to determine the amount of success that marginal students realize, then assess the advisability of opening the institution to such students in the future.

Significance

Many institutions of higher education are experiencing financial difficulties due to a leveling or, in some

cases, a decrease in enrollments. Some institutions are finding themselves overextended because of large scale building programs in the 1950's and 1960's that were based on projected enrollment growths that have not materialized. As a result, there is an obvious trend toward perceiving the admission process as recruitment of students rather than a counseling and educational service. Attention is turning away from helping students find the right institution, to convincing them to choose a particular one. The opening of some colleges and universities to previously non-admissible students poses important questions as to the likelihood of success of these students. Consequently, serious ethical considerations in the admission process must be faced.

Studies such as the one made here must be continued and the implications of the findings heeded. The admission officer should be of central importance in the college going process, because that person presumably has access to the important research data relating to college success. Now he is also at the center of an important ethical issue. The needs of the institutions for financial support must be balanced against those of the student for sound advice regarding his or her educational goals. The assumption must be that the student is of primary importance; if this principle is accepted, there is an implied obligation to develop better means of identifying those students who stand

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to profit from higher education at each of the many and varied types of institutions. The research data may be used by the admission officer to counsel students into attending a certain college or university if that is appropriate. It must also be used to counsel the student toward other institutions if that is what appears best for a given individual.

This study, then, is important for the tools it can give us to help students and professional educators make the most appropriate decisions concerning the post secondary educational and vocational opportunities open to students. The accompanying concern is, of course, the extent to which such tools are used for the benefit of students.

Definition of Terms

Academic Courses: (sec. ed.) Pertaining to the fields of English, foreign languages, history, economics, mathematics, and science.[10]

Credit Hour: The unit by which an institution may measure its course work. The number of credit hours assigned to a course is usually defined by the number of hours per week in class and the number of weeks in the session.[11]

Credit Hour, Semester: A credit hour based on the semester calendar which is usually divided into terms of 11 weeks.[12]

Differential Prediction: Prediction of differences
in achievement levels attained in pairs of school subjects
or fields of endeavor, as contrasted with general prediction
of success in a single activity or in several activities.[13]

Grade Point Average: A measure of average scho-
lastic success in all school subjects taken by a student
during a certain term or semester, or accumulated for several
terms or semesters; obtained by dividing grade points by
hours of course work taken, when course marks are weighted
by some such system as the following to obtain grade points:
A-40, B-30, C-20, D-10, F-0; most commonly used at the
college level.[14]

Marginal Student: A marginal student is one who
is close to meeting the admission requirements of a particu-
lar institution; a marginal student at one institution may
not be classified as such at another institution because of
variances in admission requirements.

Persistence: A term used to indicate a student's
or group of students' tendency to remain enrolled at the
University. For the purpose of this study, a student is
said to have "persisted" if he/she was enrolled in the
Spring 1974 semester.

Rank in Class (Class Standing): The relative
numeric position of a student in a defined population of

students based upon grade point averages or some other
measure of scholastic achievement.[15]

Selective Admission: Exercise of discretionary
powers of selection by an institution of higher education.
Selection is based on merit as determined by the college
rather than on order of application and is limited to those
who are judged to have a reasonable probability of success
in their chosen program of studies. Academic achievement,
recommendations, reports on character, personal qualities,
and entrance examinations are important elements in the
selective admission procedure. Personal interviews are some-
times required. The policy is sometimes referred to as
restrictive admission.[16]

CHAPTER II

REVIEW OF THE LITERATURE

Research on the prediction of academic success in college is voluminous. Results from such research, however, have been somewhat limited in scope. Most studies report that college academic achievement is tied most closely to high school performance and tested academic aptitude.[17]

Various studies have looked at specific aspects of grades and test scores as they are used in predicting college success. Loeb[18] found that academic grade point average (based only on English, math, science, social studies, and foreign language courses) in high school predicts only as well as overall grade average. She saw no need to separate academic courses from other courses when evaluating a student's credentials. Gelso and Klock[19] had substantially the same report; however, their students were junior college entrants and the generalization to four-year colleges may not be warranted. In an earlier study, Hills and Klock[20] found that academic and total grade point average in high school predicted equally well for students within each of several types of higher education institutions. The study

covered students entering junior colleges and four-year
public and private colleges. Each of the schools under
consideration used tests in conjunction with high school
grades to predict success. The results may thus not be
applicable to institutions that rely solely on grades.

Arvey[21] found that students whose grades were in-
consistent over time were less predictable in terms of
future performance than were students whose performance was
fairly constant. He also noted that consistency in math,
natural sciences, and total grades was particularly important
for the sake of making reliable predictions. Consistency in
English and social sciences did not appear to be as crucial.
On the other hand, Reyes and Clarke[22] found no difference
in the predictability of future performance of inconsistent
versus consistent high school students. "It would appear
that counselors should use considerable caution in attri-
buting significance to variability manifested by a student's
academic record."[23] Loeb[24] concurred with this. She said
that consistency in various curricular areas should not be
used as a factor in predicting future academic performance;
the matter, however, deserved further study in her view.

Elton[25] found that students whose grades improved in
the senior year of high school did not perform significantly
better in college than did those students whose grades
declined or remained constant.

> Hence, for a student to be accepted or rejected on the basis of an improvement or decline in his senior year grade average is a clinical decision. As such, it may be justified by many different rationalizations, but it cannot be justified as rational.[26]

Loeb[27] also concurred with this finding that improvement in senior grades was not significant, but again she felt the matter needed further study.

Horst[28] conducted studies in which he attempted to predict performance in specific curricular areas. He showed that there was some benefit in using past performance in verbal or quantitative tasks to predict future success in each area respectively. This "differential prediction" showed promise when used in conjunction with prediction of overall performance. Lavin[29] reported, however, that studies by Cronbach, Berdie, and Eells refuted such findings and that the extra effort involved in gathering and analyzing the necessary data may not be worthwhile, given the small improvement in predictive ability.

The American College Testing Corporation and the College Entrance Examination Board have reported the effectiveness of their respective tests in predicting academic performance in college.

In a typical report, the ACT scores were shown to have a median multiple correlation of .465 with overall college grade point average. When used in conjunction with high school grades, the ACT was shown to correlate even

higher (about .58) with overall GPA in college.[30]   Each of

the subtests correlated as follows with college grade point

average in the respective curricular areas:

English	.43
Mathematics	.42
Social Studies	.47
Natural Sciences	.47

The median correlation of high school and college

grade point average in each of these areas was very

similar:

English	.44
Mathematics	.43
Social Studies	.46
Natural Sciences	.49

The combination of high school grades and ACT scores

in each curricular area correlated most closely with college

performance in each area:[31]

English	.52
Mathematics	.51
Social Studies	.55
Natural Sciences	.59

In 1971, the College Entrance Examination Board

reported the following correlations between college grade

point average and the SAT-Verbal and SAT-Math, for men and

women:[32]

	MEN	WOMEN	COMBINED (Men and Women)
SAT-Verbal with total college grade point average	.33	.41	.39
SAT-Math with total college grade point average	.30	.36	.33

These results were for students in liberal arts curricula
in college, but similar findings were reported for students
in other academic areas.

Interestingly, there has been evidence that the
validity of the SAT tends to be lower in more highly
selective colleges and universities.[33] This seems to be due
to the reduction of heterogeneity of ability in such
institutions. Generally, the lower the standard deviation
of SAT scores in a given institution (i.e., the more
restricted the range), the lower will be the test's
predictive validity.

When high school record, as indicated by rank in
class, was used with the SAT in a multiple correlation,
the predictive validity rose to .62.[34] This indicates that
a much stronger predictor was obtained when SAT and school
performance were combined and both taken into account,

Astin[35] confirmed that tests are useful predictors
but noted little difference between the effectiveness of
using a composite or total score and using the various sub-
scores available on either the SAT or ACT,

> ...in general, the Scholastic Aptitude Test,
> National Merit Scholarship Qualifying Test, and
> American College Test are interchangeable for the
> purpose of predicting the student's overall
> freshman GPA in college; use of scores on the
> separate subtests of these batteries, instead of
> the simple composite scores, adds little predictive
> value.

Munday[36] confirmed this interchangeability, noting that the tests did not necessarily measure the same things, but can serve the same predictive purpose; he felt that it is unnecessary to look at more than one test when evaluating a particular student.

Other efforts have gone into assessing the usefulness of aptitude tests as predictors of college success.

Stanley[37] has supported the use of tests as predictors of academic success. He favored their use in college admissions because they lent a degree of objectivity to an otherwise more subjective process. As early as 1959, the American Council on Education reported that "...tests have repeatedly proven their usefulness as predictors of success in the most common academic areas."[38]

On the other hand, Juola reported to the American Educational Research Association in 1964 his reservations concerning the use of ability tests administered at the time of admission to college. He maintained that such tests lose validity when used to predict performance in semesters after the first. (This study accounted for the expected decrease in predictive validity due to the restriction in range of grade point averages for students still in school in later terms.) Juola found also that the students' performance in college immediately preceeding the semester or term under study is a better predictor of future college performance

than is test information. He opted for research devoted to more complete analysis of previous academic achievement measures for use in selection, placement, and guidance.[39]

Recent concern over test bias against minorities and disadvantaged students has led to a good deal of research in that area. Stanley and Porter[40] found the SAT to predict performance of students at black colleges as well as it predicted for white students at white colleges. They did not, however, measure its validity for minority students at integrated colleges. Thomas and Stanley[41] found tests to be better predictors than grades for students at black colleges; this was not the case at predominately white colleges. Cleary[42] had the same results as the above studies in her look at blacks in black colleges and whites in white colleges. She, too, expressed concern over the lack of data for minority students at integrated colleges.

Studies done by the American College Testing Corporation have confirmed these results. In fact, there is evidence that the ACT may overpredict college grades for minority or disadvantaged students. It has also been shown that the ACT battery may underpredict college grades for women and older students.[43]

A limitation of findings like those above is that they deal exclusively with previous academic accomplishment and test scores. Lavin has reported on personality and

socio-economic measures as they relate to academic performance. Students with such personality characteristics as better study habits, favorable attitude toward school, more impulse control (and resultant ability to delay gratification), more independence, and less anxiety in test taking situations, tended to perform better in college.[44] However, Lavin went on to state: "Many of the relationships just described are tenuous at best. . .and. . .cannot be used confidently for practical purposes, such as for college admissions."[45]

Lavin also reported on studies that use a multi-variate approach to look at the interrelationships among several variables. These studies were summarized and the following general statements made: (a) social maturity was positively related to academic achievement, (b) emotional stability was characteristic of higher achievers, (c) high achievement motivation and endurance were positively related to performance, (d) intellectual curiosity and flexibility were typical of students who have higher performance levels, (e) students who were more docile, passive, and orderly performed better in some social contexts, but (f) independence and low need for affiliation characterized high performers in other contexts. Lavin said that the obvious ambiguity of the latter findings deserves further research.[46] He also went on to say that:

>   (We cannot) be very confident about the
> state of knowledge regarding the relationship
> between personality characteristics and
> academic performance. In most cases these
> relationships are weak and, as we have seen,
> the findings are often inconsistent.
> Essentially, we think that the literature
> represents a somewhat disappointing picture.[47]

Lavin also summarized the findings concerning the relationship of sociological factors and academic performance. Socio-economic status was positively related to performance, except at the higher SES levels where the relationship is inverse. A Princeton University study[48] showed public high school graduates perform better in college than private school graduates when ability is controlled. Lavin attributed this, in part, to motivational factors; high SES students (private high school graduates in this case) need not worry about the level of performance in college as long as they graduate; that is, their social and economic success in life is assured because of family background and inherited advantages. However, lower SES students have more motivation to achieve in order to climb the social or economic ladder. Also, private school graduates may encounter difficulty with a college environment that is less structured than that of the private secondary school.

In comparing males and females, Lavin reported findings which showed that females performed better

academically in college than males.[49] This confirmed the
earlier finding of the American College Testing Corporation.

Religious preference and rural-urban background
have also been studied but with inconclusive results. Too
many intervening variables remain uncontrolled to make the
findings in these areas useful.[50]

High school size[51] may relate to college perfor-
mance, but there has been little study in this area. The
conclusion drawn has been that any observed differences
probably related to the adequacy of the facilities,
teacher salaries, and the like. Further study in this
area has been indicated, since a variety of underlying
variables (economic and social status, the values and
goals of rural youth versus those of urban youth, etc.) are
involved in the consideration of high school size.

With respect to this question of high school size
and its importance in making predictions of college
performance, Creaser[52] favored the development of separate
prediction tables for each high school. When the school
is too small to make this practical, we should group schools
of similar size for the purpose of predicting the college
success of the students. Hoyt[53] found high school rank to
overpredict for students from very small schools, though
he warned against generalizing his findings beyond his own
institution.

Just as with personality measures, so far the findings on sociological determinants of success are not conclusive enough to have a direct impact on the question of determining access to higher education. As a result, the development of a useful battery of non-intellective measures, or factors that could reasonably be used in making admission decisions, seems relatively remote. For the present the primary measures used in admissions offices continue to relate directly to previous academic performance and tested ability.

At the same time, there is a belief that access to universities can and should be broadened and that the several criteria in use for determining who has that access need careful scrutiny. Astin's findings lead him to the conclusion that "segregating students into separate institutions on the basis of their academic ability may not really benefit either the bright or the dull students."[54] As a proponent of open admissions, Astin said that the traditional use of predictive tools (tests and grades) is now inappropriate. He is interested in measuring a student's progress on a basis other than grades (for example the degree to which a student improves as a measure of the worth of college to the individual). Some of the poorest students, Astin said, stand to profit the most if given an opportunity for higher education even though their grades may not prove to be high.

(For example he reported that disadvantaged students in highly selective colleges may not achieve grades as high as regular students, but the drop-out rates for both groups are roughly similar.)[55] Huber[56] concurred in this. He thinks we ought to look more at change and growth in an individual and admit students other than just the academically elite to our selective admission institutions.

Others have also written about the issue of access to higher education, and, in particular, to universities. Most of the recent effort has related to the admission of minority and disadvantaged students, many of whom are defined as "marginal" in the sense that they do not meet the traditional criteria for admission used by the more selective universities.

Several researchers[57] have supported the concept of opening our more selective institutions to marginal students on the theory that they can succeed at nearly the same level as regularly admitted students, particularly when given supportive services and adequate financial assistance. Such special assistance, of course, is expensive. Consequently, the crucial dilemma that relates to this issue of more open access is that of the most effective use of our institutions' limited resources.

Astin[58] described the "elitest" view of higher education as favoring the most investment of effort and

money in those students who have the best chance of academic
success. He depicted the "social welfare" approach as one
which brings up to standard those who have been traditionally
poor achievers in the past; this necessitates an investment
of resources opposite to that in the "elitest" model.

Institutions of higher education are now facing
times of limited resources. The setting of priorities is
therefore mandatory. Whether a moderately selective
institution, which has traditionally invested most of its
resources in only the most able students, can or should
continue to admit students of marginal ability is an open
question. To answer this question of access for marginal
students we must determine the degree of success that such
students achieve; similarly, it is necessary to know which
of these students tend to succeed so that appropriate
programmatic decisions can be made in the admission and
supportive services areas. This study is an attempt to help
the institution develop policies that set priorities for the
investment of available resources. It will assist the
institution in determining its proper role within the
parameters set by Astin's typology of elitest and egalitar-
ian institutions.

CHAPTER III

DESIGN

Population

Part of the population under study consists of four groups of Provisional Admission students admitted to The University of Texas at Austin for the Spring 1972, Summer 1972, Spring 1973, and Summer 1973 semesters. These were students who applied for regular admission as first time in college freshmen and, upon learning of their failure to meet the minimum admission requirements, requested admission under the Provisional Admission Program.

The number of students in each group is as follows:

Spring 1972 28
Summer 1972 204
Spring 1973 45
Summer 1973 208

It should be noted that relatively few freshmen students enroll for the first time in the Spring semester because most high school students presently graduate in June, at the end of the academic year. Since all Texas high schools are implementing the more flexible academic calendar of the quarter system, an increasing number of students will

be able to graduate from high school early. It is, there-
fore, expected that more students may wish to enter the
University in January in the future. The performance of
students in the Spring semester Provisional program is thus
an important concern.

In addition to the Provisional students studied,
four other random samples are examined. Each sample con-
sists of 100 students admitted for the Spring 1972, Summer
1972, Spring 1973, and Summer 1973 semesters. These
students met all the normal freshman admission requirements
for the University. They were randomly selected for this
study from alphabetical listings of students who entered
for each of the semesters under study. Each sample was
selected from a population of several hundred students.

Method of Analysis

For purposes of this study, the groups are numbered
as follows:

    Group 1 . . Provisional Students-Spring 1972
    Group 2 . . Regular Students-Spring 1972
    Group 3 . . Provisional Students-Summer 1972
    Group 4 . . Regular Students-Summer 1972
    Group 5 . . Provisional Students-Spring 1973
    Group 6 . . Regular Students-Spring 1973
    Group 7 . . Provisional Students-Summer 1973
    Group 8 . . Regular Students-Summer 1973

The following areas of study are of primary concern,

(1) Comparison of the academic performance in college of Provisional students with that of regularly admitted students. This is accomplished by three-way analysis of variance with a 2 by 4 by 2 construction, the sources of variance being sex, first semester of enrollment, and mode of admission (i.e. Provisional or regular). The means for first semester in college grade point average, total hours earned, total grade points earned, and total grade point average are compared for groups 1 and 2, groups 3 and 4, groups 5 and 6, groups 7 and 8 respectively. Post-hoc comparisons using Scheffe's techinque are performed to gain insight into specific variations shown in the ANOVA.

(2) Comparison of the college academic performance of students entering the Provisional program in the Spring semester with that of Summer Provisional students. The principle criteria are mean first semester in college grade point average and mean total college grade point average. Groups 1 and 5 and groups 3 and 7 are combined respectively for the purpose of the analysis of variance and post-hoc comparisons. Also, groups 1 and 3 and groups 5 and 7 are compared individually.

The quality of the high school record as measured by rank in class and the Scholastic Aptitude Test scores (Math, Verbal, and Total) are compared for the Spring and Summer 1972 and Spring and Summer 1973 groups to determine

any differences that may exist in the quality of students entering in the Spring versus those entering in the Summer. By using the analysis of variance with the post-hoc comparison Scheffe' technique, the effect of such differences on the college performance is assessed.

(3) Analysis of the performance of Summer 1972 Provisional students with that of Summer 1973 Provisional students. As discussed, there was considerably more attention given to academic support services for the Summer 1973 group; any improvement in performance that cannot be accounted for by examining possible differences in high school preparation and SAT scores, may be attributable to on-campus experiences with support services. The principle criteria used to measure college performance are mean first semester in college grade point average and mean overall college grade point average. The analysis of variance with post-hoc comparisons is used to measure the extent of differences.

(4) Comparison of the performance of men and women in the Provisional Admission Program. A t-test of difference of means is performed to look at mean first semester hours, grade points, and grade point average, as well as mean total semester hours, grade points, and grade point average for men and women in the Provisional Admission Program. Also, the performance of men and women admitted on a regular

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basis is compared to that of Provisional men and women respectively. Male and female regular students are compared with each other, as are male and female Provisional students. The t-test with the z distribution is used in each case.

(5) Determination of the most valid predictive measures to be used for Provisional students. The following independent variables are examined singly to determine their correlation with first semester college grade point average and overall college grade point average:

> Academic grade point average in high school
>   (Provisional Students only)
> Overall grade point average in high school
>   (Provisional Students only)
> SAT-Verbal
> SAT-Math
> SAT-Total
> Rank in class

Also, the following combinations of independent variables are used with the dependent variables of first semester in college grade point average and overall college grade point average to determine the most useful multiple regression equations for purposes of predicting college performance. In each model, the multiple r is computed.

1. Academic grade point average in high school, plus SAT-Math and SAT-Verbal

2. Academic grade point average in high school, plus SAT total

3. Overall grade point average in high school, plus SAT-Math and SAT-Verbal

4. Overall grade point average in high school, plus SAT-total

5. Rank in class, plus SAT-Math and SAT-Verbal

6. Rank in class, plus SAT-total

(6) Comparison of the performance of two ethnic groups, white and Mexican Americans, in the Provisional and regular student samples for all the semesters under study. Single tailed t-tests are employed to determine whether any significant differences exist between whites and Mexican-Americans within both the regular and Provisional groups. Also, comparisons of regular and Provisional whites are made, along with comparisons of regular and Provisional Mexican-Americans. Mean first semester hours, grade points and grade point average, and mean total hours, grade points, and grade point average are the dependent variables.

A study of Black students is not feasible because very few Blacks were identified in each group, with only 13 in the total Provisional sample.

(7) Examination of the relative persistence in enrollment of Provisional and regular students. For this purpose, the proportions of students from each sample that are still enrolled in the Spring 1974 semester are examined. A chi-square test is used to test the significance of any differences shown between regular and Provisional students.

Data

The following data is utilized for Provisional students and the randomly selected regular admission students:

1. Overall high school grade point average (Provisional students only)

2. Academic high school grade point average (Provisional students only)

3. SAT-Verbal

4. SAT-Math

5. SAT-Total

6. Rank in high school graduating class

7. First semester hours earned

8. First semester grade points

9. First semester in college grade point average

10. Total hours earned

11. Total grade points

12. Total college grade point average for work completed at The University of Texas at Austin

13. Grade point average in college courses categorized by the following disciplines: English, science and math, and social science

14. Sex

15. Ethnic background, categorized by white and Mexican-American

Null Hypotheses

The following null hypothses are presented as a
basis for the study. These are not meant to be exhaustive;
data other than that which is relevant to these hypotheses
is presented, but these areas of examination form the
essence of the most important aspects of the study.

Ho_1: There is no significant difference between
the first semester in college grade point average of
students admitted under the Provisional Admission Program
and that of students admitted on a regular basis. (H_1:
Regular student mean greater than Provisional student mean)

Ho_2: There is no significant difference between
the first semester in college grade point average of
Provisional students offered extensive support services from
that of students not offered the same services. (H_1: Summer
1973 Provisional student mean greater than Summer 1972
Provisional student mean)

Ho_3: There is no significant difference between
the first semester in college grade point average of students
admitted to the Summer Provisional Program and that of
students admitted to the Spring Provisional Program. (H_1:
Summer Provisional students' mean greater than Spring
Provisional students' mean)

Ho_4: There is no signficant difference between the
first semester in college grade point average of males in

Provisional Admission Program from that of females in the same program. (H_1: Male Provisional mean greater than Female Provisional mean)

Ho_5: There is no significant difference between the first semester in college grade point average of white students in the Provisional Admission Program from that of Mexican-American students in the same program. (H_1: White Provisional mean greater than Mexican-American Provisional mean)

Ho_6: There is no significant difference in the proportion of students from the Provisional sample enrolled in Spring 1974 semester from the proportion of regular students enrolled in the same semester. (H_1: Proportion of regular students enrolled greater than proportion of Provisional students enrolled)

RESULTS

DEMOGRAPHIC DATA FOR SAMPLES

In comparing the entire group of Provisional students with that of regularly admitted students, Table 1 shows similar percentages of men and women.

TABLE 1.--Composition of regular and Provisional samples by sex

	Spring 1972		Summer 1972		Spring 1973		Summer 197.3		Total	
	$\underline{n}$	$\underline{\%}$	$\underline{n}$	$\underline{\%}$	$\underline{n}$	$\underline{\%}$	$\underline{n}$	$\underline{\%}$	$\underline{n}$	$\underline{\%}$
Regular										
Men	58	58	40	40	48	48	45	45	191	47.8
Women	42	42	60	60	52	52	55	55	209	52.2
Total	100		100		100		100		400	
Provisional										
Men	11	39	88	43	23	51	101	49	223	45.9
Women	17	61	116	57	22	49	107	51	262	54.1
Total	28		204		45		208		485	

These percentages contrast somewhat to the makeup of the undergraduate student population for the entire University, where approximately 60% of the students are men.[59]

Spring 1972 is the only semester in which there is a marked difference between the regular and Provisional groups using sex as a criteria.

Table 2 reveals that the ethnic composition of the regular and Provisional groups is also roughly similar. Using ethnic identity as a criteria, both groups reflect the ethnic composition of the University as a whole.[60]

TABLE 2.--Composition of regular and Provisional samples by ethnic background

	Spring 1972		Summer 1972		Spring 1973		Summer 1973		Total	
	n	%	n	%	n	%	n	%	n	%
Regular										
White	89	89	88	88	92	92	96	96	365	91.3
Black	1	1	3	3	0	-	1	1	5	1.3
Mexican-American	9	9	5	5	8	8	2	2	24	6.0
Other	1	1	4	4	0	-	1	1	6	1.4
Total	100		100		100		100		400	

TABLE 2.--Continued

	Spring 1972		Summer 1972		Spring 1973		Summer 1973		Total	
Provisional										
White	27	96	179	88	39	87	179	86	424	87.4
Black	0	-	6	3	1	2	6	6	13	2.7
Mexican-American	1	4	19	9	5	11	23	11	48	9.9
Other	0	-	0	-	0	-	0	-	0	-
Total	28		204		45		208		485	

Due to the small number of Black students in either
sample (5 regular and 13 Provisional Black students),
drawing conclusions from their performance would be extremely
tenuous. Therefore, the only ethnic groups studied are white
and Mexican-American.

MEAN HIGH SCHOOL AND COLLEGE PERFORMANCE

Table 3 is used to demonstrate the respective mean
high school, test, and college performance of all regular
and Provisional students in the samples. The fact that
the number of regular students varies somewhat for the items
in question is due to a lack of available data in certain

instances. That is, some of the 400 students in the total random sample have incomplete records. This is not seen to affect the outcome since the percentage of such students is small, and the occurrence of missing data is randomly distributed across the sample.

The measure of high school rank used in this table and throughout the study is a percentile ranking, arrived at by dividing the students' rank in high school class by the number of students in the class. In cases where the school only categorizes students as to their quartile rank (first, second, third, or fourth), the midpoint for percentile ranking is used according to the following:

First quarter   =   12.5 percentile

Second quarter   =   37.5 percentile

Third quarter   =   62.5 percentile

Fourth quarter   =   87.5 percentile

TABLE 3.--Mean scores on high school, test and college performance for regular and Provisional students

| | REGULAR | | | PROVISIONAL | | |
	n	Mean	Standard Deviation	n	Mean	Standard Deviation
High School Rank	363	73.7	19.1	485	43.7	20.9
SAT-Verbal	380	513	92.9	485	385	62.3
SAT-Math	380	530	90.3	485	409	68.0
SAT-Total	380	1043	159.9	485	793	105.3

TABLE 3.--Continued

	REGULAR			PROVISIONAL		
	n	Mean	Standard Deviation	n	Mean	Standard Deviation
First Semester Hours Completed	400	9.9	3.9	485	11.3	2.5
First Semester Grade Points	400	25.8	13.9	485	22.7	9.0
First Semester Grade Point Average	400	2.52	.97	485	1.94	.71
Total Semester Hours Completed	400	35.9	21.7	485	30.2	16.5
Total Grade Points	400	96.0	71.9	485	62.5	42.6
Total Grade Point Average	400	2.48	.85	485	1.92	.68

There is slightly less variance in the SAT-Verbal, SAT-Math, and SAT-Total scores for Provisional students when compared with that of regular students. This is also true for the several measures of college performance used. The variance of the high school rank for Provisional students is very close to the variance of high school rank for regular students.

The fact that Provisional students by definition are those applicants who do not meet the normal admission

requirements, probably explains some of the restriction in range of their SAT scores. Since all Provisional student SAT scores fall below those required for entrance as regular students, they would tend to be distributed slightly more narrowly than scores for regular students.

For the measures displayed in Tables 4a-4f, it is apparent that scores for both regular and Provisional students approximate a normal distribution. For each variable displayed, the frequency distributions show Provisional students to lie at the lower end of the scale, with regular students' scores centered at the upper range.

Comparison of respective percentile rankings reveals substantial differences between regular and Provisional students. For example, approximately 92% of the regular students graduated in the upper half of the high school class. Only 32% of the Provisional students did so. Using the same guide, 73% of the regular students scored over 450 on the SAT-Verbal while only 17% of the Provisional students did so. Eighty-three percent of regular students made better than 450 on the SAT-Math, but only 30% of the Provisional students were able to do that well.

These types of differences are also reflected in the college performance measured in terms of first semester and total grade point averages. Seventeen percent of the regular students made less than a "C" average (2.0 on a 4.0

scale with A=4.0, B=3.0, C=2.0, etc.) during the first semester. Thirty-six percent of the Provisional students earned less than a "C" average. Twenty-four percent of the Provisional students made a 2.5 grade point average or better during the first semester, but fully 69% of the regular students did so.

The distributions for total grade point average reveal similar achievement. Twenty-two percent of the regular students maintained less than a 2.0 grade point average, but 48% of the Provisional students achieved below a "C" average on all coursework taken. Twenty-nine percent of the regular students were able to make at least a "B" average overall, but only 4% of the Provisional students did so.

In addition to comparing the overall performance of regular and Provisional students, it is helpful to analyze the mean scores on the above measures by controlling for sex and ethnic background. Table 5 presents the data relating to the performance of regular and Provisional men and women.

Females in each sample performed somewhat better than males on the measures of college performance. Females had lower SAT-Math, SAT-Verbal and SAT-Total scores, but their rank in the high school graduating class was higher

than that for males. This also is true within both the

regular and Provisional groups.

TABLE 4a.--Frequency distribution of high school rank for
            regular and Provisional students

High School Rank	REGULAR			PROVISIONAL		
	Fre-quency	Per-centage	Per-centile	Fre-quency	Per-centage	Per-centile
0-9	1	-	1	18	4	2
10-19	4	1	1	42	9	8
20-29	8	2	2	62	13	19
30-39	9	2	5	102	21	36
40-49	12	3	8	102	21	57
50-59	39	11	15	45	9	72
60-69	66	18	29	43	9	81
70-79	42	12	44	37	8	89
80-89	120	33	66	31	6	96
90-99	62	17	91	3	-	99

TABLE 4b.--Frequency distribution of SAT-Verbal for regular
and Provisional students

	REGULAR			PROVISIONAL		
SAT-Verbal	Fre-quency	Per-centage	Per-centile	Fre-quency	Per-centage	Per centile
200-249	1	-	1	1	-	1
250-299	1	-	1	26	5	3
300-349	8	2	2	107	22	17
350-399	28	7	6	152	31	43
400-449	52	14	17	117	24	71
450-499	80	21	34	58	12	89
500-549	74	19	54	18	4	97
550-599	63	17	72	6	1	99
600-649	41	11	86	-	-	-
650-699	20	5	94	-	-	-
700-749	10	3	98	-	-	-
750-799	2	-	99	-	-	-

TABLE 4c.--Frequency distribution of SAT-Math for regular
and Provisional students

SAT-Math	REGULAR			PROVISIONAL		
	Fre-quency	Per-centage	Per-centile	Fre-quency	Per-centage	Per-centile
200-249	-	-	-	-	-	-
250-299	1	-	1	12	2	1
300-349	3		1	83	17	11
350-399	15	4	3	118	24	32
400-449	48	13	11	125	26	57
450-499	75	20	27	94	19	79
500-549	78	21	48	39	8	93
550-599	67	18	67	13	3	98
600-649	54	14	83	1	-	99
650-699	22	6	93	-	-	-
700-749	15	4	97	-	-	-
750-799	2	-	99	-	-	-

TABLE **4d.**--Frequency distribution of SAT-Total for regular
and Provisional students

	REGULAR			PROVISIONAL		
SAT-Total	Fre-quency	Per-centage	Per-centile	Fre-quency	Per-centage	Per-centile
550-599	-	-	-	8	1	1
600-649	1	-	1	29	6	5
650-699	3	-	1	48	10	13
700-749	1	-	1	75	15	25
750-799	8	2	2	111	23	44
800-849	29	8	7	52	11	61
850-899	33	9	15	67	14	74
900-949	41	11	25	52	11	86
950-999	41	11	36	43	9	96
1000-1049	44	12	47	-	-	-
1050-1099	44	12	59	-	-	-
1100-1149	27	7	68	-	-	-
1150-1199	37	10	76	-	-	-
1200-1249	30	8	85	-	-	-
1250-1299	20	5	92	-	-	-
1300-1349	11	3	96	-	-	-
1350-1399	5	1	98	-	-	-
1400-1449	3	-	99	-	-	-
1450-1499	2	-	99	-	-	-
1500-1549	1	-	99	-	-	-

TABLE 4e.--Frequency distribution of first semester grade
point average for regular and Provisional students

First Semester Grade Point Average	REGULAR			PROVISIONAL		
	Fre-quency	Per-centage	Per-centile	Fre-quency	Per-centage	Per-centile
0-.24	17	4	2	16	3	2
.25-.49	2	-	5	4	-	4
.50-.74	8	2	6	9	2	5
.75-.99	3	-	7	12	2	7
1.00-1.24	9	2	9	29	6	11
1.25-1.49	10	3	11	18	4	16
1.50-1.74	15	4	14	44	9	23
1.75-1.99	7	2	17	49	10	32
2.00-2.24	55	14	25	101	21	48
2.25-2.49	32	8	36	80	16	66
2.50-2.74	51	13	47	63	13	81
2.75-2.99	29	7	57	30	6	91
3.00-3.24	67	17	69	19	4	96
3.25-3.49	20	5	80	5	1	98
3.50-3.74	25	6	86	5	1	99
3.75-3.99	14	4	91	-	-	99
4.00	29	7	96	1	-	99

TABLE 4f.--Frequency distribution of total grade point
average for regular and Provisional students

Total Grade Point Average	REGULAR			PROVISIONAL		
	Fre-quency	Per-centage	Per-centile	Fre-quency	Per-centage	Per-centile
0-.24	10	3	1	15	3	2
.25-.49	3	-	3	3	-	3
.50-.74	5	1	4	7	1	4
.75-.99	8	2	6	14	3	7
1.00-1.24	6	2	7	33	7	11
1.25-1.49	13	3	10	27	6	18
1.50-1.74	15	4	13	62	13	27
1.75-1.99	27	7	19	71	15	41
2.00-2.24	56	12	28	89	18	57
2.25-2.49	46	11	39	73	15	74
2.50-2.74	52	13	51	49	10	86
2.75-2.99	54	14	65	21	4	94
3.00-3.24	42	11	77	15	3	97
3.25-3.49	32	8	86	5	1	99
3.40-3.74	21	5	93	-	-	99
3.75-3.99	10	3	97	1	-	99
4.00	7	2	99	-	-	99

The magnitude of the differences shown between males and females in both samples is generally the same. For example, female regulars had a mean SAT-Verbal that was eighteen points below that for male regulars. Female Provisionals scored four points lower than male Provisional students. In each case, the SAT-Math scores showed more marked differences. Similarly, female regulars ranked about seven percentage points higher than male regulars in the high school class. Female Provisionals ranked about nine percentage points higher than male Provisionals. A similar pattern is demonstrated in the respective first semester and total grade point averages. Females performed slightly better than males on both measures for the regular and Provisional samples.

Table 6 presents data relative to the performance of white and Mexican-American regular and Provisional students. Mexican-American Provisionals had a considerably higher rank in the graduating class from high school than their white counterparts; however, the SAT scores were substantially below those for white Provisional students. The same pattern exists for the regular student sample, but the differences are much less distinct.

TABLE 5.--Mean scores on high school, test, and college performance for regular and Provisional students by sex

| | REGULAR | | | | PROVISIONAL | | | |
| | MALES | | FEMALES | | MALES | | FEMALES | |
	n	x̄	n	x̄	n	x̄	n	x̄
High School Rank	169	70.1	194	76.9	223	39	262	47.7
SAT-Verbal	178	522	202	504	223	387	262	383
SAT-Math	178	558	202	506	223	428	262	393
SAT-Total	178	1081	202	1010	223	814	262	775
First Semester Hours Completed	191	10.4	209	9.4	223	11.2	262	11.3
First Semester Grade Points	191	27.2	209	24.6	223	22.2	262	23.1
First Semester Grade Point Average	191	2.518	209	2.524	223	1.89	262	1.98
Total Semester Hours Completed	191	36.8	209	35.1	223	28.9	262	31.3
Total Grade Points	191	97.8	209	94.4	223	59.0	262	65.5
Total Grade Point Average	191	2.42	209	2.52	223	1.87	262	1.96

TABLE 6.--Mean scores on high school, test, and college performance for regular and Provisional students by ethnic background

| | REGULAR | | | | PROVISIONAL | | | |
| | WHITE | | MEXICAN-AMERICAN | | WHITE | | MEXICAN-AMERICAN | |
	n	x̄	n	x̄	n	x̄	n	x̄
High School Rank	335	73.5	19	76.5	424	41.7	48	57.9
SAT-Verbal	347	513	22	503	424	390	48	353
SAT-Math	347	531	22	519	424	412	48	389
SAT-Total	347	1045	22	1022	424	802	48	742
First Semester Hours Completed	360	9.9	22	10.6	424	11.3	48	11.1
First Semester Grade Points	360	25.5	22	30.2	424	23	48	19.8
First Semester Grade Point Average	360	2.51	22	2.49	424	1.96	48	1.77
Total Semester Hours Completed	361	34.9	23	43.6	424	29.1	48	39.2
Total Grade Points	361	92.5	23	128.7	424	58.9	48	95.6
Total Grade Point Average	361	2.47	23	2.68	424	1.89	48	2.25
Total Grade Point Average Without Advanced Placement	-	-	-	-	424	1.89	48	1.82

A detailed analysis of the apparent differences between the college performance of white and Mexican-American students in both the regular and Provisional samples is presented below. However, a brief explanation of some findings is appropriate here.

The University has a policy of granting credit and grades for successful completion of certain advanced standing examinations; inclusion of such grades in the computation of the total grade point average for students tends to inflate this measure. This is because students generally choose to accept the grade only if it is an "A" or "B". Consequently, the grades in work completed only on campus tend to be somewhat lower than grades earned through advanced standing examinations.

This phenomenon seems to affect the relative overall grade point averages of regular white and Mexican-American students to somewhat different degrees. This is apparent because the difference noted in first semester grade point average (2.49 for Mexican-Americans and 2.51 for whites) is less than the difference in the respective total grade point average (2.68 versus 2.47). The advanced standing examination grades are computed only in the total grade point average, and the effect is that they improve Mexican-American student grades more than they improve those of white students in the regular student sample.

For Provisional students there are similar but
much more pronounced differences. While white students
did better than Mexican-Americans during the first semester,
the opposite is true when total grade point average,
including advanced standing grades, is used to measure
overall success. When the advanced standing grades are
not included in the computation of total grade average,
the white students again show superior performance. In-
spection of individual student records reveals that
Mexican-American students were very often able to do quite
well on the Spanish placement examination. This affects
the total grade point average significantly, giving an
inflated picture of the success of the Mexican-American
in courses at the University. Conversely, white Pro-
visional students were able to obtain advanced standing
grades in only a few courses and thus the total grade
point average was virtually unaffected.

The more consistent manner in which to judge over-
all performance is therefore to delete advanced standing
grades from the consideration. This is particularly true
in the case of comparing the relative performance of
Mexican-American and white Provisional students since
the total grade point average of the former is so markedly
affected by the Spanish advanced standing examination
results.

TESTS OF SIGNIFICANCE OF DIFFERENCE

Having determined the nature of some of the dif-
ferences in performance of the regular and Provisional
samples, using sex and ethnic background as controlling
factors, the next step is to test for the statistical
significance of any observed differences. The standard
t-test for large and small samples is used to determine
the significance of differences between various sample
means. Chao[61] states that, for large samples (n greater
than 30) with known variances, it is permissable to "apply
the normal distribution for inferences about the difference
between two means regardless of the nature of the population
distribution." Consequently, except for the analyses
involving Mexican-American regular students (n equals 22),
it is permissable to test for differences using the z
distribution in the standard normal table. A one-tailed
test is chosen and the critical value of the test statistic
is thus $\pm$ 1.645 for α = .05, depending on the hypotheses
tested in each comparison for the variables under study.

In the case of small samples, Chao[62] suggests use
of the t-distribution since sample variance can be quite
different from population variance. It is assumed that
the two samples are independent. Table 10 below depicts

the data for comparison of the Mexican-American samples where the small sample theory is used.

Table 7 presents the relevant data for the regular and Provisional students taken as a whole. Inspection of the z values reveals highly significant differences between the two samples. For each measure examined, with the exception of first semester hours completed, regular students performed dramatically better than Provisional students. In each instance, the differences shown would be significant at the α = .01 level of significance (critical value = 2.33). (The finding that Provisional students completed more hours the first semester than did regular students reflects the fact that Provisional students are required to take twelve semester hours the first semester, whereas some regular students elect to take fewer than that number, particularly during the summer session. Therefore, this variable proves to be an unreliable indication of the relative success of regular and Provisional students.)

In reference to the first null hypothesis presented above, we can very confidently reject the suggestion that there is no significant difference between the first semester grade point average of regular and Provisional students. The difference shown of .58 is significant even at the .01 level.

These contrasts between regular and Provisional students are also evident when the data in Tables 8 and 9 is examined. Male regular students clearly out-performed male Provisionals;each of the differences would be significant if alpha were set equal to .01. The only measure (except first semester hours completed) on which female regulars were not clearly superior to female Provisionals is total grade points. On all other criteria, the differences shown are significant at the $\alpha = .05$ level.

The size of the differences between male regular and Provisional students is the same general magnitude as the differences for females. Correspondingly, these approximate the overall differences between all regular and Provisional students.

Table 10 shows that Mexican-American students in the regular sample performed significantly better on the SAT-Verbal, SAT-Math, and SAT-Total than did their Provisional sample counterparts. The differences shown are significant at the $\alpha = .05$ level. However, when high school rank and college performance for each group is compared, there is less of a disparity between regular and Provisional Mexican-Americans. In fact, in each of the measures--high school rank and first semester and total hours completed, grade points, and grade point average-- the Provisional Mexican-Americans show no statistically

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TABLE 7.--Comparison of regular and Provisional students using z distribution, one-tailed test α = .05; critical value = $\pm$ 1.645

Criteria	REGULAR			PROVISIONAL			$\bar{x}_1-\bar{x}_2$	z	Significant
	n_1	$\bar{x}_1$	s_1^2	n_2	$\bar{x}_2$	s_2^2			
SAT-Verbal	380	513	8626.7	485	385	3880.0	128	23.1	Yes
SAT-Math	380	530	8154.1	485	409	4619.9	121	21.75	Yes
SAT-Total	380	1043	25571.2	485	793	11077.6	250	26.33	Yes
High School Rank	363	73.7	365.6	485	43.7	438.5	30.0	21.7	Yes
First Semester Hours Completed	400	9.9	15.4	485	11.3	6.25	-1.4	-6.18	Yes
First Semester Grade Points	400	25.8	192.9	485	22.7	80.8	3.1	3.85	Yes
First Semester Grade Point Average	400	2.52	.94	485	1.94	.50	.58	9.97	Yes
Total Semester Hours Completed	400	35.9	471.8	485	30.2	273.6	5.7	4.32	Yes
Total Grade Points	400	96.0	5171.0	485	62.5	1810.5	33.5	8.21	Yes
Total Grade Point Average	400	2.48	.72	485	1.92	.46	.56	10.68	Yes

TABLE 8.--Comparison of male regular and male Provisional students using z distribution, one-tailed test; $\alpha = .05$, critical value $= \pm 1.645$

Criteria	MALE n_1	REGULAR $\bar{x}_1$	s_1^2	MALE n_2	PROVISIONAL $\bar{x}_2$	s_2^2	$\bar{x}_1 - \bar{x}_2$	z	Significant
SAT-Verbal	178	522	7804.0	223	387	3549.8	135	17.46	Yes
SAT-Math	178	558	8233.8	223	428	4828.9	130	15.78	Yes
SAT-Total	178	1081	23969.2	223	814	11994.6	267	19.49	Yes
High School Rank	169	70.1	449.9	223	39.0	389.3	31.1	14.8	Yes
First Semester Hours Completed	191	10.4	17.3	223	11.2	7.2	-.80	-2.28	Yes
First Semester Grade Points	191	27.2	217.6	223	22.2	83.5	5.0	4.06	Yes
First Semester Grade Point Average	191	2.518	1.08	223	1.89	.5402	.62	6.90	Yes
Total Semester Hours Completed	191	36.8	560.7	223	28.9	253.5	7.9	3.91	Yes
Total Grade Points	191	97.8	5921.3	223	59.0	1784.2	38.8	6.21	Yes
Total Grade Point Average	191	2.42	.85	223	1.87	.5219	.55	6.67	Yes

TABLE 9.--Comparison of female regular and female Provisional students using z distribution, one-tailed test; α = .05, critical value = ± 1.645

Criteria	FEMALE REGULAR			FEMALE PROVISIONAL			$\bar{x}_1 - \bar{x}_2$	z	Signif-icant
	n_1	$\bar{x}_1$	s_1^2	n_2	$\bar{x}_2$	s_2^2			
SAT-Verbal	202	504	9235.2	262	383	4168.0	121	15.41	Yes
SAT-Math	202	506	6817.8	262	393	3875.1	113	16.22	Yes
SAT-Total	202	1010	24743.3	262	775	9657.0	235	18.62	Yes
High School Rank	194	76.9	272.1	262	47.7	447.8	29.2	16.58	Yes
First Semester Hours Completed	209	9.4	13.4	262	11.3	5.4	-1.9	-6.47	Yes
First Semester Grade Points	209	24.6	169.0	262	23.1	78.6	1.5	1.43	No
First Semester Grade Point Average	209	2.524	.81	262	1.98	.46	.54	7.20	Yes
Total Semester Hours Completed	209	35.1	392.8	262	31.3	289.0	3.8	2.20	Yes
Total Grade Points	209	94.4	4515.8	262	65.5	1819.9	28.8	5.39	Yes
Total Grade Point Average	209	2.52	.60	262	1.96	.40	.56	8.44	Yes

TABLE 10.--Comparison of Mexican-American regular and Mexican-American Provisional students using t distribution, one-tailed test

Criteria	MEXICAN-AMERICAN REGULAR			MEXICAN-AMERICAN PROVISIONAL			$\bar{x}_1-\bar{x}_2$	t	DF	Significant
	n_1	$\bar{x}_1$	s^2_1	n_2	$\bar{x}_2$	s^2_2				
SAT-Verbal	22	503	11944.3	48	353	2382.4	150	2.01	68	Yes
Sat-Math	22	519	8363.1	48	389	3986.7	130	1.75	68	Yes
SAT-Total	22	1022	32779.1	48	742	7390.8	280	2.226	68	Yes
High School Rank	19	76.5	274.6	48	57.9	537.3	18.6	.852	65	No
First Semester Hours Completed	22	10.6	21.8	48	11.1	4.62	-.50	-.156	68	No
First Semester Grade Points	22	30.2	348.4	48	19.8	76.6	10.4	.805	68	No
First Semester Grade Point Average	22	2.49	1.348	48	1.77	.49	.72	.814	68	No
Total Semester Hours Completed	23	43.6	672.9	48	39.2	433.4	4.4	.192	69	No

TABLE 10.--Continued

Criteria	MEXICAN-AMERICAN REGULAR			MEXICAN-AMERICAN PROVISIONAL			$\bar{x}_1-\bar{x}_2$	t	DF	Significant
	n_1	$\bar{x}_1$	s_1^2	n_2	$\bar{x}_2$	s_2^2				
Total Grade Points	23	128.7	7756.8	48	95.6	3843.8	33.1	.456	69	No
Total Grade Point Average	23	2.68	.984	48	2.25	.585	.43	.502	69	No

Degrees of Freedom = $n_1 + n_2 - 2$

α = .05 (one-tailed test)

Critical value for DF = 65, 68, 69 is equal to 1.670, 1.669, 1.669 respectively

significant difference in achievement from regular Mexican-Americans. However, there are some moderate differences shown; of particular note are the differences in first semester and total grade point average. The lack of significant differences in these cases is partly due to the necessity of utilizing the more conservative small sample theory in approaching the analysis. The very real differences shown in Table 10 should not be overlooked in the overall study of Provisional admission students.

The relative performance of males and females in the Provisional samples indicates that the null hypothesis Ho_5: "There is no significant difference between the first semester in college grade point average of men in the Provisional Admission Program from that of women in the same program" is not disproven. Table 11 demonstrates the values of z for the differences between men and women in the Provisional sample. Men in the sample presented superior scores on the SAT-Math and SAT-Total measures, each difference being significant at the $\alpha = .05$ level. The SAT-Verbal scores were very close, and no statistically significant difference between men and women is shown.

On each of the measures of high school performance, women proved to be superior to men in the Provisional sample. The criteria of rank in class and academic and overall grade

point average indicate that females presented better high school grades than did males. These differences are significant at the α = .05 level.

When college grades are considered, females performed consistently better than males, but only the differences in total grade points and grade point average in English are significant at α = .05 level. With the critical value of the test statistic equal to 1.645, and z = 1.63 for the difference between male and female total hours completed, this criteria is very close to showing a significant difference. Similarly, if the value of α = .1 is used, there appears a significant difference between male and female first semester and total grade point average. (For α = .1 in a single-tailed test, the critical value is 1.282 for large samples.)

Table 11a shows the results of t-tests for male and female Provisional students when grade point averages in the three curricular groupings are compared. In each case, the z value is clearly above the critical value for significance at the α = .05 level; therefore, both male and female Provisional students performed significantly better in English courses than they did in the other academic areas under consideration.

TABLE 11.--Comparison of male and female Provisional students using z distribution, one-tailed test; α = .05, critical value = ± 1.645

Criteria	MALE PROVISIONALS			FEMALE PROVISIONALS			$\bar{x}_1 - \bar{x}_2$	z	Significant
	n_1	$\bar{x}_1$	s_1^2	n_2	$\bar{x}_2$	s_2^2			
SAT-Verbal	223	387	3549.8	262	383	4168.0	4	.71	No
SAT-Math	223	428	4828.9	262	393	3875.1	35	5.79	Yes
SAT-Total	223	814	11994.6	262	775	9657.0	39	4.10	Yes
High School Rank	223	39.0	389.3	262	47.7	447.8	-8.7	-4.66	Yes
High School Academic Grade Point Average	223	2.23	.2201	262	2.45	.2190	-.22	-5.15	Yes
High School Overall Grade Point Average	223	2.52	.1583	262	2.70	.1563	-.18	-4.98	Yes
First Semester Hours Completed	223	11.2	7.2	262	11.3	5.4	-.14	-.61	No
First Semester Grade Points	223	22.2	83.5	262	23.1	78.6	-.9	-1.13	No

TABLE 11.--Continued

Criteria	MALE PROVISIONALS			FEMALE PROVISIONALS			$\bar{x}_1-\bar{x}_2$	z	Significant
	n_1	$\bar{x}_1$	s_1^2	n_2	$\bar{x}_2$	s_2^2			
First Semester Grade Point Average	223	1.89	.5402	262	1.98	.46	-.09	-1.34	No
Total Semester Hours Completed	223	28.9	253.5	262	31.3	289.0	-2.4	-1.63	No
Total Grade Points	223	59.0	1784.2	262	65.5	1819.9	-6.5	-1.70	Yes
Total Grade Point Average	223	1.87	.5219	262	1.96	.40	-.09	-1.51	No
Grade Point Average-- English	223	2.01	.6946	250	2.17	.6284	-.16	-2.09	Yes
Grade Point Average-- Science and Math	212	1.62	.7327	253	1.76	.7399	-.12	-1.50	No
Grade Point Average-- Social Science	162	1.72	.7661	201	1.74	.8033	-.02	.21	No

TABLE 11a.--t-tests for grade point averages in English, Science/Math and Social Science.

	GPA-English	GPA-Science/Math	Difference	z
Male	2.01	1.62	.39	4.73
Female	2.17	1.76	.41	5.56
	GPA-English	GPA-Social Science	Difference	z
Male	2.01	1.72	.29	3.23
Female	2.17	1.74	.43	5.33

Means, variances, and respective test statistics are given for male and female regular students in Table 12. Male regulars scored significantly better on each segment of the SAT, but women presented a higher rank in the graduating class (academic and overall high school grade point averages were not available for regular students.) Males and females had very similar academic records in college, particularly when performance is expressed in terms of first semester and total grade point average. Women completed slightly fewer semester hours overall, but maintained a slightly higher total grade point average. These differences do not approach significance.

The pattern of differences for regular males and females can be compared to the pattern of such differences

for Provisional students. Males in both samples tended
to present higher entrance test scores, while females
presented superior high school records as measured by rank
in class. Both groups demonstrate similar performances
by males and females once the students enrolled in the
University. Only the total grade points for Provisional
students and the first semester hours and grade points for
regular students show significant differences between
males and females. The more meaningful measures of first
semester and total grade point average do not show sig-
nigicant differences in either the regular or Provisional
samples for males and females.

It is also useful to examine the significance of
the differences between the performance of white and
Mexican-American students within the Provisional sample.

Table 13 shows the results of the t-test when
applied to Provisional white and Mexican-American students.
It is evident that white Provisionals achieved significantly
higher scores on the SAT Verbal, Math and Total measures.
Conversely, Mexican-Americans presented significantly
better high school records when judged in terms of rank in
class, and academic and total grade point averages.

Using first semester in college grade point average
as a criteria, white Provisionals performed at a higher
level than Mexican-American Provisionals. The difference

is significant at the α = .05 level. This difference
is also reflected in the first semester hours completed
and grade points earned.

Mexican-American students earned higher over-
all grade point averages than did white students in the
Provisional sample. As suggested above, however, this
measure is clouded by the presence of grades earned through
advanced standing examinations. When this confounding
variable is taken out, the grades of white students are
not significantly better than those of Mexican-American
students.

White Provisionals made significantly higher
grade point averages than Mexican-Americans in both
English and science/math related courses. These dif-
ferences are significant at the α = .05 level. There is
no significant difference shown when grade point average
in social science courses is examined and compared for
each group.

TABLE 12.--Comparison of male regular and female regular students using z distribution, one-tailed test; $\alpha = .05$, critical value $= \pm 1.645$

Criteria	MALE REGULAR			FEMALE REGULAR			$\bar{x}_1 - \bar{x}_2$	z	Significant
	n_1	$\bar{x}_1$	s_1^2	n_2	$\bar{x}_2$	s_2^2			
SAT-Verbal	178	522	7804.0	202	504	9235.2	18	1.90	Yes
SAT-Math	178	558	8233.8	202	506	6817.8	52	5.81	Yes
SAT-Total	179	1081	23969.2	202	1010	24743.3	71	4.43	Yes
High School Rank	169	70.1	449.9	194	76.9	272.1	-6.8	-3.39	Yes
First Semester Hours Completed	191	10.4	17.3	209	9.4	13.5	1.0	2.53	Yes
First Semester Grade Point	191	27.2	217.6	209	24.6	169.0	2.6	1.86	Yes
First Semester Grade Point Average	191	2.51	1.08	209	2.52	.81	-.01	-.10	No
Total Semester Hours Completed	191	36.8	560.7	209	35.1	392.8	1.7	.77	No

TABLE 12.--Continued

Criteria	MALE REGULAR			FEMALE REGULAR					Signif-icant
	n_1	$\bar{x}_1$	s_1^2	n_2	$\bar{x}_2$	s_2^2	$\bar{x}_1-\bar{x}_2$	z	
Total Grade Points	191	97.8	5921.3	209	94.4	4515.8	3.4	.47	No
Total Grade Point Average	191	2.42	.85	209	2.52	.60	-.10	-1.17	No

TABLE 13.--Comparison of white Provisionals and Mexican-American Provisionals using z distribution, one-tailed test; α = .05, critical value = $\pm$ 1.645

Criteria	WHITE PROVISIONALS			MEXICAN-AMERICAN PROVISIONALS					Significant
	n_1	$\bar{x}_1$	s_2^2	n_1	$\bar{x}_2$	s_2^2	$\bar{x}_1 - \bar{x}_2$	z	
SAT-Verbal	424	390	3851.4	48	353	2382.4	37	4.83	Yes
SAT-Math	424	412	4675.8	48	389	3986.7	23	2.37	Yes
SAT-Total	424	802	10318.5	48	742	7390.8	60	4.49	Yes
High School Rank	424	41.7	401.6	48	57.9	537.3	-12.2	-4.7	Yes
High School Academic Grade Point Average	424	2.33	.23	48	2.54	.23	-.21	-2.86	Yes
Total Grade Point Average	424	2.60	.16	48	2.79	.40	-.19	-2.05	Yes
First Semester Hours Completed	424	11.3	6.31	48	11.1	4.62	.2	.42	No
First Semester Grade Point	424	22.0	79.9	48	19.8	76.6	2.2	1.66	Yes

TABLE 13.—Continued

Criteria	WHITE PROVISIONALS			MEXICAN-AMERICAN PROVISIONALS			$\bar{x}_1-\bar{x}_2$	z	Significant
	n_1	$\bar{x}_1$	s_2^2	n_1	$\bar{x}_2$	s_2^2			
First Semester Grade Point Average	424	1.96	.49	48	1.77	.49	.26	1.97	Yes
Total Semester Hours Completed	424	29.1	247.8	48	39.2	433.5	-10.1	-3.24	Yes
Total Grade Points	424	58.9	1473.0	48	95.6	3721.0	-36.7	-4.08	Yes
Total Grade Point Average	424	1.89	.43	48	2.25	.58	-.42	-3.65	Yes
Total Grade Point Average (No Advanced Placement)	424	1.89	.43	48	1.82	.47	.07	.67	No
Grade Point Average-- English	399	2.12	.43	46	1.94	.35	.18	1.93	Yes
Grade Point Average-- Science/Math	406	1.74	.53	46	1.43	.57	.31	2.65	Yes
Grade Point Average-- Social Science	316	1.75	.62	36	1.70	.63	.05	.36	No

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ANALYSIS OF VARIANCE

The three way analysis of variance performed for the regular and Provisional samples examines their relative performance on the following measures: SAT-Verbal, SAT-Math, high school rank, first semester in college grade point average, total college grade point average, total semester hours earned, and total grade points earned. Tables 14-20 present the results of each of the analyses in question.

The sources of variance are as follows:

```
A = Sex
B = First Semester Enrolled (Spring 1972,
        Summer 1972, Spring 1973, Summer 1973)
C = Mode of Admission (Provisional or regular)
```

TABLE 14.--Analysis of variance for SAT-Verbal

SOURCE	DF	SS	MS	F	PROBA-BILITY
A	1	42505.29	42505.29	7.51	.0063
B	3	849995.36	283331.79	50.03	.0000
C	1	2095317.79	2095317.79	369.97	.0000
Interaction Effects					
AB	3	13565.61	4521.87	.7984	.4949
AC	1	1912.16	1912.16	.3376	.5614

TABLE 14.--Continued

SOURCE	DF	SS	MS	F	PROBA-BILITY
BC	3	383852.74	127950.91	22.59	.0000
ABC	3	35887.35	11962.45	2.11	.0972
within	850	4813976.29	5663.50		

The analysis of variance involves the use of unequal cell sizes. Also, since some of the data items for several students are missing or incomplete, certain regular students are omitted from the analysis. The data for Provisional students is complete.

Table 14 presents the ANOVA results for the variable SAT-Verbal. Highly significant differences are shown using sex, first semester enrolled, and mode of admission as sources of variation. The interaction effects reveal that only when the latter two variables are used do we find significant differences among groups.

TABLE 15.--Analysis of variance for SAT-Math

SOURCE	DF	SS	MS	F	PROBA-BILITY
A	1	261993.73	261993.73	45.66	.0000
B	3	631139.42	210379.81	36.67	.0000
C	1	1975013.90	1975013.90	344.23	.0000
Interaction Effects					
AB	3	46493.46	15497.82	2.70	.0446
AC	1	5421.13	5421.13	.9449	.3313
BC	3	527025.44	175675.15	30.62	.0000
ABC	3	85505.91	28501.97	4.97	.0020
within	850	4876861.43	5737.48		

Table 15 demonstrates the ANOVA results for the variable SAT-Math. Again, significant differences are shown using sex, first semester enrolled, and mode of admission as sources of variation. As with SAT-Verbal, the interaction effect using variables B and C reveals significant differences. Unlike the SAT-Verbal score, SAT-Math also shows significant differences for the interaction of sex and first semester enrolled, as well as for all three factors combined.

The third variable examined is the students' rank in class. Table 16 is used to demonstrate the analysis of

variance in this case. Significant differences are found for each of the sources of variance taken separately. In addition, each interaction affect is significant with the exception of sex by mode of admission.

Table 17 presents the data for first semester in college grade point average. The variables sex and mode of admission are shown to have a significant effect on this variable when taken separately. The variable first semester enrolled does not show significant differences.

TABLE 16.--Analysis of variance for rank in class

SOURCE	DF	SS	MS	F	PROBA-BILITY
A	1	13473.25	13473.25	35.55	.0000
B	3	15554.27	5184.76	13.68	.0000
C	1	112008.32	112008.32	295.55	.0000
Interaction Effects					
AB	3	8987.64	2995.88	7.90	.0000
AC	1	881.78	881.78	2.33	.1275
BC	3	26667.61	8889.20	23.46	.0000
ABC	3	3487.08	1162.36	3.07	.0273
within	846	320619.91	378.98		

TABLE 17.--Analysis of variance for first semester GPA

SOURCE	DF	SS	MS	F	PROBA-BILITY
A	1	3.82	3.82	7.02	.0082
B	3	3.03	1.01	1.86	.1353
C	1	57.40	57.40	105.37	.0000
Interaction Effects					
AB	3	8.00	2.67	4.90	.0022
AC	1	.0011	.0011	.002	.9646
BC	3	21.79	7.26	13.34	.0000
ABC	3	.6432	.2144	.39	.7576
within	836	455.38	.5447		

The interaction effect between sex and first semester enrolled is significant at the α = .05 level. Similarly, the interaction of first semester enrolled and mode of admission produces significant differences. The other interactions examined do not have a significant effect on the variable first semester grade point average.

Table 18 reflects the ANOVA for variable five, total college grade point average. The results are the same as those for first semester grade point average except that in the present case, first semester enrolled is a significant

source of variance whereas it was not for first semester grade point average. Sex and mode of admission also cause differences to occur in total grade point average. The interactions of first semester enrolled with sex and mode of admission, respectively, also cause significant differences. The interaction of sex with mode of admission, and the interaction of all three sources of variance taken together, do not cause significant differences.

TABLE 18.--Analysis of variance for total college grade
         point average

SOURCE	DF	SS	MS	F	PROBA-BILITY
A	1	3.69	3.69	7.61	.0059
B	3	5.34	1.78	3.67	.0120
C	1	46.82	46.82	96.72	.0000
Interaction Effects					
AB	3	6.69	2.23	4.61	.0033
AC	1	.1697	.1697	.3506	.5540
BC	3	14.32	4.77	9.86	.0000
ABC	3	1.24	.4149	.8570	.4630
within	839	406.18	.4841		

An analysis of variance is also performed for total semester hours earned and total grade points accumulated. Tables 19 and 20 show the results for each analysis respectively.

TABLE 19.--Analysis of variance for total hours completed

SOURCE	DF	SS	MS	F	PROBA- BILITY
A	1	185.08	185.08	.7486	.3872
B	3	68587.40	22862.47	92.47	.0000
C	1	7224.07	7224.07	29.22	.0000
Interaction Effects					
AB	3	744.46	248.15	1.00	.3905
AC	1	1011.93	1011.93	4.09	.0434
BC	3	8513.89	2837.96	11.48	.0000
ABC	3	2585.08	861.69	3.49	.0155
within	839	207429.41	247.23		

TABLE 20.--Analysis of variance for total grade points
earned

SOURCE	DF	SS	MS	F	PROBA-BILITY
A	1	94392.61	94392.61	36.63	.0000
B	3	276708.56	92236.19	35.79	.0000
C	1	99050.74	99050.74	38.43	.0000
Interaction Effects					
AB	3	275740.67	91913.56	35.67	.0000
AC	1	98278.08	98278.08	38.13	.0000
BC	3	27874.72	9291.57	3.61	.0131
ABC	3	44323.51	14774.50	5.73	.0007
within	839	2162216.67	2577.14		

In the case of semester hours completed, only first
semester enrolled and mode of admission are sources of
variance that produce significant differences. The inter-
action effect of these two variables produces significant
differences, as does the interaction of sex with mode of
admission. The interaction effect of all three sources
of variance taken together also is significant at
$\alpha = .05$.

The ANOVA for total grade points earned shows highly
significant effects produced by each source of variance

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taken separately, as well as for each of the interactions. Each effect is significant at $\alpha = .05$ and all but the interaction of first semester enrolled with mode of admission would be significant at $\alpha = .01$.

To summarize the above findings relating to the ANOVA tables, highly significant effects are found whenever mode of admission is a source of variance. Also, when the interaction effects of mode of admission taken with first semester enrolled are studied, significant differences are found for each of the seven variables under consideration.

In addition, sex appears to be a source of variance with some impact. Taken alone, sex produces significant effects in six of the seven variables studied, the lone exception being total semester hours completed. When used in the interaction analysis, sex and first semester enrolled produce significant effects for five of the seven variables; sex with mode of admission has somewhat less impact, significantly affecting only the two variables total hours and total grade points earned.

Taken alone, first semester enrolled is a significant source of variance in six of the seven variables, the only exception being first semester grade point average.

It is evident from the above that there are some important factors at work within the three sources of

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variance studied. These factors significantly affect the students' college performance. At the same time, it is evident that variances in the students' high school and SAT records can be tied to their sex, first semester enrolled, and mode of admission.

POST-HOC COMPARISONS

In order to gain more specific insight into the nature of the differences revealed already, it is helpful to employ the technique of post-hoc comparisons. To accomplish this, Scheffe's technique is used in relation to the analysis of variance tables given above. A significance level of $\alpha = .05$ is used, and the analysis is done accommodating the unequal sample sizes. The variables of central concern are SAT-Verbal, SAT-Math, high school rank, first semester grade point average, and total grade point average.

Table 21 displays the mean values for each of the above measures of performance as demonstrated by regular and Provisional students who entered the University during the semesters in question.

The results of the test using Scheffe's technique for SAT-Verbal are shown in Table 22. Significant differences are found between groups when regular and Provisional students are compared. This corresponds with

TABLE 21.--Mean SAT, high school rank, and college grade point averages for regular and Provisional students by first semester enrolled - males, females and combined

	SPRING 1972			SUMMER 1972			SPRING 1973			SUMMER 1973		
	Male	Female	Both	Male	Female	Both	Male	Female	Both	Male	Female	Both
REGULAR												
SAT-Verbal	537	512	526	542	513	525	546	508	526	485	489	487
SAT-Math	567	522	547	565	507	531	569	505	535	542	495	516
High School Rank	65.1	77.1	70.5	76.5	80.2	78.7	63.9	76.8	70.7	76.6	73.3	74.8
First Semester Grade Point Average	2.38	2.53	2.45	2.97	2.60	2.75	2.42	2.67	2.55	2.75	2.43	2.57
Total Grade Point Average	2.42	2.52	2.47	2.54	2.64	2.60	2.44	2.60	2.52	2.55	2.30	2.41
PROVISIONAL												
SAT-Verbal	412	403	407	384	389	387	392	383	388	387	374	380
SAT-Math	425	409	415	431	394	410	432	377	405	426	392	409
High School Rank	30.0	41.9	37.2	38.0	45.5	42.3	29.4	46.6	37.8	43.0	51.1	47.2
First Semester Grade Point Average	1.32	1.80	1.61	1.93	2.00	1.97	1.32	1.81	1.56	2.17	2.10	2.13
Total Grade Point Average	1.46	2.08	1.84	1.89	1.94	1.92	1.40	1.98	1.68	2.10	2.04	2.07

the previous finding that regular students as a whole
scored significantly better than Provisional students.

At the same time, each of the Provisional groups
appears to have roughly the same scores on SAT-Verbal.
In no case do the differences noted appear to approach
the level of significance. No discernable pattern is
noted with respect to the possible differences existing
between Spring and Summer entrants, nor between entrants
in the Spring and Summer of one year in contrast to the
other. The same can be asserted for regular students.
No significant differences are found between any of the
pairs of regular groups studied.

As with SAT-Verbal, there is a highly significant
difference between regular and Provisional students on
the SAT-Math score for each of the semesters studied.
Table 23 shows the relevant data for SAT-Math; it can
be seen that no particular pattern exists when comparing
groups of Provisional students. The differences in scores
are not significant, as was the case for the SAT-Verbal.
Regular students also demonstrated some differences but
they are not statistically significant.

Table 24 shows that essentially the same phenomenon
exists for the measure of high school rank in class as
that reported for SAT-Verbal and SAT-Math. That is, in
each semester, regular students performed significantly

better than Provisional students. Provisional students presented essentially equal rank in class in each of the semesters; this also is true for the regular student samples. In addition, no perceptible pattern seems to operate with regard to the small differences noted within the Provisional and regular samples for each semester.

In general, the evidence is strong that Provisional students presented basically the same quality of high school record and entrance test scores in each of the semesters in which they started. Regular students demonstrated the same tendency.

In examining the performance in college of regular and Provisional students, controlling for first semester enrolled, several points can be made. Tables 25 and 26 present the data resulting from the use of Scheffe's technique for first semester and total grade point averages respectively.

When Provisional students are compared controlling for the first semester enrolled, no significant differences in first semester grade point average appear except when the Spring 1973 and Summer 1973 Provisional groups are examined. The difference of .57 in the first semester grade point average is significant at the $\alpha = .05$ level.

TABLE 22.--Comparison of SAT-Verbal scores for regular and Provisional
students by first semester enrolled

TABLE 22.--Comparison of SAT-Verbal scores for regular and Provisional students by first semester enrolled

| GROUPS | | $\bar{x}_1$ | $\bar{x}_2$ | $\bar{x}_1-\bar{x}_2$ | k-1 | f | T | Signif- icant |
x_1	x_2							
Sum '72 Prov.	Sum '73 Prov.	387	380	7	7	1.95	27.36	No
Spr '72 Prov.	Spr '73 Prov.	407	388	19	7	1.95	66.84	No
Spr '72 Prov.	Sum '72 Prov.	407	387	20	7	1.95	55.97	No
Spr '73 Prov.	Sum '73 Prov.	388	380	8	7	1.95	45.66	No
Sum '72 Reg.	Sum '73 Reg.	525	487	38	7	1.95	39.68	No
Spr '72 Reg.	Spr '73 Reg.	526	526	0	7	1.95	40.93	No
Spr '72 Reg.	Sum '72 Reg.	526	525	1	7	1.95	41.23	No
Spr '73 Reg.	Sum '73 Reg.	526	487	39	7	1.95	39.37	No
Sum '72 Prov.	Sum '72 Reg.	387	525	-138	7	1.95	34.37	Yes
Spr '72 Prov	Spr '72 Reg.	407	526	-119	7	1.95	60.42	Yes

TABLE 22.--Continued

GROUPS		$\bar{x}_1$	$\bar{x}_2$	$\bar{x}_1-\bar{x}_2$	k-1	f	T	Significant
x_1	x_2							
Sum '73 Prov.	Sum '73 Reg.	380	487	-107	7	1.95	33.79	Yes
Spr '73 Prov.	Spr '73 Reg.	388	526	-138	7	1.95	49.93	Yes
All Spr Prov.	All Sum Prov.	395	383	12	7	1.95	35.26	No
All Spr Reg.	All Sum Reg.	526	506	20	7	1.95	28.36	No

Mean Square = 5663.50
Degrees of Freedom = 865
α = .05

$$S = \sqrt{(k-1)f}$$

$$SE = \sqrt{MS\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}$$

$$T = S \cdot SE$$

TABLE 23.--Comparison of SAT-Math scores for regular and Provisional students by first semester enrolled

GROUPS		x_1	x_2	x_1-x_2	k-1	f	T	Significant
x_1	x_2							
Sum '72 Prov.	Sum '73 Prov.	410	409	1	7	1.95	27.54	No
Spr '72 Prov.	Spr '73 Prov.	415	405	10	7	1.95	67.28	No
Spr '72 Prov.	Sum '72 Prov.	415	410	5	7	1.95	56.33	No
Spr '73 Prov.	Sum '73 Prov.	405	409	-4	7	1.95	45.95	No
Sum '72 Reg.	Sum '73 Reg.	531	516	15	7	1.95	39.94	No
Spr '72 Reg.	Spr '73 Reg.	547	535	12	7	1.95	41.20	No
Spr '72 Reg.	Sum '72 Reg.	547	531	16	7	1.95	41.50	No
Spr '73 Reg.	Sum '73 Reg.	535	516	19	7	1.95	39.63	No
Sum '72 Prov.	Sum '72 Reg.	410	531	-121	7	1.95	34.59	Yes
Spr '72 Prov.	Spr '72 Reg.	415	547	-132	7	1.95	60.82	Yes
Sum '73 Prov.	Sum '73 Reg.	409	516	-107	7	1.95	34.01	Yes

TABLE 23.--Continued

GROUPS		$\bar{x}_1$	$\bar{x}_2$	$\bar{x}_1 - \bar{x}_2$	$k-1$	f	T	Signif-icant
x_1	x_2							
Spr '73 Prov.	Spr '73 Reg.	405	535	-130	7	1.95	50.25	Yes
All Spr Prov.	All Sum Prov.	409	409	0	7	1.95	35.49	No
All Spr Reg.	All Sum Reg.	541	523	18	7	1.95	28.65	No

Mean square = 5737.48
Degrees of freedom = 865
α = .05

$$S = \sqrt{(k-1)f} \qquad\qquad T = S \cdot SE$$

$$SE = \sqrt{MS\, \frac{1}{n_1} + \frac{1}{n_2}}$$

TABLE 24.--Comparison of high school rank for regular and Provisional students by first semester enrolled

GROUPS		$\bar{x}_1$	$\bar{x}_2$	$\bar{x}_1-\bar{x}_2$	k-1	f	T	Signif- icant
x_1	x_2							
Sum '72 Prov.	Sum '73 Prov.	42.3	47.2	-4.9	7	1.95	7.08	No
Spr '72 Prov.	Spr '73 Prov.	37.2	37.8	-.6	7	1.95	17.29	No
Spr '72 Prov.	Sum '72 Prov.	37.2	42.3	-5.1	7	1.95	14.48	No
Spr '73 Prov.	Sum '73 Prov.	37.8	47.2	-9.4	7	1.95	11.81	No
Sum '73 Reg.	Sum '73 Reg.	78.7	74.8	3.9	7	1.95	10.26	No
Spr '72 Reg.	Spr '73 Reg.	70.5	70.7	-.2	7	1.95	10.59	No
Spr '72 Reg.	Sum '72 Reg.	70.5	78.7	-8.2	7	1.95	10.67	No
Spr '73 Reg.	Sum '73 Reg.	70.7	74.8	-4.1	7	1.95	10.18	No
Sum '72 Prov.	Sum '72 Reg.	42.3	78.7	-36.4	7	1.95	8.89	Yes
Spr '72 Prov.	Spr '72 Reg.	37.2	70.5	-33.3	7	1.95	15.63	Yes
Sum '73 Prov.	Sum '73 Reg.	47.2	74.8	-27.6	7	1.95	8.74	Yes

TABLE 24.--Continued

GROUPS		$\bar{x}_1$	$\bar{x}_2$	$\bar{x}_1-\bar{x}_2$	k-1	$\bar{t}$	T	Signif- icant
x_1	x_2							
Spr '73 Prov.	Spr '73 Reg.	37.8	70.7	-32.9	7	1.95	12.91	Yes
All Spr Prov.	All Sum Prov.	37.6	44.8	-7.2	7	1.95	9.12	No
All Spr Reg.	All Sum Reg.	70.6	75.9	-5.3	7	1.95	7.36	No

Mean square = 378.98
Degrees of freedom = 861
α = .05

$$S = \sqrt{(k-1)}\,\bar{f}$$

$$\bar{t} = S \cdot SE$$

$$SE = \sqrt{MS\ \frac{1}{n_1} + \frac{1}{n_2}}$$

TABLE 25.--Comparison of first semester grade point average for regular and Provisional students by first semester enrolled

GROUPS		$\bar{x}_1$	$\bar{x}_2$	$\bar{x}_1-\bar{x}_2$	k-1	f	T	Significant
x_1	x_2							
Sum '72 Prov.	Sum '73 Prov.	1.97	2.13	-.16	7	1.95	.27	No
Spr '72 Prov.	Spr '73 Prov.	1.61	1.56	.05	7	1.95	.66	No
Spr '72 Prov.	Sum '72 Prov.	1.61	1.97	-.36	7	1.95	.55	No
Sum '73 Prov.	Sum '73 Prov.	1.56	2.13	-.57	7	1.95	.45	Yes
Sum '73 Reg.	Sum '73 Reg.	2.75	2.57	.18	7	1.95	.39	No
Spr '72 Reg.	Spr '73 Reg.	2.45	2.55	-.10	7	1.95	.40	No
Spr '72 Reg.	Sum '72 Reg.	2.45	2.75	-.30	7	1.95	.40	No
Spr '73 Reg.	Sum '73 Reg.	2.55	2.57	-.02	7	1.95	.39	No
Sum '72 Prov.	Sum '72 Reg.	1.97	2.75	-.78	7	1.95	.34	Yes
Spr '72 Prov.	Spr '72 Reg.	1.61	2.45	-.84	7	1.95	.59	Yes
Sum '73 Prov.	Sum '73 Reg.	2.13	2.57	-.44	7	1.95	.33	Yes

TABLE 25.--Continued

GROUPS		$\bar{x}_1$	$\bar{x}_2$	$\bar{x}_1 - \bar{x}_2$	k-1	f	T	Signif-icant
x_1	x_2							
Spr '73 Prov.	Spr '73 Reg.	1.56	2.55	-.99	7	1.95	.49	Yes
All Spr Prov.	All Sum Prov.	1.58	2.05	-.47	7	1.95	.35	Yes
All Spr Reg.	All Sum Reg.	2.50	2.66	-.16	7	1.95	.28	No

Mean square = .5447
Degrees of freedom = 851
α = .05

$$S = \sqrt{(k-1)f}$$

$$SE = \sqrt{MS \frac{1}{n_1} + \frac{1}{n_2}}$$

$$T = S \cdot SE$$

TABLE 26.--Comparison of total grade point average for regular and Provisional students by first semester enrolled

x_1	x_2	$\bar{x}_1$	$\bar{x}_2$	$\bar{x}_1-\bar{x}_2$	k-1	f	T	Significant
Sum '72 Prov.	Sum '73 Prov.	1.92	2.07	-.15	7	1.95	.25	No
Spr '72 Prov.	Spr '73 Prov.	1.84	1.68	.16	7	1.95	.62	No
Spr '72 Prov.	Sum '72 Prov.	1.84	1.92	.08	7	1.95	.52	No
Spr '73 Prov.	Sum '73 Prov.	1.68	2.07	-.39	7	1.95	.42	No
Sum '72 Reg.	Sum '73 Reg.	2.60	2.41	.19	7	1.95	.37	No
Spr '72 Reg.	Spr '73 Reg.	2.47	2.52	-.05	7	1.95	.38	No
Spr '72 Reg.	Sum '72 Reg.	2.47	2.60	-.13	7	1.95	.38	No
Spr '73 Reg.	Sum '73 Reg.	2.52	2.41	.11	7	1.95	.36	No
Sum '72 Prov.	Sum '72 Reg.	1.92	2.60	-.68	7	1.95	.32	Yes
Spr '72 Prov.	Spr '72 Reg.	1.84	2.47	-.63	7	1.95	.56	Yes
Sum '73 Prov.	Sum '73 Reg.	2.07	2.41	-.34	7	1.95	.31	Yes

GROUPS

TABLE 26.--Continued

GROUPS		$\bar{x}_1$	$\bar{x}_2$	$\bar{x}_1-\bar{x}_2$	k-1	f	T	Signif-icant
x_1	x_2							
Spr '73 Prov.	Spr '73 Reg.	1.68	2.52	-.84	7	1.95	.46	Yes
All Spr Prov.	All Sum Prov.	1.74	2.00	-.26	7	1.95	.33	No
All Spr Reg.	All Sum Reg.	2.50	2.45	.05	7	1.95	.26	No

Mean square = .4841
Degrees of Freedom = 854
α = .05

$$S = \sqrt{(k-1)f}$$

$$SE = \sqrt{MS\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}$$

$$T = S \cdot SE$$

Further study shows that the difference in first
semester grade point average between the Spring 1972 and
Summer 1972 Provisional students was .36; this reflects
a substantial difference, but it is not significant with
α = .05. The size and direction of the difference is
consistant with that found in the 1973 Provisional groups.

Therefore, the following null hypothesis is tested
and the results show it to be disproved for the 1973
Provisional groups and upheld for the 1972 Provisional
groups.

Ho_3: "There is no significant difference be-
tween the first semester in college grade point average
of students admitted to the Summer Provisional program
and that of students admitted to the Spring Provisional
Program."

When both Spring groups are pooled, and both
Summer groups pooled, a significant difference appears
and the null hypothesis is disproved. Table 25 demon-
strates these findings, with a difference of .47 in the
first semester grade point average of Spring versus
Summer Provisional students significant at the α = .05
level.

The lack of significant difference between the
Summer 1972 and Summer 1973 Provisional groups supports
the following null hypothesis.

Ho_2: "There is no significance between the first semester in college grade point average of Provisional students offered extensive support services from that of students not offered the same services." It should be noted, however, that the Summer 1973 group showed a modest improvement (.16) over the Summer 1972 group in first semester grade point average. This occurred despite the apparent similarity in the high school and test records presented by each group.

When each Spring Provisional group is compared, the difference of .05 in grade point average is small; this difference is not close to the level required for statistical significance.

The regular student samples for each semester earned essentially equal first semester grade point averages. Unlike the Provisional samples, regular students did not have a markedly lower performance in Spring semester than they did in Summer session. The differences shown of .30 and .02 between Spring and Summer 1972 and Spring and Summer 1973 respectively are not significant at the $\alpha = .05$ level. When the Spring groups are pooled and compared with the combined Summer groups there is no significant difference shown in first semester grade point average.

The data of Table 25 reaffirms the prior analysis
which indicated strong differences between the college
performance of regular and Provisional students. However,
for the 1973 Summer groups the Scheffe's test shows a
smaller difference between Provisional and regular students.
The Summer 1973 Provisional students maintained a mean
first semester grade point average that was .44 lower than
that for regular students. With T in this instance being
.33, however, there is an indication of less marked
difference between regular and Provisional students in
Summer 1973 than for the other semesters in question.

When considering total grade point average, the
findings are similar to those for first semester grades.
Strong differences between regular and Provisional students
persist.

For each of the semesters in question, the dif-
ferences in total grade point average are significant
at the $\alpha = .05$ level. The Summer 1973 groups come closest
to having non-statistically significant results, with
the measured difference of .34 comparable to the T value
of .31. The difference for the Spring 1972 groups is
much larger (.63), but the T value of .56 makes that
difference also just over the level of significance. It
is therefore evident that regular students performed
better than Provisional students when measured by total

grade point average, but the magnitude of this difference was somewhat variable across semesters.

The comparisons of total grade point average for Provisional students who entered in each of the four semesters in question reveal no significant differences. However, it is evident that the Summer 1973 group obtained higher grades than did other Provisional groups, particularly when contrasted with the Spring 1973 entrants.

It should also be noted that the tendency shown above for Summer Provisionals to have higher first semester grade point averages than Spring Provisionals is sustained when total grade point average is examined. Taken separately, the 1972 Summer and Spring Provisionals differ by .08 gpa; the 1973 groups differ by .39. When the Spring groups are combined and compared to the pooled Summer Provisionals, the overall difference in total grade point average is .26, with the Summer group again showing superiority. These differences, however, in contrast to those for first semester grade point average, are not statistically significant with $\alpha = .05$.

When total college grade point averages are compared for each semester's group of regular students, we find somewhat the same pattern operating as in the case of the Provisional students. That is, some

difference is found in college performance for regular students from each semester, but none of the differences approaches significance.

The slightly superior first semester performance for Summer regular students compared to Spring regulars is reversed for the total grade point average of the 1973 groups. In this case the Spring entrants performed somewhat better overall, though the difference is not close to significance. This means that the tendency for Summer Provisionals to perform better than Spring Provisionals on total college grade point average is not the case for regular students. The tendency in the Provisional group seems to be unique to that sample.

DEGREE OF PERSISTENCE

Having examined in some depth the relative performance of regular and Provisional students, as measured by first semester and total grade point average, it is also helpful to test the students' persistence in enrollment.

This variable can be examined while controlling for sex, ethnic background, and the semester in which the student first enrolled.

Table 27 presents the basic data reflecting the relative persistence of regular and Provisional students accounting for the sex and first semester of enrollment.

For purposes of the study, students enrolled in the Spring 1974 semester at the University of Texas at Austin are counted as "currently enrolled." This explains the obviously higher proportion of students currently enrolled who began in the Summer 1973 semester, and leads to the conclusion that persistence cannot be used to compare groups that started in different semesters, since those who began most recently would naturally have a higher tendency to be currently enrolled.

That being the case, the most noteworthy findings are those which compare regular and Provisional students within semester and as a whole.

For instance, of all the Provisional students who began at the University during the four semesters in question, 59% were enrolled in the Spring 1974 semester. This percentage compares to 66% of the regular students currently enrolled.

Table 28 demonstrates the chi square test that is used to measure this difference between regular student and Provisional student persistence.

TABLE 27.--Current enrollment of regular and Provisional students controlling for sex and first semester enrolled

| | SPRING 1972 | | | | SUMMER 1972 | | | | SPRING 1973 | | | | SUMMER 1973 | | | | TOTAL | | | |
| | REG. | | PROV. | | REG. | | PROV. | | REG. | | PROV. | | REG. | | PROV. | | REG. | | PROV. | |
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
MEN																				
Yes	29	50	3	27	27	68	52	59	29	60	6	26	39	87	68	67	124	65	129	58
No	29	50	8	73	13	32	36	41	19	40	17	74	6	13	33	33	67	35	94	42
Total	58		11		40		88		48		23		45		101		191		223	
WOMEN																				
Yes	16	38	6	35	38	63	68	59	39	75	15	68	46	84	69	64	139	67	158	60
No	26	62	11	65	22	37	48	41	13	25	7	32	9	16	38	36	70	33	104	40
Total	42		17		60		116		52		22		55		107		209		262	
BOTH																				
Yes	45	45	9	32	65	65	120	59	68	68	21	47	85	85	137	66	263	66	287	59
No	55	55	19	68	35	35	84	41	32	32	24	53	15	15	71	34	137	34	198	41
Total	100		28		100		204		100		45		100		208		400		485	

TABLE 28.--Chi square contingency table for persistence in enrollment of all Provisional versus all regular students

	PROVISIONAL	REGULAR	TOTAL
Enrolled	287	363	550
Not Enrolled	198	137	335
Total	485	400	885

Chi square = 4.028   Degrees of Freedom   = 1
        α = .05   Critical Value of chi square = 3.841

The chi square contingency table shows that the value separating the upper five percent of the distribution with 1 degree of freedom is 3.851. Since the chi square value of Table 28 is 4.028, there is a significant difference shown.

It is apparent that the proportion of regular students enrolled in Spring 1974 is significantly higher than the proportion of Provisional students enrolled in that semester.

The relative persistence of regular and Provisional males is also examined. Table 29 presents the chi square test for this comparison.

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TABLE 29.--Chi square contingency table for persistence in
          enrollment of male Provisional versus male
          regular students

	MALE PROVISIONAL	MALE REGULAR	TOTAL
Enrolled	129	124	253
Not Enrolled	94	67	161
Total	223	191	414

Chi square = 2.166   Degrees of Freedom   = 1
       α = .05   Critical value of chi square = 3.841

Male regular students do not show a significantly

higher level of persistence than do male Provisional

students, since the chi square value is less than 3.841.

Female persistence is noted in Table 30.

TABLE 30.--Chi square contingency table for persistence in
          enrollment of female Provisional versus female
          regular students

	FEMALE PROVISIONAL	FEMALE REGULAR	Total
Enrolled	158	139	297
Not Enrolled	104	70	174
Total	262	209	471

Chi square = 1.920   Degrees of Freedom   = 1
       α = .05   Critical value of chi square = 3.841

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Since the chi square value of 1.92 is less than the critical value for α = .05, female regular students show no significantly greater level of persistence than do female Provisional students.

Finally, it is useful to compare the relative persistence of male and female Provisional students, and to do the same for regular males and females.

Table 31 presents the chi square test for Provisional male and female students.

TABLE 31.--Chi square contingency table for persistence in enrollment of male Provisionals versus female Provisionals

	MALE	FEMALE	TOTAL
Enrolled	129	158	287
Not Enrolled	94	104	198
Total	223	262	485

Chi square = .301   Degrees of Freedom   = 1
          α = .05   Critical value of chi square = 3.841

Clearly no significant difference exists between the persistence of males and females in the Provisional admission program.

The comparable data for regular students is presented in Table 32.

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TABLE 32.--Chi square contingency table for persistence
in enrollment of male regular versus female
regular students

	MALE REGULAR	FEMALE REGULAR	TOTAL
Enrolled	124	139	263
Not Enrolled	67	70	137
Total	191	209	400

Chi square = .111   Degrees of Freedom   = 1
        α = .05   Critical value of chi square = 3.841

As in the case of Provisional students, there
appears no significant difference in the persistence of
male regulars when compared to that of female regular
students.

It is also instructive to examine the degree of
persistence for regular and Provisional students according
to the semester in which they first enrolled.

Table 33 presents the relevant data in this regard.

TABLE 33.--Chi square contingency tables for regular and
         Provisional students by first semester enrolled

	REGULAR	PROVISIONAL	TOTAL
Spring 1972			
Enrolled	45	9	54
Not Enrolled	55	19	74
Total	100	28	128

Chi square = 1.483

	REGULAR	PROVISIONAL	TOTAL
Summer 1972			
Enrolled	65	120	185
Not Enrolled	35	84	119
Total	100	204	304

Chi square = 1.075

	REGULAR	PROVISIONAL	TOTAL
Spring 1973			
Enrolled	68	21	89
Not Enrolled	32	24	56
Total	100	45	145

Chi square = 5.958

	REGULAR	PROVISIONAL	TOTAL
Summer 1973			
Enrolled	85	137	222
Not Enrolled	15	71	86
Total	100	208	308

Chi square = 12.286

(For all semesters, α = .05, DF = 1, Critical value of chi
 square = 3.841)

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Significant differences in persistence are shown between regular and Provisional students who entered in the Spring and Summer of 1973. However, for both Spring and Summer of 1972, there appears no significant difference in the tendency to persist.

These findings, in conjunction with those above relating to the overall persistence of regular and Provisional males and females, support the contention that at least in certain instances there is not a great deal of difference in the ability of regular and Provisional students to stay in school.

The relative persistence of white and Mexican-American students is also of considerable interest.

Table 34 shows the frequency and percentage of persistence for white and Mexican-American students according to their first semester enrolled.

It is most helpful to examine the persistence of white Provisional students relative to that of Mexican-American Provisional students. Also, for comparison purposes, the persistence within the regular student sample should be noted.

There is not a wide discrepancy between white and Mexican-American student persistence. Sixty percent of the white Provisional students were enrolled Spring 1974,

TABLE 34.--Current enrollment of regular and provisional students[a] controlling for ethnic background and first semester enrolled

TABLE 34.--Current enrollment of regular and Provisional students controlling for ethnic background and first semester enrolled

	SPRING 1972				SUMMER 1972				SPRING 1973				SUMMER 1973				TOTAL			
	REG.		PROV.		REG.		PROV.		REG.		PROV.		REG.		PROV.		REG.		PROV.	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
WHITE																				
Yes	42	47	9	33	56	64	106	59	62	67	19	49	82	85	119	66	242	66	253	60
No	47	53	18	67	32	36	73	41	30	33	20	51	14	15	60	34	123	34	171	40
Total	89		27		88		179		92		39		96		179		365		424	
MEXICAN-AMERICAN																				
Yes	2	22	0	0	3	60	10	53	6	75	2	40	1	50	14	61	12	50	26	54
No	7	78	1	100	2	40	9	47	2	25	3	60	1	50	9	39	12	50	22	46
Total	9		1		5		19		8		5		2		23		24		48	

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while 54% of the Mexican-American students were enrolled.

There is a somewhat wider difference for regular students

where 66% of the white students persisted and 50% of the

Mexican-Americans did so.

Table 35 examines these differences in more detail.

TABLE 35.--Chi square contingency table for white versus
Mexican-American Provisional students

	WHITE	MEXICAN-AMERICAN	TOTAL
Enrolled	263	26	289
Not Enrolled	171	22	193
Total	434	48	482

Chi square = .007   Degrees of Freedom   = 1
          α = .05   Critical value of chi square = 3.841

It is evident that no significant difference in

persistence is shown between white and Mexican-American

Provisional students.

Table 36 depicts the relative persistence of white

and Mexican-American regular students.

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TABLE 36.--Chi square contingency table for white versus Mexican-American regular students

	WHITE	MEXICAN-AMERICAN	TOTAL
Enrolled	242	12	254
Not Enrolled	123	12	135
Total	365	24	389

Chi square = 2.641   Degrees of Freedom   = 1
       α = .05   Critical value of chi square = 3.841

Although more marked than the difference between white and Mexican-American Provisionals, the contrast between these ethnic groups for regular students is not statistically significant.

The low number of Mexican-Americans enrolled in each semester makes useful analysis using first semester enrolled as a control factor impossible. However, the lack of any significant difference between white and Mexican-American students taken as a whole is of major importance.

CORRELATION COEFFICIENTS

So far, this study has presented a thorough analysis of the entrance test scores, high school performance, and college grades of Provisional and regular students. It

is also useful to analyze the most relevant factors to be used in trying to predict college performance of each of these groups of students. In doing so, it will be possible to gain some insight into the interrelationships of the variables examined.

Table 37 presents the correlations obtained between several variables for regular students taken as a whole.

TABLE 37.--Correlation coefficients for regular students' high school rank, SAT scores, and college grade point averages

	HIGH SCHOOL RANK	SAT-V	SAT-M	SAT-T	FIRST GPA	TOTAL GPA
High School Rank	-	.202	.196	.225	.339	.326
SAT-Verbal	.202	-	.548	.879	.379	.316
SAT-Math	.196	.548	-	.877	.303	.292
SAT-Total	.225	.879	.877	-	.380	.338
First Semester Grade Point Average	.339	.379	.303	.380	-	.761
Total Grade Point Average	.326	.316	.292	.338	.761	-

The data reveals that for regular students the high school rank and various measures of SAT performance have roughly equal degrees of correlation with first

semester and total college grade point average. Each
of these correlations is only of moderate strength, with
the range being from a low of .292 for the r between
SAT-Math and total college grade point average, to a
high of r = .379 between SAT-Verbal and first semester
college grade point average.

A slight relationship is shown between high school
rank and SAT scores. The values of .202, .196, and .225
are given as the correlation between high school rank and
SAT-Verbal, SAT-Math, and SAT-Total respectively. These
values are lower than the correlations between SAT scores
and first semester and total college grade point average.

Table 38 presents the same set of data as above
but for Provisional students. In addition, data for the
students' academic and overall high school grade point
averages is presented.

The relationship between high school performance
as measured by rank in class and first semester grade point
average is clearly very low. The correlation improves to
.268 for total grade point average, but this does not
approach a strong positive relationship.

The relationship between the two measures of high
school grade point average and college grade point average
is somewhat stronger, though not very high. The cor-
relations range from .241 between academic grade average

TABLE 38.--*Correlation coefficients for Provisional students' high school rank, SAT scores, and college grade point averages*

TABLE 38.--Correlation coefficients for Provisional students' high school rank, SAT scores, and college grade point averages

	HIGH SCHOOL ACADEMIC GPA	HIGH SCHOOL OVERALL GPA	HIGH SCHOOL RANK	SAT-VERBAL	SAT-MATH	SAT-TOTAL	FIRST SEMESTER GPA	TOTAL GPA
High School Academic Grade Point Average	-	.904	-	-.098	-.110	-.137	.241	.311
High School Overall Grade Point Average	.904	-	-	-.156	-.105	-.173	.276	.328
High School Rank	-	-	-	-.264	-.246	-.328	.165	.268
SAT-Verbal	-.098	-.156	-.264	-	.236	.774	.103	.027
SAT-Math	-.110	-.105	-.246	.236	-	.785	.069	.018
SAT-Total	-.137	-.173	-.328	.774	.785	-	.109	.031
First Semester Grade Point Average	.241	.276	.165	.103	.069	.109	-	.754
Total Grade Point Average	.311	.328	.268	.027	.018	.031	.754	-

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and first semester grades, to .328 between overall high school grade average and total college grade average.

There appears little difference in the correlations of academic grade average and overall high school grade average with first semester and total college grade point average. Using all high school grades in computing the students' average actually produces a slightly higher correlation than using just the academic (college preparatory) courses.

The data for the various SAT scores shows virtually no relationship between them and performance in college as measured by grade point average. The correlations range between .018 and .109 for the SAT scores and first semester and total grade point averages.

An unusual finding is that high school rank has a negative correlation with SAT-Verbal, SAT-Math, and SAT-Total scores. This is confirmed when the correlations between high school academic and overall grade averages and SAT scores are examined. For academic grade average these correlations range from -.098 for SAT-Verbal, to -.137 for SAT-Total. Overall high school grade average correlates from -.105 with SAT-Math to -.173 with SAT-Total.

The findings for Provisional students are thus similar to those for regular students, but show

several unique qualities. For example, the relationship
between SAT scores and college grades is weaker for
Provisional students than it is for regular students.
In addition, the correlations between various measures
of high school performance and college grade point averages
are weaker for Provisional students than they are for
regular students.

The property that is common to the correlation
study for both regular and Provisional students is that
none of the high school and test measures seem to show
strong relationships with college grades.

First semester in college grade point average
shows by far the strongest relationship with total college
grade average of any measure under study. The correlation
of .743 for Provisional students very closely approximates
that of .761 for regular students. It is evident that
the relationship between each samples' initial perfor-
mance in college and the total college grade point average
is moderately strong.

Having analyzed the regular and Provisional samples
as a whole, it is helpful to determine the respective
correlation coefficients for men and women within each
group. Tables 39 and 40 present the data for male and
female Provisional students respectively. Once again,
academic and overall high school grade point averages are
included in the analysis for Provisionals.

TABLE 39.--Correlation coefficients for male Provisional students' high school
rank, SAT scores, and college grade point averages

TABLE 39.--Correlation coefficients for male Provisional students' high school rank, SAT scores, and college grade point averages

	HIGH SCHOOL ACADEMIC GPA	HIGH SCHOOL OVERALL GPA	HIGH SCHOOL RANK	SAT-VERBAL	SAT-MATH	SAT-TOTAL	FIRST SEMESTER GPA	TOTAL GPA
High School Academic Grade Point Average	-	.871	-	-.160	-.042	-.122	.267	.354
High School Overall Grade Point Average	.871	-	-	-.184	-.026	-.125	.315	.399
High School Rank	-	-	-	-.269	-.222	-.309	.157	.326
SAT-Verbal	-.160	-.184	-.269	-	.246	.753	.020	-.101
SAT-Math	-.042	-.026	-.222	.246	-	.823	.143	.036
SAT-Total	-.122	-.125	-.309	.753	.823	-	.109	-.035
First Semester Grade Point Average	.267	.315	.157	.020	.143	.109	-	.716
Total Grade Point Average	.354	.399	.326	-.101	.036	-.035	.716	-

TABLE 40.--Correlation coefficients for female provisional students' high school rank, SAT scores, and college grade point averages

TABLE 40.--Correlation coefficients for female Provisional students' high school rank, SAT scores, and college grade point averages

	HIGH SCHOOL ACADEMIC GPA	HIGH SCHOOL OVERALL GPA	HIGH SCHOOL RANK	SAT-VERBAL	SAT-MATH	SAT-TOTAL	FIRST SEMESTER GPA	TOTAL GPA
High School Academic Grade Point Average	-	.921	-	-.044	-.060	-.071	.213	.262
High School Overall Grade Point Average	.921	-	-	-.130	-.064	-.138	.239	.255
High School Rank	-	-	-	-.259	-.184	-.290	.163	.207
SAT-Verbal	-.044	-.130	-.259	-	.227	.809	.161	.126
SAT-Math	-.060	-.064	-.184	.227	-	.728	.013	.017
SAT-Total	-.071	-.138	-.290	.809	.728	-	.115	.099
First Semester Grade Point Average	.213	.239	.163	.161	.013	.115	-	.770
Total Grade Point Average	.262	.255	.207	.126	.017	.099	.770	-

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The correlation coefficients for males and females do not vary greatly from those for the Provisional sample taken as a whole. Similarly, there is not a great amount of difference in the respective r's of Tables 39 and 40. However, several factors should be mentioned which indicate some variation between males and females in terms of the correlations under study.

The high school performance measured by grade point average and rank in class seems to correlate somewhat better with college grades for males than it does for females. As an example, the r for high school overall grade point average and total college grade average is .399 for males. For females, the same r is .255. Similarly, academic grades in high school correlate .354 with total college grade average for males, but only .262 for females.

The situation for SAT-Verbal is reversed. In this instance, there is a somewhat stronger positive relation with college grades for females than for males. Female Provisionals show an r of .161 and .126 between SAT-Verbal and first semester and total college grade point averages respectively. The corresponding r values for males are .202 and -.101.

When SAT-Math and SAT-Total are examined, there appears to be similar correlations with college grades for males and females. Both these measures have practically no relationship to college grades for either sex.

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It should be stressed again that almost all the correlations examined above are relatively weak. Any of the variations between males and females should be considered with that as perspective.

Tables 41 and 42 present the corresponding data for male and female regular students respectively. It is once again clear that the correlation between high school rank in class and college grades is relatively low. For males, the r for rank in class correlated with first semester grade point average is .330. For rank and total college grade point average the r is .289. These are quite close to the values found for male Provisionals.

TABLE 41.--Correlation coefficients for male regular students' high school rank, SAT scores, and college grade point averages

	HIGH SCHOOL RANK	SAT-V	SAT-M	SAT-T	FIRST GPA	TOTAL GPA
High School Rank	-	.117	.131	.142	.330	.289
SAT-Verbal	.117	-	.540	.867	.310	.260
SAT-Math	.131	.540	-	.888	.250	.264
SAT-Total	.142	.867	.888	-	.316	.299
First Semester Grade Point Average	.330	.310	.248	.316	-	.783
Total Grade Point Average	.289	.260	.264	.299	.783	-

Table 42.--Correlation coefficients for female regular
          students' high school rank, SAT scores, and
          college grade point averages

	HIGH SCHOOL RANK	SAT-V	SAT-M	SAT-T	FIRST GPA	TOTAL GPA
High School Rank	-	.327	.395	.404	.367	.372
SAT-Verbal	.327	-	.546	.893	.439	.374
SAT-Math	.395	.546	-	.857	.371	.360
SAT-Total	.404	.893	.857	-	.448	.402
First Semester Grade Point Average	.367	.439	.371	.448	-	.740
Total Grade Point Average	.372	.374	.360	.402	.740	-

Rank in class proves to be slightly more closely tied to college grades for female regular students. The r's for first semester and total grade point average are .367 and .372 respectively. This tendency contrasts with that of the female Provisional group which shows lower correlations between high school record and college grades than the male Provisionals. Once again, however, the differences noted are quite small, and drawing any conclusions from them would be tenuous at best.

In relation to males, female regular students show distinctly more positive relationships between SAT-Verbal, SAT-Math, and SAT-Total and the measures of college perfor-

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mance. The SAT-Verbal and SAT-Total show the strongest correlation with first semester grade point average. This is true for both males and females, but the latter have r's of .439 and .448 for first semester grade average correlated with SAT-Verbal and SAT-Total respectively. These values are higher than the corresponding r values of .310 and .316 for male regulars.

In general, then, female regular students show a higher positive r value than male regulars for high school and test records correlated with college grades. Analyzing high school rank and the three measures of SAT scores, and correlating each with first semester and total college grade point average, one obtains eight values for r for both males and females. In each case, the r is higher for female regular students than for male regulars. This does not prove to be the case in the Provisional sample. In that instance, the correlations of high school records and SAT scores with college grade point averages are higher for males in seven cases, but higher for females in five cases. Therefore, it is apparent that males and females in the Provisional sample do not evidence a distinctive pattern when the r's for male correlations of high school and test information with college grades are compared to the r's for females.

Finally, regular males and females show very similar r's for first semester grade point average correlated with

total grade point average. These values, .783 and .740 respectively, are quite close to the corresponding values in the Provisional sample of males and females, which are .716 and .770 respectively.

MULTIPLE REGRESSION ANALYSES

In addition to examining the single correlations just covered, this study presents multiple regression analyses using various combinations of high school records, test results and college grade point averages. This is done to develop some better means of predicting performance than the use of high school rank, grade point average, and SAT scores independently from one another.

Twelve distinct models are developed in order to determine the most beneficial method of predicting college success. Also, multiple correlations are computed for each model. The models are applied to Provisional and regular students as a whole, and to males and females within each sample.

Tables 43-54 present the models along with the respective raw weights and unit vector weights. In addition, the multiple r is shown for each group within the models.

It is initially useful to examine the various commonalities and differences in the data that are revealed

for Provisional versus regular students. In this way it is possible to gain further insight into the ways in which Provisional students tend to behave differently from regular students.

TABLE 43.--Model 1: Multiple regression using SAT-Verbal, SAT-Math, and high school academic grade point average to predict first semester grade point average

	MULTIPLE r	SAT-VERBAL	SAT-MATH	ACADEMIC GPA	k
Male Prov.	.309	.0003	.0014	.0039	.3878
Female Prov.	.273	.0017	-.0001	.0030	.6901
All Prov.	.277	.0011	.0006	.0035	.5049

TABLE 44.--Model 2: Multiple regression using SAT-Verbal, SAT-Math and high school academic grade point average to predict total grade point average

	MULTIPLE r	SAT-VERBAL	SAT-MATH	ACADEMIC GPA	k
Male Prov.	.362	-.0007	.0006	.0049	.8312
Female Prov.	.296	.0012	.0000	.0033	.6954
All Prov.	.317	.0004	.0003	.0041	.7090

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TABLE 45.--Model 3: Multiple regression using SAT-Total and academic grade point average to predict first semester grade point average

	MULTIPLE r	SAT-TOTAL	ACADEMIC GPA	k
Male Prov.	.302	.0009	.0040	.3343
Female Prov.	.250	.0008	.0030	.6363
All Prov.	.277	.0008	.0035	.4999

TABLE 46.--Model 4: Multiple regression using SAT-Total and academic grade point average to predict total grade point average

	MULTIPLE r	SAT-TOTAL	ACADEMIC GPA	k
Male Prov.	.354	.0001	.0050	.7687
Female Prov.	.288	.0007	.0034	.6306
All Prov.	.317	.0004	.0041	.6900

TABLE 47.--Model 5: Multiple regression using SAT-Verbal, SAT-Math and high school overall grade point average to predict first semester grade point average

	MULTIPLE r	SAT-VERBAL	SAT-MATH	HIGH SCHOOL OVERALL GPA	k
Male Prov.	.352	.0005	.0013	.0054	-.1534
Female Prov.	.308	.0019	-.0001	.0043	.1807
All Prov.	.317	.0013	.0006	.0048	-.0246

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TABLE 48.--Model 6: Multiple regression using SAT-Verbal,
          SAT-Math and high school overall grade point
          average to predict total grade point average

	MULTIPLE r	SAT-VERBAL	SAT-MATH	HIGH SCHOOL OVERALL GPA	k
Male Prov.	.403	-.0005	.0005	.0065	.2391
Female Prov.	.301	.0014	-.0000	.0041	.3331
All Prov.	.337	.0006	.0003	.0052	.2338

TABLE 49.--Model 7: Multiple regression using SAT-Total and
          high school overall grade point average to
          predict first semester grade point average

	MULTIPLE r	SAT-TOTAL	HIGH SCHOOL OVERALL GPA	k
Male Prov.	.349	.0010	.0055	-.2072
Female Prov.	.281	.0010	.0042	.1407
All Prov.	.315	.0010	.0048	-.0277

TABLE 50.--Model 8: Multiple regression using SAT-Total
and high school overall grade point average to
predict total grade point average

	MULTIPLE r	SAT-TOTAL	HIGH SCHOOL OVERALL GPA	k
Male Prov.	.399	.0001	.0066	.1713
Female Prov.	.288	.0008	.0041	.2703
All Prov.	.338	.0005	.0052	.2122

TABLE 51.--Model 9: Multiple regression using SAT-Verbal,
SAT-Math, and high school rank to predict first
semester grade point average

	MULTIPLE r	SAT-VERBAL	SAT-MATH	HIGH SCHOOL RANK	k
Male Prov.	.243	.0003	.0017	.0068	.8187
Female Prov.	.276	.0022	.0001	.0068	.7712
All Prov.	.240	.0015	.0009	.0069	.7652
Male Reg.	.434	.0025	.0009	.0117	.0140
Female Reg.	.508	.0026	.0012	.0098	-.1063
All Reg.	.472	.0026	.0010	.0110	-.0592

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TABLE 52.--Model 10: Multiple regression using SAT-Verbal,
          SAT-Math and high school rank to predict total
          grade point average

	MULTIPLE r	SAT-VERBAL	SAT-MATH	HIGH SCHOOL RANK	k
Male Prov.	.347	-.0004	.0012	.0115	1.1198
Female Prov.	.290	.0018	.0003	.0074	.8113
All Prov.	.295	.0009	.0007	.0092	.9262
Male Reg.	.388	.0014	.0013	.0088	.4004
Female Reg.	.473	.0017	.0013	.0096	.2952
All Reg.	.430	.0016	.0012	.0096	.3821

TABLE 53.--Model 11: Multiple regression using SAT-Total
          and high school rank to predict first semester
          grade point average

	MULTIPLE r	SAT-TOTAL	HIGH SCHOOL RANK	k
Male Prov.	.228	.0011	.0070	.7667
Female Prov.	.246	.0012	.0066	.7276
All Prov.	.239	.0012	.0070	.7633
Male Reg.	.428	.0016	.0117	.0341
Female Reg.	.492	.0019	.0098	-.0909
All Reg.	.460	.0017	.0110	-.0364

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Tables 51-54 reveal that the multiple r for regular students shows a modest but consistently higher value than the corresponding value for Provisional students. Regular students as a whole show an r value of .472, .430, .460, and .424 for models 9-12 respectively. The corresponding values for all Provisional students are .240, .295, .239, and .296. As previously mentioned, part of this phenomenon is due to the restriction in the range of SAT scores in the Provisional sample. However, the fact that there is no more restriction in the range of high school rank percentiles for Provisional students than for regular students would tend to lend some significance to the multiple r's reported. That is, some but not all of the difference in r between regular and Provisional student samples may be attributable to the restriction in range of SAT scores.

Within each group, males and females obtained very nearly equal r values. In model 9, for instance, there is a difference of .033 and .074 between males and females in the Provisional and regular samples respectively. This magnitude of difference is seen to carry over to models 10, 11, and 12 as well.

Another method of looking at the data in models 9, 10, 11, and 12 is with respect to the relative predictability of first semester and total college grade point average.

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Provisional students produce a higher multiple correlation when we try to predict total grade average than when first semester grade point average is predicted. The is true for males and females when models 9 and 10 are compared. It is also true when models 11 and 12 are compared. The multiple r values in models 10 and 12 are consistently higher than those in models 9 and 11 for Provisional males and females as well as all Provisional students together.

The opposite of this phenomenon is true for regular students. In this sample the correlation is strongest when first semester grades are predicted. Comparison of the r values in models 9 and 10 for regular students reveals these differences to be quite small but consistent for males, females, and the group as a whole. The same is true when models 11 and 12 are compared for regular students.

The SAT score is to be used in a different manner for Provisional students than for regular students.

Models 9 and 10 show that the weighting on SAT-Verbal is to be substantially less for Provisional males than for Provisional females. This should be considered in conjunction with the earlier finding of a lower correlation between SAT-Verbal and college grades for males than for females in the Provisional samples. The reverse is true for SAT-Math. Here the score is to be weighted

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much stronger for males than for females. For example,

model 9 shows a raw weight of .0017 for SAT-Math for

males, but only .0001 for females in the Provisional

sample.

TABLE 54.--Model 12: Multiple regression using SAT-Total
            and high school rank to predict total grade
            point average

	MULTIPLE r	SAT-TOTAL	HIGH SCHOOL RANK	k
Male Prov.	.334	.0005	.0117	1.0601
Female Prov.	.277	.0011	.0074	.7495
All Prov.	.296	.0008	.0093	.9074
Male Reg.	.388	.0014	.0088	.4020
Female Reg.	.463	.0014	.0099	.3522
All Reg.	.424	.0013	.0097	.4141

Regular students do not show the same tendency. For

that sample, SAT-Verbal and SAT-Math are to be weighted

essentially the same. The raw weights for SAT-Verbal in

models 9 and 10 are .0025 and .0014 for male regulars. The

corresponding values for females are .0026 and .0017. For

SAT-Math the values of .0009 and .0013 for males compare

to respective values of .0012 and .0013 for females.

Analysis of the raw weights for high school rank

reveals somewhat less clear distinctions. In predicting first

semester grade point average, very nearly the same weight

is attached to rank in class for Provisional males and

females. Model 9 shows equal weights of .0068 for both

groups; model 11 shows weights of .0070 and .0066 for

males and females respectively. Prediction of total

grade point average shows almost equal weights on high

school rank for male and female Provisionals. Models 10

and 12 show values of .0115 and .0117 for males, and

.0074 in each case for females.

Regular students exhibited the same consistency

between males and females for the respective weights on

high school rank. For example, model 9 shows weights

on rank in class of .0117 and .0098 for males and females;

model 10 indicates weights of .0088 and .0096. Models

11 and 12 reveal very similar findings.

For predicting total grade point average, the

weight put onto high school rank is about the same for

all Provisional and all regular students. In this regard

the weights for Provisionals are .0092 from model 10 and

.0093 from model 12. The corresponding values for regular

students are .0096 and .0097 respectively.

In the case of first semester grade point average,

the weight on high school rank is very nearly the same for

Provisional and regular students. Models 9 and 11 reveal

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weights of .0069 and .0070 for Provisional students, and values of .0110 are found in each model for regular students.

The final aspect of the study to be reported is the multiple regression analyses performed for Provisional students using academic and overall high school grade point averages. Tables 43-50 present the data relating to these equations.

It is evident that the multiple r's in these tables are roughly comparable to those found when high school rank is used as a predictor. The values mostly range between .20 and .35 with the exceptions being minor deviations.

The evidence is that the multiple r when overall high school grade point average is used exceeds that in the analyses using high school academic average. For instance, Tables 47-50 show r values of .317, .337, .315, and .338 for all Provisionals using overall grade average. These values are consistently higher than those found for all Provisionals in Tables 43-46: .277, .317, .277, and .317 respectively. The differences are not large in magnitude but the consistency of the direction is of interest.

Taking the Provisional students as a whole, it is also evident that total college grade point average is somewhat more predictable than first semester average. Model 1 shows a multiple r of .277 while model 2 reveals one of .317. This magnitude of difference is approximated when models 3 and 4, 5 and 6, and 7 and 8 are compared respectively. While the differences are clearly extremely small, the consistency of the pattern is worth noting. In each instance the multiple r for predicting total grades exceeds that for predicting first semester grades.

Females exhibit slightly lower multiple r's than do males in each model. In model 1, for instance, the values are .309 and .273 for males and females respectively; model 2 shows values of .362 and .296 for males and females. This pattern is continued across the other models in which high school grades are used. While these differences are not large, again the consistency of their direction is worthy of comment.

Models 1 - 8 reflect a finding noted earlier when high school rank was used in the multiple regression. That is, SAT-Verbal score carries a considerably smaller raw weight in the equation for males than for females. Models 1, 2, 5, and 6 show raw weights for males to be .0003, -.0007, .0005, and -.0005 respectively. For females the weights are .0017, .0012, .0019, and .0014 in

each model. Not only are there lower values for males, in two cases they are actually negative. This is a further indication that SAT-Verbal is a weak predictor of college performance for Provisional males.

The same pattern described previously with respect to SAT-Math applies when high school grade point average is used rather than high school rank. That is, the raw weights for female Provisional students are consistently less than those for males. Models 1, 2, 5, and 6 reflect values for this weight to be .0014, .0006, .0013, and .0005 for males. The corresponding weights for females are -.0001, .0000, -.0001, and -.0000. It is clear that SAT-Math is to be weighted considerably less for females than for males within the Provisional sample when high school average is used. Also, models 1, 2, 5, and 6 show that SAT-Math carries much less weight than SAT-Verbal for female Provisional students.

One other pattern that appears is that high school overall grade point average carries somewhat more weight than academic grade point average. This can be seen by examining Tables 43 with 47 and 44 with 48. In the first two, SAT-Verbal and SAT-Math are used with academic grade point average and overall grade point average respectively to predict first semester grade point average. There is a raw weight of .0035 in Table 43 for academic grade point

average using all Provisional students; the comparable value in Table 47 is .0048. Tables 44 and 48 show prediction equations for total college grade point average. Table 44 shows a weight of .0041 for academic average, but Table 48 shows .0052 as the weight for overall average. These same kinds of differences appear in an examination of Tables 45 with 49 and 46 with 50.

It is evident from the above that when academic and overall high school grade point averages are used with the same measures of SAT score to predict college grades, overall average is slightly more influential than academic average in the prediction.

CHAPTER V

SUMMARY AND CONCLUSIONS

SUMMARY

Higher education in the United States has become more accessible to students over the past decade. The development of community colleges, vocational-technical schools, and the expansion of four-year colleges and universities have helped to make it so. Since students now have more opportunities in post secondary education from which to choose, it is incumbent upon educators to help them identify and select the most appropriate option.

Part of this decision making process for many young people relates to the selection of a college or university. In turn, the institutions across the country are faced with decisions which involve the selection of students for admission. The task of helping these two parties--students and universities--identify the most propitious match for each, has been a most difficult one in the past. This, of course, is in large measure due to a lack of predictability in human behavior. It also, unfortunately, is due

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to the dearth of adequate measurement techniques now being used to predict success in college.

The goal of this study was to add to the body of knowledge relating to the admission of students to college. A major strength of its focus was the relevance for The University of Texas at Austin. The data presented added substantially to knowledge about the success rate of students admitted to the University under its special Provisional Admission Program.

The data relate to the degree of success for marginal students admitted under this program to what is a moderately selective state University. The quality of the students' preparation for college, and the quality of their academic work in college, was measured and compared to that of normally admissable students.

From the analysis came a better understanding of several factors that contribute to students' success or failure. Thus, a second strength of the study was in the breadth of its analysis. The students' performance was measured according to a variety of criteria. This enabled the drawing of conclusions from several sets of data, each providing a somewhat different type of analysis.

Specifically, the students' high school records and entrance test scores were compared to detect any observable differences, particularly between the Provisional and

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regular student samples. Sex and ethnic background, as well as the semester of first enrollment, were used as independent variables in these comparisons.

Similarly, the college performance was analyzed for each of the sample groups, again using sex, mode of admission, first semester of enrollment, and ethnic background as independent variables. The use of t-tests, three-way analysis of variance, and post-hoc comparisons served to provide the necessary data in this regard.

In addition to the college performance measured by first semester and total grade point averages, the study also examined the relative persistence in enrollment for the various groups under consideration. Again, sex, ethnic background, first semester of enrollment, and mode of admission were the independent variables used to identify these groups. The chi-square test of significance was used to detect any observable differences among the groups.

Prediction of performance was one of the other key factors of the study. Various types of predictors were used, singly and in combination, and their relative values were studied. The goal was to reach some conclusion as to the most effective means of identifying those students who are likely to succeed in the future.

The most notable findings of these analyses can be summarized as follows:

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(1) The student composition with regard to sex and
ethnic background was about the same for the samples under
study as for the University as a whole. There was some
variation in the proportion of men to women noted in the
samples compared to the general student population, but this
was not seen to limit the value of the findings. The ethnic
background of the samples very closely approximated that of
the general student body in both the regular and Provisional
groups.

(2) Analysis of the high school records, entrance
test scores, and college grade point averages revealed that
students in the regular admit group performed significantly
better in all respects than did Provisional students. (The
only exception was for the variable, "hours earned--first
semester" which was not as useful a measure of performance
as the others because Provisional students were required to
enroll for at least 12 semester hours as part of the pro-
visions of the program; no such requirement applied to
regular students.) This proved to be true when the respec-
tive means were compared; it also was evident when the
relative distributions of the scores were compared for each
group.

In addition, males in the regular group performed
better on all measures than did male Provisional students;
the female regular students, in turn, did better than female

Provisionals on all measures of ability and performance.
The same proved true when white and Mexican-American regular
students were compared to their respective ethnic groups in
the Provisional sample.

(3) No significant difference was noted between the
college performance of male Provisional students and that of
female Provisionals. However, there were significant
differences found in the quality of the entrance records for
male and female Provisionals. Males tended to present
higher SAT scores than females; females tended to have a
higher rank in the graduating class than did males. These
differences apparently evened out with respect to their
effect on students' performance in college.

The same phenomenon occurred in the regular sample.
Males and females achieved the same grades in college
although presenting different levels of high school per-
formance and SAT scores (males had higher SAT scores and
females a higher rank in class).

(4) White students presented superior scores on the
SAT-Math and SAT-Verbal to those of Mexican-American stu-
dents within both the regular and Provisional samples.
Mexican-Americans achieved a higher class rank in high
school than did white students within both samples. The
first semester college grade point average for white students
was significantly higher. When grades in advanced standing

examinations were not counted, there was no significant difference in total grade point average, but when they were counted, Mexican-American Provisional students had significantly higher college grade point averages than white Provisionals. In the regular sample, white students achieved higher grades in college with or without advanced standing grades included.

(5) Both male and female Provisional students performed significantly better in English courses than they did in science/math or social science courses. Although one might expect that this would be the case since the students may have had most familiarity with the English curriculum when entering college, the low grades evidenced in social science are of particular interest. Since these courses could not be taken during the period in which the students were on Provisional status, only those students who successfully completed the first semester actually enrolled in the social science curriculum. That is, these courses were taken only by students removed from Provisional status. One might expect these more successful Provisional students to cause the mean grade point average in social science courses to be higher than in the other curricular areas, but this did not prove to be the case.

(6) The analysis of variance produced evidence of interaction effects operating when sex, mode of admission,

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and first semester of enrollment were used as sources of variance. These factors proved to be related to the students' high school record, entrance test scores, and college performance.

(7) High school rank, SAT-Verbal, and SAT-Math were essentially the same for the groups of Provisional students entering during each of the four semesters in question. The same was the case for the regular student sample. When both Spring Provisional groups were combined and compared to both Summer Provisional groups, no significant differences were found in the quality of the high school record and SAT scores. The same was true for regular students.

(8) Summer Provisional students achieved significantly higher first semester grade point averages than did the Spring Provisional students when the Summer 1972 and 1973 groups were pooled and compared to the combined Spring 1972 and 1973 groups.

This did not prove to be the case for the regular students. Entering during the Spring or Summer for these students did not affect their first semester grade point average.

(9) The total grade point averages of the pooled Summer and Spring Provisional groups showed some variance in the performance level, although the differences were not statistically significant. The tendency for Summer

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Provisionals to do better than Spring Provisionals the first
semester was thus somewhat abated when total grade point
average was considered. However, the differences in per-
formance on this measure should not be discounted since they
were comparable in magnitude to those noted for first
semester grade point average.

Again, for total grade point average, regular stu-
dents did not show the same tendency as Provisional students.
There appeared no significant difference in the total grade
point average of Summer regular students when compared to
that of Spring regular students.

(10) The Summer 1973 Provisional group achieved a
somewhat higher first semester grade point average than did
the Summer 1972 group, but this difference was not signifi-
cant with $\alpha = .05$. The difference was large enough that it
is of some interest, however. Since the Summer 1973 group
had essentially the same quality of high school record and
SAT scores as the 1972 group, the 1973 students' superior
college grade point average may have been due in part to
experiences the students encountered after enrollment at
the University.

(11) With respect to the students' ability to remain
in college, there appeared no significant difference between
males and females in the Provisional sample. Both tended
to persist to about the same degree. The same was true when

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white and Mexican-American students were compared in the Provisional group.

Regular students evidenced the same tendency. Sex and ethnic background did not appear to affect the students' ability to persist in college.

(12) Sixty-six percent of the regular students were currently enrolled at the time of the study, compared with 59% of the Provisional students. This difference proved to be statistically significant at the $\alpha = .05$ confidence level.

When male Provisionals were compared with male regulars, there was not a significant difference with respect to persistence. The same was true for females from each group. This finding coupled with the statistically significant but still small difference in persistence for the regular and Provisional students taken as a whole, was in sharp contrast with the evidence presented on college grade point averages. The highly significant differences found on those measures were not found when the measure of performance was that of ability to remain in school.

(13) For both the Provisional and regular samples, high school record and SAT scores showed relatively low correlations with college grade point averages. Some of this phenomenon may be attributable to the restriction in the range of high school rank and SAT scores for each sample.

The Provisional students' high school rank and academic and overall grade point averages showed small but positive correlations with college grades. SAT-Math, SAT-Verbal, and SAT-Total appeared to have no relationship at all with college grade point averages for Provisional students. For regular students, the relationship between SAT scores and college grades was about the same as that for high school rank and college grades; a small to moderate but positive correlation was found in each case.

The correlation between high school rank and college grades was thus higher by a small amount for regular students than for Provisional students.

(14) For Provisional males the correlations for high school rank and grade point average with college grades were higher than those for Provisional females. The SAT-Verbal correlated better with college grades for females than for males in the Provisional group. The SAT-Math and SAT-Total produced about equal correlations with college grades for male and female Provisionals.

In the regular sample, the correlations for high school rank and SAT scores with college grade point averages were higher for females in all cases.

(15) Regular students were found to be somewhat more predictable than Provisional students when multiple

correlations were developed for high school and test data with college grade point average. The multiple r values for the regular sample were consistently higher than for the Provisional sample.

(16) Male Provisional students were about as predictable as female Provisionals, having produced similar multiple r values in the correlation study. The same was true in comparing males and females in the regular student sample.

(17) It was possible to predict total college grade point average more accurately than first semester grade point average in the Provisional sample. The opposite phenomenon occurred when predictions for the regular sample were attempted. In that instance, it was possible to predict first semester grade point average more accurately, though the differences were more noteworthy for the consistency than for the amount.

(18) SAT-Verbal was considerably less potent in influencing male Provisional college grades than it was for female Provisional students. SAT-Math, on the other hand, was weighted more for males than females in the Provisional group. For regular students, the indication was that the math and verbal scores should be weighted equally for both males and females.

(19) Rank in class was equally important for male and female Provisional students in affecting first semester and overall grade point averages. The same was true for regular males and females.

(20) High school rank was about as effective as high school academic and overall grade point averages in predicting the performance in college of Provisional students. Overall grade point average in high school was slightly but consistently more effective in such predictions than was academic grade point average.

CONCLUSIONS

It has been shown that students admitted under the Provisional Admission Program at The University of Texas at Austin do not achieve grades equal to those of regularly admitted students. The grades they do obtain are, in many cases, below those required for normal progress at the University.

It has also been shown, however, that there are many Provisional students who do remain enrolled at the University. And, although regular students stay in school in greater percentages, the persistence of Provisional students is somewhat encouraging. Many students who would otherwise not have been able to attend the University as

freshmen find the Provisional program to be a successful
avenue of access.

It is, however, important to make several related
points. First, although many of the Provisional students
remain at the University, it is clear from the research that
they are often only barely achieving acceptable grades. It
can be presumed that this level of performance requires
considerable effort and motivation on their part. Further-
more, such students could probably continue to benefit from
supportive services such as tutoring, reading skills, and
counseling beyond the first semester of enrollment. The
importance of continued monitoring of Provisional student
performance and the maintenance of support services should
thus be stressed. The mere fact that many of the students
persist at the University should not negate their needs for
support and encouragement.

In addition, since many of the Provisional students
do not succeed at the University, it is important that
counselors be available to discuss with the students their
educational and vocational alternatives after experiencing
this initial failure. This could also apply to some of the
students who remain at the University, but who are only
barely in good standing. It is quite possible that attending
another institution could prove beneficial to such students

in that success there would not necessitate the total com-
mitment of effort and time that success at this University
often requires.

This study has reaffirmed the fact that prediction
of academic success is not an easy matter. Depending on
the specific subgroup under study here, the correlations
between prior performance in school or on the SAT and
college performance were from zero to moderate. In no
instance were the relationships shown to be strongly
positive. There were clearly some non-academic variables in
operation that were not specifically identified. All this
leads to the conclusion alluded to above--our lack of
success in predicting academic performance can be tied to
the unpredictability of human behavior and the dearth of
useful tools.

The study described here has shown that the tools
we presently have should be used with different emphasis for
various types of students. Men, for example, behave
differently from women, and should be treated somewhat
differently from them in the process of predicting academic
performance. Similarly, it is apparent that Provisional
(marginal) students' college performance is related to
different factors in their academic background than is the
performance of regular students. The evidence also indicates
that our present predictors of college performance should

only be used as guides. Basing inflexible policy decisions
on them may be convenient, but hardly justifiable for
educational reasons. Also, in trying to assess an individ-
ual student's chances of success, our measurement techniques
must be used with a considerable degree of care; for,
although our usual predictive measures may not indicate it,
many students like those admitted under the Provisional
program can succeed at a moderately selective University.
They do not, as a rule, achieve higher than average grades.
Many leave the University after a short time. But many
others do succeed to the extent of staying in school for
an extended period.

If the University, as an institutional policy,
perceives the Provisional program as a contract with the
student, then it has an obligation to fully inform the
student of the requirements of the program. It is also
important that the student appreciate the implications of
the evidence that relates to the past level of success of
students in the program. Further, the University has an
obligation to provide support and encouragement to the
Provisional students.

If these responsibilities are met, the level of
success shown by the students in this study implies that
continuation of the program is warranted. However, as al-
ready stated, the relatively lower level of performance,

and somewhat higher tendency to drop-out, imply that
specific attention must be given to the many Provisional
students who encounter academic difficulty. Again, the
University assumes a responsibility for all the Provisional
students due to the act of granting their admission in
the first place. Such responsibility is best expressed in
terms of support services for the students to facilitate
their academic success, or to help them find satisfactory
alternatives to attending the University.

IMPLICATIONS FOR RESEARCH

The most natural follow-up to this study would be
an attitudinal survey of Provisional and regular students
to ascertain the relationship of such factors as levels of
motivation and biographical data to students' success at
the University. Although sex and ethnic background were
subject to extensive analysis in the present study, other
factors such as family income, size of high school class,
and occupational goals might prove to be interesting areas
to study. Also, the student's attitudes toward school, their
need to achieve, and other attitudinal factors may prove
relevant to academic success at the University. Of interest
also would be any variations detected between the impact of
such factors on the grades of Provisional students from their
impact on regular student grades. The fact that academic

factors in the prediction models studied here had varying
effects on regular and Provisional grades, would lead one
to think that non-intellective factors may show the same
variations.

The degree to which these non-intellective factors
could be used in the admission process, particularly in the
decision of whether to admit or not, is problemmatic. Such
information would help, however, to the extent that the
relevant items are identified in the Provisional student
samples. Knowing that a particular group possesses a
certain trait that has historically been a strong indication
of academic difficulty, could help the faculty and staff in
anticipating potential problems. Program modifications,
especially with respect to support services, could then
be implemented to respond to the anticipated needs of a
particular group.

Another major area of concern that future research
could address would be a study of several types of supportive
programs and their impact on Provisional student performance.
The degree to which tutoring, counseling, reading skills
courses, and other programs can help such students is not
presently known for the particular program at The University
of Texas at Austin. If the University is to assume the
responsibility to which this paper has already alluded, then
it is important to research the impact of the various kinds

of support services offered. Such research could result in policy decisions to implement the most effective programs to maximize the success of Provisional students.

A third recommended focus for future research is to further examine the apparent differences in performance between Spring and Summer Provisional students. It would be very instructive to find the factors that operate to cause the Spring entrants to perform more poorly than the Summer students. With such information, some programmatic efforts could be made to improve the performance of the Spring students.

Finally, it would be very helpful to ascertain the attitudes of Provisional students toward the program itself. Presumably, some differences would be found between successful and unsuccessful students. More importantly, it would be good to learn about the students' reactions in general, and to solicit their suggestions for making improvements in the program. Having experienced the pressure and frustration along with the satisfaction and pride, the students would be able to provide valuable insight into the relative merits of the Provisional Admission Program. Perhaps that is a good place to stop; it is important to focus directly on the reactions of the young people who subject themselves and who are subjected to the rigors of the

University. Their thoughts and feelings should be a central

part of our assessment of programs such as Provisional

admission at The University of Texas at Austin.

FOOTNOTES

FOOTNOTES

[1]Charles T. Thomas and Julian C. Stanley, "Effect-
iveness of High School Grades for Predicting College Grades
of Black Students: A Review and Discussion." Journal of
Educational Measurement, Vol. 6, No. 2 (Winter, 1969),
p. 1.

[2]The Chronicle of Higher Education, Vol. VIII,
No. 2 (October, 1973), p. 1.

[3]Ibid., p. 6.

[4]Alexander W. Astin, "Open Admissions and Programs
for the Disadvantaged," Journal of Higher Education, Vol.
XLI, No. 8 (November, 1971), p. 632.

[5]Krista Ludenia, "Academic Prediction and the
Marginal Student," (Missouri University, May, 1970)
ED 045-040.

David E. Lavin, The Prediction of Academic Per-
formance (New York, New York: Russell Sage Foundation,
1965).

Julian C. Stanley, "Predicting College Success of
the Educationally Disadvantaged," Science, Vol. 171, No.
3972 (February 19, 1972), pp. 640-647.

Benjamin S. Bloom and Frank R. Peters, The Use
of Academic Prediction Scales (The Free Press of Glencoe,
Inc., 1961).

Jane Loeb, "High School Performance as Predictive
of College Performance," NASSP Bulletin, Vol. 56, No. 365
(September, 1972), pp. 19-26.

Thomas and Stanley, op. cit., pp. 203-215.

John Paraskevopoulos and L. F. Robinson, "Compari-
son of Regression Equations Predicting College Performance
from High School Record and Admissions Test Scores for
Males and Females," College and University, Vol. 45, No.
2 (Winter, 1970), pp. 211-216.

156

[6]William H. Huber, "Channeling Students for Greater Retention," College and University, Vol. 47 (Fall, 1971), p. 19.

[7]Lavin, op. cit., pp. 109-132.

[8]Robert A. Scott, "Challenges Presented by Open Enrollment," Paper presented to American Association of Collegiate Registrars and Admissions Officers (October 3, 1970), ED 044-745.

[9]Virginia S. Hardie and John R. Anderson, "College Students--A Revealing Comprehensive Seven-Year Study of 1106 University Freshmen Attrition, Graduation, and Follow-up," (Clemson University, August, 1969), ED 055-300

[10]Carter V. Good, Dictionary of Education (New York: McGraw-Hill Book Company, Inc., 1945), p. 3.

[11]Definitions of Student Personnel Terms in Higher Education, U. S. Department of Health, Education and Welfare (Washington: U. S. Government Printing Office, 1968), p. 15.

[12]Ibid.

[13]Good, op. cit., p. 433.

[14]Ibid., p. 53.

[15]Definitions of Student Personnel Terms in Higher Education, op. cit., p. 49.

[16]Ibid., p. 3.

[17]Ludenia, loc. cit.

Lavin, loc. cit.

Stanley, loc. cit.

Bloom and Peters, loc. cit.

Loeb, loc. cit.

Thomas and Stanley, loc cit.

Paraskevopoulos and Robinson, loc. cit.

[18]Loeb, op. cit., p. 21.

[19]Charles Gelso and Joseph A. Klock, "A Comparison of the Effectiveness of Basing Predictive Average Grades on Three Different Methods of Computing High School Averages," College and University, Vol. 42, No. 3 (Spring, 1967), p. 344.

[20]John R. Hills and Joseph A. Klock, "Total vs. Academic High School Averages in College Grade Prediction," College and University, Vol. 41, No. 2 (Winter, 1966), pp. 231-232.

[21]Richard D. Arvey, Intra Individual Variability as a Moderator of College Predictability, Paper read at Mid-Western Psychological Association (Chicago, May, 1969).

[22]Richard Reyes and Robert B. Clarke, "Consistency as a Factor in Predicting Grades," Personnel and Guidance Journal (September, 1968), pp. 50-55.

[23]Ibid., p. 54.

[24]Loeb, loc. cit.

[25]Charles F. Elton, "The High School Grade Average: Where is a Difference Different?" College and University, Vol. 41, No. 2 (Winter, 1966) p. 185.

[26]Ibid., p. 189.

[27]Loeb, loc. cit.

[28]Paul Horst, "Differential Prediction in College Admissions," College Board Review, Vol. 33(1957), pp. 19-23.

[29]Lavin, op. cit., pp. 53-54.

[30]"Highlights of the ACT Technical Report," American College Testing Program (Iowa City, 1973), p. 18.

[31]Ibid., p. 19.

[32]William H. Angott, The College Board Admissions Testing Program: A Technical Report on Research and Development Activities Relating to the Scholastic Aptitude Test and Achievement Tests, College Entrance Examination Board (New York, 1971).

[33]Ibid., p. 129.

[34]Ibid., p. 217.

[35]Alexander Astin, Predicting Academic Performance in College, (New York: American Council on Education, The Free Press, 1971), p. 11.

[36]Leo Munday, "Correlations Between ACT and Other Predictors of Academic Success in College," College and University, Vol. 44 (Fall, 1968), p. 74.

[37]Stanley, op. cit., p. 641.

[38]College Testing--A Guide to Practices and Programs, (Washington, D.C.: American Council on Education, 1959).

[39]Arvo Juola, "Freshmen Level Ability Tests Versus Cumulative Grades in the Prediction of Successive Terms Performance in College," Paper presented to the Annual Meeting of the American Educational Record Association (1964).

[40]Julian C. Stanley and Andrew C. Porter, "Correlations of Scholastic Aptitude Test Scores with College Grades for Negroes versus Whites," Journal of Educational Measurement, Vol. 4, No. 4 (Winter, 1967), p. 200.

[41]Thomas and Stanley, op. cit., p. 213.

[42]T. Anne Cleary, "Test Bias: Prediction of Grades of Negro and White Students in Integrated Colleges," Journal of Educational Measurement, Vol. 6, No. 4 (Winter, 1969), p. 213.

[43]"Highlights of the Act Technical Report," loc. cit.

[44]Lavin, loc. cit.

[45]Ibid., p. 101.

[46]Ibid., p. 109.

[47]Ibid., p. 111.

[48]Ibid., p. 126.

[49]Ibid., p. 129.

[50]Ibid., p. 132.

[51]Ibid., p. 133.

[52]James W. Creaser, "Predicting College Success from Equated High School Ranks: A Cross-Validated Study," College and University, Vol. 41, No. 1 (Fall, 1965), p. 97.

[53]D. P. Hoyt, "Size of High School and College Grades," Personnel and Guidance Journal, Vol. 37 (April, 1959), p. 57.

[54]Astin, "Open Admissions and Programs for the Disadvantaged," p. 634.

[55]Astin, Predicting Academic Performance in College.

[56]Huber, op. cit., p. 21.

[57]Scott, loc. cit.

[58]Astin, "Open Admissions and Programs for the Disadvantaged," p. 630.

[59]Official Enrollment Report, (Austin, Texas: Office of Institutional Studies, The University of Texas at Austin, September 30, 1973).

[60]Data obtained from the Office of Institutional Studies, The University of Texas at Austin, Fall, 1973. (of total enrollment, 1% Black, 5% Mexican-American, 90% White, 4% foreign students and "other".)

[61]Lincoln L. Chao, Statistics: Methods and Analyses (New York: McGraw-Hill, Inc., 1969), p. 260.

[62]Ibid., pp. 261-262.

BIBLIOGRAPHY

BIBLIOGRAPHY

1. Angott, William H. The College Board Admissions Testing Program: A Technical Report on Research and Development Activities Relating to the Scholastic Aptitude and Achievement Tests. College Entrance Examination Board, New York, 1971.

2. Arvey, Richard D. "Intra-Individual Variability as a Moderator of College Predictability," Paper read at Midwestern Psychological Association, Chicago, May, 1969.

3. Astin, Alexander W. "Open Admission and Programs for the Disadvantaged." Journal of Higher Education, XLII, No. 8, (November, 1971), 629-647.

4. Astin, Alexander W. "Predicting Academic Performance in College." American Council on Education. New York: The Free Press, 1971.

5. Astin, Alexander W. "Student Persistence: Some Stay, Some Don't--Why?" American Association of Collegiate Registrars and Admissions Officers 59th Annual Meeting, Los Angeles, April 19, 1973.

6. Birnbaum, Robert. "Class Rank Weighting." College and University. 41, No. 1 (Fall, 1965), 101-106.

7. Blanchfield, W. C. "College Dropout Identification--A Case Study." Utica College, ED 058-605; 1971.

8. Bloom, Benjamin S. and Peters, Frank R. The Uses of Academic Prediction Scales, The Free Press of Glencoe, Inc., 1961.

9. Bogue, E. G. "Application of a Minimum Loss Decision Strategy in the Selection of Cutoff Points in College and University Admissions." College and University, 43, No. 2 (Winter, 1968) 131-142.

10. Boreys, Jerry H. "The Validity of American College Test for Discerning Potential Academic Achievement Levels-- Ethnic and Sex Groups." The Journal of Educational Research, 65 (September, 1971), 3-6.

11. Brown, William F. and Holtzman, Wayne H. "A Study-- Attitude Questionnaire for Predicting Academic Success." Journal of Educational Psychology, 46, No. 2 (February, 1955), 77-84.

12. Chao, Lincoln L. Statistics: Methods and Analysis. New York: McGraw-Hill, Inc., 1969.

13. Chronicle of Higher Education, The. Vol. VIII, No. 2, (October, 1973).

14. Cleary, Anne T. "Test Bias: Prediction of Grades of Negro and White Students in Integrated Colleges." Journal of Educational Measurement, 5, No. 2 (Summer, 1968), 115-124.

15. College Testing--A Guide to Practices and Programs. American Council on Education, Washington, D.C. 1959.

16. Creaser, James W. "Predicting College Success From Equated High School Ranks: A Cross Validation Study." College and University, 41, No. 1 (Fall, 1965), 4-9.

17. Davis, J. A. and Temp, G. "Is the SAT Biased Against Black Students?" College Board Review, No. 81, (Fall, 1971), 4-9.

18. Davis, Richard H. "Compensating Education--A Calculated Cop-Out." An Address to the 1970 Convention of Wisconsin Association of Collegiate Registrar's and Admissions Officers, ED 047-060, October 16, 1970.

19. Definitions of Student Personnel Terms in Higher Educa- tion. U. S. Department of Health, Education, and Welfare, U. S. Government Printing Office, Washington, 1968.

20. Dickason, Donald G. "Predicting the Success of Freshmen Engineers." Personnel and Guidance Journal, 47, No. 10, (June, 1969).

21. Donnan, Hugh. "Personality Factors Related to College Achievement and Attrition." Journal of College Student Personnel, 9, No. 2, (March, 1968), 116-119.

22. Elton, Charles F. "The High School Grade Average: When is a Difference Different?" College and University, 41, No. 2, (Winter, 1966), 185-189.

23. Ferrin, Richard I., Jones, Richard W., and Tremble, Cesar M. Access to College for Mexican-Americans in the Southwest, Higher Education Surveys Report, No. 6, College Entrance Examination Board, July 1972.

24. Ferrin, Richard I. "Barriers to Universal Higher Education." College Entrance Examination Board--Access Research Office, Palo Alto, California, March, 1970.

25. Gelso, Charles and Klock, Joseph. "A Comparison of the Effectiveness of Basing Predictive Average Grades on Three Different Methods of Computing High School Averages." College and University, 42, No. 3 (Spring, 1967), 337-344.

26. Gelso, Charles and Klock, Joseph. "The 'Academic' vs. 'Total' High School Average: A Re-Examination." Journal of Educational Measurement, 4, No. 2 (Summer, 1967), 59-63.

27. Glass, Gene V. and Stanley, Julian C. Statistical Methods in Education and Psychology. New Jersey: Prentice-Hall, Inc., 1970.

28. Good, Carter V. Dictionary of Education. New York: McGraw-Hill, Inc., 1945.

29. Green, Robert L. "Money, Motivation, and Academic Achievement." Phi Delta Kappan, L, No. 4 (December, 1968), 228-230.

30. Green, Robert L. "The Black Quest for Higher Education: An Admissions Dilemma." Personnel and Guidance Journal, 47, No. 9, (May, 1969), 905-911.

31. Gunne, Michael G. and Leslie, Larry L. "Exceptional Graduate Admissions at the Pennsylvania State University." Center for the Study of Higher Education, ED-061-889, March, 1972.

32. Hardie, Virginia S. and Anderson, John R. "College Students--A Revealing Comprehensive Seven-Year Study of 1106 University Freshmen--Attrition, Graduation, and Follow-Up." Clemson University, ED-055-300, August, 1969.

33. Hershey, David E. "An Analysis of the Academic Achievement and Progress of Students Admitted to Michigan State University Through the Summer Test Admit Program 1965-1969." Unpublished dissertation, Michigan State University, 1970.

34. Highlights of the ACT Technical Report. American College Testing Program, Iowa City, 1973.

35. Hills, John R. and Gladney, Marilyn B. "Predicting Grades from Below Chance Test Scores." Journal of Education Measurement, 5, No. 1, (Spring, 1968), 45-54.

36. Hills, John R. and Klock, Joseph. "'Total' vs. 'Academic' High School Averages in College Grade Prediction." College and University, 41, No. 2 (Winter, 1966), 231-232.

37. Hilton, Thomas L. and Meyers, Albert E. "Personal Background, Experience, and School Achievement: An Investigation of the Contribution of Questionnaire Data to Academic Prediction." Journal of Educational Measurement, 4, No. 2 (Summer, 1967).

38. Horst, Paul. "Differential Prediction in College Admissions." College Board Review, 33 (1957), 19-23.

39. Hoyt, Donald P. "Generalized Academic Prediction in Four Year Colleges." Personnel and Guidance Journal, (October, 1968).

40. Hoyt, Donald P. "Size of High School and College Grades." Personnel and Guidance Journal, 37 (April, 1959) 549-573.

41. Huber, William. "Channeling Students for Greater Retention." College and University, 47 (Fall, 1971) 19-29.

42. Hyman, Seymour. "The Open Admissions Freshmen at City University of New York." Open Admissions: The Pros and Cons--A Symposium. Council for Basic Education, Washington, D. C., 1971.

43. Ivey, Allen E., Peterson, Floyd E., and Trebbe, E. Stewart. "The Personality Record as a Prediction of College Attrition: A Discriminant Analysis." College and University, 41, No. 2 (Winter, 1966), 199-205.

44. Juola, Arvo. "Freshmen Level Ability Tests versus Cumulative Grades in the Prediction of Successive Terms Performance in College." Paper presented to Annual Meeting of American Educational Research Association, 1964.

45. Kristol, Irving. "Open Admissions and the Politics of the Absurd." Open Admissions: The Pros and Cons--A Symposium. Council for Basic Education, Washington, D. C., 1971.

46. Lavin, David E. The Prediction of Academic Success. Russell Sage Foundation, New York, 1965.

47. Loeb, Jane. "High School Performance as Predictive of College Performance." NASSP Bulletin, 56, No. 365 (September, 1972) 19-26.

48. Ludenia, Krista. "Academic Prediction and the Marginal Student." Missouri University, Ed-045-040, May, 1970.

49. Mayhew, Lewis B. "Jottings." Change Magazine, 5, No. 1 (February, 1973) 62-64.

50. Morgan, Lewis B. "The 'Calculated Risks' - A Study of Success." College and University, 43, No. 2 (Winter, 1968), 203-206.

51. Munday, Leo. "Correlations Between ACT and Other Predictors of Academic Success in College." College and University, 44 (Fall, 1968) 67-76.

52. Official Enrollment Report, Fall 1973. Office of Institutional Studies, The University of Texas at Austin, September 30, 1973.

53. Paraskevopoulos, John and Robinson, L. F. "Comparison of Regression Equation Predicting College Per- formance from High School Record and Admissions Test Scores for Males and Females." College and University, 45, No. 2 (Winter, 1970) 211-216.

54. Pesqueira, Richard E. "Mexican-American Student (Staying) Power in College." College Board Review, No. 90 (Winter, 1973-74) 6-9, 26, 28.

55. Reyes, Richard and Clarke, Robert B. "Consistency
     as a Factor in Predicting Grades." Personnel and
     Guidance Journal, 47, No. 1 (September, 1968)
     50-55.

56. Richards, James M. and Lutz, Sandra W. "Predicting
     Student Accomplishment in College From the ACT
     Assessment." Journal of Education Measurement, 5,
     No. 1 (Spring, 1968) 17-31.

57. Scott, Robert A. "Challenges Presented by Open
     Enrollment." Paper presented to National Conference
     of American Association of Collegiate Registrars
     and Admissions Officers, October 3, 1970, ED-044-745.

58. Sedlacek, W. E., Brooks, G. C. Jr., and Mindus, L. A.
     "Black and Other Minority Admission to Large
     Universities: Three Year National Trends."
     Research Report No. 3-72, Cultural Study Center,
     University of Maryland, 1972.

59. Seyfort, Warren C. "The Facts in the Case--What
     Colleges Do and Think About Rank-In-Class." NASSP
     Bulletin, 56, No. 365 (September, 1972) 27-40.

60. Smith, Mortimer. "Varieties of Open Admissions."
     Open Admissions: The Pros and Cons--A Symposium.
     Council for Basic Education, Washington, D. C.,
     1971.

61. Sommerville, Bill. "Can Selective Colleges Accommodate
     the Disadvantaged? Berkley Says 'Yes'." College
     Board Review, No. 65 (Fall, 1967) 5-10.

62. Stanley, Julian C. and Porter, Andrew C. "Correlation
     of Scholastic Aptitude Test Score with College
     Grades for Negroes Versus Whites." Journal of
     Education Measurement, 4, No. 4 (Winter, 1967)
     199-218.

63. Stanley, Julian C. "Predicting College Success of
     the Educationally Disadvantaged." Science, 171,
     No. 3972 (Feburary 19, 1971) 640-647.

64. Temp, George. "Test Bias: Validity of the SAT for
     Blacks and Whites in Thirteen Integrated Institutions."
     College Board Research Bulletin. RB-71-2,
     January, 1971.

65. Thomas, Charles L. and Stanley, Julian C. "Effective-
    ness of High School Grades for Predicting College
    Grades of Black Students: A Review and Discussion."
    Journal of Educational Measurement, 6, No. 4
    (Winter, 1969) 203-215.

66. Weiss, Kenneth P. "A Multi-Factor Admission Pre-
    dictive System." College and University, 45,
    No. 2 (Winter, 1970) 203-210.

67. Whitney, Douglas R. and Boyd, Norlin. "Limiting
    Effect of Predictive Validity on the Expected
    Accuracy of Admissions Decisions." College and
    University, 46, No. 3 (Spring, 1971) 180-190.

68. Williams, Robert L. "What Are We Learning From
    Current Programs for Disadvantaged Students?"
    Journal of Higher Education, 39, No. 4 (April,
    1968) 274-285.

69. Willingham, Warren W. Free Access Higher Education.
    New York: College Entrance Examination Board,
    1970.

70. Witzke, Judith. "A Review of Selected Research
    Related to College Admissions Criteria for Educa-
    tionally Disadvantaged Students." Research Bulletin
    of the Measurement and Evaluation Center, The
    University of Texas at Austin, December 23, 1971.