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# A COMPARATIVE STUDY OF THE PRE-GRADE-FLATION, POST-GRADE-FLATION ACADEMIC SUCCESS OF MICHIGAN COMMUNITY COLLEGE TRANSFER STUDENTS TO MICHIGAN STATE UNIVERSITY IN 1965-1967 AND 1971-1973

By

Duncan M. Sargent

A DISSERTATION

Submitted to
Michigan State University
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1977

ABSTRACT

A COMPARATIVE STUDY OF THE PRE-GRADE-FLATION, POST-GRADE-FLATION ACADEMIC SUCCESS OF MICHIGAN COMMUNITY COLLEGE TRANSFER STUDENTS TO MICHIGAN STATE UNIVERSITY IN 1965-1967 AND 1971-1973

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## Problem

The problem was to investigate the academic achievement of transfer students to Michigan State University from Michigan community colleges to determine: (1) if the first-term grade-point average of those students entering MSU in selected grade-point categories improved over time, (2) if the effect of grade-flation on the first-term GPA could be demonstrated for community college transfer students and (3) if the college of major entered by transfer students could be related to the level of MSU first-term grade-point average achievement.

## Procedures

The population included 2,781 transfer students to Michigan State University (MSU) from eleven Michigan community colleges. The population entered MSU as

first-time enrolled students during the fall terms of 1965, 1966, 1967, 1971, 1972 and 1973. Only those students who entered MSU at upper school standing with an entering grade-point average between 1.99 and 3.50 were used for the population.

The transfer students who enrolled for the fall terms of 1965, 1966 and 1967 were designated as the pre-grade-flation group. The transfer students who entered the fall terms of 1971, 1972 and 1973 were designated as the post-grade-flation group. The population was clustered into five entering grade-point average groups and, further, into four entering college of major (curriculum) categories.

In order to benefit from an equal cell design, a stratified random sample procedure was chosen. Implementing this procedure resulted in a sample population of 720 transfer students. The automatically stratified random sample assured equal probability for selection and produced eighteen students for each cell of the design.

The research design consisted of the three classification variable factors of: (1) time, (2) college of major (curriculum) and (3) entering grade-point blocks, and one dependent variable with eighteen subjects per cell. The dependent variable was the first-term grade-point average earned by the transfer students at Michigan State University.

The Finn Multi-Variate Analysis of Variance program was used to analyze the data and test the hypotheses. This program was applied to the transfer students in the pre-grade-flation and post-grade-flation groups. The .05 level of confidence was selected as the criterion for retaining or not retaining the hypotheses.

The Scheffé Post-Hoc Analysis procedure was used to further analyze significant differences identified among college of major or grade-point blocks to determine exactly where the difference occurred.

## Major Findings of the Study

The findings of this researcher justified the following conclusions:

1. The academic achievement of community college transfer students in the pre-grade-flation group, as measured by their MSU first-term mean grade-point average, was not significantly better than the academic achievement of post-grade-flation students. The post-grade-flation transfer students earned a significantly higher MSU first-term mean grade-point average.

2. The academic achievement of transfer students entering certain curricula at MSU was better than the academic achievement experienced by like transfer students in other curricula. There was significant difference

among the mean first-term GPA's of the four curricula (Business, Natural Science, Education and Other) used in this study.

3. Within college of major (curriculum) the pre-grade-flation and post-grade-flation transfer students' academic achievement, as measured by the first-term mean grade-point average, was not significantly different.

4. There was no significant difference between the academic (GPA) performance of pre-grade-flation and post-grade-flation community college transfer students to MSU within entering grade-point average categories.

This dissertation is dedicated in loving memory of my father

HERBERT MACGREGOR SARGENT

As a boy I once wrote that I admired him more than any other man. I now know the wisdom of that faith and love and that he truly was the finest man I shall ever know.

ACKNOWLEDGMENTS

This dissertation would not be complete without an expression of sincere gratitude and love for the constant support given me by my wife, Bonnie, and our beautiful children, Michael and Dana. Their gifts of time and personal sacrifice will be cherished forever.

The author acknowledges special thanks to Laurine E. Fitzgerald for guiding his efforts, for providing understanding when it was needed most and for being herself--a true lady. For this writer, Dr. Fitzgerald represents what the Student Personnel area was meant to be.

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# CHAPTER I

## THE PROBLEM

This study has been designed by the researcher to investigate the academic success of community college transfer students after their first term of attendance at a four-year institution. The effect of grade-flation on the academic success of transfer students in selected grade categories was studied. College of major has been introduced as a variable to give broader control and to enlarge the possible implications of the findings.

The indicants were:

(1) Michigan community college transfer students
   (a) Pre-Grade-Flation transfer students 1965-1967
   (b) Post-Grade-Flation transfer students 1971-1973

(2) College of major
   (a) College of Business
   (b) College of Natural Science
   (c) College of Education
   (d) Other

(3) Entering grade-point categories

(a) 2.00-2.29

(b) 2.30-2.59

(c) 2.60-2.89

(d) 2.90-3.19

(e) 3.20-3.49

(4) Michigan State University first-term grade-point average

This chapter includes need, definitions, purpose, theory, research hypotheses and an overview of the dissertation.

## Need

According to Gleazer (15) the community college is a significant and positive force in higher education today. Knoell and Medsker (25), however, indicate that some people still have a negative concept of the community college and have concluded that:

> The general public (including the parents of high school students) still tends to undervalue the contribution of the junior college to higher education and to view it as a kind of refuge for the "cannots," academically, and the "have nots," financially. Counselors, teachers, and parents are all prone to use the junior college as a kind of threat when college-bound students are not achieving as well as they should in high school.

Many studies, some of which are reported in Chapter II, have enumerated, analyzed and reported the characteristics of community college transfer students

to four-year institutions. Previous research (2, 6, 9, 31) has identified the social and academic characteristics of transfer students and predicts how long they will attend four-year institutions to complete a degree. Based on research reviewed by O'Connor (34) and Roueche (41), the image of the community college and its student body has been the subject of more research than has the academic and intellectual achievement level attained by the community college product.

The describable phenomenon of factors negatively affecting the academic performance of transfer students during the first few terms at the four-year institution, termed "transfer shock," has been a frequent topic for community college researchers in recent years (1, 10, 44). As a result of the work of Knoell and Medsker (25), Roueche (40), Hills (20) and others, the "transfer shock" phenomenon has been well documented. This research from the 1965-1975 decade identifies what has happened to community college transfer students but devotes little research or speculation as to why the shock value exists. Studies (1, 20, 29) of achievement of transfer students have shown that they

(1) experience an appreciable drop in grades in their first term after transfer;

(2) subsequently recover part or all of this grade point loss;

(3) earn lower total grade point averages than do four-year college students;

(4) experience their greatest difficulty in mathematically oriented programs and at major state universities;

(5) are less likely to graduate than native students and

(6) take longer to graduate than do four-year institution students.

In recognition of the transfer shock problem, John Hills (20) has proposed that institutions accepting transfer students from community colleges analyze their past experiences with transfers as a basis for policy determination. Hills (20) suggested the requirement of a higher pre-transfer grade average than that set for probation of native students as a buffer against poor articulation and uninformed curriculum counseling. In addition, Hills (20) indicates the results of transfer studies should be the basal ingredients of an institution's transfer admissions policy and philosophy.

An investigation of the community college transfer students' academic improvement over a period of time at a four-year institution might contribute additional knowledge and better understanding of the community college as well as its transfer students. Research in this

area may suggest desired program changes, new instructional techniques and personnel and educational-vocational advising for the students involved. This information could be advantageously used by both the community college and the four-year institution.

Most four-year institutions do follow-up and articulation studies (34) about their entering transfer students, and the results of these studies may or may not be shared with the community colleges. Some community colleges conduct their own follow-up studies concerning their former students based upon the information given to them by the four-year institutions (19). Two purposes generally sought by the institutions conducting these studies are:

1. Four-year institutions are interested in finding out whether the admissions requirements for transfer students are sufficient to maintain their academic reputation but not so lax as to falsely encourage the transfer student regarding successful completion of a degree program.

2. The community colleges are interested in finding out whether their students are "successful" after transferring to the four-year institution.

Underlying these studies is the idea that the institutions involved may learn whether they are performing their education mission in an acceptable manner.

The results of this study may demonstrate that the community college is at least performing this mission in a consistent pattern. Research which measures the improvement of the academic quality of the transfer student over time, and over a grade-flation period in the receiving institution's history, may provide information regarding how well the community college is preparing its students. Also, some of the factors the four-year institution might consider in accepting the community college transfer student may be disclosed.

Of major concern to this researcher is the educational grade-flation period of the 1965-1975 decade. Two papers by Juola (22, 23) have received national attention for reporting this phenomenon as it occurred throughout the higher education system of this country. The first Juola (22) survey was designed to answer the specific question of whether grades in higher education were undergoing inflation. The answer was a resounding "Yes!" The data pointed to changes which were definite and real and to a trend which was nationwide. The Juola (23) paper identified the 1968-1970 three-year period as the time frame in which the greatest erosion of grading standards occurred. Nearly all the groups surveyed by Juola (22) continued to show an annual increase in GPA to 1973, but the annual increment from 1972 to 1973 was

substantially smaller than for previous years signalling a slowdown in the grade-flation process.

Michigan State University (MSU) reflects the grade-flation pattern (36) depicted for large (over 20,000 students), public, four-year institutions offering undergraduate, graduate and professional programs (22). Between 1964 and 1974 the MSU all-university undergraduate grade-point index for fall terms rose from 2.32 to 2.81 (35). And individual MSU college averages followed the same trend (35). In the five years prior to 1968 the increase ranged from .01 to .04 each fall term, but in 1968 a .14 all-university GPA rise was recorded for fall term. Similar large increases occurred in every MSU degree granting college. The fall terms of 1969 and 1970 experienced all-university GPA growth rates of .13 and .07, respectively. Since 1970 the fall term all-university undergraduate grade-point index has advanced at the average rate of .002. Zero all-university GPA growth was recorded for fall term 1971 and minus GPA growth of .03 appeared for fall term 1975 (36).

A study of MSU transfer students by Hensen (19) indicates that the academic achievement (GPA) of community college transfers did not improve in the years 1965 through 1968 and, further, that their MSU counterparts continually achieved at a higher rate. Juola (23) reported that grade-flation did occur at the two-year

college level. In the second survey Juola (23) stated "the pattern of increase was amazingly universal with increases of nearly the same magnitude detected for all groups studied." The effect of grade-flation on the entering grade-point averages of community college transfer students to Michigan State and its effect on the first-term academic performance of those same students at Michigan State would be constant for the sample years used in this study, based on Juola (23) survey data.

The transfer student grade-point average admission requirements of Michigan State have remained stable in the period 1965 to 1975. The number of transfer students admitted each year has been controlled, almost exclusively, by use of an application deadline date. The philosophical issues related to the educational honesty of individual admissions decisions have been the responsibility of the professional transfer admissions staff.

Through this study new knowledge could be provided concerning the academic success of MSU transfer students with regard to grade-point ranges used in admission decisions. Knowledge could also be gained on the effect of MSU grade-flation on the first-term academic performance of those students; and, if a significant effect is demonstrated by the pre- and post-grade flation transfer student population, new educational data will be available for policy planning. If institutions

receiving community college transfer students are to adjust the entering GPA requirements over-all, or in certain majors, information regarding the GPA academic success of those transfer students may be useful. So, if graduate schools maintain or increase high GPA admission requirements, are we being educationally dishonest with some transfer student admissions when a transfer grade shock value exists?

This researcher offers an innovative approach to the evaluation of the academic success of community college transfer students at MSU and will attempt to demonstrate the need to consider the effect of MSU grade-flation when determining MSU admission policy.

## Operational Definitions

For the purpose of this study, the following definitions are to be used.

Entering GPA--the grade-point average earned at the community college as determined by the Office of Admissions, MSU, at the time of admission using the applicant's official transcript.

First-term GPA--grade point average earned the first term at MSU as computed by the Office of the Registrar.

Four-Year Institution--Senior Institutions--colleges, universities and institutes offering all four years (freshman, sophomore, junior, senior) of a baccalaureate degree. The institutions accepting transfer students at the junior level for continued study toward a baccalaureate degree.

Full-time load--twelve quarter credits or more per term.

GPA--grade-point average.

Grade-flation--increase in all-university undergraduate grade-point average providing less implied value than previous national standards (17, 43).

Heterogeneous group--variable majors entering several different discipline colleges.

Homogeneous group--variable majors entering a single discipline college.

Junior College-Community College--two-year institutions providing the transfer student sample; used interchangeably as a result of the historical change in the educational philosophy of these institutions (14).

Native students--students who entered four-year institution as first-time college students

directly from high school, thus providing the four-year institution's freshman class.

Other category--all other colleges of major entered by the population used in this study.

Testing admits--students whose admission criterion was a special examination rather than grade-point average and credits earned.

Transfer shock--factors negatively affecting the academic performance of transfer students during the first few terms at the senior institution.

Transfer students--subjects entering MSU from Michigan community colleges at upper school standing.

Upper school standing--seventy or more earned quarter credits.

## Purpose

In this study the author will investigate the academic success of transfer students from selected Michigan community colleges who entered Michigan State University for the first time during the fall terms of 1965, 1966, 1967, 1971, 1972 and 1973 to determine:

(1) if the first-term GPA performance of transfer students in the latter three years (1971, 1972, 1973) improved over the first-term GPA

performance of transfer students entering MSU during the earlier years of 1965, 1966, 1967 and

(2) if transfer students entering with grade-point averages (GPA) in selected grade categories achieved significantly different GPA levels during their first term at MSU before and after Michigan State University's grade-flation years.

## Conceptual Basis

The late Jesse P. Bogue (4), while president of the American Association of Junior Colleges, characterized the basic concepts of the junior colleges as new institutions which could become more self-directed, less concerned about performing their educational function in the traditional academic ways of the four-year colleges, more open to innovative change and able to develop new educational forms based on the characteristics and needs of the student population. This view of the junior college mission in higher education signaled the advent of the now prevalent community college concept. During the first fifty years of their existence, junior college programs emphasized the first two years of a four-year college education. The primary goals of junior college administrators were that their institutions be recognized as part of the higher education system and that the credits of their transfer students

be accepted by the four-year institutions, thus confirming the value of the junior college program.

Gleazer (14), in his work entitled Project Focus: A Forecast Study of Community Colleges, refers to a new mood of consumerism in the traditional educational public's mind. Gleazer notes, "the quasi-monopoly of academic institutions is being challenged by mounting numbers of people buying services from proprietary educational and training organizations." With community colleges existing in a far more competitive environment than that of the sixties, Gleazer (14) offers the notion that the focus of the junior college must shift again and become centered on a community learning resource goal. The community college, under this conceptual base, will abandon its role in the traditional four-year hierarchy toward a baccalaureate degree and provide a focal point, a physical place and a reason for community people to come together. Thus, the community college will assume a leading role in the development of community and family relationships and in the defining of community needs for service. Gleazer acknowledges that this movement will require great philosophical change by (and educational retraining of) community college faculty and administrators.

Central to this theme is the minimal importance attached to the value of transferable credit, selective

admission and competitive standards. The openness of the community-centered college appears to be on a collision course with the tightening process uncovered by Juola (24) as a response by the four-year institutions to the grade-flation period and its perceived erosion of academic standards. So, perhaps Gleazer's view will become the predominant movement in the American community college system. But it is unlikely that the transfer student and the transfer function will diminish in importance in the near future.

Blocker, Plummer and Richardson (3) state that the mission of public two-year colleges ought to be the education of all individuals of post high school age or achievement level to the limits of the student's ability. This theory is further expanded with the concept of a need for the "open-door" admissions policy to be fully developed qualitatively as well as quantitatively, i.e., "the community college must fulfill many responsibilities already assigned to it by society and it cannot also be the custodian of the unfit and the incompetent." They suggest that one of the ways to continue to improve the academic quality of the community college student (not just the transferring student) is to have selective admission of students to specific curricula. This pro-cedure requires that students not be admitted to a par-ticular curriculum unless they meet certain minimal requirements.

Finally, it is common for community college advocates to quote Medsker (32) regarding the academic success of community college transfer students: "Community college transfer students at the end of the baccalaureate degree program at the university are doing as well or better than the native students, based upon grade point average." This limited interpretation ignores the overall conclusions of the Knoell and Medsker studies with regard to attrition, GPA importance and proper institutional selection. The Medsker (32) and Knoell and Medsker (26) citation applicable to transfer student academic success can be more properly captioned: "All or most junior college students could be successful in achieving their degree goals after transfer if they would select four-year institutions and major fields which are appropriate to their ability and prior achievement" (26).

This research study has been designed to investigate the academic success of community college transfer students after their first term at a four-year institution. The effect of grade-flation on the academic success of transfer students in selected grade categories will be studied in the context of the Blocker group's theory and information put forth by Knoell and Medsker. College of major has been introduced to give broader control and lengthen the possible implications of the findings.

## Research Hypotheses

The following research hypotheses have been formulated. They will be transformed into operational hypotheses for testing in Chapter III.

Hypothesis 1:

The first-term GPA of post-grade-flation Michigan community college transfer students to Michigan State University at upper level will be lower than the first-term GPA of pre-grade-flation Michigan community college transfer students to Michigan State University at upper level.

Hypothesis 2:

There is a difference between Michigan community college transfer students to Michigan State University at upper level within the chosen four major college categories with respect to the transfer students' Michigan State University first-term GPA.

Hypothesis 3:

The difference between post-grade-flation and pre-grade-flation Michigan community college transfer students to Michigan State University at upper level with respect to their MSU first-term GPA will not be uniform for each of the four major categories sampled.

Hypothesis 4:

The MSU first-term GPA of post-grade-flation Michigan community college transfer students to Michigan State University at upper level within each one of the five entering GPA mean categories chosen will be lower than the MSU first-term GPA of pre-grade-flation Michigan community college transfer students to Michigan State University at upper level.

## Overview

Chapter II contains a review of literature and research pertinent to the academic success of community college transfer students, articulation between community colleges and four-year institutions, grading practices and major preferences of transfer students and grade-flation.

Chapter III contains a report of the research design by presenting a description of the sample, methodology, statistical hypotheses and analysis format.

Chapter IV contains the analysis of the results through testing the hypotheses and a discussion of the findings.

Chapter V will serve as a summary, with conclusions and implications for further research.

# CHAPTER II

## A REVIEW OF THE LITERATURE

The need for and focus of this study were formulated through a review of literature and research pertinent to community colleges and their students. The discussion is represented by literature devoted to three basic categories:

(1) the background and characteristics of community college transfer students;

(2) the academic success of transfer students expressed through articulation and follow-up studies conducted by community colleges and four-year institutions and

(3) research related to grade-flation.

A new trend in education places added importance on the academic success experienced by transfer students and the manner in which it is, or is not, achieved. This emerging trend is the advent of academic malpractice litigation involving institutions, students and the courts (33). By means of these consumer suits, students

are charging colleges with academic malpractice which may be defined as improper, injurious or negligent instruction which has had a negative affect on the student's academic standing (33). Already, students and faculty are directly engaged in academic legal battles while college administrators and governing boards are indirectly involved. And within the new consumerism movement, students are now demanding the right to fair and adequate instruction and evaluation for the tuition fees paid.

A recent article from the School Law Newsletter (33) reports that administrators are caught in the middle between responsibility to protect faculty academic freedom and the need to assure fair and adequate instruction and evaluation for students. According to the same newsletter, governing boards have historically not been involved in these academic matters but are now finding themselves legally and financially liable in court decisions for all institutional decision-making. An editorial by Mills in School Law Newsletter (33) listed the following implications:

(1) School and college catalogs/publications, now considered contractual references, must be published with greater care for they may be legally binding.
(2) Within educational units (a department) academic standards will have to become more uniform, and published, and available to students.
(3) Specific course requirements and evaluation procedures will have to be published and distributed to students at the beginning of each class.

(4) Academic due process procedures--including binding arbitration--will have to be established in each institution to keep routine grievances out of the courts.
(5) In-service education programs will have to be provided for faculty who tend not to be adequately informed of the legal consequences of academic malpractice.

So far, the burden of proof has rested with the student to demonstrate that the institution acted in bad faith. But as educational law expands and consumer rights receive a larger public audience, educational accountability by college faculties will be more prominent. Little imagination is required to forecast the impact of poor academic performance by transfer students if their admission to upper division programs or graduate school is blocked due to deficiencies in grade-point average experienced at the time of transfer.

Knoell and Medsker (25) report that grades, cumulative grade index or grade-point averages have historically and currently continue to be the single most important and accepted measure of success and the most important factor in the selection process for program entry. The impact of grade-flation and the legal aspects just discussed raise serious questions regarding the use of this standard. An article from the Michigan State University student newspaper, State News, illustrates the situation. "In what may have been the quickest Academic Council decision in recent history the new standards for graduation with honor and high honor

passed Tuesday with only a handful opposed" (5). The article also states that new honors standards are being instituted to compensate for grade-flation at the university which resulted in honoring 52 percent of the 1974 graduates. The chairperson of the Educational Policies Committee, when referring to the 1980 implementation date, commented that " . . . it seems like an awfully long time but on the other hand it gets us off the cobwebs of both legality and equity" (5).

## Literature Related to the Community College and Their Students

Edmund J. Gleazer (14) notes that although the community college has received much attention in recent years and is currently undergoing a third stage in its development, the two-year college was concerned with establishing its educational legitimacy by imitating the first two years of the traditional four-year college program. Gleazer (14) further notes that in the early 1950s, presidential commissions and nationally known educational advocates called for universal education opportunities of at least two years beyond high school. Therefore, two years of the standard four-year academic hierarchy was the chosen focus of the junior college.

As early as 1939, Charles M. Davis (12) conducted a survey of transfer admissions to colleges and universities. Davis studied where transfer students came from

and why they chose to enroll at certain institutions. He also studied factors involved in the admittance of these students. Davis stated:

> The public junior colleges, which had slowly been gaining standards and students in the past decade, have come to be important parts in the scheme of higher education. They form perfect instruments for students who wish to acquire the first two years of a four-year program while living at home.

Although the Davis study included transfers from community colleges and four-year institutions, he separated the two populations in his analysis. Davis' findings (12) were statistically similar for both groups studied, although junior college transfers showed an even greater dislike for transfer admission outside of their home state than did four-year transfer students. The returns on the Davis questionnaire demonstrated that geographic location of the receiving institution was the most important reason transfers enrolled at a particular institution. Students indicated that they transferred to the state college or university for the prestige of the degree based on institutional reputation or for a particular field of study not available in their first institution. Davis concluded, however, that in such transfers, the fine difference between the facilities and reputations of the various major institutions were not determining factors. His results indicated that students transfer to the nearest institution rather than the best, provided it offered the instruction or the

social atmosphere at a price they could afford to pay. Further, the results indicated the distribution of transfers has little to do with the academic reputation unless the transfer student is financially able to make the reputation factor very important.

In a study of the articulation problems between two- and four-year colleges, Hunter (21) noted that a lack of general acceptance for the two-year college had a profound influence on the ability of the transfer student to matriculate from the community college to the four-year institution. Implied in the Hunter statement was a feeling of difference that existed between the transfer student and the four-year institution native.

McClung (31) found that "research comparing the academic abilities of junior college students to their four-year counterparts has usually found the junior college student less able." Fenske and Scott (13) reviewed research comparing junior and senior college students on noncognitive variables and found significant differences on nearly every variable studied. Also, junior college students rated themselves less academically able, less confident in their mathematical skills and less proficient in writing skills and leadership ability.

Cohen and Brawer (9) found that junior college students were more homogeneous than senior college

students on the Omnibus Personality Inventory and on the Adaptive-Flexibility Inventory. According to their findings, although community college students tend to come from more diverse socio-economic status levels and show wider ranges of background ability, they also tend to show more similarity in terms of personality measures than do four-year students.

Fenske and Scott (13) cite a study by Wisgoski which reports that many community college students aspire to unrealistically high levels of educational achievement.

> Many studies have shown that a majority of the college freshmen in all ranges of ability and prior achievement expressed their intentions to work for a baccalaureate degree. Seventy-five per cent of all students enrolled in public junior colleges label themselves as transfer students, but only one-third actually enroll in senior colleges and universities.

The American Association of Junior and Community Colleges (AAJC) conducted a study (involving ninety-two junior colleges) to gather data about the characteristics of community-junior colleges and their students. Project Focus, as the AAJCC study was known, was reviewed by Bushnell (7) who concluded:

> . . . public and private two-year colleges do not serve the same constituencies as four-year colleges and universities. The backgrounds and characteristics that shaped the interests, career goals, and values of community-junior colleges are diverse, and there is heavy emphasis on the disadvantaged, the minority, and the home-based students. While these characteristics cannot be changed during a student's college career, they do serve as appropriate background information upon which faculty and administrators can build their strategies for helping students learn.

Cross (11) conducted an extensive study of the characteristics of junior college students to determine the uniqueness of this population from the traditional student population. The report was directed toward community-junior college faculty and administrators and had two purposes--to synthesize the findings of past research and to identify areas in which further research is needed. The six conclusions of the Cross (11) study were summarized by Hensen (19) in the following manner:

(1) Academic Characteristics The community college population tends to come from the middle and lower third of a tested population or a high school graduation ranking.
(2) Socio-Economic Background Community college students tend to have fathers with less educational background, lower family incomes and with a smaller number of the parents being in professional or managerial positions than the typical student going to the four-year institution. The community college student also receives less encouragement from the father to continue education beyond high school than does the entering freshman at a four-year institution.
(3) Finances Although there seems to be a general difference between the socio-economic levels of students that go to the community colleges and four-year institutions, it (finances) leaves much to be desired as a predictor. There was a general response from community college students that cost was a prime factor in selection of the community college, yet on the other hand, few indicated they had any major financial worries. This would raise the question whether the cost factor alone was a factor in the student's selection of a college.
(4) Self-Concepts The community college student is more apt to be attracted to the two-year college for practical reasons and not see himself in an academic or intellectual atmosphere. They also are more uncertain about their educational and vocational goals. Part of this seems to stem from the types of programs in which they were channeled into in high school. There is also a

clear difference between community college and four-year groups in their occupational aspirations. It is noted that 65 percent of the junior college students come from the homes of unskilled, skilled and semi-professional workers, yet nearly two-thirds of them aspire to managerial occupations.

(5) Interest and Personality Characteristics The general interpretation that the community college student has a more practical orientation to college and life than do their more intellectual oriented peers at the four-year institution is again substantiated in this area. The community college student certainly is more interested in applied curricula as well as future financial success and not nearly as prone to humanitarian pursuits as are their four-year college peers.

From a personality point of view they seem to be less venturesome and flexible in their thinking and therefore are much more likely to be cautious and controlled. Basically, it could be summarized by saying the community college student tends to be unsure of himself.

(6) Special Abilities A community college student does not generally feel as well prepared for college as a four-year college student--they are less confident of their academic abilities, they are frequently critical of their secondary school courses and teachers, and generally feel that their high school teachers would not rate them as good or excellent students (as compared to the number of four-year students that felt that same way). About the only areas in which a junior college student would express confidence in greater proportions than the four-year college student would be in nonacademic abilities such as manual skills, sports and the like.

For the present study it is important to understand the characteristics of community college students. Interpretation of the data generated and application of that data to admissions policy could be better structured to benefit the population being studied. Additionally, Cross (11) points out that this is an ever-changing population and therefore characteristic research of community college students should be an on-going process.

## Literature Related to Articulation Studies and Academic Success

Literature related to community-junior college students after their transfer to four-year institutions was essential for, and in fact aided, the development of this research (16, 38, 39).

In a study of national scope, as preparation for what is still the major transfer student follow-up study, Knoell and Medsker reviewed pertinent articulation and follow-up study literature prior to 1965. From this review Knoell and Medsker (26) concluded that:

(1) Community college transfers usually attain lower grade-point averages, below their previous accumulative average, after the first term of enrollment at the four-year institution. However, these students experience improved grade performance in succeeding terms.
(2) Community college transfers' grade-point averages were lower than native students, but this differential decreased with continued enrollment.
(3) The attrition rate of community college transfers was usually higher than for native students.
(4) The length of time required to complete the baccalaureate degree tended to be larger for the community college transfer than for the native student.

The major transfer student study, conducted at the national level, was authored by Knoell and Medsker (25). The survey included 7,243 junior college students who transferred in 1960 to forty-three four-year colleges and universities in ten states. Michigan was one of the ten states included, and Michigan State University was one of those institutions. The researchers attempted

to determine what junior college students were like. It compared their academic records at the junior college with their senior institution record, and it compared the transfer students' records with those of native students. Knoell and Medsker analyzed other characteristics, traits and achievements such as programs, major changes, institutional size and attrition.

Also, Knoell and Medsker (26) conducted a second-phase study which further analyzed the data of the first study and added a follow-up of the transfer student to the point of graduation or dropping out. Retention is a significant factor in the second study and has added relevance for this research study. The conclusions for the entire two-part study were delayed until the publication of the second study "in order to make a more final and complete assessment of the findings concerning transfer student performance" (26). The conclusions were:

(1) Junior colleges are making it possible for increasing numbers of high school graduates to begin work for baccalaureate degrees who would not otherwise be able to do so for reasons of academic or economic deficiency, or for lack of family encouragement.
(2) The general public (including the parents of high school student) still tends to under-value the contribution of the junior college to higher education and to view it as a kind of refuge for the "cannots," academically, and the "have nots," financially.
(3) In attempting to expand opportunity at the lower level and to strengthen education at the graduate level, master planners tend to assume that adequate educational opportunity between these two levels will be offered without any attention on their part to coordinated planning.

(4) The door should be kept open to allow capable junior college students who are attracted to terminal occupational programs to transfer, if circumstances are favorable to their doing so.

(5) All or most junior college students could be successful in achieving their degree goals after transfer if they would select four-year institutions and major fields which are appropriate to their ability and prior achievement.

(6) A number of the major state universities are now admitting transfer students somewhat indiscriminately on the basis of barely satisfactory junior college grades, on the grounds that all such students must be given an opportunity to attempt programs of their own choosing.

(7) The effects of diversity in higher education--in the quality of the entering students, level of instruction, types of programs, climate for learning, and pursuits of the faculty--all are reflected in the findings concerning the differential performance of the transfer students. No single meaningful conclusion can really be drawn about the quality of transfer student performance because of the vast differences which were found among the 41 four-year institutions which participated in the study, among the five types of such institutions, and among the 10 states.

(8) The C grade and the C grade-point average earned in junior college are relatively meaningless as global indicators of a student's likelihood of success in four-year institutions.

(9) Junior colleges are doing a more effective job in educating their good students, i.e., those who have aptitude for college work and good high school grades, than in preparing students with serious high school deficiencies for transfer to four-year institutions.

(10) There is so much overlap in the distribution of academic aptitudes of the transfer students who graduate and those who drop out that test scores do not distinguish very efficiently among the successes and failures.

(11) The average ability level of graduates who were freshmen in the major universities is higher than that of their counterparts who began their baccalaureate degree programs in two-year colleges, although there is considerable overlap in the ability of the students in the two types of institutions.

(12) Grade point differentials are one of the realities of university life which transfer students to these institutions should be prepared to accept, at least during their first year after transfer.
(13) New junior colleges are offering educational opportunity to thousands of high school graduates of average ability who have inadequate financial resources to attend a four-year college outside their home communities (or to pay tuition at local four-year institutions to which they might be admitted).
(14) Counseling about college attendance and career choice needs to be greatly improved at all levels--high school, junior college and in the four-year institutions.
(15) In many four-year institutions, transfer students are being overlooked in the planning of orientation programs, in offering counseling services to new students, in inviting their participation in social and extra-curricular activities, and, above all, in obtaining appropriate advisement at the time of their first registration.
(16) The good performance of the students after transfer is consistent with the student's appraisal of the quality of instruction they receive in the junior college.
(17) There is no reason why junior college transfer students should require more time and units to complete their degree programs than native students if the two- and four-year colleges work together on problems of articulation of their courses and curricula.
(18) Attrition after transfer, for all causes, is higher than it ought to be and could probably be reduced through joint efforts on the part of the two- and four-year colleges.
(19) Present articulation machinery in many states and in many institutions is quite inadequate to solve the problems which will be brought on by increasing volume of transfer students.

In an address to the Illinois Statewide Articulation Conference (37) in 1966, Knoell made some observations concerning articulation which were drawn from the Knoell and Medsker study data. These were findings not stressed in the report and from which they drew no conclusions:

> We must point out that articulation involves at least three distinct procedures, any one of which can spell success or failure for the transfer student. The three which are most critical in their effect on student performance are 1) The good matching of transfer students and institution through counseling, information, and admissions procedures, 2) The provision of appropriate personnel services including orientation, financial aids, and counseling, and 3) The articulation of current curriculum offerings and requirements in such a way that the student is able to progress through his degree program without undue loss of time and credit.

In order to document the transfer shock phenomenon, a computer search was conducted for source material cataloged by the Educational Resources Information Center (ERIC) which is a part of the United States Office of Education. A three-step, cross-index of descriptors relative to follow-up studies and the academic success experienced by junior college transfer students produced eighty-five citations reflecting a ten-year period from 1965 to 1975. A survey of the literature received demonstrates that a transfer shock value does exist and that there are potential hazards to transfer students.

In a study entitled "Transfer Shock: The Academic Performance of the Junior College Transfer," Hills (20) reviewed the findings of research conducted from 1928 through 1964 relative to the academic success experienced by junior college transfer students. Hills' conclusions and recommendations can be summarized as follows:

Conclusions:

1) Transfer students from community-junior colleges to four-year institutions should expect an appreciable drop in their grade-point average during their first term at the senior institution.
2) The grades of transfer students in their first term tend to improve in direct relation to the amount of work completed prior to transferring and in direct relation with the quality of their entering grade-point average.
3) The grades of transfer students tend to improve with each successive term of attendance at the senior institution.
4) Transfer students as a group earn lower cumulative grade-point averages than native students, and transfer students take longer to graduate than native students.
5) Transfer students experience their greatest academic difficulty in mathematically oriented programs.

Recommendations:

1) Transfer students should be warned of the probability they will suffer a transfer shock value at the senior institution.
2) Transfer students should be warned that they may encounter greater difficulty in completing a course of study than native students.
3) Receiving institutions should analyze their past experiences with transfers as a basis for policy determination.
4) Receiving institutions should require a higher entering grade-point average of transfer students than the probationary GPA of native students.
5) Receiving institutions should admit more transfer students than they expect to graduate.
6) Receiving institutions should consider equating pre-transfer grade-point averages to a common base to reduce the effect of differing grade scales at various sending institutions.

Three years later Roueche (40) surveyed twenty-four studies received at the ERIC Clearinghouse for Junior College Information and confirmed the findings and recommendations of Hills. Additionally, Roueche noted that the studies focused on grade-point achievement and did not provide insight into the reasons for success

or failure of transfer students. Further, he pointed out that no recommendations were made for modifying junior college offerings.

A research project by Anderson and Riehl (1) focused on the academic progress of junior college and four-year institution transfer students to the University of Illinois main campus for the years 1970 through 1973. A sample group of native students was used as a third element in the correlations. The academic progress of the groups was compared, as measured by grade-point average, academic status and continued enrollment through the first year. The performance of the transfer groups before and after transfer was monitored, and all three groups were compared in twelve subject matter areas on the basis of mean GPA. Their conclusions reflected that although junior college transfer students entered with grade points higher than native students or four-year transfers, their first-term performance was .40 lower than either of the remaining groups. Native student juniors had a higher retention rate than either transfer group, and transfer students had higher probation and drop rates than native student juniors. Junior college transfers experienced a higher probation and drop rate than four-year transfer students and consistently achieved a lower GPA than the other two groups in the twelve subject matter areas

studied. Also, junior college transfers earned the lowest mean GPA in ten of the twelve subject areas.

Follow-up studies of Michigan community college transfer students to Michigan State University have been conducted primarily by the Office of Institutional Research. Earlier studies, such as that of Luker (30), reported results similar to those of the Knoell-Medsker studies. Luker (30) attributed the high attrition rate of transfer students to the same reasons these students gave for attending the two-year institution, such as, insufficient interest or motivation, financial difficulties and unsatisfactory grades.

In 1967 Lorimer (28) conducted a study of 2,560 Michigan State University graduating seniors. Among her concerns was the number of terms required to complete a baccalaureate degree for transfer students versus the number of terms required for native students. Lorimer also investigated major changes for each group in relation to the graduating major. The findings revealed that only 20 percent of the transfer students graduated from a major department different from their entry major as contrasted with 67 percent of the native students. This statistic has substantial impact for transfer student admissions in that the need to screen transfer students' academic preparation for a given major field is highlighted. This need is further clarified by the

report that 75 percent of all graduates required thirteen terms to graduate and the remaining 25 percent, needing more than thirteen terms, contained a disproportionately large number of transfer students.

In 1974 Lorimer (29) conducted a follow-up study of the persistence, performance, class level and choice of major for community college transfers who entered Michigan State during the fall terms of 1969, 1970, 1971, 1972 and 1973. Students were grouped in this study by means of their entering grade-point average. The categories, by previous college GPA, were 2.25 or above, 2.00-2.24 and below 2.00 or no entering GPA. The observations of this follow-up study are:

(1) The data show that among the transfers admitted Fall 1969 (all of whom should normally have been graduated by Fall 1974) about 79 per cent may be expected to complete degrees at MSU. The percentages who may be expected to graduate among the Fall 1970, 1971, and 1972 admits are slightly less, 75, 70, and 70 respectively.
(2) Drop-out rates for those admitted with GPA's of 2.25 or above are considerably lower than for those admitted with lower GPA's.

Note: The drop-out rates ranged from a low of 20.1 percent for the 2.25 or above group to 37.4 percent for the 2.00-2.25 group and a high of 42.9 percent for the below 2.00 group.

(3) Nearly 29 per cent of the Fall 1972 transfers were still enrolled Fall 1974 for a third year; and 9 per cent of the Fall 1971 transfers were still enrolled for a fourth year. Most of these had achieved senior class standing.

(4) Transfer admits who persist tend to be concentrated in three colleges: 1) Social Science, 2) Education, and 3) Business. They differ from Freshman admits who persist in that freshman admits tend to be concentrated in 1) Social Science, 2) Natural Science, 3) Business, 4) Arts and Letters, and 5) Education.
(5) Drop-outs among transfers generally occur in greatest numbers from the colleges in which the largest numbers persist (Social Science, Business, and Education) but also in large numbers from Natural Science and Arts and Letters.

Hennessy (18) compared native Michigan State University students with community-junior college transfer students on selected academic and personal characteristics. He concluded these two groups were similar in many respects but significantly different with regard to some of the variables:

1. The transfer students' GPA's were slightly lower overall than the GPA's earned by native students;
2. Female community-junior college transfers experienced severe "grade-point losses" during their first term at MSU;
3. A significantly greater number of community-junior college transfers failed to maintain a 2.00 or above grade-point average and
4. The best single predictor of academic success at Michigan State for the community-junior college transfer student was the previously earned grade-point index from the community college.

Nearly all of the studies reported in this review of literature specifically recommended the need for additional and continuing research in the area of transfer student academic achievement. In recognition of this need, the American Association of Junior Colleges funded the development of a guide to the philosophy, planning procedures and use of follow-up studies. The follow-up study was considered to be an important and meaningful tool as a means of evaluating the impact of the college experience on students.

## Literature Related to Grade-Flation

On June 30, 1975, Professor of Education Joseph L. Byers of Michigan State University issued a memorandum to all of his colleagues and students. The subject was grading standards. Byers' (8) memorandum referred to open departmental discussion of grading practices and reported that he had been stimulated to engage in self-examination. The results convinced him of a clearly escalating mean GPA for the classes of Education 811 that he had taught. The Byers memorandum read in part:

> As I look back over my class lists at those who I gave 4.0, I find many students who were clearly deserving. Unfortunately, however, there are an even larger number whose performance was not so distinguished. Whether or not my classes increase in mean GPA as part of the nationwide "GPA-inflation" is not the point. The important point is that I'm now aware that I may have been misleading my students as to what they know about instructional psychology. Such dishonesty, intended or not, cannot be condoned.

Byers also reported his intention to systematically reduce the mean GPA for Education 800 by about 0.05 plus or minus .02 each of the next few terms. He felt that over the next two years the class mean would settle into a more accurate value.

This expression by Byers is a practical statement of the problem that, Juola (24) says, faculty and administrators "suddenly discovered" when the erosion of institutional grading standards began receiving attention. In November, 1976, a seminar was held at Michigan State University to specifically discuss the grade-flation problem. One of the presenters was Arvo E. Juola, Professor, Learning and Evaluation Service, Michigan State University. Two survey documents, national in scope and authored by Juola, were the moving sources and guiding instruments of that seminar.

Of major concern to the author in this research document is the educational grade-flation period of the 1965-1975 decade. The two surveys by Juola (22, 23) received national attention for reporting this phenomenon as it occurred throughout the higher education system of this country. The first survey was designed to answer the specific question of whether grades in higher education were undergoing inflation. Juola (22, 23) reported changes which were definite and real and a trend which was nationwide. And the survey unquestionably identified the 1968-1970 three-year period as the time

frame in which the most significant grade-flation occurred. Nearly all the groups surveyed by Juola continued to show an increase in GPA even to 1973, but the annual increment from 1972 to 1973 was substantially smaller than for previous years.

The second Juola (23) report summarized data from the earlier survey and probed the question of whether or not grade-flation was over. Juola's answer was a cautious yes. Follow-up data of the first survey for 1974-1975 showed the first discernible drop in grade-point averages since 1960. The leading institutions in the reversal trend were reported as larger, public senior institutions offering the doctoral degree.

Regarding the causes of grade-flation, Juola states:

> Forces leading to grade inflation are more evasive and difficult to verify. The parallel in time with the student anti-war demonstrations and activist movements isolates a growing concern with student views and feelings as a contributor. Innovative student-centered instructional approaches growing out of this concern is a related factor.

In a related third paper entitled "Student Influence and Higher Education," Juola (24) questioned the philosophical views he felt led to grade-flation.

> If the hypotheses proposed in this paper have substance, such as certain student motives being predictable and misleading, and if many of the recent directions toward which higher education has been moving can be attributed to concern for student views, we may be using a biased perspective for developing and justifying many of the recent innovations in instructional programs. Student

> enjoyment and enthusiasm may connote a higher level of interest in class but it does not necessarily imply a higher degree of motivation or a disposition toward dedicated effort and more intensive study in a course. It is quite possible that enthusiasm partially achieved by reducing prescription and requirements may have a contrary effect.

Three conclusions from the Juola (23) surveys have particular impact:

1. Grade-point averages rose .404 points on a 4.00 scale from 1960-1973.

2. The largest annual increases were in the 1968-1970 period (.56 annual increase); however, the increase lessened to .028 points annually for the 1972-73 period.

3. The pattern of increase was amazingly universal with increases of nearly the same magnitude for all groups studied.

Between 1964 and 1974 the all-university undergraduate grade-point index of Michigan State University for fall terms rose from 2.40 to 2.81 (36). Individual MSU college averages followed the same pattern. In all but three years the increase ranged from .01 to .04 each fall term. In 1968, however, a .14 all-university undergraduate GPA rise was recorded for fall term. Similar large increases occurred in every MSU degree granting college. The fall terms of 1969 and 1970 experienced all-university GPA growth rates of .13 and

.07, respectively. Since 1970 the fall term all-university undergraduate GPA index has advanced at the average rate of .002. Zero growth was recorded for fall 1971 and minus growth of .03 appeared for fall 1975 (27, 36).

## General Conclusions

The following general conclusions were formulated based on the review of literature presented regarding transfer student characteristics, follow-up studies and grade-flation.

1. Follow-up studies have primarily focused on the academic success of community-junior college students based on their entering grade-point averages and the grade-point averages earned at the receiving institutions. It appears that most community-junior college transfer students' GPA encounters a "transfer shock" value during the early terms of attendance.

2. Comparisons of community-junior college students' needs and personal characteristics with those of native four-year students suggested that the community-junior college students had a different set of attitudes, values and motivations for higher education.

3. The community-junior college seems to have maintained its less favorable public image through the years.

4. If the transfer student is to benefit from better articulation between two-year and four-year colleges, factors affecting the success of transfer students must be evaluated.

5. Conclusions generated by transfer student performance studies should become a part of policy planning for admission and counseling of transfer students and should be incorporated by the sending institutions in the form of educational program changes.

6. Adequate counseling by the receiving institution should be provided for the transfer students to prevent them from being admitted to an institutional program in which they have little chance of success.

7. The 1968-1970 years have been documented as the period of time in which the most serious grade-flation took place. The grade-flation phenomenon appears to be receding.

8. The review of literature supports the conclusion that additional research regarding the academic success of community-junior college transfer students is needed.

# CHAPTER III

# DESIGN

Chapter III contains a description of the population and sample, research design and procedures used in analyzing the data. The research hypotheses are included and restated in the null or operational hypothesis form.

## Population and Sample

The population for this study included 2,781 transfer students to Michigan State University (MSU). All of these students transferred to MSU from Michigan public community colleges. They entered Michigan State University as first-time enrolled students during the Fall terms of 1965, 1966, 1967, 1971, 1972 and 1973.

Each Michigan community college contributing to the population had at least one graduating class by spring session, 1964. No community college was included unless it contributed a minimum of fifteen students to the total population for each fall term year of the study. Eleven of the twenty-nine Michigan public community colleges were used to provide the population.

Table 3.1 is a summary of the number of community college transfer students contributed by these eleven colleges for each fall term year.

TABLE 3.1

A SUMMARY OF COMMUNITY COLLEGE TRANSFERS BY YEAR

| Year | Number of Michigan Community Colleges | Transfer Students (N) |
|---|---|---|
| 1965 | 11 | 420 |
| 1966 | 11 | 433 |
| 1967 | 11 | 402 |
| 1971 | 11 | 527 |
| 1972 | 11 | 559 |
| 1973 | 11 | 440 |
| | Total (N) | 2,781 |

A listing of the community college transfer students was obtained from the MSU Registrar's Office for each of the six fall terms used in this study. The lists were arranged alphabetically by student name for each community college, each fall term year. For each fall term year a deck of punch cards was prepared from the lists. Only those students who entered Michigan State at upper school standing (seventy to ninety quarter credits transferred, level 3, class 2 and 3) with an entering grade-point average between 1.99 and 3.50, as recorded by the MSU Office of Admissions and Scholarship at the time of admission, were used for the population.

In addition, each student had enrolled for a full-time credit load (twelve quarter credits minimum) their first term at MSU. Community college transfer students to MSU at upper division standing were admitted directly to degree candidate standing in the applicant's chosen college of major. Admitted applicants were required to have completed the equivalent prerequisite courses required of native students by upper division standing for the same college of major. This population requirement increased the similarity of the community college transfer students' academic course work background. Previous studies by Lorimer (29) and Hensen (19) regarding the academic success of community college transfer students to MSU were limited to full-time students because the grade average earned by full-time students better reflected the students' potential in relation to their peers. Community college transfers with entering grade-point averages below 2.00 or above 3.49 were excluded. Transfer students with grade-point averages less than 2.00 were admitted with mitigating circumstances, such as returning military veterans with poor (less than 2.0) academic GPA records prior to service, adult applicants who have been away from college for two years or more and students admitted by means of special admissions testing. Students well above average

tend to meet the competition and stay above average regardless of the institution involved, according to Knoell and Medsker (26).

The transfer students who entered Michigan State as first-time enrolled upper division students for the fall terms of 1965, 1966 and 1967 were designated as the "pre-grade-flation" group. The transfer students who entered the fall terms of 1971, 1972 and 1973 as first-time upper division students were designated as the "post-grade-flation" group. Prior to sampling there were 1,255 students in the pre-grade-flation group and 1,526 students in the post-grade-flation group. Table 3.2 depicts the population sub-groups.

TABLE 3.2

A SUMMARY OF COMMUNITY COLLEGE TRANSFER STUDENTS BY SUB-GROUP

| Groups by Type | Fall Term Years | Students (N) |
|---|---|---|
| Pre-Grade-Flation | 1965 | 420 |
| | 1966 | 433 |
| | 1967 | 402 |
| | Subtotal | 1,255 |
| Post-Grade-Flation | 1971 | 527 |
| | 1972 | 559 |
| | 1973 | 440 |
| | Subtotal | 1,526 |
| | Total | 2,781 |

Statistical Package for the Social Sciences, Variation 6.0, was used to re-code the decks into usable form for sampling and analysis.

Within the pre- and post-grade-flation groupings, the transfer students were clustered according to their first-term college of major at Michigan State University. The college of major categories used in this study were: (1) College of Business, (2) College of Natural Science, (3) College of Education and (4) Other. The Other category included the remaining ten degree-granting colleges to which transfer students at upper division are admitted. They are: (1) Agriculture and Natural Resources, (2) Arts and Letters, (3) Communication Arts and Sciences, (4) Engineering, (5) Human Ecology, (6) Social Science, (7) Urban Development, (8) James Madison, (9) Justin Morrill and (10) Lyman Briggs.

Admission to first-term college of major at upper standing is based, in part, on prior completion of basic and prerequisite courses creating essentially homogeneous groups for comparison. The College of Education category included only elementary education, health-physical education or recreation and special education majors. The Other category represented a heterogeneous group for comparison. Table 3.3 summarizes the transfer population by entering college of major.

TABLE 3.3

A SUMMARY OF THE TRANSFER POPULATION BY ENTERING MAJOR

| College | Pre-Grade-Flation (1965, 1966, 1967) (N) | Post-Grade-Flation (1971, 1972, 1973) (N) |
|---|---|---|
| Business | 228 | 320 |
| Education | 170 | 206 |
| Natural Science | 153 | 193 |
| Other | 704 | 807 |
| Total | 1,255 | 1,526 |

Within entering college of major, the transfer students in both groups were stratified by entering grade-point average as recorded at the time of admission. The five entering grade-point classifications were: (1) 2.0-2.29, (2) 2.30-2.59, (3) 2.60-2.89, (4) 2.90-3.19 and (5) 3.20-3.49. These gradations were chosen because they corresponded to an alphabetical grading system which includes plus and minus grades, because they corresponded to the MSU numerical grading scale and because the five areas represented the most frequently used admission grade categories.

In order to benefit statistically from an equal cell design, a stratified random sampling procedure was chosen. The sampling procedure reduced the population of 2,781 transfer students to a sample population of 720 transfer students. The "Sampler" Computer Program

by Joseph Wisenbaker, available in the Application Library of the MSU 6500 Computer Laboratory, was used to draw an automatically stratified random sample of the population to assure equal probability for selection. This resulted in eighteen students being selected for each cell of the equal cell design as eighteen represented the smallest cell.

In summary, the sample consisted of eighteen students for each entering grade-point category for each college of major for both the pre-grade-flation and post-grade-flation groups. A total of 720 transfer students were used in the sample having been selected from a population of 2,781 community college transfer students who met the criteria set for the study. See Appendix B for clarification of the research design. For a complete summary of the sample subjects, see Appendix A (p. 87).

## Operational Hypotheses

The research hypotheses were stated in Chapter I. They are restated here in the operational form to facilitate the statistical analysis performed. The operational hypotheses are numbered to correspond with the research hypotheses. The operational hypotheses for testing were:

Hypothesis 1:

There will be no difference between the post-grade-flation transfer students and pre-grade-flation transfer students with respect to the MSU first-term GPA earned.

Hypothesis 2:

There is no difference between transfer students within the four college of major categories with respect to their MSU first-term GPA.

Hypothesis 3:

For each of the four college of major categories sampled, there will be no difference between the post-grade-flation transfer students and the pre-grade-flation students with respect to their MSU first-term GPA.

Hypothesis 4:

The MSU first-term GPA of post-grade-flation transfer students within each one of the five entering GPA mean categories will be no different than the first-term GPA of the pre-grade-flation transfer students.

## Research Design

The research design consisted of three classification variable factors: (1) time, (2) college of major and (3) entering grade-point blocks, and one dependent variable with eighteen subjects per cell. The dependent variable was the first-term grade-point average earned by the sample transfer students.

The first factor of the design had two levels represented by the fall term pre-grade-flation years of

1965, 1966, 1967 and the fall term post-grade-flation years of 1971, 1972 and 1973. The second factor had four levels represented by the entering college of major categories: (1) Business, (2) Education, (3) Natural Science and (4) Other. The Other category included ten colleges of major entered by upper division transfer students. The third factor had five levels represented by the entering grade-point average blocks: (1) 2.0-2.21, (2) 2.30-2.59, (3) 2.60-2.89, (4) 2.90-3.19 and (5) 3.20-3.49.

The comparisons were made of the MSU first-term academic grade-point average earned by the sample students between pre-grade-flation students within the two groups, for pre-grade-flation and post-grade-flation students for each of the four major categories and, finally, for pre-grade-flation and post-grade-flation students for each of the five entering grade-point average mean categories. For a schematic representation of the research design, see Appendix B (p. 96).

## Analysis

Two statistical procedures were selected to assist the researcher in analyzing the data. The Finn Multi-Variate Analysis of Variance program was used to analyze the data and test the hypotheses. This model was applied to the community college transfer students in the pre-grade-flation and post-grade-flation groups who

were selected by stratified random sample from the population. The .05 level of confidence was selected as the criterion for retaining or not retaining the hypotheses.

Data were processed using the Michigan State University Control Data Corporation 6500 digital computer, through the use of the Finn Multi-Variate Analysis of Variance program.

The Scheffé Post-Hoc Analysis procedure was used to further analyze significant differences identified among colleges of major or grade-point blocks to determine exactly where the difference occurred.

## Summary

The sample of 720 students was drawn from 2,781 Michigan public community college transfer students to Michigan State University at upper division level. Comparisons were made between pre-grade-flation students and post-grade-flation students based on their academic performance as measured by their first-term grade-point average earned at Michigan State.

The Finn Multi-Variate Analysis of Variance program was used to test the statistical hypotheses. The .05 level of confidence was chosen as the level at which differences were considered to have occurred based on factors other than chance.

# CHAPTER IV

# ANALYSIS OF RESULTS

In this chapter a report of the analysis of data and a discussion of the results are presented. For the analysis of the data, operational hypotheses corresponding to each research hypothesis (Chapter I) were formulated; and a three-way analysis of variance was performed to test the four operational hypotheses stated in Chapter III.

The results demonstrated that there was significant difference among levels, at or below the .05 level of confidence, within each one of the three main factors. Neither the three two-way interactions nor the one three-way interaction demonstrated significant difference at the .05 level of confidence. Table 4.1 represents a summary of the results.

## Analysis of Data

### Operational Hypothesis 1

This hypothesis was formulated to obtain evidence about the first research hypothesis (Chapter I) which stated that the first-term academic achievement of

TABLE 4.1

RESULTS OF FINN MULTI-VARIATE ANALYSIS THREE-WAY (2x4x5) ANOVA

| Source | df | MS | F | p ≤ |
|---|---|---|---|---|
| Pre-Post-Grade-Flation Groups | 1 | 14.6348 | 35.9525 | .0001* |
| Curricula | 3 | 7.4342 | 18.2633 | .0001* |
| Entering GPA Groups | 4 | 14.7032 | 36.1207 | .0001* |
| Error | 680 | .407058 | | |
| (Pre-Post) x Curricula | 3 | .3086 | .7581 | .5179 |
| (Pre-Post) x Entering GPA Groups | 4 | .6184 | 1.5191 | .1949 |
| Curricula x Entering GPA Groups | 12 | .3135 | .7702 | .6817 |
| Curricula x Entering GPA Groups x (Pre-Post) | 12 | .2089 | .5131 | .9071 |

*Designates significance at or below the .05 level of confidence.

post-grade-flation transfer students to Michigan State University (MSU) at upper school standing would be lower than the first-term academic achievement of pre-grade-flation transfer students to MSU. The MSU first-term mean GPA of post-grade-flation transfer students was compared with the MSU first-term mean GPA of pre-grade-flation transfer students to determine if there was any change in the relationship over time. In Chapter I a change over time was hypothesized and the corresponding operational hypothesis tested here was:

Hypothesis 1:

There will be no difference between the post-grade-flation transfer students and pre-grade-flation transfer students with respect to the MSU first-term GPA earned.

This hypothesis was not retained at the .05 level of confidence. There is a significant difference between the pre-grade-flation and post-grade-flation transfer student groups with respect to their MSU first-term GPA as evidenced by $F_{1,680} = 35.95$, $p \leq .0001$ shown in Table 4.1

The means and standard deviations were computed for the pre-grade-flation and post-grade-flation groups' MSU first-term GPA. These are shown in Table 4.2.

The results of these computations showed a difference between the two groups with the mean first-term GPA of the post-grade-flation group being higher than the mean first-term GPA of the pre-grade-flation group.

The actual mean GPA difference was .285. This mean GPA difference accounted for the significance of results based on a sample of 720 students. There was little difference for the standard deviation. For a complete listing of the sample means and standard deviations, see Appendix C.

TABLE 4.2

MEANS AND STANDARD DEVIATIONS FOR THE PRE-GRADE-FLATION AND POST-GRADE-FLATION GROUPS

| Source | N | Mean | S.D. |
|---|---|---|---|
| Pre-Grade-Flation | 360 | 2.262 | .6302 |
| Post-Grade-Flation | 360 | 2.547 | .6111 |

Operational Hypothesis 2

This hypothesis was formulated to obtain evidence about the second research hypothesis which stated that Michigan community college transfer students to MSU at upper standing within the four curriculum (college of major) areas would experience different levels of success academically with regard to their first-term grade-point average at MSU. In Chapter I a difference within college of major was hypothesized and the corresponding operational hypothesis tested here was:

Hypothesis 2:

There is no difference between transfer students within the four college of major categories with respect to their MSU first-term GPA.

This hypothesis was not retained at the .05 level of confidence. There is a significant difference among the four college of major categories with respect to the MSU first-term grade-point average of the Michigan community college transfer students enrolled in each curriculum as evidenced by $F_{3,680} = 18.26$, $p \leq .0001$ shown in Table 4.1.

The means and standard deviations of the MSU first-term GPA's for the four college of major categories are shown in Table 4.3.

TABLE 4.3

MEANS AND STANDARD DEVIATIONS FOR THE FOUR COLLEGE OF MAJOR CATEGORIES

| Source | N | Mean | S.D. |
|---|---|---|---|
| College of Business | 180 | 2.270 | .6780 |
| College of Natural Science | 180 | 2.195 | .7236 |
| College of Education | 180 | 2.617 | .4943 |
| Other | 180 | 2.535 | .5867 |

The results of these computations showed a significant difference among the four curriculum categories. In order to determine which two or more college of major (curriculum) categories accounted for the significant difference obtained in the first-term mean GPA's, a Scheffe Post-Hoc Analysis was performed (42). The post hoc analysis showed that the College of Education had a significantly higher mean GPA than College of Business and the College of Natural Science. The Other college of major category had a significantly higher mean GPA than either the College of Business or College of Natural Science. The mean GPA difference between the College of Business and the College of Natural Science was not significant and no significant difference was determined between the College of Education and the Other category.

Operational Hypothesis 3

This hypothesis was formulated to obtain evidence about the third research hypothesis which stated that the difference between the post-grade-flation and pre-grade-flation transfer students with respect to their MSU first-term GPA would not be uniform for each of the four college of major categories sampled. The corresponding operational hypothesis was:

Hypothesis 3:

For each of the four college of major categories sampled, there will be no difference between the post-grade-flation transfer students and the pre-grade-flation students with respect to their MSU first-term GPA.

This hypothesis was retained at the .05 level of confidence. There was no significant difference between the post-grade-flation and pre-grade-flation transfer students within each one of the four college of major categories as evidenced by $F_{3,680} = .7581$, $p \leq .5179$ shown in Table 4.1, with respect to the MSU first-term mean grade-point average.

The means and standard deviations for the four college of major categories for the pre-grade-flation and post-grade-flation groups are shown in Table 4.4.

TABLE 4.4

MEANS AND STANDARD DEVIATIONS FOR THE PRE-GRADE-FLATION, POST-GRADE-FLATION GROUPS BY CURRICULUM CATEGORY

| Source | N | Pre-Grade-Flation Mean | S.D. | Post-Grade-Flation Mean | S.D. |
|---|---|---|---|---|---|
| College of Business | 90 | 2.182 | .6811 | 2.357 | .6748 |
| College of Natural Science | 90 | 2.060 | .7014 | 2.329 | .7458 |
| College of Education | 90 | 2.438 | .4882 | 2.785 | .5005 |
| Other | 90 | 2.364 | .6498 | 2.705 | .5231 |

Although the post-grade-flation mean GPA seems to be higher for each curriculum area than the corresponding pre-grade-flation mean GPA, the difference is not great enough to account for significance at the .05 level of confidence.

Operational Hypothesis 4

This hypothesis was formulated to obtain evidence regarding the fourth research hypothesis which stated that the MSU first-term mean GPA of post-grade-flation transfer students at upper level within each one of the five entering grade-point categories would be lower than the MSU first-term mean GPA of pre-grade-flation transfer students to MSU at upper level. The corresponding operational hypothesis tested here was:

Hypothesis 4:

The MSU first-term GPA of post-grade-flation transfer students within each one of the five entering GPA mean categories will be no different than the first-term GPA of the pre-grade-flation transfer students.

This hypothesis was retained at the .05 level of confidence. There was no significant interaction between the post-grade-flation and pre-grade-flation groups within each one of the five entering grade-point categories with respect to the MSU first-term GPA earned as evidenced by $F_{4,680} = 1.5191$, $p \leq .1949$ shown in Table 4.1.

The means and standard deviations for the five entering grade-point average categories, pre-grade-flation and post-grade-flation groups, are shown in Table 4.5.

TABLE 4.5

MEANS AND STANDARD DEVIATIONS FOR THE PRE-GRADE-FLATION, POST-GRADE-FLATION GROUPS BY ENTERING GRADE-POINT AVERAGE CATEGORY

| ENGPA Group | N | Pre-Grade-Flation Mean | S.D. | Post-Grade-Flation Mean | S.D. |
|---|---|---|---|---|---|
| 2.00-2.29 | 72 | 1.964 | .6466 | 2.163 | .7671 |
| 2.30-2.59 | 72 | 1.979 | .5981 | 2.333 | .5722 |
| 2.60-2.89 | 72 | 2.151 | .6015 | 2.617 | .6320 |
| 2.90-3.19 | 72 | 2.421 | .5727 | 2.697 | .6150 |
| 3.20-3.49 | 72 | 2.793 | .7318 | 2.924 | .4700 |

Although the post-grade-flation MSU first-term mean GPA seems to be higher for each one of the five entering GPA categories over the pre-grade-flation MSU first-term mean GPA's the difference is not high enough to account for significance at the .05 level of confidence. Appendix D represents a complete listing of means for the total population.

## Analysis of Population

Since none of the possible interactions demonstrated significant difference at the .05 level of confidence, operational Hypotheses 3 and 4 were retained. Thus, the researcher felt it would be desirable to

obtain a more in-depth look at the pre- to post-grade-flation differences within level of entering GPA and for each curriculum area.

Since the analysis of the major design produced results that contradicted the research hypotheses, the researcher deemed it appropriate to perform a second analysis in search of an explanation. The researcher considered that the random sample may not have been an accurate representation of the total population; and since the total population was finite and available, it was decided to analyze the total number of transfer students (Chapter III) and to compare the results with the random sample findings.

It was possible that the pre-grade-flation, post-grade-flation change within each college of major existed in differing frequencies for some of the entering GPA levels. It was also possible that those differences were not discovered because of overriding differences in the structure of the original five entering GPA categories. In order to pursue this line of thought, the original 2 x 4 x 5 design was reduced to a one-factor design with the college of major (curriculum) as the only independent variable, consisting of eight levels as follows:

(1) Business, Pre-Grade-Flation

(2) Natural Science, Pre-Grade-Flation

(3) Education, Pre-Grade-Flation

(4) Other, Pre-Grade-Flation

(5) Business, Post-Grade-Flation

(6) Natural Science, Post-Grade-Flation

(7) Education, Post-Grade-Flation

(8) Other, Post-Grade-Flation

Five one-way analyses of variance were conducted (one for each of the five entering GPA categories) and dealt with separately. Each of the five designs had an after-the-fact hypothesis attached. This hypothesis reads as follows:

> There is no pre-grade-flation, post-grade-flation difference within curriculum with respect to the first-term MSU GPA, within the lowest (second, third, fourth, highest) entering GPA category.

Since separating the analysis into five partial components increased the probability of finding significant difference by chance (Type II error), the level of significance was established at .01 for each partial analysis so that the total significance level remained at .05.

Table 4.6 represents the results of the one-way ANOVA for the lowest (2.00-2.29) entering GPA category.

Table 4.7 resulted from the comparison of the pre-grade-flation, post-grade-flation groups within each one of the four curriculum categories (Business, Natural Science, Education, Other) for the lowest entering GPA

TABLE 4.6

ONE-WAY ANOVA FOR THE LOWEST (2.00-2.29) ENTERING GPA CATEGORY

| Source | D.F. | M.S. | F | p ≤ |
|---|---|---|---|---|
| Curriculum | 7 | 1.5227 | 3.0772 | .0038* |
| Error | 329 | .494831 | | |

*Designates significance at the .01 level of confidence.

TABLE 4.7

MEAN FIRST-TERM GPA FOR PRE-POST-FLATION GROUPS WITHIN CURRICULUM FOR THE LOWEST (2.00-2.29) ENGPA CATEGORY

| Curriculum | Pre-Grade-Flation Means | Post-Grade-Flation Means |
|---|---|---|
| Business | 2.0025 | 2.0304 |
| Natural Science | 1.6954 | 1.8989 |
| Education | 2.0961 | 2.3750 |
| Other | 1.9558 | 2.2513 |

category. The results showed that significant difference did exist as evidenced by $F_{7,329} = 3.0772$, $p \leq .0038$. Since the significant difference could be located either among the four college of major areas or within each college of major between the pre- to post-flation periods, a Scheffé (42) Post-Hoc Analysis was performed on the curriculum means.

Since the possible differences among the curricula were explored in the sample analysis, the primary interest was to analyze the possible pre- to post-flation mean difference within the same curriculum. The Scheffé Post-Hoc Analysis for the total population did not reveal any significant differences within the same curriculum, thus confirming the nonsignificant results.

Table 4.8 represents the results of the one-way ANOVA for the second (2.30-2.59) entering GPA category.

TABLE 4.8

ONE-WAY ANOVA FOR THE SECOND (2.30-2.59) ENTERING GPA CATEGORY

| Source | D.F. | M.S. | F | p ≤ |
|---|---|---|---|---|
| Curriculum | 7 | 4.3666 | 10.3767 | .0001* |
| Error | 674 | .42104 | | |

*Designates significance at the .01 level of confidence.

This analysis of variance revealed that there was significant difference among or within the curricula with respect to the first-term MSU GPA for students in the second (2.30-2.59) entering grade-point category as evidenced by $F_{7,674} = 10.3767$, $p \leq .0001$.

Table 4.9 represents the mean first-term GPA's for the second (2.30-2.59) entering GPA category.

TABLE 4.9

MEAN FIRST-TERM GPA FOR THE PRE-POST-FLATION GROUPS WITHIN CURRICULUM FOR THE SECOND (2.30-2.59) ENGPA CATEGORY

| Curriculum | Pre-Grade-Flation Means | Post-Grade-Flation Means |
|---|---|---|
| Business | 2.11506 | 2.29587 |
| Natural Science | 1.83590 | 2.02410 |
| Education | 2.05603 | 2.58111 |
| Other | 2.03454 | 2.43889* |

*Designates significance at the .01 level of confidence.

A Scheffé Post-Hoc Analysis was used to determine if any significant difference was located within curriculum pre- to post-flation periods. The analysis of means indicated that within the Other curriculum category the post-grade-flation mean GPA was significantly larger than the pre-grade-flation mean GPA for the second entering grade-point category.

Tables 4.10, 4.11, 4.12, 4.13, 4.14 and 4.15 represent the results of the one-way ANOVA designs and mean first-term GPA's for pre- to post-flation groups, within curriculum, for the third, fourth and highest entering GPA categories.

The findings for the third, fourth and highest entering GPA categories were identical to the findings from the first entering GPA category, again confirming the nonsignificant results determined for the sample.

## Discussion of Results

The results of testing operational Hypothesis 1 demonstrated that there was a significant difference between the pre-grade-flation group and the post-grade-flation group with respect to the academic grade-point average earned during their first term at Michigan State University. The post-grade-flation transfer student group earned a higher first-term mean grade-point average than the pre-grade-flation group. The actual mean GPA difference was .285.

The analysis of data pertaining to operational Hypothesis 2 determined that there was significant difference among the four curriculum categories of Business, Natural Science, Education and Other with respect to the MSU first-term grade-point average earned. A post hoc analysis determined that the College of Education and Other categories had a significantly higher mean MSU

TABLE 4.10

ONE-WAY ANOVA FOR THE THIRD (2.60-2.89) ENTERING GPA CATEGORY

| Source | D.F. | M.S. | F | $p \leq$ |
|---|---|---|---|---|
| Curriculum | 7 | 3.9298 | 10.263 | .0001* |
| Error | 578 | .362907 | | |

*Designates significance at the .01 level of confidence.

TABLE 4.11

MEAN FIRST-TERM GPA FOR THE PRE-POST-FLATION GROUPS WITHIN CURRICULUM FOR THE THIRD (2.60-2.89) ENGPA CATEGORY

| Curriculum | Pre-Grade-Flation Means | Post-Grade-Flation Means |
|---|---|---|
| Business | 2.1958 | 2.2552 |
| Natural Science | 1.9879 | 2.3286 |
| Education | 2.4314 | 2.7383 |
| Other | 2.3465 | 2.6366 |

TABLE 4.12

ONE-WAY ANOVA FOR THE FOURTH (2.90-3.19) ENTERING GPA CATEGORY

| Source | D.F. | M.S. | F | p ≤ |
|---|---|---|---|---|
| Curriculum | 7 | 2.2016 | 5.0585 | .0001* |
| Error | 439 | .43522 | | |

*Designates significance at the .01 level of confidence.

TABLE 4.13

MEAN FIRST-TERM GPA FOR THE PRE-POST-FLATION GROUPS WITHIN CURRICULUM FOR THE FOURTH (2.90-3.19) ENGPA CATEGORY

| Curriculum | Pre-Grade-Flation Means | Post-Grade-Flation Means |
|---|---|---|
| Business | 2.2661 | 2.5755 |
| Natural Science | 2.2760 | 2.5537 |
| Education | 2.5696 | 3.0605 |
| Other | 2.7356 | 2.7314 |

TABLE 4.14

ONE-WAY ANOVA FOR THE HIGHEST (3.20-3.49) ENTERING GPA CATEGORY

| Source | D.F. | M.S. | F | $p \leq$ |
|---|---|---|---|---|
| Curriculum | 7 | 1.9817 | 5.2863 | .0001* |
| Error | 303 | .37486 | | |

*Designates significance at the .01 level of confidence.

TABLE 4.15

MEAN FIRST-TERM GPA FOR THE PRE-POST-FLATION GROUPS WITHIN CURRICULUM FOR THE HIGHEST (3.20-3.49) ENGPA CATEGORY

| Curriculum | Pre-Grade-Flation Means | Post-Grade-Flation Means |
|---|---|---|
| Business | 2.7111 | 2.5670 |
| Natural Science | 2.4334 | 2.7998 |
| Education | 3.1242 | 3.2216 |
| Other | 2.9750 | 3.0044 |

first-term grade-point average than either the College of Business or College of Natural Science. The mean GPA's of the College of Education and Other category were not significantly different.

The results of testing operational Hypothesis 3 indicated there was no significant difference between the post-grade-flation and pre-grade-flation transfer student groups within each one of the four curriculum categories with respect to the MSU first-term grade-point average earned. The post-grade-flation mean GPA's were definitely higher for all four curriculum categories although they were not sufficiently different to account for significance.

The results of testing operational Hypothesis 4 demonstrated that there was no significant difference between the post-grade-flation and pre-grade-flation transfer student groups within each one of the five entering grade-point average groups with respect to the MSU first-term grade-point average earned. Although the first-term mean GPA differences were not significant, the post-grade-flation means were higher in each instance.

The one-way analysis of variance performed for each entering grade-point average group using the total population confirmed the findings of the sample analysis. Only the "Other" college of major (curriculum) category in the second entering grade-point average group indicated

significant difference occurred between the pre-grade-flation and post-grade-flation groups within college of major with respect to the MSU first-term GPA. All other differences occurred among the four curricula rather than between the pre-grade-flation and post-grade-flation groups.

## Summary

Table 4.16 is presented as a summary of the analysis of results. For each operational hypothesis tested, an F-value, significance level and a statement of rejection or nonrejection is given. In Chapter V the results obtained in tests of the operational hypotheses will be related to the research hypotheses.

TABLE 4.16

SUMMARY OF RESULTS

| Operational Hypotheses | F-Value | Significance Level | Statement of Rejection or Nonrejection |
|---|---|---|---|
| 1. There will be no difference between the post-grade-flation transfer students and pre-grade-flation transfer students with respect to the MSU first-term GPA earned. | 35.9525 | .0001 | Not retained |
| 2. There is no difference between transfer students within the four college of major categories with respect to their MSU first-term GPA. | 18.2633 | .0001 | Not retained |
| 3. For each of the four college of major categories sampled, there will be no difference between the post-grade-flation transfer students and the pre-grade-flation transfer students with respect to their MSU first-term GPA. | .7581 | NS | Retained |
| 4. The MSU first-term GPA of post-grade-flation transfer students within each one of the five entering GPA mean categories will be no different than the first-term GPA of the pre-grade flation transfer students. | 1.5191 | NS | Retained |

Note. NS = designated not significant at or beyond .05 level of confidence.

# CHAPTER V

# SUMMARY, CONCLUSIONS AND SUGGESTIONS FOR FUTURE RESEARCH

This chapter contains a summary of the study, conclusions drawn from the analysis of data, discussion of the results and suggestions for future research.

## Summary of the Problem and Methodology

This researcher's purpose was to investigate the academic achievement of transfer students to Michigan State University from Michigan community colleges to determine:

(1) if the first-term grade-point average of those students entering MSU in selected grade-point categories improved over time;

(2) if the effect of grade-flation on the MSU first-term GPA could be demonstrated for community college transfer students and

(3) if the college of major entered by transfer students could be related to their MSU first-term GPA academic achievement.

Previous research indicated that a transfer shock value did exist for transfer students from community colleges to four-year institutions (20, 25) and that transfer students experienced an appreciable GPA drop after their first-term enrollment at the four-year institution. Also, previous research (18, 41) indicated that transfer students experienced their greatest difficulty in mathematically oriented programs.

The phenomenon termed "grade-flation" was documented (22, 43) as having its primary effect during the 1965 to 1975 time period. This trend of rising grade-point averages was said to be nationwide and applicable to both four-year institutions and community colleges. It was determined that Michigan State University did follow the grade-flation pattern depicted for large, public four-year institutions (23) and that MSU experienced its largest annual grade-flation period between 1968 and 1970 (36).

It has been proposed that institutions accepting transfer students analyze the achievement of these students in recognition of the transfer shock problem (20). The results could be beneficial and could provide useful information as the receiving institution determines its transfer admission policy.

The population for this study included 2,781 transfer students to Michigan State University from

eleven Michigan community colleges. The population entered MSU as first-time enrolled students during the fall terms of 1965, 1966, 1967, 1971, 1972 and 1973. Each community college contributing to the population had at least one graduating class by spring 1964 and contributed a minimum of fifteen students for each fall term of the study. Only those students who entered MSU at upper school standing with an entering grade-point average between 1.99 and 3.50 were used for the population.

The transfer students who entered Michigan State as first-time enrolled upper division students for fall terms 1965, 1966 and 1967 were designated as the "pre-grade-flation" group. The transfer students who entered the fall terms of 1971, 1972 and 1973 were designated as the "post-grade-flation" group. The population was clustered into five entering grade-point average groups and, further, into four entering college of major (curriculum) categories.

In order to benefit statistically from an equal cell design, a stratified random sampling procedure was chosen. Implementing this procedure resulted in a sample population of 720 transfer students. The automatically stratified random sample assured equal probability for selection and produced eighteen students for each cell of the design.

The research design consisted of the three classification variable factors of: (1) time, (2) college of major (curriculum) and (3) entering grade-point blocks, and one dependent variable with eighteen subjects per cell. The dependent variable was the first-term grade-point average earned by the sample transfer students at MSU.

Two statistical procedures were selected to assist the researcher in analyzing the data. The Finn Multi-Variate Analysis of Variance program was used to analyze the data and test the hypotheses. This model was applied to the transfer students in the pre-grade-flation and post-grade-flation groups. The .05 level of confidence was selected as the criterion for retaining or not retaining the hypotheses. The Scheffé Post-Hoc Analysis procedure was used to further analyze significant differences identified among colleges of major, or grade-point blocks, to determine exactly where the difference occurred.

## Conclusions from the Analysis of the Data

The results of the analysis of data justify the following conclusions:

1. The academic achievement of pre-grade-flation Michigan community college transfer students at upper standing, as measured by the MSU first-term mean

grade-point average, was not significantly higher than the academic achievement of the post-grade-flation transfer students. The transfer students in the post-grade-flation group earned a significantly higher first-term mean grade-point average, which was in direct contradiction to the first research hypothesis. This finding justified the conclusion that pre-grade-flation community college transfer students did not perform academically (GPA) better than post-grade-flation transfer students. Therefore, it was concluded that research Hypothesis 1 (Chapter I) was untenable.

2. The academic achievement, as measured by the first-term grade-point average, of some transfer students entering certain curricula at MSU was higher than the academic achievement (GPA) experienced by like transfer students in other curricula. This conclusion supported the second research hypothesis (Chapter I) of this study. There was a significant difference among the first-term mean GPA's of the four curriculum categories. Therefore, it was concluded that research Hypothesis 2 was tenable.

3. The academic achievement of pre-grade-flation and post-grade-flation transfer students with respect to their first-term GPA was uniform across all four curriculum categories of this study. The data support the conclusion that within curricula pre-grade-flation and

post-grade-flation community college transfer students academically perform at relatively equal rates. This conclusion was reached when the third operational hypothesis was retained at the .05 level of confidence. Therefore, it was concluded that research Hypothesis 3 (Chapter I) was untenable.

4. The first-term GPA academic achievement of pre-grade-flation transfer students was not better than the academic achievement of post-grade-flation transfer students within each one of the five entering grade-point categories. The data support the conclusion that although the post-grade-flation mean GPA's were higher in each grade-point category, there was no significant difference in the academic performance of pre-grade-flation versus post-grade-flation transfer students within entering grade-point category. This conclusion was reached when the fourth operational hypothesis was retained. Therefore, it was concluded that research Hypothesis 4 (Chapter I) was untenable.

## Discussion

Since this study was exploratory in nature, there are some results that warrant further discussion. Regarding Hill's view (20) that institutions receiving transfer students should examine their institutional policy regarding the acceptance of transfers based on the transfer shock phenomenon, and in recognition of

Juola's (23) determination that grade-flation has peaked and may be starting to reverse itself, the findings have indicated that:

1. The grade-flation experienced by the community colleges used in this study may not have been as drastic regarding the increase in the institutional grade-point average as was experienced at Michigan State University.

2. Community college transfer students from the institutions used in this study may have, in fact, become more competitive academically (measured by earned grade-point average) with four-year institution students than their pre-grade-flation counterparts.

3. The GPA improvement of community college transfer students appears to be weakest in those curricula requiring quantitative skills. If the community colleges used in this study have experienced less grade-flation than Michigan State University, the demonstrated improvement for the post-grade-flation transfer student group may be temporary, or eroded altogether, if the grade-flation trend reverses.

4. The academic achievement (measured by first-term GPA) of transfer students in certain colleges of

major (curriculum) is significantly higher than the academic achievement in other colleges of major through all five entering grade-point categories used in this study.

The analysis demonstrating significant difference between the pre-grade-flation group and the post-grade-flation group collectively may have a special importance relative to the overall study findings. The results were a direct contradiction to the first research hypothesis. The mean grade-point difference of .285 may have meaning beyond the significance demonstrated. As overall institutional and individual curriculum grade-point averages increase, the competition by students seeking admission to limited enrollment programs will place greater pressure on the weaker students. If one considers the transfer shock phenomenon at the same time, the community college transfer students from the institutions used in this study may find it more and more difficult to enter limited enrollment programs.

If the demonstrated post-grade-flation improvement of community college transfer students continues, however, those students experiencing minimal transfer shock may find the competition for limited enrollment programs increased. This, in turn, may create a new set of problems for four-year institutions who may prefer to maintain a ratio of four-year native students over the

admission of upper level transfer students, to limited enrollment degree programs.

The finding which demonstrated a significant difference with regard to the four curriculum categories has definite meaning for the student personnel service areas of community colleges and four-year institutions alike. Previous research by Hills (20) and Roueche (41) documented the increased difficulty experienced by transfer students into quantitatively oriented programs. The findings of this researcher suggest that community college faculty responsible for curriculum counseling and advisement may need to increase their services relative to: (1) program selection (transfer programs versus terminal programs), (2) curriculum selection (quantitative versus nonquantitative) and (3) institutional selection (large institution versus small institution or selective admission institution versus open-admission institution). By following the academic progress of their transfer students to individual four-year institutions, community colleges may be better prepared to assist their students in determining and achieving appropriate educational goals.

It was readily apparent that transfer students entering certain colleges of major consistently earned higher GPA mean scores, both pre- and post-grade-flation, through all five entering grade-point average categories.

Therefore, within college of major, transfer student achievement (GPA) data obtained by four-year institutions should be considered regarding the level of academic attainment when determining institutional admissions policy. This may prove to be a potentially volatile issue within the academic community.

Four-year institutions receiving transfer students and having an awareness of the academic success (measured by GPA) of transfer students from individual community colleges may find it legally beneficial to encourage some transfer students and to discourage others. The advent of consumer suits by students charging institutions with academic malpractice because these students have been unsuccessful in completing their program objectives may command more attention to the establishment of educationally sound admission practices. Perhaps students who have been admitted as transfers based on their previous academic record from a community college will claim consumerism rights to entry and successful completion of their chosen course of study. Thus, institutions may be held accountable by students, and the courts, for admission decisions of acceptability; and institutions with a selective admissions policy may be even more susceptible to such legalities than the open-door admissions institution.

Indeed, the findings of this researcher have indicated that pre-grade-flation community college

transfer students from certain Michigan institutions to MSU did not earn higher grade-point averages than comparable post-grade-flation transfer students. However, the results of this study cannot be generalized to the populations of other institutions, especially those institutions with an open enrollment admissions policy. The results of this researcher do suggest the need for additional research before more generalized conclusions can be made.

## Suggestions for Future Research

The following areas for future research are a result of this researcher's investigation:

1. Replicated research should be conducted at other four-year institutions receiving community college transfer students. Studies of this type would indicate if the results of this study were peculiar only to Michigan State University.

2. Replicated research should also be conducted at four-year institutions where the admissions policy has provided for open enrollment, as opposed to selective admissions. Four-year institutions, of varying size, conducting similar research would aid in determining if the findings of this researcher are localized or general in nature.

3. Follow-up research should be conducted at Michigan State University to assist in determining the grade-point average progress of post-grade-flation transfer students. This may provide information regarding the continuance or decline of the grade-flation trend.

4. Research should be conducted using stratified grade-point averages for admitted transfer students with the addition of individual majors, within curriculum, as a refined variable. Such a study could provide additional information regarding the academic areas providing transfer students the greatest difficulty.

5. Research should be conducted on the academic success of community college transfer students entering the four-year institution after one year, as opposed to students entering the four-year institution after two years of community college study. Research of this type may provide new knowledge regarding the competitiveness of the community college sophomore year and whether this should be included in an institution's admission policy.

# APPENDICES

# APPENDIX A

# SUMMARY OF SAMPLE CHARACTERISTICS

## APPENDIX A

## SUMMARY OF SAMPLE CHARACTERISTICS

Legend: Pre-Grade-Flation = 1, Post-Grade-Flation = 2
Curr.: 1 = Business, 2 = Natural Science, 3 = Education, 4 = Other
GPA Groups: 2.00-2.29 = 1, 2.30-2.59 = 2, 2.60-2.89 = 3, 2.99-3.19 = 4, 3.20-3.49 = 5

| Pre-Flation | MSU Curr. | ENT GPA GRP | MSU 1st-Term GPA | Post-Flation | MSU Curr. | ENT GPA GRP | MSU 1st-Term GPA |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 2.27 | 2 | 1 | 1 | 1.12 |
| 1 | 1 | 1 | 1.58 | 2 | 1 | 1 | 2.73 |
| 1 | 1 | 1 | 2.50 | 2 | 1 | 1 | 3.13 |
| 1 | 1 | 1 | 2.44 | 2 | 1 | 1 | 2.90 |
| 1 | 1 | 1 | 1.00 | 2 | 1 | 1 | 2.50 |
| 1 | 1 | 1 | 2.33 | 2 | 1 | 1 | 1.79 |
| 1 | 1 | 1 | .67 | 2 | 1 | 1 | 1.50 |
| 1 | 1 | 1 | 3.25 | 2 | 1 | 1 | 1.97 |
| 1 | 1 | 1 | 2.31 | 2 | 1 | 1 | 2.35 |
| 1 | 1 | 1 | 2.20 | 2 | 1 | 1 | 1.96 |
| 1 | 1 | 1 | 2.25 | 2 | 1 | 1 | 2.44 |
| 1 | 1 | 1 | 2.73 | 2 | 1 | 1 | 2.44 |
| 1 | 1 | 1 | 2.80 | 2 | 1 | 1 | 2.75 |
| 1 | 1 | 1 | .33 | 2 | 1 | 1 | .42 |
| 1 | 1 | 1 | 1.43 | 2 | 1 | 1 | 1.33 |
| 1 | 1 | 1 | 2.00 | 2 | 1 | 1 | 2.47 |
| 1 | 1 | 1 | 2.44 | 2 | 1 | 1 | 2.44 |
| 1 | 1 | 1 | 1.75 | 2 | 1 | 1 | 1.94 |
| 1 | 1 | 2 | 1.93 | 2 | 1 | 2 | .62 |
| 1 | 1 | 2 | 1.80 | 2 | 1 | 2 | 2.69 |
| 1 | 1 | 2 | 1.13 | 2 | 1 | 2 | 3.25 |
| 1 | 1 | 2 | 1.08 | 2 | 1 | 2 | 2.63 |
| 1 | 1 | 2 | 2.43 | 2 | 1 | 2 | 1.93 |
| 1 | 1 | 2 | 1.53 | 2 | 1 | 2 | 2.25 |
| 1 | 1 | 2 | 1.79 | 2 | 1 | 2 | 2.63 |
| 1 | 1 | 2 | 2.00 | 2 | 1 | 2 | 1.81 |
| 1 | 1 | 2 | 3.53 | 2 | 1 | 2 | 2.79 |
| 1 | 1 | 2 | 2.71 | 2 | 1 | 2 | 2.60 |
| 1 | 1 | 2 | 2.00 | 2 | 1 | 2 | 2.00 |
| 1 | 1 | 2 | 1.76 | 2 | 1 | 2 | 1.78 |
| 1 | 1 | 2 | 2.00 | 2 | 1 | 2 | 2.82 |
| 1 | 1 | 2 | 2.31 | 2 | 1 | 2 | 2.38 |

APPENDIX A--Continued

| Pre-Flation | MSU Curr. | ENT GPA GRP | MSU 1st-Term GPA | Post-Flation | MSU Curr. | ENT GPA GRP | MSU 1st-Term GPA |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 2 | 2.00 | 2 | 1 | 2 | 2.80 |
| 1 | 1 | 2 | .64 | 2 | 1 | 2 | 1.70 |
| 1 | 1 | 2 | 1.62 | 2 | 1 | 2 | 2.07 |
| 1 | 1 | 2 | 2.25 | 2 | 1 | 2 | 2.34 |
| 1 | 1 | 4 | 2.75 | 2 | 1 | 3 | 2.72 |
| 1 | 1 | 4 | 2.62 | 2 | 1 | 3 | 2.88 |
| 1 | 1 | 4 | 3.42 | 2 | 1 | 3 | 2.00 |
| 1 | 1 | 4 | 2.20 | 2 | 1 | 3 | 3.27 |
| 1 | 1 | 4 | 2.81 | 2 | 1 | 3 | 3.19 |
| 1 | 1 | 4 | 1.76 | 2 | 1 | 3 | 1.83 |
| 1 | 1 | 4 | 2.00 | 2 | 1 | 3 | 1.73 |
| 1 | 1 | 4 | 2.33 | 2 | 1 | 3 | 3.50 |
| 1 | 1 | 4 | 1.47 | 2 | 1 | 3 | 1.11 |
| 1 | 1 | 4 | 2.36 | 2 | 1 | 3 | 2.65 |
| 1 | 1 | 4 | 2.80 | 2 | 1 | 3 | 2.29 |
| 1 | 1 | 4 | 2.81 | 2 | 1 | 3 | .82 |
| 1 | 1 | 4 | 2.53 | 2 | 1 | 3 | 2.13 |
| 1 | 1 | 4 | 1.00 | 2 | 1 | 3 | 2.70 |
| 1 | 1 | 4 | 2.21 | 2 | 1 | 3 | 1.40 |
| 1 | 1 | 4 | 2.43 | 2 | 1 | 3 | 2.87 |
| 1 | 1 | 4 | 2.47 | 2 | 1 | 3 | 1.96 |
| 1 | 1 | 4 | 3.07 | 2 | 1 | 3 | 3.82 |
| 1 | 1 | 3 | 2.53 | 2 | 1 | 4 | .00 |
| 1 | 1 | 3 | 2.00 | 2 | 1 | 4 | 1.91 |
| 1 | 1 | 3 | 2.23 | 2 | 1 | 4 | 3.41 |
| 1 | 1 | 3 | 2.27 | 2 | 1 | 4 | 2.38 |
| 1 | 1 | 3 | 1.00 | 2 | 1 | 4 | 2.00 |
| 1 | 1 | 3 | 2.53 | 2 | 1 | 4 | 2.15 |
| 1 | 1 | 3 | .92 | 2 | 1 | 4 | 2.50 |
| 1 | 1 | 3 | 1.43 | 2 | 1 | 4 | 2.54 |
| 1 | 1 | 3 | 2.75 | 2 | 1 | 4 | 2.13 |
| 1 | 1 | 3 | 1.93 | 2 | 1 | 4 | 1.83 |
| 1 | 1 | 3 | 2.00 | 2 | 1 | 4 | 2.29 |
| 1 | 1 | 3 | .58 | 2 | 1 | 4 | 2.90 |
| 1 | 1 | 3 | 1.62 | 2 | 1 | 4 | 3.25 |
| 1 | 1 | 3 | 1.69 | 2 | 1 | 4 | 2.33 |
| 1 | 1 | 3 | 2.00 | 2 | 1 | 4 | 1.88 |
| 1 | 1 | 3 | 1.25 | 2 | 1 | 4 | 3.50 |
| 1 | 1 | 3 | 3.00 | 2 | 1 | 4 | 3.10 |
| 1 | 1 | 3 | 2.00 | 2 | 1 | 4 | 2.63 |
| 1 | 1 | 5 | 3.73 | 2 | 1 | 5 | 2.97 |
| 1 | 1 | 5 | 3.00 | 2 | 1 | 5 | 2.47 |
| 1 | 1 | 5 | 2.75 | 2 | 1 | 5 | 2.88 |
| 1 | 1 | 5 | 2.69 | 2 | 1 | 5 | 3.09 |
| 1 | 1 | 5 | 1.93 | 2 | 1 | 5 | 3.33 |

APPENDIX A--Continued

| Pre-Flation | MSU Curr. | ENT GPA GRP | MSU 1st-Term GPA | Post-Flation | MSU Curr. | ENT GPA GRP | MSU 1st-Term GPA |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 5 | 3.00 | 2 | 1 | 5 | 2.32 |
| 1 | 1 | 5 | 2.71 | 2 | 1 | 5 | 3.23 |
| 1 | 1 | 5 | 3.00 | 2 | 1 | 5 | 2.00 |
| 1 | 1 | 5 | 3.07 | 2 | 1 | 5 | 3.13 |
| 1 | 1 | 5 | 3.86 | 2 | 1 | 5 | 1.73 |
| 1 | 1 | 5 | 3.19 | 2 | 1 | 5 | 1.90 |
| 1 | 1 | 5 | 2.53 | 2 | 1 | 5 | 2.53 |
| 1 | 1 | 5 | 1.81 | 2 | 1 | 5 | 2.83 |
| 1 | 1 | 5 | 1.71 | 2 | 1 | 5 | 2.50 |
| 1 | 1 | 5 | 3.07 | 2 | 1 | 5 | 2.54 |
| 1 | 1 | 5 | 3.75 | 2 | 1 | 5 | 2.28 |
| 1 | 1 | 5 | 2.00 | 2 | 1 | 5 | 2.94 |
| 1 | 1 | 5 | 1.00 | 2 | 1 | 5 | 2.63 |
| 1 | 2 | 1 | 1.88 | 2 | 2 | 1 | .67 |
| 1 | 2 | 1 | 1.27 | 2 | 2 | 1 | 1.57 |
| 1 | 2 | 1 | 1.76 | 2 | 2 | 1 | 2.13 |
| 1 | 2 | 1 | 2.69 | 2 | 2 | 1 | 1.83 |
| 1 | 2 | 1 | 2.21 | 2 | 2 | 1 | 2.57 |
| 1 | 2 | 1 | 1.11 | 2 | 2 | 1 | .77 |
| 1 | 2 | 1 | 1.14 | 2 | 2 | 1 | .31 |
| 1 | 2 | 1 | 1.64 | 2 | 2 | 1 | 1.42 |
| 1 | 2 | 1 | 1.87 | 2 | 2 | 1 | 4.00 |
| 1 | 2 | 1 | .81 | 2 | 2 | 1 | 2.50 |
| 1 | 2 | 1 | .80 | 2 | 2 | 1 | 2.39 |
| 1 | 2 | 1 | 1.23 | 2 | 2 | 1 | 2.43 |
| 1 | 2 | 1 | 1.75 | 2 | 2 | 1 | 3.44 |
| 1 | 2 | 1 | 2.82 | 2 | 2 | 1 | .61 |
| 1 | 2 | 1 | 2.00 | 2 | 2 | 1 | 1.28 |
| 1 | 2 | 1 | .50 | 2 | 2 | 1 | 1.43 |
| 1 | 2 | 1 | 2.40 | 2 | 2 | 1 | 2.46 |
| 1 | 2 | 1 | .93 | 2 | 2 | 1 | 2.89 |
| 1 | 2 | 2 | 1.50 | 2 | 2 | 2 | 1.23 |
| 1 | 2 | 2 | 2.50 | 2 | 2 | 2 | 2.58 |
| 1 | 2 | 2 | 2.07 | 2 | 2 | 2 | 1.37 |
| 1 | 2 | 2 | 2.20 | 2 | 2 | 2 | .64 |
| 1 | 2 | 2 | 1.56 | 2 | 2 | 2 | 1.11 |
| 1 | 2 | 2 | 1.33 | 2 | 2 | 2 | 3.00 |
| 1 | 2 | 2 | 1.29 | 2 | 2 | 2 | 2.61 |
| 1 | 2 | 2 | 2.67 | 2 | 2 | 2 | 2.65 |
| 1 | 2 | 2 | 2.42 | 2 | 2 | 2 | 1.77 |
| 1 | 2 | 2 | 2.50 | 2 | 2 | 2 | 1.57 |
| 1 | 2 | 2 | 1.67 | 2 | 2 | 2 | 1.61 |
| 1 | 2 | 2 | .88 | 2 | 2 | 2 | 2.08 |
| 1 | 2 | 2 | 1.23 | 2 | 2 | 2 | 1.37 |

APPENDIX A--Continued

| Pre-Flation | MSU Curr. | ENT GPA GRP | MSU 1st-Term GPA | Post-Flation | MSU Curr. | ENT GPA GRP | MSU 1st-Term GPA |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 2 | 2.24 | 2 | 2 | 2 | 2.73 |
| 1 | 2 | 2 | 2.94 | 2 | 2 | 2 | 3.11 |
| 1 | 2 | 2 | 1.33 | 2 | 2 | 2 | 1.79 |
| 1 | 2 | 2 | 1.50 | 2 | 2 | 2 | 2.11 |
| 1 | 2 | 2 | 1.65 | 2 | 2 | 2 | 2.10 |
| 1 | 2 | 3 | 1.83 | 2 | 2 | 3 | 2.68 |
| 1 | 2 | 3 | 1.53 | 2 | 2 | 3 | 3.83 |
| 1 | 2 | 3 | 1.88 | 2 | 2 | 3 | 2.07 |
| 1 | 2 | 3 | 2.17 | 2 | 2 | 3 | 2.50 |
| 1 | 2 | 3 | 3.25 | 2 | 2 | 3 | 3.04 |
| 1 | 2 | 3 | 1.79 | 2 | 2 | 3 | 2.97 |
| 1 | 2 | 3 | 2.18 | 2 | 2 | 3 | 2.00 |
| 1 | 2 | 3 | 1.27 | 2 | 2 | 3 | 3.20 |
| 1 | 2 | 3 | 1.80 | 2 | 2 | 3 | 2.87 |
| 1 | 2 | 3 | .69 | 2 | 2 | 3 | 1.43 |
| 1 | 2 | 3 | 2.00 | 2 | 2 | 3 | 2.19 |
| 1 | 2 | 3 | 2.17 | 2 | 2 | 3 | 2.00 |
| 1 | 2 | 3 | 3.29 | 2 | 2 | 3 | 2.43 |
| 1 | 2 | 3 | 2.81 | 2 | 2 | 3 | 3.19 |
| 1 | 2 | 3 | 2.20 | 2 | 2 | 3 | 1.61 |
| 1 | 2 | 3 | 1.69 | 2 | 2 | 3 | 3.25 |
| 1 | 2 | 3 | 1.75 | 2 | 2 | 3 | 2.50 |
| 1 | 2 | 3 | 1.50 | 2 | 2 | 3 | 1.61 |
| 1 | 2 | 4 | 2.43 | 2 | 2 | 4 | 3.31 |
| 1 | 2 | 4 | 1.53 | 2 | 2 | 4 | 3.77 |
| 1 | 2 | 4 | 3.75 | 2 | 2 | 4 | .83 |
| 1 | 2 | 4 | 2.50 | 2 | 2 | 4 | 1.79 |
| 1 | 2 | 4 | 3.00 | 2 | 2 | 4 | 3.21 |
| 1 | 2 | 4 | 2.53 | 2 | 2 | 4 | 2.46 |
| 1 | 2 | 4 | 1.00 | 2 | 2 | 4 | 2.27 |
| 1 | 2 | 4 | 2.64 | 2 | 2 | 4 | 2.94 |
| 1 | 2 | 4 | 2.40 | 2 | 2 | 4 | 1.92 |
| 1 | 2 | 4 | 2.20 | 2 | 2 | 4 | 1.89 |
| 1 | 2 | 4 | 2.12 | 2 | 2 | 4 | 3.00 |
| 1 | 2 | 4 | 1.50 | 2 | 2 | 4 | 3.19 |
| 1 | 2 | 4 | 1.80 | 2 | 2 | 4 | 2.23 |
| 1 | 2 | 4 | 2.93 | 2 | 2 | 4 | 1.65 |
| 1 | 2 | 4 | 2.33 | 2 | 2 | 4 | 2.82 |
| 1 | 2 | 4 | 2.80 | 2 | 2 | 4 | 2.85 |
| 1 | 2 | 4 | 2.69 | 2 | 2 | 4 | 2.06 |
| 1 | 2 | 4 | 2.00 | 2 | 2 | 4 | 3.76 |
| 1 | 2 | 5 | 3.81 | 2 | 2 | 5 | 2.68 |
| 1 | 2 | 5 | 2.40 | 2 | 2 | 5 | 2.67 |
| 1 | 2 | 5 | 2.63 | 2 | 2 | 5 | 2.82 |
| 1 | 2 | 5 | 3.67 | 2 | 2 | 5 | 3.04 |

APPENDIX A--Continued

| Pre-Flation | MSU Curr. | ENT GPA GRP | MSU 1st-Term GPA | Post-Flation | MSU Curr. | ENT GPA GRP | MSU 1st-Term GPA |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 5 | 1.33 | 2 | 2 | 5 | 1.77 |
| 1 | 2 | 5 | 3.47 | 2 | 2 | 5 | 2.73 |
| 1 | 2 | 5 | 3.00 | 2 | 2 | 5 | 2.41 |
| 1 | 2 | 5 | 1.80 | 2 | 2 | 5 | 3.27 |
| 1 | 2 | 5 | .85 | 2 | 2 | 5 | 3.09 |
| 1 | 2 | 5 | 2.94 | 2 | 2 | 5 | 3.32 |
| 1 | 2 | 5 | 2.73 | 2 | 2 | 5 | 2.09 |
| 1 | 2 | 5 | 2.80 | 2 | 2 | 5 | 2.54 |
| 1 | 2 | 5 | .62 | 2 | 2 | 5 | 2.39 |
| 1 | 2 | 5 | 3.53 | 2 | 2 | 5 | 3.68 |
| 1 | 2 | 5 | 3.29 | 2 | 2 | 5 | 3.10 |
| 1 | 2 | 5 | 1.42 | 2 | 2 | 5 | 1.46 |
| 1 | 2 | 5 | 2.18 | 2 | 2 | 5 | 2.14 |
| 1 | 2 | 5 | 2.86 | 2 | 2 | 5 | 2.96 |
| 1 | 3 | 1 | 2.21 | 2 | 3 | 1 | 2.37 |
| 1 | 3 | 1 | 1.69 | 2 | 3 | 1 | 2.37 |
| 1 | 3 | 1 | .21 | 2 | 3 | 1 | 2.37 |
| 1 | 3 | 1 | 2.47 | 2 | 3 | 1 | 2.37 |
| 1 | 3 | 1 | 1.75 | 2 | 3 | 1 | 2.37 |
| 1 | 3 | 1 | 2.21 | 2 | 3 | 1 | 1.64 |
| 1 | 3 | 1 | 2.15 | 2 | 3 | 1 | 2.50 |
| 1 | 3 | 1 | 2.63 | 2 | 3 | 1 | 2.90 |
| 1 | 3 | 1 | 2.20 | 2 | 3 | 1 | 1.53 |
| 1 | 3 | 1 | 2.56 | 2 | 3 | 1 | 3.90 |
| 1 | 3 | 1 | 2.19 | 2 | 3 | 1 | 3.60 |
| 1 | 3 | 1 | 2.25 | 2 | 3 | 1 | 2.75 |
| 1 | 3 | 1 | 2.64 | 2 | 3 | 1 | 2.36 |
| 1 | 3 | 1 | 2.56 | 2 | 3 | 1 | 1.85 |
| 1 | 3 | 1 | 2.47 | 2 | 3 | 1 | 1.08 |
| 1 | 3 | 1 | 1.50 | 2 | 3 | 1 | 2.00 |
| 1 | 3 | 1 | 2.43 | 2 | 3 | 1 | 1.69 |
| 1 | 3 | 1 | 2.00 | 2 | 3 | 1 | 3.10 |
| 1 | 3 | 2 | 3.20 | 2 | 3 | 2 | 1.61 |
| 1 | 3 | 2 | 2.76 | 2 | 3 | 2 | 2.58 |
| 1 | 3 | 2 | 1.59 | 2 | 3 | 2 | 2.58 |
| 1 | 3 | 2 | 1.81 | 2 | 3 | 2 | 2.58 |
| 1 | 3 | 2 | 1.88 | 2 | 3 | 2 | 2.58 |
| 1 | 3 | 2 | 2.00 | 2 | 3 | 2 | 2.58 |
| 1 | 3 | 2 | 2.00 | 2 | 3 | 2 | 2.58 |
| 1 | 3 | 2 | 2.00 | 2 | 3 | 2 | 2.58 |
| 1 | 3 | 2 | 1.80 | 2 | 3 | 2 | 2.64 |
| 1 | 3 | 2 | 2.33 | 2 | 3 | 2 | 2.12 |
| 1 | 3 | 2 | 1.80 | 2 | 3 | 2 | 1.54 |
| 1 | 3 | 2 | 2.27 | 2 | 3 | 2 | 3.15 |
| 1 | 3 | 2 | 1.67 | 2 | 3 | 2 | 2.70 |

APPENDIX A--Continued

| Pre-Flation | MSU Curr. | ENT GPA GRP | MSU 1st-Term GPA | Post-Flation | MSU Curr. | ENT GPA GRP | MSU 1st-Term GPA |
|---|---|---|---|---|---|---|---|
| 1 | 3 | 2 | 2.07 | 2 | 3 | 2 | 3.70 |
| 1 | 3 | 2 | 1.83 | 2 | 3 | 2 | 3.00 |
| 1 | 3 | 2 | 2.56 | 2 | 3 | 2 | 3.70 |
| 1 | 3 | 2 | 1.85 | 2 | 3 | 2 | 1.38 |
| 1 | 3 | 2 | 2.00 | 2 | 3 | 2 | 2.86 |
| 1 | 3 | 3 | 1.63 | 2 | 3 | 3 | 3.13 |
| 1 | 3 | 3 | 1.67 | 2 | 3 | 3 | 2.00 |
| 1 | 3 | 3 | 2.53 | 2 | 3 | 3 | 2.18 |
| 1 | 3 | 3 | 2.14 | 2 | 3 | 3 | 3.33 |
| 1 | 3 | 3 | 3.50 | 2 | 3 | 3 | 3.11 |
| 1 | 3 | 3 | 2.20 | 2 | 3 | 3 | 3.41 |
| 1 | 3 | 3 | 2.21 | 2 | 3 | 3 | 2.33 |
| 1 | 3 | 3 | 2.19 | 2 | 3 | 3 | 2.17 |
| 1 | 3 | 3 | 2.56 | 2 | 3 | 3 | 3.30 |
| 1 | 3 | 3 | 2.18 | 2 | 3 | 3 | 2.75 |
| 1 | 3 | 3 | 2.23 | 2 | 3 | 3 | 3.00 |
| 1 | 3 | 3 | 2.17 | 2 | 3 | 3 | 2.83 |
| 1 | 3 | 3 | 2.27 | 2 | 3 | 3 | 2.05 |
| 1 | 3 | 3 | 1.58 | 2 | 3 | 3 | 2.74 |
| 1 | 3 | 3 | 2.80 | 2 | 3 | 3 | 2.74 |
| 1 | 3 | 3 | 3.47 | 2 | 3 | 3 | 2.74 |
| 1 | 3 | 3 | 2.31 | 2 | 3 | 3 | 2.74 |
| 1 | 3 | 3 | 2.67 | 2 | 3 | 3 | 2.74 |
| 1 | 3 | 4 | 2.15 | 2 | 3 | 4 | 3.09 |
| 1 | 3 | 4 | 3.00 | 2 | 3 | 4 | 2.88 |
| 1 | 3 | 4 | 2.53 | 2 | 3 | 4 | 3.38 |
| 1 | 3 | 4 | 2.43 | 2 | 3 | 4 | 3.50 |
| 1 | 3 | 4 | 2.69 | 2 | 3 | 4 | 3.04 |
| 1 | 3 | 4 | 1.75 | 2 | 3 | 4 | 3.80 |
| 1 | 3 | 4 | 2.94 | 2 | 3 | 4 | 1.71 |
| 1 | 3 | 4 | 2.77 | 2 | 3 | 4 | 3.09 |
| 1 | 3 | 4 | 3.15 | 2 | 3 | 4 | 3.06 |
| 1 | 3 | 4 | 2.44 | 2 | 3 | 4 | 3.06 |
| 1 | 3 | 4 | 1.87 | 2 | 3 | 4 | 3.06 |
| 1 | 3 | 4 | 2.27 | 2 | 3 | 4 | 3.06 |
| 1 | 3 | 4 | 2.00 | 2 | 3 | 4 | 3.06 |
| 1 | 3 | 4 | 2.93 | 2 | 3 | 4 | 3.06 |
| 1 | 3 | 4 | 2.33 | 2 | 3 | 4 | 3.06 |
| 1 | 3 | 4 | 3.00 | 2 | 3 | 4 | 3.06 |
| 1 | 3 | 4 | 2.73 | 2 | 3 | 4 | 3.06 |
| 1 | 3 | 4 | 3.00 | 2 | 3 | 4 | 3.06 |
| 1 | 3 | 5 | 2.94 | 2 | 3 | 5 | 3.47 |
| 1 | 3 | 5 | 3.00 | 2 | 3 | 5 | 3.16 |
| 1 | 3 | 5 | 3.00 | 2 | 3 | 5 | 3.00 |

APPENDIX A--Continued

| Pre-Flation | MSU Curr. | ENT GPA GRP | MSU 1st-Term GPA | Post-Flation | MSU Curr. | ENT GPA GRP | MSU 1st-Term GPA |
|---|---|---|---|---|---|---|---|
| 1 | 3 | 5 | 3.00 | 2 | 3 | 5 | 3.80 |
| 1 | 3 | 5 | 3.50 | 2 | 3 | 5 | 2.16 |
| 1 | 3 | 5 | 3.00 | 2 | 3 | 5 | 3.60 |
| 1 | 3 | 5 | 2.73 | 2 | 3 | 5 | 3.38 |
| 1 | 3 | 5 | 3.43 | 2 | 3 | 5 | 3.22 |
| 1 | 3 | 5 | 3.25 | 2 | 3 | 5 | 3.22 |
| 1 | 3 | 5 | 3.69 | 2 | 3 | 5 | 3.22 |
| 1 | 3 | 5 | 3.43 | 2 | 3 | 5 | 3.22 |
| 1 | 3 | 5 | 3.71 | 2 | 3 | 5 | 3.22 |
| 1 | 3 | 5 | 3.00 | 2 | 3 | 5 | 3.22 |
| 1 | 3 | 5 | 2.47 | 2 | 3 | 5 | 3.22 |
| 1 | 3 | 5 | 2.73 | 2 | 3 | 5 | 3.22 |
| 1 | 3 | 5 | 4.00 | 2 | 3 | 5 | 3.22 |
| 1 | 3 | 5 | 2.86 | 2 | 3 | 5 | 3.22 |
| 1 | 3 | 5 | 1.87 | 2 | 3 | 5 | 3.22 |
| 1 | 4 | 1 | 2.25 | 2 | 4 | 1 | 2.14 |
| 1 | 4 | 1 | 2.00 | 2 | 4 | 1 | 1.65 |
| 1 | 4 | 1 | 1.50 | 2 | 4 | 1 | 2.25 |
| 1 | 4 | 1 | 2.60 | 2 | 4 | 1 | 2.17 |
| 1 | 4 | 1 | 2.21 | 2 | 4 | 1 | 2.93 |
| 1 | 4 | 1 | 2.08 | 2 | 4 | 1 | 2.69 |
| 1 | 4 | 1 | 3.60 | 2 | 4 | 1 | 1.82 |
| 1 | 4 | 1 | 2.36 | 2 | 4 | 1 | 2.53 |
| 1 | 4 | 1 | 1.38 | 2 | 4 | 1 | 1.60 |
| 1 | 4 | 1 | 2.41 | 2 | 4 | 1 | .88 |
| 1 | 4 | 1 | 2.23 | 2 | 4 | 1 | 4.04 |
| 1 | 4 | 1 | 1.75 | 2 | 4 | 1 | 2.00 |
| 1 | 4 | 1 | 1.53 | 2 | 4 | 1 | 1.88 |
| 1 | 4 | 1 | 2.54 | 2 | 4 | 1 | 2.24 |
| 1 | 4 | 1 | 1.77 | 2 | 4 | 1 | 2.68 |
| 1 | 4 | 1 | 1.33 | 2 | 4 | 1 | 2.47 |
| 1 | 4 | 1 | 2.87 | 2 | 4 | 1 | 2.12 |
| 1 | 4 | 1 | 1.79 | 2 | 4 | 1 | 2.00 |
| 1 | 4 | 2 | 2.00 | 2 | 4 | 2 | 2.54 |
| 1 | 4 | 2 | 2.65 | 2 | 4 | 2 | 3.08 |
| 1 | 4 | 2 | 2.94 | 2 | 4 | 2 | 3.07 |
| 1 | 4 | 2 | .65 | 2 | 4 | 2 | 3.00 |
| 1 | 4 | 2 | 2.76 | 2 | 4 | 2 | 2.64 |
| 1 | 4 | 2 | 2.95 | 2 | 4 | 2 | 2.60 |
| 1 | 4 | 2 | 1.50 | 2 | 4 | 2 | 1.83 |
| 1 | 4 | 2 | .71 | 2 | 4 | 2 | 1.94 |
| 1 | 4 | 2 | 1.62 | 2 | 4 | 2 | 2.47 |
| 1 | 4 | 2 | 3.00 | 2 | 4 | 2 | 2.23 |
| 1 | 4 | 2 | 2.38 | 2 | 4 | 2 | 2.79 |
| 1 | 4 | 2 | 1.38 | 2 | 4 | 2 | 2.39 |

APPENDIX A--Continued

| Pre-Flation | MSU Curr. | ENT GPA GRP | MSU 1st-Term GPA | Post-Flation | MSU Curr. | ENT GPA GRP | MSU 1st-Term GPA |
|---|---|---|---|---|---|---|---|
| 1 | 4 | 2 | 2.69 | 2 | 4 | 2 | 2.63 |
| 1 | 4 | 2 | 1.81 | 2 | 4 | 2 | 2.38 |
| 1 | 4 | 2 | 1.41 | 2 | 4 | 2 | 2.37 |
| 1 | 4 | 2 | 1.75 | 2 | 4 | 2 | 2.29 |
| 1 | 4 | 2 | 2.28 | 2 | 4 | 2 | 2.08 |
| 1 | 4 | 2 | 2.62 | 2 | 4 | 2 | 2.64 |
| 1 | 4 | 3 | 2.94 | 2 | 4 | 3 | 2.86 |
| 1 | 4 | 3 | 2.80 | 2 | 4 | 3 | 3.38 |
| 1 | 4 | 3 | 2.00 | 2 | 4 | 3 | 3.38 |
| 1 | 4 | 3 | 2.92 | 2 | 4 | 3 | 3.42 |
| 1 | 4 | 3 | 1.92 | 2 | 4 | 3 | 3.10 |
| 1 | 4 | 3 | 1.17 | 2 | 4 | 3 | 2.79 |
| 1 | 4 | 3 | 3.27 | 2 | 4 | 3 | 1.57 |
| 1 | 4 | 3 | 2.57 | 2 | 4 | 3 | 3.50 |
| 1 | 4 | 3 | 2.33 | 2 | 4 | 3 | 3.24 |
| 1 | 4 | 3 | 2.31 | 2 | 4 | 3 | 3.34 |
| 1 | 4 | 3 | 3.06 | 2 | 4 | 3 | 2.81 |
| 1 | 4 | 3 | 2.39 | 2 | 4 | 3 | 3.38 |
| 1 | 4 | 3 | 2.20 | 2 | 4 | 3 | 1.82 |
| 1 | 4 | 3 | 2.71 | 2 | 4 | 3 | 2.13 |
| 1 | 4 | 3 | 2.50 | 2 | 4 | 3 | 2.94 |
| 1 | 4 | 3 | 1.08 | 2 | 4 | 3 | 2.15 |
| 1 | 4 | 3 | 2.35 | 2 | 4 | 3 | 2.37 |
| 1 | 4 | 3 | 2.50 | 2 | 4 | 3 | 2.71 |
| 1 | 4 | 4 | 2.67 | 2 | 4 | 4 | 3.00 |
| 1 | 4 | 4 | 3.38 | 2 | 4 | 4 | 2.33 |
| 1 | 4 | 4 | 3.00 | 2 | 4 | 4 | 2.83 |
| 1 | 4 | 4 | 2.78 | 2 | 4 | 4 | 2.14 |
| 1 | 4 | 4 | 2.15 | 2 | 4 | 4 | 2.86 |
| 1 | 4 | 4 | 2.27 | 2 | 4 | 4 | 3.00 |
| 1 | 4 | 4 | 1.54 | 2 | 4 | 4 | 3.50 |
| 1 | 4 | 4 | 2.27 | 2 | 4 | 4 | 2.10 |
| 1 | 4 | 4 | 3.00 | 2 | 4 | 4 | 3.63 |
| 1 | 4 | 4 | 3.27 | 2 | 4 | 4 | 2.57 |
| 1 | 4 | 4 | 1.36 | 2 | 4 | 4 | 3.25 |
| 1 | 4 | 4 | 2.93 | 2 | 4 | 4 | 3.54 |
| 1 | 4 | 4 | 2.88 | 2 | 4 | 4 | 2.71 |
| 1 | 4 | 4 | 2.25 | 2 | 4 | 4 | 3.06 |
| 1 | 4 | 4 | 2.58 | 2 | 4 | 4 | 2.86 |
| 1 | 4 | 4 | 1.38 | 2 | 4 | 4 | 2.15 |
| 1 | 4 | 4 | 1.53 | 2 | 4 | 4 | 2.50 |
| 1 | 4 | 4 | 1.88 | 2 | 4 | 4 | 2.40 |
| 1 | 4 | 5 | 2.22 | 2 | 4 | 5 | 3.35 |
| 1 | 4 | 5 | 3.79 | 2 | 4 | 5 | 3.07 |

APPENDIX A--Continued

| Pre-Flation | MSU Curr. | ENT GPA GRP | MSU 1st-Term GPA | Post-Flation | MSU Curr. | ENT GPA GRP | MSU 1st-Term GPA |
|---|---|---|---|---|---|---|---|
| 1 | 4 | 5 | 3.40 | 2 | 4 | 5 | 2.50 |
| 1 | 4 | 5 | 2.47 | 2 | 4 | 5 | 3.78 |
| 1 | 4 | 5 | 3.43 | 2 | 4 | 5 | 3.63 |
| 1 | 4 | 5 | 2.63 | 2 | 4 | 5 | 2.42 |
| 1 | 4 | 5 | 2.75 | 2 | 4 | 5 | 3.17 |
| 1 | 4 | 5 | 3.42 | 2 | 4 | 5 | 3.67 |
| 1 | 4 | 5 | 1.38 | 2 | 4 | 5 | 3.07 |
| 1 | 4 | 5 | 2.00 | 2 | 4 | 5 | 3.31 |
| 1 | 4 | 5 | 2.35 | 2 | 4 | 5 | 3.75 |
| 1 | 4 | 5 | 3.71 | 2 | 4 | 5 | 2.63 |
| 1 | 4 | 5 | 2.94 | 2 | 4 | 5 | 2.85 |
| 1 | 4 | 5 | 3.00 | 2 | 4 | 5 | 2.37 |
| 1 | 4 | 5 | 3.25 | 2 | 4 | 5 | 3.21 |
| 1 | 4 | 5 | 3.81 | 2 | 4 | 5 | 3.75 |
| 1 | 4 | 5 | 2.00 | 2 | 4 | 5 | 4.00 |
| 1 | 4 | 5 | 2.80 | 2 | 4 | 5 | 2.54 |

# APPENDIX B

# THREE-WAY ANOVA RESEARCH DESIGN

## APPENDIX B

## THREE-WAY ANOVA RESEARCH DESIGN

| POP | CURRICULUM | ENTERING GPA BLOCKS | N = 18 | MSU 1st-Term GPA |
|---|---|---|---|---|
| PRE-GRADE-FLATION FALL TERM TRANSFER STUDENTS 1965-1967 | COLLEGE OF BUSINESS | 2.00 - 2.29<br>2.30 - 2.59<br>2.60 - 2.89<br>2.90 - 3.19<br>3.20 - 3.49 | N = 18 | Ex. 2.03 |
| | COLLEGE OF NATURAL SCIENCE | | | |
| | COLLEGE OF EDUCATION | | | |
| | OTHERS | | | |
| POST-GRADE-FLATION FALL TERM TRANSFER STUDENTS 1971-1973 | COLLEGE OF BUSINESS | | | |
| | COLLEGE OF NATURAL SCIENCE | | | |
| | COLLEGE OF EDUCATION | | | |
| | OTHERS | | | |

# APPENDIX C

## MEANS AND STANDARD DEVIATIONS FOR SAMPLE

## APPENDIX C

### MEANS AND STANDARD DEVIATIONS FOR SAMPLE

| Population | Curriculum | Entering GPA Blocks | Cell Means | Cell Std. Deviations | N = 18 |
|---|---|---|---|---|---|
| PRE-GRADE-FLATION | COLLEGE OF BUSINESS | 2.00 - 2.29 | 2.016 | .762 | 18 |
| | | 2.30 - 2.59 | 1.917 | .643 | 18 |
| | | 2.60 - 2.89 | 1.874 | .654 | 18 |
| | | 2.90 - 3.19 | 2.391 | .577 | 18 |
| | | 3.20 - 3.49 | 2.711 | .770 | 18 |
| | COLLEGE OF NAT. SCI. | 2.00 - 2.29 | 1.600 | .672 | 18 |
| | | 2.30 - 2.59 | 1.860 | .591 | 18 |
| | | 2.60 - 2.89 | 1.989 | .642 | 18 |
| | | 2.90 - 3.19 | 2.342 | .637 | 18 |
| | | 3.20 - 3.49 | 2.518 | .965 | 18 |
| | COLLEGE OF EDUCATION | 2.00 - 2.29 | 2.118 | .578 | 18 |
| | | 2.30 - 2.59 | 2.079 | .411 | 18 |
| | | 2.60 - 2.89 | 2.351 | .527 | 18 |
| | | 2.90 - 3.19 | 2.554 | .426 | 18 |
| | | 3.20 - 3.49 | 3.089 | .500 | 18 |
| | OTHER | 2.00 - 2.29 | 2.122 | .575 | 18 |
| | | 2.30 - 2.59 | 2.061 | .748 | 18 |
| | | 2.60 - 2.89 | 2.390 | .582 | 18 |
| | | 2.90 - 3.19 | 2.396 | .651 | 18 |
| | | 3.20 - 3.49 | 2.853 | .693 | 18 |
| POST-GRADE-FLATION | COLLEGE OF BUSINESS | 2.00 - 2.29 | 2.121 | .691 | 18 |
| | | 2.30 - 2.59 | 2.283 | .599 | 18 |
| | | 2.60 - 2.89 | 2.382 | .829 | 18 |
| | | 2.90 - 3.19 | 2.379 | .792 | 18 |
| | | 3.20 - 3.49 | 2.628 | .463 | 18 |
| | COLLEGE OF NAT. SCI. | 2.00 - 2.29 | 1.928 | .011 | 18 |
| | | 2.30 - 2.59 | 1.968 | .702 | 18 |
| | | 2.60 - 2.89 | 2.521 | .664 | 18 |
| | | 2.90 - 3.19 | 2.553 | .786 | 18 |
| | | 3.20 - 3.49 | 2.676 | .567 | 18 |
| | COLLEGE OF EDUCATION | 2.00 - 2.29 | 2.375 | .711 | 18 |
| | | 2.30 - 2.59 | 2.581 | .632 | 18 |
| | | 2.60 - 2.89 | 2.738 | .441 | 18 |
| | | 2.90 - 3.19 | 3.061 | .399 | 18 |
| | | 3.20 - 3.49 | 3.222 | .320 | 18 |
| | OTHER | 2.00 - 2.29 | 2.227 | .655 | 18 |
| | | 2.30 - 2.59 | 2.498 | .357 | 18 |
| | | 2.60 - 2.89 | 2.827 | .594 | 18 |
| | | 2.90 - 3.19 | 2.802 | .483 | 18 |
| | | 3.20 - 3.49 | 3.171 | .526 | 18 |

# APPENDIX D

## MEANS OF TOTAL POPULATION BY YEAR

## APPENDIX D

### MEAN GPA'S OF TOTAL POPULATION BY YEAR

| Curr. | Entering GPA GRP | Pre-Grade-Flation | | | Post-Grade-Flation | | |
|---|---|---|---|---|---|---|---|
| | | 1965 | 1966 | 1967 | 1971 | 1972 | 1973 |
| COLLEGE OF BUSINESS | 2.00 - 2.29 | 2.153 | 2.185 | 2.178 | 2.192 | 2.176 | 2.170 |
| | 2.30 - 2.59 | 2.436 | 2.450 | 2.462 | 2.456 | 2.427 | 2.349 |
| | 2.60 - 2.89 | 2.698 | 2.731 | 2.738 | 2.716 | 2.727 | 2.741 |
| | 2.90 - 3.19 | 3.045 | 3.019 | 3.054 | 2.972 | 3.044 | 3.041 |
| | 3.20 - 3.49 | 3.315 | 3.332 | 3.309 | 3.267 | 3.360 | 3.334 |
| COLLEGE OF NAT. SCI. | 2.00 - 2.29 | 2.145 | 2.190 | 2.156 | 2.175 | 2.178 | 2.159 |
| | 2.30 - 2.59 | 2.456 | 2.442 | 2.511 | 2.456 | 2.455 | 2.397 |
| | 2.60 - 2.89 | 2.733 | 2.721 | 2.746 | 2.754 | 2.778 | 2.762 |
| | 2.90 - 3.19 | 3.041 | 3.052 | 3.037 | 3.034 | 3.158 | 3.118 |
| | 3.20 - 3.49 | 3.350 | 3.357 | 3.324 | 3.324 | 3.338 | 3.291 |
| COLLEGE OF EDUCATION | 2.00 - 2.29 | 2.173 | 2.145 | 2.232 | 2.162 | 2.105 | 2.176 |
| | 2.30 - 2.59 | 2.419 | 2.420 | 2.426 | 2.517 | 2.372 | 2.430 |
| | 2.60 - 2.89 | 2.784 | 2.714 | 2.744 | 2.760 | 2.690 | 2.734 |
| | 2.90 - 3.19 | 3.054 | 3.109 | 3.031 | 3.080 | 2.950 | 3.097 |
| | 3.20 - 3.49 | 3.370 | 3.332 | 3.402 | 3.385 | 3.267 | 3.450 |
| OTHER | 2.00 - 2.29 | 2.170 | 2.087 | 2.180 | 2.178 | 2.225 | 2.169 |
| | 2.30 - 2.59 | 2.412 | 2.451 | 2.468 | 2.435 | 2.465 | 2.437 |
| | 2.60 - 2.89 | 2.727 | 2.732 | 2.738 | 2.716 | 2.766 | 2.742 |
| | 2.90 - 3.19 | 3.053 | 3.036 | 3.037 | 3.023 | 3.058 | 3.062 |
| | 3.20 - 3.49 | 3.315 | 3.370 | 3.328 | 3.326 | 3.345 | 3.337 |

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