

70-20,468

HERSHEY, David E., 1932-
AN ANALYSIS OF THE ACADEMIC ACHIEVEMENT AND
PROGRESS OF STUDENTS ADMITTED TO MICHIGAN
STATE UNIVERSITY THROUGH THE "SUMMER TEST
ADMIT" PROGRAM 1965-1969.

Michigan State University, Ph.D., 1970
Education, higher

University Microfilms, A XEROX Company, Ann Arbor, Michigan

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PROGRESS OF STUDENTS ADMITTED TO MICHIGAN
STATE UNIVERSITY THROUGH THE "SUMMER
TEST ADMIT" PROGRAM 1965-1969

By

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A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

College of Education

1970

ABSTRACT

AN ANALYSIS OF THE ACADEMIC ACHIEVEMENT AND PROGRESS OF STUDENTS ADMITTED TO MICHIGAN STATE UNIVERSITY THROUGH THE "SUMMER TEST ADMIT" PROGRAM 1965-1969

By

David E. Hershey

The Problem

The selection of students for admission by colleges and universities is a paramount concern of our present society. In attempting to respond to society's concern, colleges and universities are faced with a problem, i.e., the feasibility of various methods for admitting students.

This study is an analysis of one method of admission in light of the general problem facing the university.

The objective of this thesis is to evaluate the academic achievement and progress of Michigan freshmen admitted to Michigan State University through the "Summer Test Admit" program 1965-1969.

The "Summer Test Admit" (STA) program is one option provided for the selection of Michigan students. The program consists of a special entrance examination for

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Michigan senior high school students with low high school grade point averages. These students have been identified by the high school principal, counselor, or previous scholastic aptitude tests as having more academic ability than the low grade point average indicates. The students, who are successful on the examination must enroll for the summer quarter.

The special entrance examination is composed of the College Qualification Tests (CQT) and the Michigan State University Tests.

Significance

This study is significant and timely due to the value placed upon higher education today by society. Society not only values higher education but is concerned with and interested in the admission process, i.e., the selection of students by the university.

The concern of society with the process of admitting students to higher education is clear. The university is concerned with the methods of selection of those students it feels can succeed, i.e., have normal academic achievement and progress.

Society has had a high tolerance and faith in the decision-making process regarding admission options. However, the more concerned society becomes the more universities will have to evaluate their present systems of admission.

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Population

There are four groups of Summer Test Admit students in this study. Each group has been identified by the year of entry into Michigan State University.

To aid in the evaluation of the STA's achievement and progress, comparisons were made between the STA populations and matched samples of regularly admitted students.

The samples were selected from those Michigan students regularly admitted to the fall quarter. The regular admit samples were enrolled in corresponding years to the STA populations. The four regular admit samples were then matched with the corresponding STA groups on the characteristics of CQT total score, MSU reading score, and sex.

Method of Analysis

The study covers a four-year time period, fifteen continuous quarters, beginning fall quarter 1965 and extending through spring quarter 1969.

The basic design of the study has been repeated for each of the four years cited.

The research data collected on each STA and regular admit group was the mean MSU GPA, mean credits earned and rate of absence. The data was collected for each quarter and year of the study.

The research data was compiled from student admission records, Registrar's transcripts, and Office of Evaluation Services data.

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This design has been used to make comparisons between the matched groups using the variables, mean MSU GPA, mean credits earned and absence.

The analysis was carried out by first computing the mean and standard deviation for each group. This was done per quarter using the variables, mean MSU GPA and mean credits earned. The variable of absence was recorded in frequency per quarter.

A statistical comparison was then made between each matched STA and regular admit group. This comparison was made to determine if there were significant differences existing on the variables tested.

In addition year-end comparisons between matched groups were made using the variables, mean accumulative MSU GPA and mean accumulative credits earned.

A two-way analysis of variance (ANOVA) was first used: (1) to determine significant differences between male and female on the variables tested, (2) to uncover significant differences between matched groups, and (3) to test for interaction of sex and group. Results of the two-way analysis indicated the differences on the variables tested were not consistently present, except between the matched groups.

A one-way ANOVA was then used to test for significant differences between the matched groups using the variables, mean MSU GPA and mean credits earned. The

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variables were compared in each quarter and for the accumulative school years of the study.

The statistical method used to determine significant differences between groups on the variable of absence was the Chi-square test.

Additional information was gathered in the course of the study which was not tested for significant differences, but does add to the evaluation of academic achievement and progress of the STA students.

First, the number of credits repeated per quarter by group was recorded; secondly, the withdrawal per group; and third, the number of degrees granted per group.

Findings and Conclusions

It would be reasonable to conclude that differences do exist between the matched groups of STA and regular admit students in mean MSU GPA, mean credits earned and absence.

The STA groups' mean MSU GPA was consistently lower than the matched regular admit groups. And the STA groups' mean number of credits earned was usually below the matched regular admit students.

The rate of absence and number of credits repeated was higher for the STA groups compared to the students in the regular admit groups.

ACKNOWLEDGMENTS

The author wishes to express his sincere appreciation to Dr. Vandel C. Johnson, Guidance Committee Chairman, for his interest and effort in my behalf during this study. Also my indebtedness to the other committee members; Dr. John A. Fuzak, Dr. Walter F. Johnson, and Dr. James B. McKee for their suggestions and direction.

To Dr. Gordon A. Sabine, Vice President for Special Projects, Dr. Terrence J. Carey, Director of Admissions, and my colleagues in the Office of Admissions and Scholarships my gratitude for their assistance and support of this writing.

To my wife Dolores and children, Scott, Jay, Jill and Anne Marie my special thank you for your charity.

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CHAPTER I

INTRODUCTION AND STATEMENT OF THE PROBLEM

Introduction

The selection of students for admission by colleges and universities is a paramount concern of our present society. In attempting to respond to society's concern colleges and universities are faced with a problem, the feasibility of various methods for admitting students.

There are legitimate reasons for this concern: more students are applying for college and university admission than ever before; students are applying with wider ranges of high school achievement, both from college preparatory and general curriculum backgrounds; a college education is becoming a prerequisite for certain kinds of employment; and higher education is increasingly significant in society as a birthright. Brubacher states,

Would it follow in a society where not just a few but where many are free that all should have a liberal education? Reference to Aristotle would seem to argue that it should, for it was he who remarked that a constitution would be matched by a system of education consistent with its spirit. If so, and since there is

an undisputed equalitarianism about democratic institutions, it would seem that the democratic spirit demands that liberal education be the expectation of all.¹

As this concern grows, colleges and universities will have to consider solutions to the problem of identifying more students for admission.

Society has had a high tolerance and belief in the decision-making process regarding admissions options. However, the more concerned society becomes, because of the afore-stated pressures, the more universities will have to evaluate their present programs of admission.

The intent of the study is to provide research data about a specific system of admission.

This thesis is an attempt to analyze one method of admission in light of the general problem facing the university.

The Problem

The objective of this thesis is to evaluate the academic achievement and progress of Michigan freshmen admitted to Michigan State University through the "Summer Test Admit" program 1965-1969.

The "Summer Test Admit" (STA) program is one option provided for the selection of Michigan students. The program consists of a special entrance examination for

¹John S. Brubacher, Basis for Policy in Higher Education (New York: McGraw-Hill Book Company, 1965), p. 7.

Michigan senior high school students with low high school grade point averages. These students have applied for admission to the university but have been denied clear admission because of the low high school grade point average. These students have been identified by the high school principal, counselor, or previous scholastic aptitude tests as having more academic ability than the low grade point average indicates. The students who are successful on the examination must enroll for the summer quarter. The program includes the opportunity for individual counseling and academic advisement. Students are enrolled in a standard course schedule as full-time students.

The special entrance examination is composed of the College Qualification Tests (CQT)² and the Michigan State University Tests.³

The College Qualification Tests . . . are designed to measure several abilities which are indicative of success in college. The test yields four scores: verbal or vocabulary . . . , general information . . . , numerical . . . , and a total score. . . . The total score provides the best single index of college ability for MSU students in general. . . .⁴

²Prepared and distributed by the Psychological Corporation, 304 East 45th Street, New York 17, New York. Also found in Oscar Krisen Buros, ed., The Sixth Mental Measurements Yearbook (Highland Park, New Jersey: The Gryphon Press, 1965), pp. 708-14.

³Prepared by Michigan State University, Office of Evaluation Services, East Lansing, Michigan.

⁴Testing Bulletin, No. 3 (Revised), The Office of Evaluation Services, University College (East Lansing: Michigan State University, May, 1965).

The Michigan State University Tests are divided into three main areas.

The MSU English Placement Test . . . consists of thirty-five objective test items representing various aspects of English usage: spelling, capitalization, grammar, punctuation, sentence structure, and organization. . . . The MSU Arithmetic Placement Test and the MSU Mathematics Test (algebra) are also administered as a part of the Orientation Test battery, but students have an option to select which one of the two tests they will take. Students who plan to enroll in a beginning course in Mathematics must take the Mathematics Test, while all others must take the Arithmetic Test. . . . The MSU Reading Test . . . is a 42-item test of reading comprehension. The score is based upon the student's ability to answer questions based on reading passages representative of several academic areas at MSU. The test is not restricted to the simple mechanics of reading, but rather the score provides some measure of factors involved in critical thought. . . .

Results from studies of this kind have demonstrated that all of the tests have some value in predicting grades [academic achievement].⁵

Students who are successful on the tests are those who score at the twentieth percentile or higher on the CQT total score and reading portion of the MSU Test. This cutoff level has been set by mutual agreement between the Office of Admissions, Counseling Services, and Evaluation Services. "The total score of the CQT has generally proved to be the best single predictor of the grade point average for all students in general, followed closely by the MSU Reading Test."⁶

Other options in the admission process for incoming Michigan freshmen are clear admit, withhold decision,

⁵Ibid.

⁶Ibid.

regular test, and denial (see pages 11-15, Definition of Terms). The Office of Admissions is responsible for implementing these decisions and programs to determine which applicants have the best possible chance to succeed.

General Freshman Admission Criterion.

The University seeks to admit only those students who can provide evidence of the intellectual performance and potential which will permit them to profit from programs of the academic rigor of those offered by Michigan State. The admissions decision takes into account all available information--grades, school rank, test scores, principal-counselor recommendations, leadership qualities, citizenship record, caliber of high school program, firmness of motivation, and appropriateness of proposed field of study in relation to the applicant's apparent abilities--but of these, the most important items always are high school grades.⁷

"Since its foundation over a century ago, Michigan State University has honored its commitment to the young people of the state by extending the opportunity for higher education to all who, in its judgment, have demonstrated the qualities necessary to benefit from it."⁸ Historically, as indicated in Madison Kuhn's book, Michigan State: The First Hundred Years, "Those who can benefit have been selected by some form of entrance examination."⁹

⁷ Catalog of Courses and Academic Programs, Michigan State University Publication, Vol. LXIII, No. 7 (East Lansing: University Editor's Office, Michigan State University, December, 1968), p. 5.

⁸ Improving Undergraduate Education, the Report of the Committee on Undergraduate Education, Michigan State University, 1967, Chapter 3, p. 11.

⁹ Madison Kuhn, Michigan State: The First Hundred Years (East Lansing: Michigan State University Press, 1955), p. 19.

Academic achievement and progress within the University is one type of yardstick for measuring the success of a student. Academic achievement and progress are also important criteria for consideration in establishing guidelines for programs of admission, e.g., STA.

The purpose of this analysis is to determine exactly what kind of an achievement and progress story is present, as measured by this type of yardstick.

The academic achievement and progress of each of the four STA groups has been recorded in the form of mean MSU grade point average, mean credits earned, and absence records.

A comparison has also been made between the STA populations and a sample of students taken from the regular admit Michigan population for each fall during the limits of the study, 1965-1969.

The populations of STA students were matched with an equal number of fall regular admit students on the basis of College Qualification Test total score, Michigan State University Reading Test score, and sex.

Statistical analyses were then used to measure significant differences between groups in areas indicating academic achievement and progress, i.e., MSU grade point average, credits earned, and absence.

Theory

The ideal would be to develop a precise method for predicting a student's academic achievement at college. According to Hoyt, "We know that the most useful predictions are made when both a scholastic aptitude test and the high school record are used."¹⁰

However, the high school records of the STA students indicate questionable past academic achievement, i.e., low high school grades.

One alternative in view of Hoyt's statement is to use a scholastic aptitude test to indicate the ability necessary for normal academic achievement. In other words, selecting those students who have the ability necessary for normal academic achievement and progress will be accomplished by entrance testing, that is, the College Qualification Test.

Ralph Berdie reports on the CQT as follows,

In summary, the College Qualification Tests are as good as but no better than the best of the other college aptitude tests. The tests have many advantages and no disadvantages that are not inherent in tests of their type. They are well constructed, edited, and printed. They have satisfactory reliability and are as valid as other tests available for these purposes; they are easy to administer and to score. The CQT is as adequate for identifying,

¹⁰Donald P. Hoyt, "Forecasting Academic Success in Specific Colleges," ACT Research Report, American College Testing Program, No. 27 (Iowa City: American College Testing Program, August, 1968), p. 7.

admitting, classifying, and counseling college students as any other college aptitude test.¹¹

Warren Findley in the same text states, "There was unanimous agreement among the previous reviewers on suitability of the tests for selective admissions purposes."¹²

In the publication, College Testing, the American Council on Education states,

Tests have repeatedly proven their usefulness as predictors of success in the most common academic areas --liberal arts, medicine, dentistry, engineering, law, and nursing. They are also being developed rapidly, too, as predictors of academic success in some of the so-called occupational fields, again with the measure of success described either by grade point ratio in these curricula or by achievement scores in later institutional-wide testing.¹³

These entrance exams are especially valid when the test program is based on local norms. The actual academic achievement and progress of a given student can serve as an index for establishing the validity of the entrance testing program.

"This means then that a prediction test which may be highly successful in one situation does not necessarily apply to another and that each institution needs to weigh local factors carefully in anticipation of setting up an effective admission testing program."¹⁴

¹¹Buros, op. cit., p. 710. ¹²Ibid., p. 711.

¹³College Testing (Washington, D.C.: American Council on Education, 1959), p. 15.

¹⁴Ibid.

Therefore, if it can be determined that the students admitted through the Summer Test Admit program have a fair chance for success, i.e., to have successful academic achievement and progress, then this analysis has a role in planning future admissions programs.

Significance

This study is significant and timely because of the value placed upon higher education today by society. Society not only values higher education but is concerned with and interested in the admission process, i.e., the selection of students by the university.

B. Alden Thresher writes in his book, College Admission and the Public Interest, "Populations have often showed remarkable patience with situations involving misdirected selectivity. There are signs that patience may be running out."¹⁵

Paul Dressel, et al. emphasize the significance of the problem:

Higher education today is highly prized; it is also being pressured and probed. The survival and the future of the nation quite apparently depend to a large extent on providing a better education to a larger percentage of our youth.¹⁶

¹⁵ B. Alden Thresher, College and University Admissions and the Public Interest (New York: College Entrance Examination Board, 1966), pp. 20-21.

¹⁶ Paul L. Dressel, and Associates. Evaluation in Higher Education (Boston: Houghton Mifflin Company, 1961), p. 3.

Society is concerned with the college-going process, the university is concerned with meeting its commitment to the people, and the admission counselors are dedicated to this important function of selecting students for admission.

Their chief concern is the educational welfare of students entering colleges and universities. That concern takes the form of extending wise counsel to students so that intelligent decisions can be made about a choice of college.¹⁷

It would appear then, while this study is specifically concerned with the Michigan State University student, it is also pertinent to other institutions of higher education concerned with the public interest.

Summary

As our society's concern with the admission process grows, colleges and universities will have to consider various solutions to the problem of selecting students for admission.

Society has had a high tolerance and faith in the decision-making process regarding admission options. However, the more concerned society becomes the more universities will have to evaluate their present systems of admission.

¹⁷Richard R. Perry, The Admissions Officer (Toledo, Ohio: The University of Toledo, 1963-64), p. 63.

The objective of this study is to provide such an analysis of one program of admission in light of the general problem facing the university.

Definition of Terms

Absence.--The failure of a pupil to be present at school; generally understood as failure to be present at more than half the session.¹⁸ (In this study no GPA or credits earned for that quarter.)

Academic Achievement.--Knowledge attained or skills developed in the school subjects, usually designated by test score or by marks assigned by teacher or both.¹⁹

Clear Admit.--Students who have a B-, or better, grade point average in a high school college preparatory curriculum. Students must submit Scholastic Aptitude Test (SAT) verbal and math scores. Students must have the recommendation of the high school. Synonym Regular Admit.

College Qualification Tests.--A battery of tests designed to measure several abilities which may predict success in the university. The test yields scores in four areas: verbal, general information, numerical, and a total

¹⁸Carter V. Good, ed., Dictionary of Education (New York: McGraw-Hill Book Company, Inc., 1945), p. 2.

¹⁹Ibid., p. 6.

score. These tests have been a part of the MSU Orientation testing program.

Credits Earned.--A unit for expressing quantitatively the amount of content of a course of instruction, especially with reference to the value of the course in relation to the total requirements for a degree or certificate.²⁰ (Those course credits earned and accumulated to establish class standing, e.g., less than 40 credits--Freshman, 40-84 credits earned--Sophomore, 85-129 credits earned--Junior, and 130-183 credits earned--Senior.)

Denial (Non-Admit).--This is a possible admission decision because those students denied admission are encouraged to continue their education in the junior-community college. This beginning may lead to transfer admission at a later date.

Grade Point Average.--A measure of average scholastic 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.²¹

²⁰Ibid., p. 110.

²¹Ibid., p. 40.

Interaction.--In experimentation, the condition resulting when the effect of one factor or condition is dependent on the presence or absence of another factor or condition; for example, if the effect of size of type on reading rate is dependent on style of type used, there is an interaction between size and style.²²

Matching, Basis of.--The characteristic or instrument used to match or equate groups in group experimentation.²³ In this study CQT total score, MSU Reading Test score and sex were used to match the groups.

Michigan Regular Admit.--In this study, Michigan students clearly admitted to the fall quarter.

Michigan State University Tests (Orientation Tests).-- A battery of tests designed by the Office of Evaluation Services at MSU to indicate the student's ability in English usage, reading comprehension, arithmetic and/or mathematics.

Matriculation.--The formal process, completed by registration, of being admitted as a student to the rights and privileges of membership in a college or university.²⁴

Paradigm.--A model or pattern.

²²Ibid., p. 223.

²³Ibid., p. 251.

²⁴Ibid., p. 253.

Progress.--The process of completing on the average of one grade per year.²⁵ (The progress of the student through a given curriculum toward a degree, e.g., in relation to MSU credits earned, 1-39 credits earned inclusive equals MSU freshman class status.)

Regular Admit.--Synonym for Clear Admit. See definition of Clear Admit.

Regular Test.--This method is used in cases of student applications in which, because of circumstances in the applicant's background, there is incomplete information. Normally, these cases would be: (a) veterans who have had very low high school grades, (b) persons with a General Education Diploma, or (c) persons who have not completed a high school diploma program.

Sample, Matched.--A sample drawn by selecting cases each having (within limits) the same variate values in the control variables as the corresponding cases in another sample.²⁶

Success, School.--The degree or measure of pupil achievement at school.²⁷

²⁵ Ibid., p. 313.

²⁶ Ibid., p. 354.

²⁷ Ibid., p. 398.

Withdrawal.--The act of a pupil leaving school permanently.²⁸ (As requested by the school, i.e., withdrawn. This is as indicated on the official university transcript.)

Withhold Admission.--This decision applies to those students who are not clearly admissable because of their high school grade point average. These students often have much higher tested ability than the grade point average indicates. In addition, these students have an upward trend in their high school GPA. The admission is withheld until additional academic information is sent to the university. The student is requested to have the high school grades forwarded at the conclusion of the present semester. If the academic information requested, i.e., transcript of high school GPA, indicates academic improvement, admission is usually granted.

²⁸Ibid., p. 452.

CHAPTER II

REVIEW OF THE LITERATURE

The literature regarding the admission of college and university students is abundant. However, there is a scarcity of published work relating to the specific topic of this study.

In reviewing the literature, three areas stand out: the society's concern with the admissions process; the university's concern for meeting society's demand; and the admissions counselors' (admissions office) continued search for the best method for the selection of students.

The Public Concern

Society's interest in higher education is one of the most apparent trends in American education. These concerns are lodged in developing conditions over a number of years, conditions which have recently been accentuated. One condition is the American concept of democracy.

The belief is prevalent that every individual, no matter from what rank of life he comes, should have a chance to make the best of himself. An open road

from kindergarten to university is the ideal of Americans.¹

Industrialism, increase in the number completing secondary education, and higher education for status, both social and economic, are conditions which have accelerated public concern about admission to higher education.

The factors seem to unite in creating a greater need for higher education and a correspondingly increased demand for its opportunities. They are manifestations of forces deeply rooted in the social order; and a policy which seeks to determine who should go to institutions of higher education, without regarding the implications of these factors, is not likely to be very effective. Such a policy may place the institutions of higher learning in opposition to trends which future progress may take and thus hamper their influence as a constructive force in society. A policy of selection which considers the implications of these changing conditions will have to adjust itself to the demands of increasing numbers of students.²

The 1964 Educational Policies Commission of the National Education Association in its publication "Universal Opportunity for Education Beyond the High School" stated,

If individual freedom is the American ideal and if education is increasingly pertinent to the social well being the common practice of ending one's education at the high school level cannot be defended. It should be public policy to promote the universalization of educational opportunity beyond the high school.³

¹Habib Amin Kurani, Selecting the College Student in America, Bureau of Publications (New York: Columbia University, Teachers College, 1931), p. 65.

²Ibid.

³James D. Logsdon, "A Case for the Junior College," The Bulletin of the National Association of Secondary School Principals, (December, 1968), 64.

Nevitt Sanford also indicates the public's concern:

The social benefits of college seem to be regarded as highly as the economic ones, and to be inseparably interrelated with them. For the great middle class, college has become a social necessity, while for members of the lower class it is a prime means for social advancement.⁴

He goes on to say,

The crisis in higher education is chronic. The great problem today is essentially the same as it has been for a long time. It is how to do better the things that colleges are intended to do; how to realize more fully, despite pressures from without and divided council within, the aim of developing the potentialities of each student.⁵

Albert H. Dunn states, "The popularization of higher education with its exploding enrollment has created a vast new public of parents, relatives, and new alumni with a continuing interest in the affairs of their university."⁶

Thresher, Bowles, Garret and Rich, Doebler, Rivlin, and others affirm that the public today is increasingly interested and concerned with higher education.

David D. Henry, president of the University of Illinois, sums up the public interest,

Let us assume that America will not accept a philosophy of dividing up what educational service it has instead

⁴Nevitt Sanford, College and Character (New York: John Wiley & Sons, Inc., 1964), p. 4.

⁵Ibid., p. 10.

⁶Albert H. Dunn, "Admissions as a Public Relation Function," The Journal of the Association of College Admissions Counselors, XII, No. 3 (1967), 1-3.

of creating more. Educated men and women are America's chief resource, and the people will have the wisdom to develop it if they understand the issues and I believe they are coming to understand the issues. The remarkable growth in the record of private giving to higher education, the formal declarations of organized business and organized labor, the increased attention to discussions of problems of higher education are all hopeful signs that the climate of public opinion basic to adequate support will develop in time to enable colleges and universities to meet their new obligations and new opportunities.⁷

The University's Concern

The university's concern and obligation to society is reflected in a statement by the MSU Committee on Undergraduate Education:

The admissions decision is at once an instrument of public policy, representing the university's obligation to the citizens who support it, and an instrument of academic policy representing its obligation to achieve high standards in all the programs it conducts. Every admission decision, from rejection of a single applicant to the far reaching determination of overall size and growth and distribution, every decision affects in unaccountable ways, not only the vitality of the University's courses of study, but the lives of individual men and women and the capacity of society to reach its own best hopes for all its members.⁸

Sir Eric Asby, in an MSU Administrative group meeting, April 25, 1967, stated that,

The idea that a student has a right to an education is so well grounded in America that it could probably

⁷ Raymond Howes, ed., Higher Education and the Society It Serves (Washington, D.C.: American Council on Education, 1957), p. 11.

⁸ Improving Undergraduate Education, op. cit., p. 11.

not be dispelled. It is a matter of living with the idea and of trying to solve the problems that arise as a result of it.⁹

J. B. Johnson suggests,

It seems to me that an intelligent, successful and enduring society will provide educational facilities to enable each individual to secure training for some occupation suited to his native abilities or endowments, so that he may perform his share of the world's work in a field which he can work at best.¹⁰

John T. Caldwell indicates:

Compulsions to limit enrollment may arise from so simple a fact as the lack of space in which to grow, or from the subtle fact that a faculty of competent scholars will nearly always prefer, and press for, conditions which will furnish more good students and fewer poor ones. On the whole, however, the university must keep attuned to society's desire and challenge to have policies which enable selection to be based on new evidence.¹¹

The eight-year study of the Progressive Education Association, summarized by Aiken, indicates that preparation for higher education could take many different forms. This would be in direct contrast to previous studies, e.g., Fine, in his Admissions to American Colleges, found,

For the most part, the colleges expect successful candidates to have mastered an academic program covering such subjects as English, algebra, plane geometry,

⁹ Sir Eric Asby, Michigan State University Administrative Board Meeting, Minutes, April 25, 1967.

¹⁰ John B. Johnston, Scholarship and Democracy (New York: D. Appleton, Century, 1937), p. 1.

¹¹ Howes, op. cit., p. 75.

social science, natural sciences, and foreign language. With this "core curriculum" behind him, a student can probably meet the entrance requirements of a majority of institutions of higher learning in the country.¹²

A policy of selection which considers the implications of these changing conditions will have to be adjusted to the demands of increasing numbers of students.

The response of the university in meeting these demands, can then be rigid and automatic or it can be flexible and individualized. It would appear that a concerned university can best serve its own obligations, and society's, by instituting its own admissions or selection requirements. "At no point should the institution be deprived of its right to establish its own admission policies based on the clearly stated objectives it wishes to achieve with it's students."¹³

The importance of admissions to a university cannot easily be overestimated, for upon its admission policy must depend, in significant measure, the quality of its academic programs and the character of community life it can support. A university is rarely (and never for very long) better than the students it enrolls.¹⁴

The implementor of this policy within the university is the admissions office (counselor).

¹² Benjamin Fine, Admission to American Colleges (New York: Harper & Brothers, 1946), p. 27.

¹³ J. G. Darley, and others, The Use of Tests in College, American Council on Education Studies, Series VI, Vol. XI, No. 9 (Washington, D.C.: American Council on Education Studies, 1947) p. 18.

¹⁴ Improving Undergraduate Education, op. cit., p. 10.

The Admissions Office (Counselor) Concern

Admissions counselors are concerned with meeting their responsibility of selecting students for admission. Burns, Millet, Ayers, and Russell give significant justification to the importance of admission. Burns identifies the admissions office as an administrator of importance. Millet identifies the importance of the admission process to an institution by establishing that the quality of students admitted is reflected in the quality of the college or university.¹⁵

Perry states, "Specialization in the field of admissions is relatively new to the scene of American higher education having come along to us most generally since World War II."¹⁶ This specialization has been directed toward providing knowledge and understanding to the selection process of students. Admissions counselors are concerned about the decisions or options of admission and their impact upon the student as well as the university.

Individually and as a group admissions officers are altruistic. Their chief concern is the educational welfare of students entering colleges and universities. This concern takes the form of extending wise counsel to students so that intelligent decisions can be made about a choice of college.¹⁷

¹⁵John D. Millet, The Academic Community (New York: McGraw-Hill Book Co., 1962).

¹⁶Perry, op. cit., p. 7.

¹⁷Ibid.

The Selection Process

Since decisions must be made in the selection of students for admission the admissions counselor must utilize previous research in admission and develop local programs for selection. Much of the admissions literature deals with prediction on the basis of tests. A considerable volume of literature exists on academic prediction studies. Juola, Segal, Garrett, Borow, Douglas and Lavin would be representative of authors who have compiled prediction studies and summaries.

Scholastic aptitude tests are probably the most widely used and investigated predictor of college success. Darflinger, and Wagner have completed research in correlation between SAT and college performance. In addition, research seems to indicate that tests are only one predictor. Used alone they are not perfect criteria for selection.

"Tests must not be viewed as the ready-made, flawless answer to admissions puzzles; they supply substantial clues in each situation but their application has limitations not always apparent to the uninitiated."¹⁸

"The three important elements of the process--the program of the institution, the caliber of the applicant group in general, and the success criterion of the institution--can and probably will change in time."¹⁹

¹⁸College Testing, op. cit., p. 24.

¹⁹Ibid.

Therefore,

Every college that wants to take the trouble can discover its intellectual floors or thresholds by testing its students and comparing their scholastic aptitude tests with their college records; some colleges can choose the level of ability with which they wish to deal. To protect itself, the college should administer its own test, preferably a standardized one; but, if not, one which it has carefully validated and calibrated on its own students.²⁰

Fine, Berdie, and Bowles have examined these criteria in relation to the admission process and generally have encouraged utilization of several factors for selection. Fishman summarizes this way,

A review of all college guidance and selections studies completed during the decade 1948-1958 shows that this area is one of the most intensively investigated in the entire field of educational research. What is the upshot of all this inquiry? Unfortunately, it can be summarized quite briefly. The most usual way of predicting college performance is to look at high school grades and scores on scholastic aptitude tests.²¹

Other examples of achievement and/or ability tests are the American College Testing Program, College Entrance Examination Board Program, College Qualification Test, Minnesota College Aptitude Test and Ohio University Psychological Examination.

The use of predictors, i.e., achievement and/or ability tests is one method of gaining additional information about applicants to the university. Other

²⁰Ibid., p. 19, item 13.

²¹Joshua Fishman, "Student Selection and Guidance," College and Character, edited by Nevitt Sanford (New York: John Wiley & Sons, 1964), p. 81.

traditional methods are also used to admit students, e.g., rank in class, high school grade point average, and high school recommendation.

One procedure for selection like one option for admission should from time to time be evaluated. "There is thus good reason to reconsider the elements periodically and every reason to subject all admissions practices, including the tests and test procedures utilized, to reappraisal."²²

The selection process involves making a choice of students. Choices must be made in the higher education admission process. "Choice must be made in planning an educational program, and the effectiveness of the program must also be studied. Evaluation is therefore inevitable in education."²³

The objective then becomes that of first determining those who have a reasonable chance for academic success and subsequently evaluating the resulting success or failure of those selected.

The central question becomes that of determining whether students who are considered adequate or inadequate on the evaluation instrument are actually adequate or inadequate on other more direct criteria of academic success [i.e., MSU GPA]. Regardless of who makes the decision, its validity is determined by

²²College Testing, op. cit., p. 24.

²³Dressell, et al., op. cit., p. 6.

subsequent success or failure of students who have followed the required or suggested course of action.²⁴

Summary

The concern of society with the process of admitting students to higher education is clear. The university is concerned with the methods of selection of those students it feels can succeed, i.e., have normal academic achievement and progress.

The admissions office is the implementor of the selection process and the agency within the university responsible for making the decision to admit or not admit the candidate.

²⁴Arvo E. Juola, "Selection, Classification and Placement of Students," Evaluation in Higher Education, edited by P. Dressel (Boston: Houghton Mifflin Co., 1961), p. 305.

CHAPTER III

DESIGN

Population

There are four groups of Summer Test Admit students in this study. Each group has been identified for this study by the year of entry into the university and labeled with a number representing the group and year. Group 1, STA 1965, 176 students; Group 3, STA 1966, 286 students; Group 5, STA 1967, 279 students; Group 7, STA 1968, 276 students. There is a total of 1,017 students in the STA populations. Table 3.1, page 30, provides basic population and sample data, i.e., the group size, mean high school grade point average, mean CQT total scores, mean MSU Reading score, and the year of matriculation.

It should be noted that Group 1, STA 1965, enrolled first in the university fall term 1965. The other three STA populations started during the summer quarter of the school year, 1966 through 1968.

In addition to the four groups (populations) of STA students, there were four samples selected from the total population of Michigan regular fall quarter admitted students, 1965-1969.

The four samples were selected from the total regular fall Michigan populations on the basis of matching College Qualification Test total scores and MSU Reading Test scores derived from MSU Orientation Tests. The samples were also matched on the basis of sex with the corresponding STA group. Each regular fall admit student in the sample was matched exactly on the College Qualification Test total score and sex.

An interval of four was necessary in matching the regular admit samples to the STA groups on the MSU Reading Test score. The regular admit samples were admitted to the fall quarter in corresponding years to the STA populations.

Each group of regular admits has been identified for this study by the year of entry and labeled with a number representing the group and year.

Group 2, regular admit sample 1965, 176 students; Group 4, regular admit sample 1966, 286 students; Group 6, regular admit sample 1967, 279 students; and Group 8, regular admit sample 1968, 276 students. Each of the samples were selected from approximately 6,000 students.

The characteristics for matching the regular admit students with the STA students were selected from the Registrar's enrollment data. This information was available in the Registrar's file maintenance change card table. This is also available in the data processing department, Program R4701.

There were eighty possible characteristics which could have been used for matching the groups. The three characteristics selected were the student's CQT total score, MSU reading score and sex. These characteristics were specifically chosen to provide homogenous ability groupings.

The characteristics of CQT total score and MSU reading score had a wide range of scores for both male and females which permitted matching without loss of the population or sample cases.

Most difficulties that occur in the application of parallel-group design with matching revolve around the matching procedure. The first question that must be solved by the research worker is to determine what variable or variables to use for matching. Matching on a number of variables that are correlated with the dependent variable will reduce errors more than matching on a single variable that is less highly correlated. In attempting to match on more than two variables, however, a difficult problem often comes up because of the impossibility of finding individuals who are reasonably well-matched on several variables. Under these conditions, the research worker must discard many subjects for whom satisfactory matches cannot be obtained.¹

Therefore, by matching on the characteristics of sex, CQT total score and MSU reading score, students in the STA population were not discarded. In addition, the sample of regular admits had perfect matches in each case on sex and CQT total score and were matched within an interval of four (+2, -2) on the reading score.

¹Walter R. Borg, Educational Research: An Introduction (New York: McKay Company, Inc., 1967), p. 299.

The students for the regular admit sample were selected from a Registrar's yearly alphabetical list of all Michigan regular admits. The Michigan regular admits are those Michigan students clearly admitted to the fall quarter. The individual students in the sample were matched to the STA students on all characteristics by progressing completely through the alphabetical list before returning to "A."

The STA groups and the matched regular admit samples were organized by group per year of enrollment. Each matched pair of students within each group was given a serial number for identification purposes.

TABLE 3.1.--Basic STA and regular admit group data.

Group	Year	N	MF	$\bar{X}$ H.S. GPA	$\bar{X}$ CQT Total Score	$\bar{X}$ MSU Reading Score
1	1965	176	133-43	2.28	129	30
2	1965	176	133-43	2.80	129	30
3	1966	286	196-90	2.33	129	29
4	1966	286	196-90	2.95	129	29
5	1967	279	188-91	2.33	129	31
6	1967	279	188-91	3.01	129	31
7	1968	276	161-115	2.35	127	30
8	1968	276	161-115	3.00	127	30

Method of Analysis

The analysis of the STA students' academic achievement and progress was carried out through a "non-equivalent

control group, multiple time series design."² This type of design provides one way to repeat the test of the hypotheses at each point in time, e.g., per quarter.

The study has covered a four-year time period, fifteen continuous quarters, beginning fall quarter 1965, and extending through spring quarter 1969.

The research data has been compiled from student admission records, Registrar's transcripts, and Office of Evaluation Services data.

This design has been used to make comparisons between the matched groups using the variables, mean MSU GPA, mean credits earned, and absence.

The basic design of the study has been repeated for each of the four years cited.

David E. Lavin states,

College admissions officers and guidance personnel are certainly interested in predicting more than a student's grades during freshman year.

It would be valuable to be able to predict the level of performance throughout the college career because a student's performance may fluctuate widely in quality. If this type of performance were predictable, and if it were possible to know whether or not future performance was likely to improve, educational administrators would be in a position to make sounder decisions. More longitudinal research may provide some answers for these problems.³

²Donald T. Campbell and Julian C. Stanley, Experimental and Quasi-Experimental Designs for Research (Chicago: Rand McNally and Company, 1969), p. 47.

³David E. Lavin, The Prediction of Academic Performance, Science Editions (New York: John Wiley & Sons, Inc., 1965), p. 45.

The analysis was carried out by first computing the mean and standard deviation for each group. This was done per quarter using the variables, mean MSU GPA and mean credits earned. The variable of absence was recorded in frequency per quarter.

A statistical comparison was made between each matched STA and regular admit group. This comparison was made to determine if there were significant differences using the variables tested.

In addition year-end comparisons between matched groups were made using the variables, mean accumulative MSU GPA and mean accumulative credits earned.

An analysis of variance was used to determine if significant differences exist between groups using the variables, mean accumulative MSU GPA, and mean accumulative credits earned.

"The really important feature of the analysis of variance is that it permits the separation of all of the potential information in the data into distinct and non-overlapping portions, each reflecting only certain aspects of the experiment."⁴

A two-way analysis of variance (ANOVA) was used first between the matched groups (1 & 2, 3 & 4, 5 & 6, 7 & 8) to compute significant differences existing between the sexes within each group, between matched groups, and

⁴William L. Hays, Statistics for Psychologists (New York: Holt, Rinehart and Winston, Inc., 1965), p. 408.

for interaction on the variables, mean MSU GPA and mean credits earned per quarter.

This method of analysis was used in order to determine any significant difference between M and F, and to see if there were any significant interactions between group and sex. The two-way analysis of variance provided the best method to evaluate these differences.

"The mechanics of the analysis of variance allow the experimenter to arrange and summarize his data in non-redundant ways, in order to decide if effects exist and to estimate how large or important those effects may be."⁵

Therefore, two sets of one-way analysis of variance (ANOVA) were carried out between matched groups (1 & 2, 3 & 4, 5 & 6, 7 & 8). The analysis was repeated each quarter. Specifically there were seventy-two one-way analyses of variance computed. One analysis for each quarter of the study was made between the matched groups using the dependent variables, mean MSU GPA and mean credits earned.

Yearly summaries were computed indicating mean accumulative MSU GPA and mean accumulative credits earned by group for each school year completed. To compute the accumulative year-end grade point average, sum of honors points was divided by sum of the credits earned to date.

⁵Ibid., p. 409.

The statistical procedure used to compare the groups using the mean accumulative MSU GPA and mean accumulative credits earned for school years completed was a one-way analysis of variance.

This analysis provided yearly summaries based on grand means of the variables, mean accumulative MSU GPA and mean accumulative credits earned. The analysis compared the STA and regular admit groups by testing for significant differences between the group means.

The year-end analyses were made over the following quarters for Groups 1 and 2. The first school year completed, quarters 1-3; second year, quarters 1-7; third school year completed, quarters 1-11; and fourth year, quarters 1-15.

Groups 3 and 4 school years completed were the first year, quarters 4-7; second year, quarters 4-11; third year, quarters 4-15.

Groups 5 and 6 year-end analyses were made over quarters 8-11 for the first year and quarters 8-15 for the second accumulative year.

The Groups 7 and 8 had one year-end comparison on each variable, quarters 12-15.

The statistical method used to determine significant differences between groups using the variable of absence was the Chi-square test. "Chi-square is used as a test of significance when we have data that is expressed in frequencies or data that is in terms of percentages or

proportions, and that can be reduced to frequencies."⁶
The equivalent significance level to .05 for Chi-square is 3.84.⁷

Individual research paradigms have been used to arrange and relate the results of the two-way analysis of variance; the one-way analyses of variance by quarter; the one-way analyses for school years completed; absence per quarter; and the Chi-square test results per quarter.

Additional information was gathered in the course of the study which was not tested for significant differences, but does add to the evaluation of academic achievement and progress of the STA students.

First, the number of credits repeated per quarter by group was recorded; secondly, the withdrawal per group; and third, the number of degrees granted per group.

The five hypotheses listed in Null form represent a consolidation of individual statements of no difference on the variables tested in each quarter or year of the study.

⁶N. M. Downie and R. W. Heath, Basic Statistical Methods (New York: Harper and Row, 1965), p. 160.

⁷Sidney Siegel, Nonparametric Statistics for the Behavioral Sciences (New York: McGraw-Hill Book Company, Inc., 1956), p. 249.

Null Hypotheses

- Ho₁ There is no significant difference in mean MSU GPA by quarter completed, fall quarter 1965 through spring quarter 1969, between Groups 1 and 2, 3 and 4, 5 and 6, 7 and 8.
- Ho₂ There is no significant difference in mean credits earned by quarter completed, fall quarter 1965 through spring quarter 1969, between Groups 1 and 2, 3 and 4, 5 and 6, 7 and 8.
- Ho₃ There is no significant difference in mean accumulative MSU GPA for school years completed, fall quarter 1965 through spring quarter 1969, between Groups 1 and 2, 3 and 4, 5 and 6, 7 and 8.
- Ho₄ There is no significant difference in mean accumulative credits earned for school years completed, fall quarter 1965 through spring quarter 1969, between Groups 1 and 2, 3 and 4, 5 and 6, 7 and 8.
- Ho₅ There is no significant difference in absence by quarter completed, fall quarter 1965 through spring quarter 1969, between Groups 1 and 2, 3 and 4, 5 and 6, 7 and 8.

Summary

The purpose of this research design and method of analysis has been to evaluate the academic performance and progress of the STA population, to compare the STA students to those regularly admitted to the university and to establish a basis for comparison with each new STA population.

To accomplish this purpose the research has described the past university academic achievement and progress of students enrolled through the STA programs 1965-1969.

The statistical method of analysis of variance was used to determine significant differences in mean MSU GPA and mean credits earned between matched groups of STA students and those regularly admitted, 1965-1969.

Differences were also measured between groups using the variable of absence by the Chi-square test.

Chapter IV describes and illustrates the results of the method of analysis.

CHAPTER IV

ANALYSIS OF THE RESULTS

Two-way Analysis of Variance

The two-way analysis of variance was the statistical procedure used to measure for any significant differences present between the sexes within a group. The variables were mean MSU GPA and mean credits earned per quarter. The analysis also tested for differences between matched groups on the variables of mean MSU GPA and mean credits earned, and to see if there was interaction between group and sex. Table 4.1, pages 39-40, illustrates the results of this analysis.

Significant differences occurred between the sexes using the variable, mean MSU GPA for Groups 1 and 2, twice in fifteen academic quarters; Groups 3 and 4, zero times in eleven quarters; Groups 5 and 6, zero times in seven quarters; and Groups 7 and 8, zero times in three quarters.

The significant differences using the variable of mean credits earned between the sexes by quarters were for Groups 1 and 2, zero in fifteen quarters; Groups 3 and 4, zero in eleven quarters; Groups 5 and 6, once in seven quarters; and Groups 7 and 8, zero in three quarters.

[illegible]

TABLE 4.1. The number of persons in the sample who are in the same or different categories of the following variables: sex, age, education, occupation, and income.

[illegible]

Significant differences in interaction between group and sex using the variable of mean MSU GPA occurred for Groups 1 and 2, zero in fifteen quarters; Groups 3 and 4, once in eleven quarters; Groups 5 and 6, once in seven quarters; and Groups 7 and 8, zero in three quarters.

For the variable of mean credits earned the interaction between sex and group existed for Groups 1 and 2, once in fifteen quarters; Groups 3 and 4, once in eleven quarters; Groups 5 and 6, once in seven quarters; and Groups 7 and 8, zero in three quarters.

Significant differences between matched groups using mean MSU GPA per quarter was for Groups 1 and 2, eight out of fifteen quarters; Groups 3 and 4, nine out of eleven quarters; Groups 5 and 6, six of seven quarters; Groups 7 and 8, three out of three quarters.

Significant differences between groups using mean credits earned for Groups 1 and 2 were, once in fifteen quarters; Groups 3 and 4, nine of eleven quarters; Groups 5 and 6, five of eight quarters; Groups 7 and 8, two out of three quarters.

The results of the two-way analysis of variance indicate that significant differences between matched groups on the dependent variables are present. Differences on the variable mean MSU GPA between groups existed twenty-six times out of thirty-six quarters. On the variable of mean credits earned, differences were present in seventeen quarters out of thirty-six.

The results of the analysis also indicates that differences on the variables tested were not consistently significant for sex within groups or on interaction between sex and group. Therefore, the effect of these variables will not be considered further in this study.

One-way Analysis of Variance

The one-way analysis of variance was the statistical procedure used to determine significant differences existing between matched groups using the variables of mean MSU GPA and mean credits earned.

The results of testing this hypothesis with the one-way analysis of variance is illustrated in Table 4.2. In the table the mean MSU GPA is indicated along with standard deviations and significant differences between groups, each quarter, on mean MSU GPA. The dependent variable was mean MSU GPA, the independent variable was group.

Ho₁ There is no significant difference in MSU GPA by quarter completed, fall quarter 1965 through spring quarter 1969, between Groups 1 and 2, 3 and 4, 5 and 6, 7 and 8.

The hypothesis for Groups 1 and 2 was rejected in quarters 1, 5, 6, 7, 8, 9, 10, 11 and accepted in quarters 2, 3, 4, 12, 13, 14, 15.

The hypothesis for Groups 3 and 4 was rejected in quarters 5, 6, 7, 9, 10, 11, 13, 14, 15 and was accepted in quarters 8 and 12.

TABLE 4.2.--A comparison of mean MSU GPA between STA and regular admit groups using a one-way analysis of variance.
Alpha level .05.

Group	Item	F65	W66	SP66	S66	F66	W67	SP67	S67	F67	W68	SP68	S68	F68	W69	SP69
		.1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	$\bar{X}$	1.84	1.91	1.99	1.83	1.93	1.95	2.04	1.77	2.05	2.06	2.12	1.87	2.17	2.17	2.38
	S_2	0.63	0.59	0.65	0.90	0.67	0.74	0.78	0.81	0.65	0.70	0.74	1.81	0.87	0.95	0.76
2	$\bar{X}$	2.11	2.00	2.10	2.25	2.18	2.15	2.38	2.57	2.32	2.30	2.33	2.35	2.21	2.36	2.23
	S_2	0.77	0.81	0.79	1.26	0.82	0.79	0.69	1.04	0.76	0.82	0.65	1.32	0.95	0.95	1.06
	Sign. Level	.001	.241	.157	.366	.004	.027	.0005	.012	.004	.024	.031	.161	.789	.157	.247
	Comment	+	-	-	-	+	+	+	+	+	+	+	-	-	-	-
3	$\bar{X}$				1.94	1.76	1.80	1.88	1.79	1.84	1.95	1.89	2.25	2.04	2.20	2.22
	S_2				0.84	0.67	0.68	0.69	1.05	0.72	0.66	0.70	0.96	0.75	0.76	0.83
4	$\bar{X}$					2.14	2.14	2.21	2.03	2.22	2.33	2.32	2.37	2.38	2.49	2.59
	S_2					0.69	0.74	0.70	0.97	0.71	0.72	0.71	0.77	0.80	0.78	0.78
	Sign. Level					.0005	.0005	.0005	.375	.0005	.0005	.0005	.629	.0005	.001	.0005
	Comment					+	+	+	-	+	+	+	-	+	+	+
5	$\bar{X}$								2.13	1.76	1.92	1.93	1.96	1.99	2.21	2.14
	S_2								0.70	0.71	0.68	0.67	0.97	0.74	0.65	0.73
6	$\bar{X}$									2.21	2.21	2.26	2.54	2.36	2.57	2.56
	S_2									0.76	0.76	0.73	1.04	0.73	0.67	0.70
	Sign. Level									.0005	.0005	.0005	.070	.0005	.0005	.0005
	Comment									+	+	+	-	+	+	+
7	$\bar{X}$												2.11	1.98	2.04	2.03
	S_2												0.68	0.65	0.67	0.77
8	$\bar{X}$													2.44	2.46	2.54
	S_2													0.68	0.68	0.61
	Sign. Level													.0005	.0005	.0005
	Comment													+	+	+

The hypothesis for Groups 5 and 6 was rejected in quarters 9, 10, 11, 13, 14, 15 and was accepted in quarter 12.

The hypothesis for Groups 7 and 8 was rejected in all quarters tested.

The mean MSU GPA for STA Group 1 was lower than the matched regular admit Group 2 in every quarter except the final one.

In eight of the fifteen quarters there were significant differences between groups using the variable, mean MSU GPA. The differences occurred consistently in the fifth through the eleventh quarters of the study. In the last four quarters there was no significant difference between Groups 1 and 2. In the last quarter, and for that quarter only, Group 1 (STA) had a higher mean MSU GPA than the regular admit Group 2.

STA Group 3 and its match, the regular admit Group 4, shows a more consistent pattern of significant difference per quarter on mean MSU GPA. The mean MSU GPA in the STA Group 3 was lower in every quarter compared to the mean of the regular admit Group 4. Significant differences were present in nine of eleven quarters between Groups 3 and 4. The two summer quarters analyses indicated no significant differences on mean MSU GPA.

Between Groups 5 (STA) and 6 (regular admit) a significant difference in mean MSU GPA was present in six of seven quarters. Each mean MSU GPA in the STA

Group 5 was lower than the corresponding quarter mean for regular admit Group 6.

The same trend was present with mean MSU GPA between Groups 7 and 8. In three of three quarters there were significant differences indicated between STA Group 7 and the regular admit Group 8. In every quarter the STA group had a lower mean than the matched regular admit Group 8.

The mean MSU GPA for both STA and regular admit groups improved over the course of the study. All groups had above a two point grade average at the conclusion of spring quarter 1969.

The results of the one-way analysis of variance indicating significant differences between groups using mean credits earned per quarter is presented in Table 4.3, page 46.

The dependent variable was mean credits earned, the independent variable was group.

Ho₂ There is no significant difference in credits earned by quarter completed, fall quarter 1965 through spring quarter 1969, between Groups 1 and 2, 3 and 4, 5 and 6, 7 and 8.

The hypothesis for Groups 1 and 2 was rejected in quarter 7 and accepted in quarters 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15.

TABLE 4.3.--A comparison of mean credits earned between STA and regular admit groups using a one-way analysis of variance.
Alpha level .05.

Group	Item	F65	W66	SP66	S66	F66	W67	SP67	S67	F67	W68	SP68	S68	F68	W69	SP69
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	$\bar{X}$	11.80	13.58	13.70	7.62	13.53	13.59	13.47	7.85	13.34	13.42	13.00	6.44	12.30	13.86	14.03
	S^2	3.17	2.98	2.97	4.56	3.73	4.16	4.00	5.26	3.26	4.20	3.85	3.99	4.37	3.93	3.71
2	$\bar{X}$	12.35	13.45	13.32	7.90	13.81	13.79	14.47	7.15	13.55	13.14	13.74	7.37	12.66	13.34	13.16
	S^2	3.23	3.72	3.69	3.59	3.63	3.38	3.18	4.52	3.57	3.78	2.84	5.22	4.61	4.70	4.74
	Sign. Level	.099	.718	.300	.872	.525	.674	.030	.688	.642	.610	.119	.467	.551	.379	.136
	Comment	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
3	$\bar{X}$				9.59	12.47	12.77	12.56	7.61	13.13	12.98	12.63	8.00	11.75	13.00	12.47
	S^2				3.48	3.77	4.23	4.23	4.80	3.73	3.93	3.91	3.79	4.06	4.03	4.18
4	$\bar{X}$					12.95	13.85	13.57	7.13	13.97	14.24	13.92	7.70	12.98	13.80	13.93
	S^2					2.94	3.54	3.07	3.85	3.21	3.22	3.25	3.33	4.11	3.54	3.39
	Sign. Level					.090	.002	.0005	.687	.012	.0005	.001	.750	.005	.048	.001
	Comment					-	+	+	-	+	+	+	-	+	+	+
5	$\bar{X}$								10.13	12.19	13.00	12.17	8.09	12.36	13.44	12.90
	S^2								2.11	3.82	3.59	3.59	5.05	4.25	3.46	4.20
6	$\bar{X}$									12.63	13.92	13.71	7.60	13.95	14.83	14.54
	S^2									3.12	3.73	3.12	3.96	3.51	3.10	3.13
	Sign. Level									.139	.005	.0005	.741	.0005	.0005	.0005
	Comment									-	+	+	-	+	+	+
7	$\bar{X}$												10.14	12.39	12.68	12.28
	S^2												2.44	3.56	3.76	4.13
8	$\bar{X}$													12.50	14.03	14.34
	S^2													3.11	3.04	2.54
	Sign. Level													.698	.0005	.0005
	Comment													-	+	+

The hypothesis for Groups 3 and 4 was rejected in quarters 6, 7, 9, 10, 11, 12, 13, 14, 15 and accepted in quarters 5, 8, 12.

The hypothesis for Groups 5 and 6 was rejected in quarters 10, 11, 13, 14, 15 and accepted in quarters 9 and 12.

The hypothesis for Groups 7 and 8 was rejected in quarters 14, 15 and accepted in quarter 13.

Between Groups 1 and 2 there was only one quarter in fifteen indicating a significant difference in mean credits earned.

Groups 3 and 4 had eight of eleven quarters with a significant difference.

The other matched groups continued to show a significant difference per quarter for mean credits earned. Groups 5 and 6 had significant differences occurring in five of seven quarters. The analyses for Groups 7 and 8 indicate significant differences in two out of three quarters.

The STA Group 1 had six quarters with a higher mean of credits earned, compared to the regular admit Group 2 having nine quarters with a higher mean.

There were significant differences in mean credits earned in eight of eleven quarters between Groups 3 and 4. Significant differences were computed for matched Groups 5 and 6 in five of seven quarters. Groups

7 and 8 show two of three quarters significantly different in mean credits earned per quarters of the study.

There was a pattern in the quarter of occurrence of significant differences in mean credits earned for Groups 3 and 4, 5 and 6, 7 and 8.

Two out of the first three quarters indicated significances and three of the next four quarters were significantly different.

In most quarters of the study the mean credits earned per group, both STA and regular admit, were above the twelve credit minimum the university required for a full-time undergraduate student. The exceptions occurred in the summer quarter mean and the first quarter mean credits earned for Group 1.

The statistical procedure used to compare the groups at each school year completed was a one-way ANOVA.

The dependent variable used was mean MSU GPA. The independent variable used was the STA or regular admit group.

Ho₃ There is no significant difference in mean accumulated MSU GPA for school years completed, fall quarter 1965 through spring quarter 1969, between Groups 1 and 2, 3 and 4, 5 and 6, 7 and 8.

The hypothesis for Groups 1 and 2 was rejected for the first, second and third year-end analyses. The hypothesis was accepted for the fourth year.

The hypothesis for matched Groups 3 and 4, 5 and 6, 7 and 8 was rejected in the analysis for school years completed (see Table 4.4, page 50).

The mean accumulative MSU GPA for the STA Groups 1, 3, 5, 7 was lower than the matched regular admit Groups 2, 4, 6, 8 in every school year completed.

Significant differences were not found in the fourth school year completed between Groups 1 and 2. All other year-end analyses indicated significant differences between matched groups on the variable tested, i.e., mean accumulative MSU GPA.

The results of the one-way ANOVA using the variable mean accumulative credits earned for each school year completed is illustrated in Table 4.5, page 51.

The dependent variable used was mean credits earned; the independent variable, group.

Ho₄ There is no significant difference in mean accumulative credits earned for school years completed, fall quarter 1965 through spring quarter 1969, between Groups 1 and 2, 3 and 4, 5 and 6, 7 and 8.

The hypothesis for Groups 1 and 2 was rejected in all cases tested.

The hypothesis for Groups 3 and 4 was rejected in the first and third year and accepted in the second year.

The hypothesis for Groups 5 and 6 was rejected in the first school year completed and accepted in the second.

TABLE 4.4.--Comparison of mean accumulative MSU GPA for school year completed between STA and regular admit groups using a one-way analysis of variance. Alpha level .05.

Group	Item	F65	W66	SP66	S66	F66	W67	SP67	S67	F67	W68	SP68	S68	F68	W69	SP69
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		GPA				GPA				GPA				GPA		
1	$\bar{X}$			1.95				1.99				1.99				2.04
	S^2			0.45				0.43				0.42				0.42
2	$\bar{X}$			2.11				2.11				2.12				2.14
	S^2			0.64				0.63				0.62				0.61
	Sign.															
	Level			.009				.028				.022				.084
	Comment			+				+				+				-
3	$\bar{X}$							1.92				1.90				1.93
	S^2							0.49				0.48				0.48
4	$\bar{X}$							2.19				2.22				2.27
	S^2							0.58				0.56				0.56
	Sign.															
	Level							.0005				.0005				.0005
	Comment							+				+				+
5	$\bar{X}$											1.95				1.99
	S^2											0.51				0.50
6	$\bar{X}$											2.28				2.35
	S^2											0.59				0.57
	Sign.															
	Level											.0005				.0005
	Comment											+				+
7	$\bar{X}$															2.10
	S^2															0.46
8	$\bar{X}$															2.50
	S^2															0.53
	Sign.															
	Level															.0005
	Comment															+

TABLE 4.5.--A comparison of mean accumulative MSU credits earned for school years completed between STA and regular admit groups using a one-way analysis of variance. Alpha level .05.

Group	Item	F65	W66	SP66	S66	F66	W67	SP67	S67	F67	W68	SP68	S68	F68	W69	SP69
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		CE*				CE*				CE*				CE*		
1	$\bar{X}$			39.08				76.32				104.44				132.96
	S^2			5.87				17.44				33.46				49.28
2	$\bar{X}$			37.21				66.16				89.55				111.71
	S^2			10.90				28.08				45.15				63.14
	Sign.															
	Level			.044				.0005				.001				.001
	Comment			+				+				+				+
3	$\bar{X}$							43.66				71.38				92.53
	S^2							13.91				28.47				43.70
4	$\bar{X}$							39.24				72.63				101.32
	S^2							9.08				24.52				41.30
	Sign.															
	Level							.0005				.583				.014
	Comment							+				-				+
5	$\bar{X}$											43.80				72.13
	S^2											12.60				28.31
6	$\bar{X}$											39.67				75.96
	S^2											8.20				23.50
	Sign.															
	Level											.0005				.080
	Comment											+				-
7	$\bar{X}$															43.99
	S^2															12.21
8	$\bar{X}$															39.79
	S^2															8.62
	Sign.															
	Level															.0005
	Comment															+

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*Credits Earned

The hypothesis for Groups 7 and 8 was rejected in the first and only year of comparison.

The mean accumulative credits earned for STA 1 was lower for each school year completed compared to the regular admit Group 2.

The mean accumulative credits earned for matched Groups 3 and 4 presented a different pattern. The STA mean, 43.66 credits earned, was higher than the regular admit group, 39.24, in the first year completed. In the second school year completed the STA mean, 71.38, was lower than the regular admit group mean of 72.63. In the third year the STA mean credits earned, 92.53, was lower than the regular admit group mean of 101.32.

The mean accumulative credits earned in the first and second year for Groups 5 and 6 indicated the same pattern as Groups 3 and 4. The STA mean was higher in the first year, 43.80, compared to the regular admit group mean of 39.67. In the second completed school year the mean accumulative credits earned were higher for the regular admit Group 6, 75.96. The STA mean accumulative credits earned for the same period of time was 72.13.

Between Groups 7 and 8 the mean accumulative credits earned was higher for the STA group, 43.99, compared to 39.79 mean credits earned for the regular admits.

Significant differences were indicated between Groups 1 and 2 in each of the four school years completed. Between Groups 3 and 4 significant differences were present

for the first and third years, but not for the second year. Groups 5 and 6, had significant difference in mean accumulative credits earned the first year tested, but not the second year. The comparison between Groups 7 and 8, the first year, indicated there was a significant difference using the variable, mean accumulative credits earned.

Chi-square Test of Significance

The Chi-square test was the statistical measure used to test for significant difference per quarter between the matched STA and regular admit groups.

The dependent variable used was absence and the independent variable was group. The Chi-square critical value at the .05 alpha level is 3.84.¹

Ho₅ There is no significant difference in absence by quarter completed, fall quarter 1965 through spring quarter 1969, between Group 1 and 2, 3 and 4, 5 and 6, 7 and 8.

The hypothesis for Groups 1 and 2 was rejected in quarters 2, 3, 5, 6, 7, 8, 9, 13, 14, 15 and accepted in quarters 4, 10, 11, 12.

The hypothesis for Groups 3 and 4 was rejected in quarters 6, 7, 11, 13, 14, 15 and accepted in quarters 8, 9, 10, 12.

The hypothesis for Groups 5 and 6, 7 and 8 was rejected in all quarters tested.

¹Siegel, op. cit., p. 249.

There were significant differences occurring between the groups in twenty-four of the thirty-two quarters tested (see Table 4.6, page 55).

Between STA Group 1 and regular admit Group 2 there were significant differences indicated in ten of fourteen quarters. Groups 3 and 4 had significant differences in six out of ten quarters. In comparing Groups 5 and 6 there were six of six quarters showing significant differences. Groups 7 and 8 indicated two of two quarters having significant differences using the variable, absence.

The absence and presence rates by group are shown in Tables 4.7 and 4.8, pages 56 and 57.

Comparing STA Group 1 and regular admit Group 2, the regular admits had a higher rate of absence in all but one quarter.

A different result was present with the other matched groups. STA Group 3 had a higher rate of absence in ten of eleven quarters compared to regular admit Group 4. For Groups 5 and 6 the STA absence rate again was greater in six of seven quarters. Between STA Group 7 and regular admit Group 8 the same trend continued with the STA group having a higher absence rate in three of three quarters.

The highest rate of absence for both STA and regular admit groups occurred during the summer quarters.

Absence for either the STA or regular admit groups did not exceed 49 per cent. The summer quarters would be the exception.

TABLE 4.6.--A comparison of absence rates between STA and regular admit groups using the chi-square test.

Group	N	F65		W66		SP66		S66		F66		W67		SP67		S67		F67		W68		SP68		S68		F68		W69		SP69	
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15	
		AB	χ^2	AB	χ^2	AB	χ^2	AB	χ^2	AB	χ^2	AB	χ^2	AB	χ^2	AB	χ^2	AB	χ^2	AB	χ^2	AB	χ^2	AB	χ^2	AB	χ^2	AB	χ^2	AB	χ^2
1	176			0	7.30	0	18.03	163	0.19	2	45.90	18	26.60	31	16.45	150	4.15	49	7.20	59	3.08	62	3.82	149	0.00	53	7.00	55	8.08	58	8.57
2	176			9	+	19	+	166	-	47	+	59	+	66	+	163	+	74	+	76	-	81	-	149	-	78	+	82	-	86	+
3	286											33	15.13	61	8.62	253	1.25	77	2.79	86	3.60	111	12.26	262	1.28	129	11.27	133	11.72	134	10.52
4	286											8	+	25	+	262	-	59	-	65	-	71	+	253	-	89	+	92	+	95	+
5	279																			26	10.44	58	19.11	247	5.95	68	7.08	90	12.19	90	8.24
6	279																			7	+	21	+	264	+	42	+	53	+	59	+
7	276																											27	5.41	65	22.73
8	276																											12	-	23	+

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TABLE 4.7.--Absence rates for STA and regular admit groups.

Group	N		F65	W66	SP66	S66	F66	W67	SP67	S67	F67	W68	SP68	S68	F68	W69	SP69
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	176	Absence	0	0	0	163	2	18	31	150	49	59	62	149	53	55	58
		% of N	0	0	0	93	2	11	18	85	28	34	35	85	30	32	33
2	176	Absence	0	9	19	166	47	59	66	163	74	76	81	149	78	82	86
		% of N		5	11	94	27	34	38	93	42	43	46	85	44	47	49
3	286	Absence				0	15	33	61	253	77	86	111	262	129	133	134
		% of N				0	5	12	21	88	27	30	39	92	45	47	47
4	286	Absence					0	8	25	262	59	65	71	253	89	92	95
		% of N					0	3	9	92	21	23	25	88	31	32	33
5	279	Absence								0	6	26	58	247	68	90	90
		% of N								0	2	9	21	89	24	32	32
6	279	Absence									1	7	21	264	42	53	59
		% of N									1	3	8	95	15	19	21
7	276	Absence												6	13	27	65
		% of N												2	5	10	24
8	276	Absence													0	12	23
		% of N													0	4	8

TABLE 4.8.--Presence rates for STA and regular admit groups.

Group	N		F65	W66	SP66	S66	F66	W67	SP67	S67	F67	W68	SP68	S68	F68	W69	SP69
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	176	Present	176	176	176	13	174	158	145	26	127	117	114	27	123	121	118
		% of N	100	100	100	7	98	89	82	15	72	66	65	15	70	69	67
2	176	Present	176	167	157	10	129	117	110	13	102	100	95	27	98	94	90
		% of N	100	95	89	6	73	66	62	7	58	57	54	15	56	53	51
3	286	Present				286	271	253	225	33	209	200	175	24	157	153	152
		% of N				100	95	88	79	12	73	70	61	8	55	53	53
4	286	Present					286	278	261	24	227	221	215	33	197	194	191
		% of N					100	97	91	8	79	77	75	12	69	67	67
5	279	Present								279	293	253	221	32	211	189	189
		% of N								100	98	91	79	11	76	69	69
6	279	Present									278	272	258	15	237	226	220
		% of N									99	97	92	5	85	81	79
7	276	Present												270	263	249	211
		% of N												98	95	90	76
8	276	Present													276	264	253
		% of N													100	96	92

Absence per quarter in all groups increased each quarter over the course of the study.

In the final quarter of the study, 67 per cent of STA Group 1 was enrolled, and 51 per cent of the matched regular admit Group 2.

STA Group 3 had 53 per cent enrolled compared to Group 4 with 66 per cent. STA Group 5 and regular admit Group 6 had 67 and 78 per cent enrolled respectively. STA Group 7 had 76 per cent of the starting total number enrolled compared to regular admit Group 8 which had 91 per cent enrolled (see Table 4.8).

Credits Repeated, Withdrawal,
and Graduation

The mean credits repeated per quarter for each group in the study is illustrated in Table 4.9, page 59.

The total mean credits repeated per group was higher for every STA population compared to the matched sample of regular admits.

The STA Groups 1, 3, 5, and 7 had a greater mean credits repeated per quarter in almost every case than Groups 2, 4, 6, 8. The exceptions being the beginning quarter for each group. In these cases there were no credits repeated for either STA or regular admit students. The summer quarter 1968 was the other exception with the regular admit group having 4.93 mean credits repeated to the STA's mean of 4.56. In thirty-one of thirty-two compared

TABLE 4.9.--Mean credits repeated for STA and regular admit groups.

Group	F65	W66	SP66	S66	F66	W67	SP67	S67	F67	W68	SP68	S68	F68	W69	SP69	Totals
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1	0.00	1.35	2.54	6.69	4.52	4.88	5.90	8.46	7.05	7.56	7.65	8.22	10.88	11.83	12.15	99.68
2	0.00	0.75	1.85	2.00	2.82	3.59	4.73	2.23	4.65	5.00	5.85	4.89	8.36	8.97	9.60	65.22
3				0.00	0.73	1.80	2.78	3.36	4.00	5.34	6.36	7.92	8.57	8.95	9.54	59.35
4					0.00	0.80	1.42	2.04	2.18	2.90	3.82	3.39	4.53	4.99	5.42	31.49
5								0.00	0.58	1.55	2.75	4.56	4.65	5.15	6.06	25.30
6									0.00	0.76	1.26	4.93	2.16	2.75	2.98	14.84
7												0.00	0.38	1.03	2.24	3.65
8													0.00	0.18	0.49	.67

quarters the STA groups had higher mean repeated credits per quarter.

The number of withdrawals per quarter by group is illustrated in Table 4.10, page 61.

STA Group 1 had a total of nine withdrawals. The regular admit Group 2 had fourteen withdrawals.

In all other comparisons between the STA and regular admit groups on total withdrawals, the STA's had at least twice as many withdrawals as the regular admits. STA Group 3, twenty-two, regular admit Group 4, eleven; STA Group 5, five, regular admit Group 6, two; STA Group 7, three regular admit Group 8, one.

The graduation information or degrees granted per group was available only for Groups 1, 2, 3, and 4 due to the time limits of the study.

STA Group 1 had thirty students receive degrees. One student graduated in the fall of 1968 and twenty-nine graduated in the spring of 1969. Three of the twenty-nine STA spring 1969 graduates received degree honors.

The regular admit Group 2 had one student graduate in the fall 1968, one winter 1969, and twenty-eight receive degrees in the spring of 1969. Of the thirty students receiving degrees in this group, ten received degrees with honor.

TABLE 4.10.--Withdrawal rates for STA and regular admit groups.

Group	F65	W66	SP66	S66	F66	W67	SP67	S67	F67	W68	SP68	S68	F68	W69	SP69
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1					1	1	2				1		1	1	2
2		1	1				1					1	4	1	5
3						2	4		2	2	3	2	2	2	3
4					2			1			2			3	3
5								1					2	1	1
6													1	1	
7												1	1		2
8														1	

There were three students graduating for the matched Groups 3 and 4. The STA group had two graduates in spring quarter 1969 and the regular admit Group 4 had one degree granted at the same time.

Summary

The following is a composite of the statistical analyses indicating the number of quarters having significant differences. The results of testing the hypotheses are also indicated.

In the two-way analysis of variance (ANOVA), the dependent variables were mean MSU GPA and mean credits earned; the independent variables were sex, and group. The alpha level was .05.

Matched Groups	Dependent Variable	Independent Variable	Quarters Tested	Quarters with Significant Differences
1-2	Mean MSU GPA	Sex	15	2
		Group	15	8
		Interaction	15	0
1-2	Mean Credits Earned	Sex	15	0
		Group	15	1
		Interaction	15	1
3-4	Mean MSU GPA	Sex	11	0
		Group	11	9
		Interaction	11	1
3-4	Mean Credits Earned	Sex	11	2
		Group	11	9
		Interaction	11	1

Matched Groups	Dependent Variable	Independent Variable	Quarters Tested	Quarters with Significant Differences
5-6	Mean MSU GPA	Sex	7	0
		Group	7	6
		Interaction	7	0
5-6	Mean Credits Earned	Sex	7	1
		Group	7	5
		Interaction	7	1
7-8	Mean MSU GPA	Sex	3	0
		Group	3	3
		Interaction	3	0
7-8	Mean Credits Earned	Sex	3	0
		Group	3	2
		Interaction	3	0

Ho₁ There is no significant difference in mean MSU GPA by quarter completed, fall quarter 1965 through spring quarter 1969, between Groups 1 and 2, 3 and 4, 5 and 6, 7 and 8.

One-way ANOVA. Dependent variable, mean MSU GPA; independent variable, group; alpha level, .05. Group results illustrated in Table 4.2.

Matched Groups	Quarters of Hypotheses Rejected	Rejection or Acceptance Accepted
1-2	1,5,6,7	2,3,4,12
	8,9,10,11	13,14,15
3-4	5,6,7,9,10	8,12
	11,13,14,15	
5-6	9,10,11	12
	13,14,15	
7-8	13,14,15	

Matched Groups	Quarters Tested	Quarters with Significant Differences	Number of Hypotheses Rejected	Number of Hypotheses Accepted
1-2	15	8	8	7
3-4	11	9	9	2
5-6	7	6	6	1
7-8	3	3	3	0

Ho₂ There is no significant difference in mean credits earned by quarter completed, fall quarter 1965 through spring quarter 1969, between Groups 1 and 2, 3 and 4, 5 and 6, 7 and 8.

One-way ANOVA. Dependent variable, mean credits earned; independent variable, group; alpha level, .05. Group results illustrated in Table 4.3.

Matched Groups	Quarters of Hypotheses Rejected	Rejection or Acceptance Accepted
1-2	7	1,2,3,4,5,6 8,9,10,11 12,13,14,15
3-4	6,7,9,10,11 12,13,14,15	5,8,12
5-6	10,11,13 14,15	9,12
7-8	14,15	13

Matched Groups	Quarters Tested	Quarters with Significant Differences	Number of Hypotheses Rejected	Number of Hypotheses Accepted
1-2	15	1	1	14
3-4	11	8	8	3
5-6	7	5	5	2
7-8	3	2	2	1

Ho₃ There is no significant difference in mean accumulative MSU GPA for school years completed, fall quarter 1965 through spring quarter 1969, between Groups 1 and 2, 3 and 4, 5 and 6, 7 and 8.

One-way ANOVA. Dependent variable, yearly mean accumulative MSU GPA; independent variable, group; alpha level, .05. Group results illustrated in Table 4.4.

Matched Groups	Years of Hypotheses Rejected	Rejection or Acceptance Accepted
1-2	1,2,3	4
3-4	1,2,3	
5-6	1,2	
7-8	1	

Matched Groups	Years Tested	Years with Significant Differences	Number of Hypotheses Rejected	Number of Hypotheses Accepted
1-2	4	3	3	1
3-4	3	3	3	0
5-6	2	2	2	0
7-8	1	1	1	0

Ho₄ There is no significant difference in mean accumulative credits earned for school year completed, fall quarter 1965 through spring quarter 1969, between Groups 1 and 2, 3 and 4, 5 and 6, 7 and 8.

One-way ANOVA. Dependent variable, yearly mean accumulative credits earned; independent variable, group; alpha level, .05. Group results illustrated in Table 4.5.

Matched Groups	Years of Hypotheses Rejected	Rejection or Acceptance Accepted
1-2	1,2,3,4	
3-4	1,3	2
5-6	1	2
7-8	1	

Matched Groups	Years Tested	Years with Significant Differences	Number of Hypotheses Rejected	Number of Hypotheses Accepted
1-2	4	4	4	0
3-4	3	2	2	1
5-6	2	1	1	1
7-8	1	1	1	0

Ho₅ There is no significant difference in absence by quarter completed, fall quarter 1965 through spring quarter 1969, between Groups 1 and 2, 3 and 4, 5 and 6, 7 and 8.

Chi-square. Dependent variable, absence; independent variable, group. Critical value at the .05 alpha level is 3.84. Group results illustrated in Table 4.6.

Matched Groups	Quarters of Hypotheses Rejected	Rejection and Acceptance Accepted
1-2	2,3,5,6,7,8 9,13,14,15	4,10,11,12
3-4	6,7,11 13,14,15	8,9,10,12
5-6	10,11,12 13,14,15	
7-8	14,15	

Matched Groups	Quarters Tested	Quarters with Significant Differences	Number of Hypotheses Rejected	Number of Hypotheses Accepted
1-2	14	10	10	4
3-4	10	6	6	4
5-6	6	6	6	0
7-8	2	2	2	0

The mean number of credits repeated per group was higher for every STA population compared to the matched sample of regular admits.

Withdrawal from the university was less for STA Group 1 compared to the regular admit Group 2; STA with nine; regular admit, fourteen. STA Group 3 had twenty-two withdrawals compared to Group 4's eleven. STA Group 5 had five withdrawals and regular admit Group 6 had two. The STA Group 7 had greater withdrawal than the matched regular admit Group 8, three to one.

Graduation per group was available only for Groups 1 and 2, and 3 and 4, due to the time limits of this study.

STA Group 1 had thirty students graduate compared to thirty-one graduates for Group 2. STA Group 3 and regular admit Group 4 had two and one graduate, respectively, at the conclusion of this study.

CHAPTER V

SUMMARY AND CONCLUSIONS

Summary

The selection of students for admission by colleges and universities is a paramount concern of our present society. In attempting to respond to society's concern, colleges and universities are faced with a problem, i.e., the feasibility of various methods for admitting students.

This study is an analysis of one method of admission in light of the general problem facing the university.

The objective of this thesis is to evaluate the academic achievement and progress of Michigan freshmen admitted to Michigan State University through the "Summer Test Admit" program 1965-1969.

The "Summer Test Admit" (STA) program is one option provided for the selection of Michigan students. The program consists of a special entrance examination for Michigan senior high school students with low high school grade point averages. These students have been identified by the high school principal, counselor, or previous scholastic aptitude tests as having more academic

ability than the low grade point average indicates. The students who are successful on the examination must enroll for the summer quarter.

The special entrance examination is composed of the College Qualification Tests (CQT) and the Michigan State University Tests.

This study is significant and timely due to the value placed upon higher education today by society. Society not only values higher education but is concerned with and interested in the admission process, i.e., the selection of students by the university.

The concern of society with the process of admitting students to higher education is clear. The university is concerned with the methods of selection of those students it feels can succeed, i.e., have normal academic achievement and progress.

Society has had a high tolerance and faith in the decision-making process regarding admission options. However, the more concerned society becomes the more universities will have to evaluate their present systems of admission.

There are four groups of Summer Test Admit students in this study. Each group has been identified by the year of entry into Michigan State University.

To aid in the evaluation of the STA's achievement and progress, comparisons were made between were made

between the STA populations and matched samples of regularly admitted students.

The samples were selected from those Michigan students regularly admitted to the fall quarter. The regular admit samples were enrolled in corresponding years to the STA populations. The four regular admit samples were then matched with the corresponding STA groups on the characteristics of CQT total score, MSU reading score, and sex.

The study covers a four-year time period, fifteen continuous quarters, beginning fall quarter 1965 and extending through spring quarter 1969.

The basic design of the study has been repeated for each of the four years cited.

The research data collected on each STA and regular admit group was the mean MSU GPA, mean credits earned and rate of absence. The data was collected for each quarter and year of the study. The research data was compiled from student admission records, Registrar's transcripts, and Office of Evaluation Services data.

The purpose of the research design was: (1) to provide a method of data collection from which to evaluate the achievement and progress of present STA students, (2) to gather data for establishing a basis from which to evaluate the achievement and progress of future STA programs, and (3) to compare the STA students to regular admit students using the variables, mean MSU GPA, mean credits earned, and absence.

The analysis was carried out by first computing the mean and standard deviation for each group. This was done per quarter using the variables, mean MSU GPA and mean credits earned. The variable of absence was recorded in frequency per quarter.

A statistical comparison was then made between each matched STA and regular admit group. This comparison was made to determine if there were significant differences existing on the variables tested.

In addition, year-end comparisons between matched groups were made using the variables, mean accumulative MSU GPA and mean accumulative credits earned.

A two-way analysis of variance (ANOVA) was first used: (1) to determine significant differences between male and female on the variables tested, (2) to uncover significant differences between matched groups, and (3) to test for interaction of sex and group. Results of the two-way analysis indicated the differences on the variables tested were not consistently present, except between the matched groups.

A one-way ANOVA was then used to test for significant differences between the matched groups using the variables, mean MSU GPA and mean credits earned. The variables were compared in each quarter and for the accumulative school years of the study.

The statistical method used to determine significant differences between groups on the variable of absence was the Chi-square test.

Additional information was gathered in the course of the study which was not tested for significant differences, but does add to the evaluation of academic achievement and progress of the STA students.

First, the number of credits repeated per quarter by group was recorded; secondly, the withdrawal per group; and third, the number of degrees granted per group.

Significant differences were noted between matched STA and regular admit groups using mean MSU GPA in twenty of thirty-six quarters tested. The regular admits, Groups 2, 4, 6 and 8 had a higher mean MSU GPA per quarter in every quarter except one. The significant differences between matched groups using mean credits earned occurred in sixteen of thirty-six quarters. The mean credits earned for the regular admits was higher in twenty-five quarters compared to the STA's nine quarters.

In the comparisons for school years completed the STA groups mean MSU PGA was lower than the regular admit groups in every case.

Significant differences were not indicated in the fourth school year completed between Groups 1 and 2. All other year-end analyses indicated significant differences between matched groups using the variable tested, i.e., mean MSU GPA.

The mean credits earned for STA 1 was lower for each school year completed compared to the regular admit Group 2.

The mean credits earned for matched Groups 3 and 4 presented a different pattern. The STA mean, 43.66 credits earned, was higher than the regular admit group, 39.24, in the first year completed. In the second school year completed the STA mean, 71.38, was lower than the regular admit group mean of 72.63. In the third year the STA mean credits earned, 92.53, was lower than the regular admit group mean of 101.32.

The mean credits earned in the first and second year for Groups 5 and 6 indicated the same pattern as Groups 3 and 4. The STA mean was higher in the first year, 43.80, compared to the regular admit group mean of 39.67. In the second completed school year the mean credits earned were higher for the regular admit Group 6, 75.96. The STA mean credits earned for the same period of time was 72.13.

Between Groups 7 and 8 the mean credits earned was higher for the STA group, 43.99, compared to 39.79 mean credits earned for the regular admits.

Significant differences were indicated between Groups 1 and 2 in each of the four school years completed. Between Groups 3 and 4 significant differences were present for the first and third years, but not for the second year. Groups 5 and 6 had significant differences using mean credits earned the first year tested, but not the second

year. The comparison between Groups 7 and 8 in the first year indicated there was a significant difference using the variable, mean credits earned.

The absence rate between STA Group 1 and regular admit Group 2 was the reverse of all other group comparisons. The regular admit Group 2 had a higher rate of absence per quarter than the matching STA Group 1. In all other comparisons between groups, the STA populations generally had a higher rate of absence per quarter than the matched regular admit samples.

Absence for either STA or regular admit groups did not exceed 49 per cent with the exception of the summer quarters (see Table 4.7).

In the final quarter of the study, spring quarter 1969, 67 per cent of the STA Group 1 was still enrolled as was 51 per cent of the match, regular admit Group 2. STA 3 had 53 per cent enrolled compared to regular admit Group 4 with 66 per cent. STA Group 5 and regular admit Group 6 had 67 and 78 per cent enrolled, respectively. STA Group 7 had 76 per cent of the starting total number enrolled compared to the regular admit Group 8 which had 91 per cent (see Table 4.8).

The total mean credits repeated per group was higher for every STA population when compared to the matched sample of regular admits.

Withdrawal from the university was less for STA Group 1 when compared to the regular admit Group 2; STA

with nine; regular admit, fourteen. STA Group 3 had twenty-two withdrawals compared to Group 4's eleven. STA Group 5 had five withdrawals and regular admit Group 6 had two. The STA Group 7 had a greater number of withdrawals, three to one, than the matching regular admit Group 8.

Graduation per group was available only for Groups 1 and 2, and 3 and 4, due to the time limits of this study.

STA Group 1 had thirty students graduate compared to thirty-one graduates for Group 2. STA Group 3 and regular admit Group 4 had two and one graduate, respectively, in the final quarter of this study.

The null hypothesis, there is no significant difference in mean MSU GPA by quarter completed, fall quarter 1965 through spring quarter 1969, between Groups 1 and 2, was rejected in quarters 1, 5, 6, 7, 8, 9, 10, 11 and accepted in quarters 2, 3, 4, 12, 13, 14, 15. Between Groups 3 and 4, it was rejected in quarters 5, 6, 7, 9, 10, 11, 13, 14, 15 and accepted in quarters 8, 12. Between Groups 5 and 6, it was rejected in quarters 9, 10, 11, 13, 14, 15 and accepted in quarter 12. Between Groups 7 and 8, it was rejected in quarters 13, 14, 15.

The null hypothesis, there is no significant difference in mean credits earned by quarter completed, fall quarter 1965 through spring quarter 1969, between Groups 1 and 2, was rejected in quarter 7 and accepted in quarters 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15.

Between Groups 3 and 4, it was rejected in quarters 6, 7, 9, 10, 11, 12, 13, 14, 15 and accepted in quarters 5, 8, 12. Between Groups 5 and 6, it was rejected in quarters 10, 11, 13, 14, 15 and accepted in quarters 9, 12. Between Groups 7 and 8, it was rejected in quarters 14, 15, and accepted in quarter 13.

The null hypothesis, there is no significant difference in mean accumulative MSU GPA school years completed, fall quarter 1965 through spring quarter 1969, between Groups 1 and 2, was rejected in years 1, 2, 3 and accepted in year 4. Between Groups 3 and 4, it was rejected in years 1, 2, 3. Between Groups 5 and 6, it was rejected in years 1, 2. Between Groups 7 and 8, it was rejected in year 1.

The null hypothesis, there is no significant difference in mean accumulative credits earned for school years completed, fall quarter 1965 through spring quarter 1969, between Groups 1 and 2, was rejected in years 1, 2, 3, 4. Between Groups 3 and 4, it was rejected in years 1, 3 and accepted in year 2. Between Groups 5 and 6, it was rejected in year 1 and accepted in year 2. Between Groups 7 and 8, it was rejected in year 1.

The null hypothesis, there is no significant difference in absence by quarter completed, fall quarter 1965 through spring quarter 1969, between Groups 1 and 2, was rejected in quarters 2, 3, 5, 6, 7, 8, 9, 13, 14, 15 and accepted in quarters 4, 10, 11, 12. Between Groups 3 and 4, it was rejected in quarters 6, 7, 11, 13, 14, 15

and accepted in quarters 8, 9, 10, 12. Between Groups 5 and 6, it was rejected in quarters 10, 11, 12, 13, 14, 15. Between Groups 7 and 8, it was rejected in quarters 14, 15.

Findings and Conclusions

1. Differences do exist between the matched groups of STA and regular admit students in the mean MSU GPA per quarter.
2. Differences do exist between the matched groups of STA and regular admit students in the mean credits earned per quarter.
3. Differences do exist between the matched groups of STA and regular admit students in the mean accumulated MSU GPA for school years completed.
4. Differences do exist between the matched groups of STA and regular admit students in the mean accumulated credits earned for school years completed.
5. Differences do exist between the matched STA and regular admit students in the absence per quarter.
6. The STA groups' academic achievement, i.e., mean MSU GPA, was consistently lower than the matched regular admit groups'.

7. The STA groups' academic progress, i.e., mean credits earned, was usually slower than the matched regular admit groups'.
8. The STA groups as a population have a higher rate of absence per quarter than the regular admits.
9. The STA groups have a higher number of credits repeated than the regular admit groups.

Discussion

A strength of this study lies in its four-year span and that the basic design has been repeated for the four years. Some of the interesting aspects of this longitudinal research have been the trends in the variables: mean MSU GPA, mean credits earned, and absence by both STA and regular admits over this time period.

This thesis lends support to the concept that tests, e.g., CQT, can be used to identify students who have the ability to have successful academic achievement and progress at Michigan State University.

If the tests are a valid vehicle for identifying students who probably will succeed, then they may be of even greater value for selecting those students who have not the other predictive credentials, i.e., past academic achievements represented by high school grades.

It should be noted that even though the test (CQT) can be helpful in selecting those students who will be

academically successful, there were significant differences in many cases based on the variables tested between the STA and regular admit groups. This was indicated in the analysis by testing the hypotheses.

In retrospect, the differences indicated in the analysis may be a reflection of past achievement in contrast to tested performance, i.e., that a student's past academic achievement may be as good an indicator of future achievement as the test vehicle.

However, provided there are differences in the STA's high school performance and proven differences within the university as compared to those regularly admitted; the fact that most of the STA students are still enrolled and progressing toward a degree is commendable data as evidence against the program's censure.

The problem of university admissions, i.e., who to admit and who not to admit, has not been totally resolved by this research. However, it is possible to suggest that in view of the findings this type of admissions program is one successful method of admitting students to the university. Students admitted through the STA program have, for the most part, continued to achieve and progress within the university structure. In comparison to other students regularly admitted with the same tested abilities there were differences on the variables tested, but again the STA's are still making progress toward the degree.

The trend of improvement in mean MSU GPA and mean credits earned also support the statement of progress within the university.

With the ever increasing pressure to admit more students to the university, compounded by the demand to recognize larger numbers of atypical prospective students, e.g., those who here-to-fore have not thought of or considered higher education possible, this type of plan may become more prominent in an admission program.

To accommodate more students and provide for those with individual learning differences may necessitate an expansion of the university curriculum and facilities into a year around operation.

The existing quarter system at MSU already provides the structure for such a plan. Increasing the number of students in the summer would be a logical next step. Increasing the STA program attendance would be one way of moving in this direction with a successful program for identifying and maintaining students who would otherwise have been denied admission.

This type of admissions approach also seems to be quite reasonable for the ever-increasing number of students who apply for admission with atypical backgrounds, e.g., veterans, minority groups, non-high school graduates, and adults wishing to continue their education. A program of this nature may also have relevance in the admissions of students from non-graded schools.

Implications for Future Research

The implications for future research from a study of this nature are numerous. However, there are two suggestions which have become firm as a result of this study.

It would be desirable to do a longitudinal follow-up study on one STA population to find out the rate of mortality of students; including those dropped for reasons of scholarship, discipline, finance, and voluntary withdrawals. Then a follow-up on each category could be carried out, to see where these people eventually place themselves, e.g., employment, armed forces, or another college. Next a follow-up on the students remaining within the university structure (MSU or other) to see how long it takes them to graduate, or to see at what point they terminate their higher education.

Another suggested study would be to review the STA groups' admission records to see if there were other prominent characteristics in the STA groups, e.g., socio-economic background, high school size, and public or parochial school. The study design would use high school size as the independent variable in place of group and test using the same dependent variables, i.e., mean MSU GPA, mean credits earned, and absence. The difference could be tested for by using the statistical method, analysis of variance.

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