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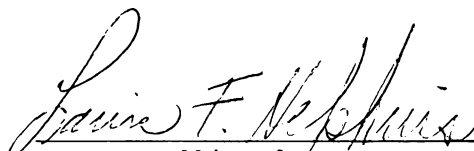
An Aptitude, Attitude Interaction
Study of Academically
Underprepared College Students

presented by

Michael A. Cairns

has been accepted towards fulfillment
of the requirements for

Ph.D. degree in Educational
Administration


Major professor

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**AN APTITUDE, ATTITUDE INTERACTION STUDY
OF
ACADEMICALLY UNDERPREPARED COLLEGE STUDENTS**

**By
Michael A. Cairns**

A DISSERTATION

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

DOCTOR OF PHILOSOPHY

Department of Educational Administration

1992

ABSTRACT

AN APTITUDE, ATTITUDE INTERACTION STUDY OF ACADEMICALLY UNDERPREPARED STUDENTS

By

Michael A. Cairns

The purpose of this study was to examine the nature of the academically underprepared students in the Collegiate Skills Program (CSP) at Ferris State University, during the fall quarter of 1991. The researcher:

1. Examined the attitudes of 193 academically underprepared students, as measured by the College Student Inventory. The CSI is a 194-item multidimensional inventory of student motivation, using nineteen scales in five general categories.
2. Explored the interactions between student attitudes and the following characteristics: ACT composite score (aptitude), age, gender, ethnicity, high school grade point average and Degrees of Reading Power (DRP) reading comprehension test score.

Research Hypothesis 1 involved using z-tests to compare the ACT and DRP scores, attitudes, and demographic characteristics of the sample and population. Chi-square was performed on the gender and ethnicity variables. The .05 alpha level was used. Research Hypotheses 2 through 6 involved two-way MANOVAs. High and low ACT groups were cross classified with gender, ethnicity, age, DRP, and high school grade point average. Follow-up ANOVAs (univariate analysis of variance) and Scheffe's post-hoc comparisons were used where statistical significance was found. Research Hypothesis 7 involved stepwise multiple regression to predict first term success among Collegiate

Skills Program students.

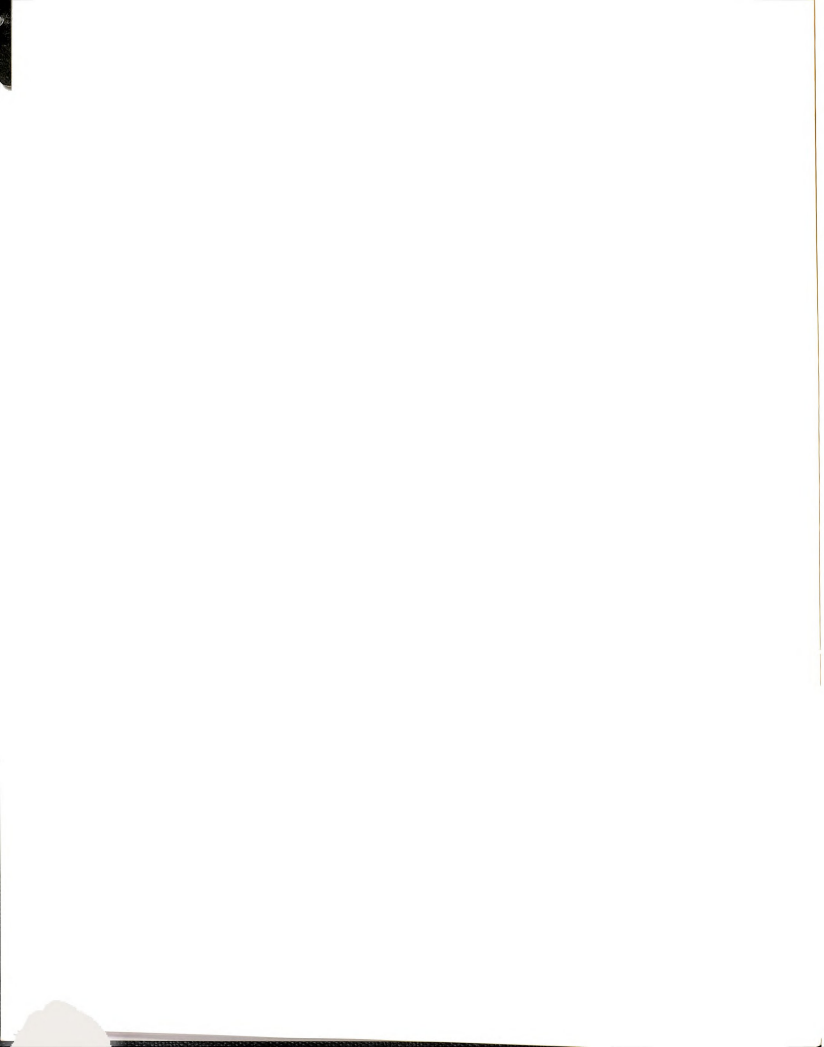
The interaction effects studied revealed statistical significance in only one hypothesis ($H_{04.4}$, ACT by DRP). In this case students with low ACT/high DRP scores had a greater degree of openness, as measured by the CSI, than low ACT/low DRP students.

The sample had poorer study habits, fewer intellectual interests, lower academic confidence, and a lower regard for educators than entering college students in general. The sample's results on the Attitude Toward Educators CSI variable entered into the prediction equation examining first term grades. The DRP scores accounted for a significant proportion of the variance in first term grades among CSP students. CSP students with low DRP scores had fewer intellectual interests, less academic confidence, less of a desire to finish college, less of an ability to make their own decisions and carry through with them (Self-Reliance), than students with high DRP scores.

Dissertation Director: Dr. Louis F. Hekhuis, Professor, Educational Administration

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I dedicate this dissertation to my parents,
William and Joan Cairns,
my first and greatest teachers, for a
lifetime of unconditional love, kindness,
generosity, and humor.



ACKNOWLEDGEMENTS

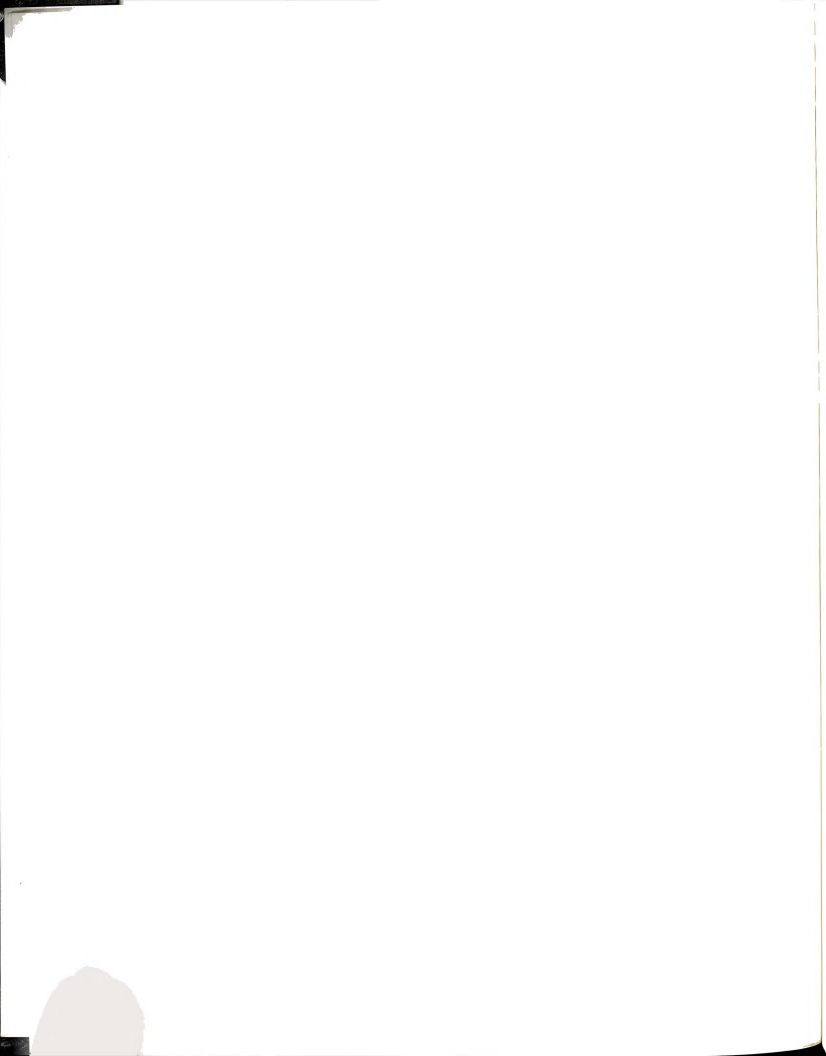
Along my five year journey to earn a Ph.D., I was assisted every step of the way. I would therefore like to express my sincere thanks, appreciation and gratitude to the people who made reaching this goal possible.

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CHAPTER I

INTRODUCTION

"The most significant change in higher education over the next twenty-five years will be the nature of the student body" (Hanson, 1990, p. 271). College populations will become more diverse in the next twenty-five years (Hodgkinson, 1989). Learning to manage this diversity is perhaps the most striking challenge we face in higher education today (Siegel, 1989). American campuses face unparalleled diversity of student cultural backgrounds, values, behaviors, academic abilities, and other characteristics because colleges have provided "...relatively open access for hundreds of thousands of students from formerly underserved populations—including women, minorities, and international, low-income, and older students" (Fenske and Hughes, 1989, p. 555).

This access has resulted in a massive expansion of college enrollments since the late 1950's. As a result, colleges nationwide have been required to allocate extensive financial resources to support their broadened missions. Even though resources available for instructional programs to deal with increased numbers became less abundant during the 1970's, institutions were still pressured to increase access to underserved populations in response to numerous equity related mandates (Hanson and Stampen, 1987).

Throughout the 1980's and into the 1990's, financial pressures on colleges intensified. However, the continuing pressure of societal demands upon colleges to meet the educational needs of the "demographic juggernaut" of previously underserved student cohorts will not decline in the future (Kuh, 1990). In fact, present demographic trends "...present significant challenges to colleges and universities in general, and to student affairs in particular" (Kuh, 1990, p. 92). "In the 1990's, higher education will be faced with the dual challenge of improving the quality of academic programs while maintaining

access for increasing numbers of low-income and minority populations not yet served adequately" (Fenske and Hughes, 1989, p. 578).

These challenges will be exacerbated if college administrators and faculty develop, implement, and evaluate student support services based upon outdated assumptions concerning the aptitude, attitudes, and demographic characteristics of students who are arriving at their institutions. Increasingly, the level of colleges' overall performance and the strength of the student affairs profession in particular "... will be judged by how well practitioners use information about student growth and development to guide and shape their educational interventions" (Hanson, 1990).

Practitioners receive much of their information about students from researchers. One of the most important research agendas for the 1990's is "How can we describe students in meaningful ways when they first enter college?" (Hanson, 1990, p. 277). Even though research has been done in this area, "... we have only barely begun to find answers" (Hanson, 1990, p. 277).

Another directly related area of inquiry that deserves the attention of higher education is that of demographic trends (Levine, 1989; Hodgkinson, 1983, 1985, 1987). Demographic trends have resulted in the near death of the stereotypic student, "Joe/ Josephine College" (Kuh, 1990). Many college administrators remember Joe. "Joe was independent, strongly self-motivated, and academically well prepared; he was able not only to sample the intellectual wares, but also to settle down, about junior year, to a major field of study, which he pursued with diligence and increasing confidence in order to graduate a neat four years after his arrival" (Kuh, 1990, p. 71). Who is taking Joe's place? How can we describe him/her given that "... the so-called typical college student defies succinct description" (Kuh, 1990, p. 71).

Student affairs professionals struggle with the design, implementation, and

evaluation of programs for students about whom little is known (Hanson, 1990). Colleges do not want to spend diminished funds on hunches, yet may have a limited awareness of the aptitude, attitudes, and demographic characteristics of their "new students" (Cross, 1981). **Therefore, college administrators and faculty need to clearly understand the nature of their new students, especially the increasing numbers of academically underprepared students.**

STATEMENT OF THE PROBLEM

"Our population is undergoing a demographic metamorphosis" (Levine, 1989, p. xi). Higher education is facing unprecedented change in the composition of its own population. These changes have resulted in a time of uncertainty for many colleges (Levine, 1989). The implications of demographic changes for all colleges and universities are extensive. The increased diversity of students on college campuses directly or indirectly affects program funding, enrollment services, curriculum design, teaching methods, outcomes assessment, retention, the growth of some institutions, and the question of survival for others.

Relative to the makeup of college populations, "Two words sum up the students: numbers and variety" (Cohen and Brawer, 1989, p. 30). Concerning the issue of numbers, some studies suggest that many colleges will face a decrease in the number of entering students (Easterlin, 1989). "So far, however, total college enrollment has held steady or even increased in spite of declines in the college-age population" (Frances, 1989, p. 143). The availability of students may be debatable, but the characteristics of those students who are available will continue to become more diverse (Levine, 1989). "Inexorable demographic trends promise an increasingly diverse (in terms of age and

ethnic heritage) student body at most institutions. Diversity accurately describes changing student characteristics" (Kuh, 1990, p. 86).

These demographic trends present a significant challenge to college administrators and faculty, and especially student development services professionals. "The challenge is exacerbated by financial pressures on institutions and made more complex by lack of knowledge regarding students (especially underserved populations) . . ." (Delworth and Hanson, 1989, p. 616).

Given the increasing diversity of student populations and the mounting evidence that traditional admissions criteria (test scores and grades) are not always the most accurate predictors of college performance and retention (Pascarella and Terenzini, 1991), and given the increasing numbers of academically underprepared students entering colleges/universities (Levine, 1989), the need to clearly understand the nature of all entering students becomes a "demographic imperative" (Rainsford, 1990).

STATEMENT OF THE PURPOSE

The purpose of this study was to examine the nature of the academically underprepared students in the Collegiate Skills Program (CSP) at Ferris State University, during the fall quarter of 1991. This was done in order to develop a more accurate profile of these students which, in turn, may be used to improve policies and programs designed to help these students become successful college students.

In order to perform this study, the researcher:

1. Examined the attitudes of the Ferris State University Collegiate Skills Program (CSP) students, as measured by the College Student Inventory, relative to their academic motivation, social motivation, general coping skills, receptivity to support services, and initial impressions of Ferris State University.

2. Explored the relationships between the attitudes of the Collegiate Skills Program students, as measured by the College Student Inventory, and the following characteristics:

- a. ACT composite score (aptitude)
- b. Age
- c. Gender
- d. Ethnicity
- e. High school grade point average
- f. Degrees of Reading Power (DRP) reading comprehension test score.

Other research variables may have elicited useful findings, but in order to facilitate a manageable study, practical limitations were necessary. In addition, no comprehensive, detailed examination of the nature of the CSP students, using the listed variables, had ever been attempted. Not limiting the number of research variables may have resulted in not completing the study.

RESEARCH HYPOTHESES

It is important to note that the College Student Inventory used in this study surveys student attitudes relative to the following general categories: Academic Motivation, Social Motivation, General Coping Skills, Receptivity to Support Services, and Initial Impression. These categories, or scales, contain the following specific variables:

Academic Motivation

Study Habits
Intellectual Interests
Academic Confidence
Desire to Finish College
Attitude Toward Educators

Social Motivation

Self-Reliance
Sociability
Leadership

General Coping Skills

Ease of Transition
Family Emotional Support
Openness
Career Planning
Sense of Financial Security

Receptivity to Support Services

Academic Assistance
Personal Counseling
Social Enrichment
Career Counseling

Initial Impression

The specific variables listed under the underlined categories shown above are the variables that are tested individually in this study. For example, Hypothesis 2 refers to Academic Motivation, as a general category within the College Student Inventory. This category contains the following variables: Study Habits, Intellectual Interests, Academic Confidence, Desire to Finish College and Attitude Toward Educators.

In order to study the nature of academically underprepared students at Ferris State University, and to study the interaction among the aptitudes, as measured by ACT, attitudes, as measured by the College Student Inventory, and demographic characteristics of these students, the following seven research hypotheses were tested:

Hypothesis 1

- H₀1.1 There is no difference between the **aptitude**, as measured by ACT scores, of Ferris CSP students and the **aptitude**, as measured by ACT scores, of entering college students in general.
- H₀1.2 There is no difference between the **study habits**, as measured by the College Student Inventory, of Ferris CSP students and the **study habits**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.3 There is no difference between the **intellectual interests**, as measured by the College Student Inventory, of Ferris CSP students and the **intellectual interests**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.4 There is no difference between the **academic confidence**, as measured by the College Student Inventory, of Ferris CSP students and the **academic confidence**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.5 There is no difference between the **desire to finish college**, as measured by the College Student Inventory, of Ferris CSP students and the **desire to finish college**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.6 There is no difference between the **attitudes toward educators**, as measured by the College Student Inventory, of Ferris CSP students and the **attitudes toward educators** as measured by the College Student Inventory, of entering college students in general.

- H₀1.7** There is no difference between the **self reliance**, as measured by the College Student Inventory, of Ferris CSP students and the **self reliance**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.8** There is no difference between the **sociability**, as measured by the College Student Inventory, of Ferris CSP students and the **sociability**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.9** There is no difference between the **leadership**, as measured by the College Student Inventory, of Ferris CSP students and the **leadership**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.10** There is no difference between the **ease of transition**, as measured by the College Student Inventory, of Ferris CSP students and the **ease of transition** as measured by the College Student Inventory, of entering college students in general.
- H₀1.11** There is no difference between the **family emotional support**, as measured by the College Student Inventory, of Ferris CSP students and the **family emotional support**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.12** There is no difference between the **openness**, as measured by the College Student Inventory, of Ferris CSP students and the **openness**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.13** There is no difference between the **career planning**, as measured by the College Student Inventory, of Ferris CSP students and the **career planning**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.14** There is no difference between the **sense of financial security**, as measured by the College Student Inventory, of Ferris CSP students and the **sense of financial security**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.15** There is no difference between the **receptivity to academic assistance**, as measured by the College Student Inventory, of Ferris CSP students and the **receptivity to academic assistance**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.16** There is no difference between the **receptivity to personal counseling**, as measured by the College Student Inventory, of Ferris CSP students and the **receptivity to personal counseling**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.17** There is no difference between the **receptivity to social enrichment**, as measured by the College Student Inventory, of Ferris CSP students and the **receptivity to social enrichment** as measured by the College Student Inventory, of entering college students in general.

- H₀1.18** There is no difference between the **receptivity to career counseling**, as measured by the College Student Inventory, of Ferris CSP students and the **receptivity to career counseling**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.19** There is no difference between the **initial impression**, as measured by the College Student Inventory, CSP students have of Ferris, and the **initial impression**, as measured by the College Student Inventory, entering college students in general have of their colleges.
- H₀1.20** There is no difference between the **mean age** of Ferris CSP students and the **mean age** of entering college students in general.
- H₀1.21** There is no difference between the **gender ratio** of Ferris CSP students and the **gender ratio** of entering college students in general.
- H₀1.22** There is no difference between the **ethnicity ratio** of Ferris CSP students and the **ethnicity ratio** of entering college students in general.
- H₀1.23** There is no difference between the **DRP scores** of Ferris CSP students and the **DRP scores** of entering college students in general.
- H₀1.24** There is no difference between the **high school GPA's** of Ferris CSP students and the **high school GPA's** of entering college students in general.

Hypothesis 2

- H₀2.1:** When controlling for tested aptitude, as measured by ACT composite score, the **academic motivation**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to age, or by age unmodified by ACT.
- H₀2.2:** When controlling for tested aptitude, as measured by ACT composite score, the **academic motivation**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to gender, or by gender unmodified by ACT.
- H₀2.3:** When controlling for tested aptitude, as measured by ACT composite score, the **academic motivation**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **ethnicity**, or by ethnicity unmodified by ACT.
- H₀2.4:** When controlling for tested aptitude, as measured by ACT composite score, the **academic motivation**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **Degrees of Reading Power score**, or by Degrees of Reading Power score unmodified by ACT.

H₀2.5: When controlling for tested aptitude, as measured by ACT composite score, the **academic motivation**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **high school grade point average**, or by high school grade point average unmodified by ACT.

Hypothesis 3

H₀3.1: When controlling for tested aptitude, as measured by ACT composite score, the **social motivation**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **age**, or by age unmodified by ACT.

H₀3.2: When controlling for tested aptitude, as measured by ACT composite score, the **social motivation**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **gender**, or by gender unmodified by ACT.

H₀3.3: When controlling for tested aptitude, as measured by ACT composite score, the **social motivation**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **ethnicity**, or by ethnicity unmodified by ACT.

H₀3.4: When controlling for tested aptitude, as measured by ACT composite score, the **social motivation**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **Degrees of Reading Power score**, or by Degrees of Reading Power score unmodified by ACT.

H₀3.5: When controlling for tested aptitude, as measured by ACT composite score, the **social motivation**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **high school grade point average**, or by high school grade point average unmodified by ACT.

Hypothesis 4

H₀4.1: When controlling for tested aptitude, as measured by ACT composite score, the **general coping skills**, as measured by the College Student Inventory, of Ferris CSP students do not vary according to **age**, or by age unmodified by ACT.

H₀4.2: When controlling for tested aptitude, as measured by ACT composite score, the **general coping skills**, as measured by the College Student Inventory, of Ferris CSP students do not vary according to **gender**, or by gender unmodified by ACT.

H₀4.3: When controlling for tested aptitude, as measured by ACT composite score, the **general coping skills**, as measured by the College Student Inventory, of Ferris CSP students do not vary according to **ethnicity**, or ethnicity unmodified by ACT.

H₀4.4: When controlling for tested aptitude, as measured by ACT composite score, the **general coping skills**, as measured by the College Student Inventory, of Ferris CSP students do not vary according to **Degrees of Reading Power score**, or by Degrees of Reading Power score unmodified by ACT.

H₀4.5: When controlling for tested aptitude, as measured by ACT composite score, the **general coping skills**, as measured by the College Student Inventory, of Ferris CSP students do not vary according to **high school grade point average**, or by high school grade point average unmodified by ACT.

Hypothesis 5

H₀5.1: When controlling for tested aptitude, as measured by ACT composite score, the **receptivity to support services**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **age**, or by age unmodified by ACT.

H₀5.2: When controlling for tested aptitude, as measured by ACT composite score, the **receptivity to support services**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **gender**, or by gender unmodified by ACT.

H₀5.3: When controlling for tested aptitude, as measured by ACT composite score, the **receptivity to support services**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **ethnicity**, or by ethnicity unmodified by ACT.

H₀5.4: When controlling for tested aptitude, as measured by ACT composite score, the **receptivity to support services**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **Degrees of Reading Power score**, or by Degrees of Reading Power score unmodified by ACT.

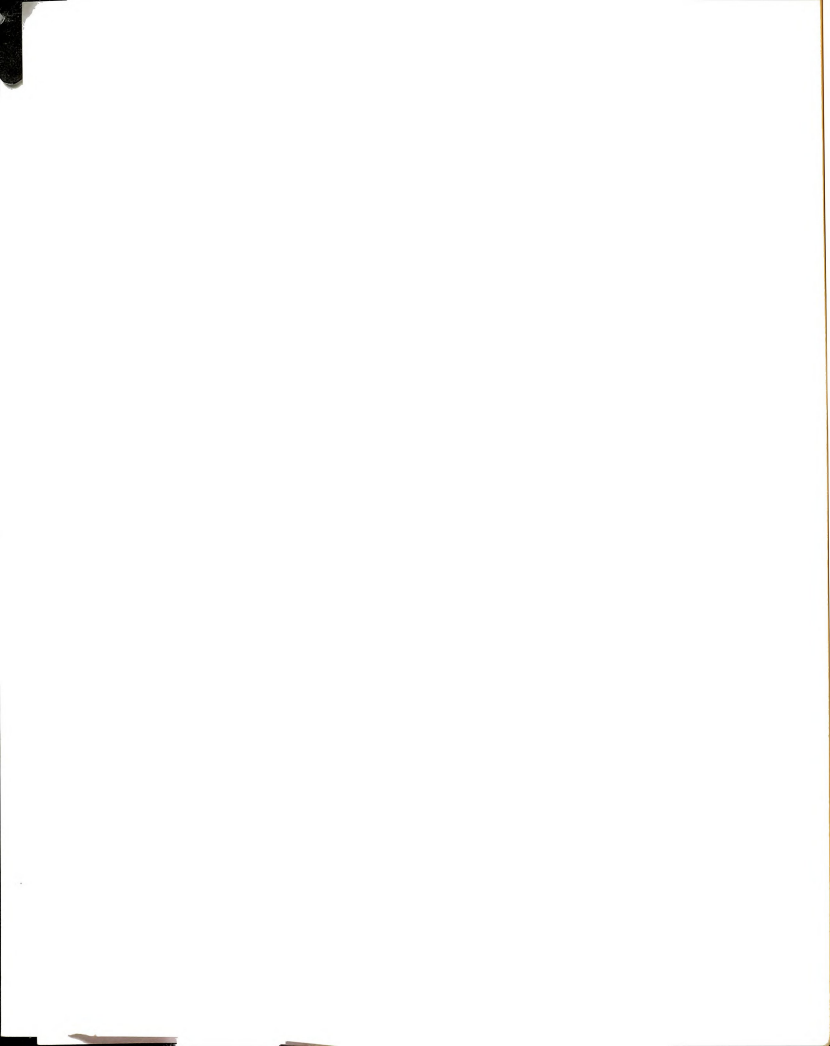
H₀5.5: When controlling for tested aptitude, as measured by ACT composite score, the **receptivity to support services**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **high school grade point average**, or by high school grade point average unmodified by ACT.

Hypothesis 6

H₀6.1: When controlling for tested aptitude, as measured by ACT composite score, Ferris CSP students' **initial impressions** of Ferris State University, as measured by the College Student Inventory, do not vary according to **age**, or by age unmodified by ACT.

H₀6.2: When controlling for tested aptitude, as measured by ACT composite score, Ferris CSP students' **initial impressions** of Ferris State University, as measured by the College Student Inventory, do not vary according to **gender**, or by gender unmodified by ACT.

H₀6.3: When controlling for tested aptitude, as measured by ACT composite score, Ferris CSP students' **initial impressions** of Ferris State University, as measured by the College Student Inventory, do not vary according to **ethnicity**, or by ethnicity unmodified by ACT.



H₀6.4: When controlling for tested aptitude, as measured by ACT composite score, Ferris CSP students' **initial impressions** of Ferris State University, as measured by the College Student Inventory, do not vary according to **Degrees of Reading Power** score, or by Degrees of Reading Power score unmodified by ACT.

H₀6.5: When controlling for tested aptitude, as measured by ACT composite score, Ferris CSP students' **initial impressions** of Ferris State University, as measured by the College Student Inventory, do not vary according to **high school grade point average**, or by high school grade point average unmodified by ACT.

Hypothesis 7

H₀7.1: College Student Inventory variables do not predict the first term success among Ferris CSP students, as measured by college grade point average.

H₀7.2: ACT, high school grade point average, and Degrees of Reading Power scores do not predict the first term success among Ferris CSP students, as measured by college grade point average.

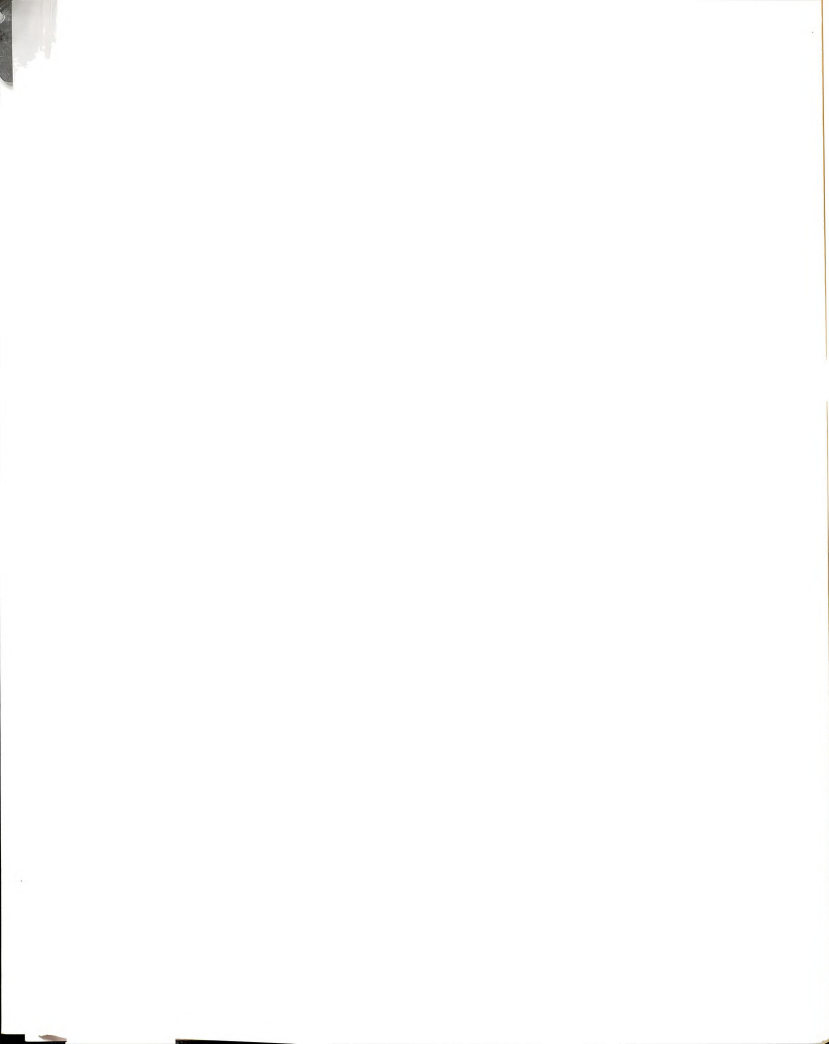
H₀7.3: Demographic information does not predict the first term success among Ferris CSP students, as measured by college grade point average.

H₀7.4: A combination of the above variables does not predict the first term success among Ferris CSP students, as measured by college grade point average.

PRACTICAL VALUE OF THE STUDY

Hodgkinson (1985) maintains that American higher education can no longer afford the luxury of *picking winners*, it must learn to *create winners*. In order to create winners from today's incredibly diverse student population college officials need to better understand the nature of individual differences. "Until we find ways to recognize, respect, and respond to those individual differences, we are going to miss two-thirds or three-quarters of the students we are teaching. We cannot batch process students the way we thought we could when we were dealing with well-prepared traditional students who were coming to us from the top 10 or 20 percent of their high school classes, out of middle-class families with lots of books in the house" (Chickering, 1989, p. 88).

Any significant increase in future enrollments at most American colleges is expected to consist of students who are nontraditional, many of whom are academically



underprepared, and who therefore have high attrition rates (Cross, 1981; Noel and Levitz, 1985; Hodgkinson, 1985; Levine, 1989; Kuh, 1990). This study may result in a clearer, more detailed "picture" of academically underprepared students at Ferris State University. This "picture", or understanding, may add a new dimension to the growing body of literature suggesting positive ways to respond to the increasing number of academically underprepared college students.

Specifically, this study may provide breadth and depth to useful literature relative to the following areas:

- ... addressing the mismatch that often exists between faculty assumptions and expectations and actual student aptitudes and attitudes;
- ... addressing the lack of awareness many faculty have concerning the developmental characteristics of their students, and the instructional implications these characteristics present.
- ... a clearer understanding of the nature of academically underprepared students at post-secondary institutions where most students are considered below average, as measured by ACT composite score.
- ... clarification of the direction and role of existing programs designed to assist the academically underprepared;
- ... implications for future policies regarding underprepared students at the program, department, college, and institutional levels;
- ... improvement of student development services, such as tutoring, reading, study skills, and orientation classes;
- ... accurate placement into limited developmental classes at institutions that struggle to provide resources to help academically underprepared students;
- ... improved academic advising vital to student persistence.

In other words, this study has the potential to help college faculty and administrators accurately examine their clientele, reevaluate who they are, and determine how best to meet their needs.

DEFINITION OF TERMS

To provide a common basis for understanding, the following definitions of terms used in this study are included:

Academic Assistance. "...The student's desire to receive course-specific tutoring or individual help with study habits, reading skills, examination skills, writing skills, or mathematics skills" (Stratil, 1988, p. 9).

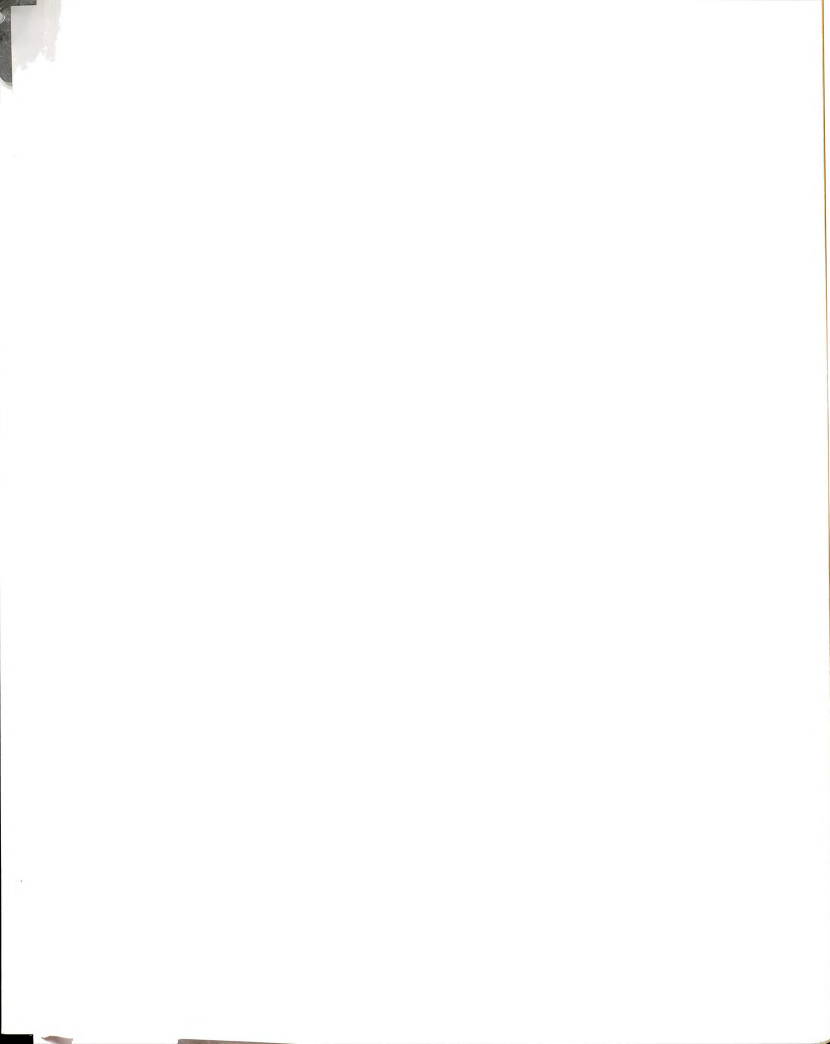
Academic Confidence. "...The student's perception of his ability to perform well in school, especially in testing situations. It is not intended as a substitute for aptitude assessment, but rather as an indicator of academic self-esteem" (Stratil, 1988, p. 7).

Academic Motivation. The College Student Inventory summary scale that consists of scales that measure a student's study habits, intellectual interests, academic confidence, desire to finish college, and attitude toward educators.

Academically Underprepared Students. Synonymous with at risk students and high risk students. (See **High Risk Students**)

American College Test (ACT). The enhanced ACT (1989) is a nationally normed, standardized educational development measure of knowledge and skills students have acquired prior to entering college. The enhanced ACT consists of a battery of four tests of (1) educational development; (2) a questionnaire concerning high schools grades and courses; (3) a questionnaire concerning educational and career aspirations; and (4) an interest inventory (ACT, 1989).

The original ACT Assessment Program started in the late 1950's. "The enhanced ACT Assessment, introduced in October 1989, is a revised program that is responsive to changes that have occurred in high school curricula, is sensitive to current expectations about the skills and knowledge students need for success in college Therefore, the tests of educational development are designed to determine how skillful the student is in



solving problems, grasping implied meanings, drawing inferences, evaluating ideas, and making judgements" (ACT, 1989, p. 2-3).

Aptitude. This term will be used to describe the student's ACT composite score.

At Risk Students. Synonymous with high risk students and academically underprepared students. (See **High Risk Students**)

Attitude. This term will be used to describe the results from four summary scales of the College Student Inventory (CSI). The scales are academic motivation, social motivation, receptivity to support services and initial impression of Ferris State University.

Attitude Toward Educators. "...The student's attitude toward teachers and administrators in general, as acquired through his pre-college experiences" (Stratil, 1988, p. 8).

Attributes. A student's age, gender, ethnicity, high school grade point average, and Degrees of Reading Power (DRP) reading comprehension score.

Career Counseling. "...The student's desire for help in selecting a major or career" (Stratil, 1988, p. 9).

Career Planning. "...The degree of maturity that the student has shown in attempting to decide on a career path" (Stratil, 1988, p. 9).

College Student Inventory (CSI). College Student Inventory will refer to the multidimensional inventory of student motivation produced by the Noel/Levitz Centers for Institutional Effectiveness and Innovation. "Its purpose is to create clearer lines of communication in the retention management process. After identifying students' needs and desires, it provides an effective means of communicating this information to advisors and support staff" (Stratil, 1988, p. 1).

Collegiate Skills Program (CSP.) A comprehensive, developmental education program designed to improve the academic capabilities of academically underprepared students who attend Ferris State University. Ferris defines academically "underprepared" as any student with less than a 2.00 high school grade point average. Students are mandated into two one-term Freshman Orientation courses, a reading improvement course, a study skills course, and a preparatory English composition course. Three other English composition courses are required of all Ferris students.

Collegiate Skills Program instructors are required to keep strict attendance records for all of their students. If any student misses more than three classes, he/she is instructed to drop the course or the student will receive a failing grade. All Collegiate Skills Program students are required to meet with their assigned advisors at least once every two weeks to review their academic progress.

Degrees of Reading Power Test (DRP). The Degrees of Reading Power Test is a nationally normed, standardized reading comprehension test used at numerous colleges and universities throughout the United States.

Desire to Finish College. "...The degree to which the student values a college education, the satisfaction of college life, and the long-term benefits of graduation. It identifies students who, regardless of their prior level of achievement, possess a keen interest in persisting" (Stratil, 1988, p. 7).

Dropout Proneness. Refers to the degree of probability of attrition for students.

Ease of Transition. "...The student's basic feelings of security amid the changes that often accompany the start of a college career" (Stratil, 1988, p. 8).

Family Emotional Support. "...The student's satisfaction with the quality of communication, understanding, and respect that he has experienced in his family" (Stratil, 1988, p. 8).

Ferris State University. A two- and four-year state supported, polytechnical institution of approximately 12,000 students, consisting of a College of Allied Health, College of Arts and Sciences, College of Business, College of Education, College of Optometry, College of Pharmacy, and College of Technology.

High Risk Students. Entering college students who tend not to have the academic background necessary to provide them with a reasonable chance of achieving academic success at the college level. These students tend to be intellectually capable, yet may lack the benefit of advantages such as "...growing up in a loving, supportive nuclear family; having adequate financial resources or the credit rating to acquire financial resources; attending elementary and secondary school systems that provide adequate education; being influenced by a social structure that values education; having the physical abilities —such as adequate hearing, eyesight, and mobility—to function in physical surroundings which are unforgiving to the physically disabled. In other words, high risk students are those with a potential for achieving a higher education degree, but who have a higher than average probability of not reaching their potential" (Jones and Watson, 1990, p. xix). High risk students include, but certainly are not limited to, minority groups.

Initial Impression. The College Student Inventory summary scale that measures the student's initial predisposition toward college.

Intellectual Interests. "...How much the student enjoys the actual learning process, not the extent to which he is striving to attain high grades or to complete a degree" (Stratil, 1988, p. 7).

Leadership. "...The student's feelings of social acceptance, especially as a leader" (Stratil, 1988, p. 8).

Openness. "...The student's tendency to open his mind to new ideas and to the sensitive and sometimes threatening aspects of the world" (Stratil, 1988, p. 8).

Personal Counseling. "...the student's felt need for help with personal problems. It covers attitudes toward school, instructor problems, roommate problems, family problems, general tension, problems relating to dating and friendships, and problems in controlling an unwanted habit" (Stratil, 1988, p. 9).

Receptivity to Support Services. The College Student Inventory summary scale that measures a students desire to receive help through academic assistance, personal counseling, social enrichment, and career counseling.

Self-Reliance. "...The student's capacity to make his or her own decisions and to carry through with them. It also assesses the degree to which an individual is able to develop opinions independently of social pressure" (Stratil, 1988, p. 8).

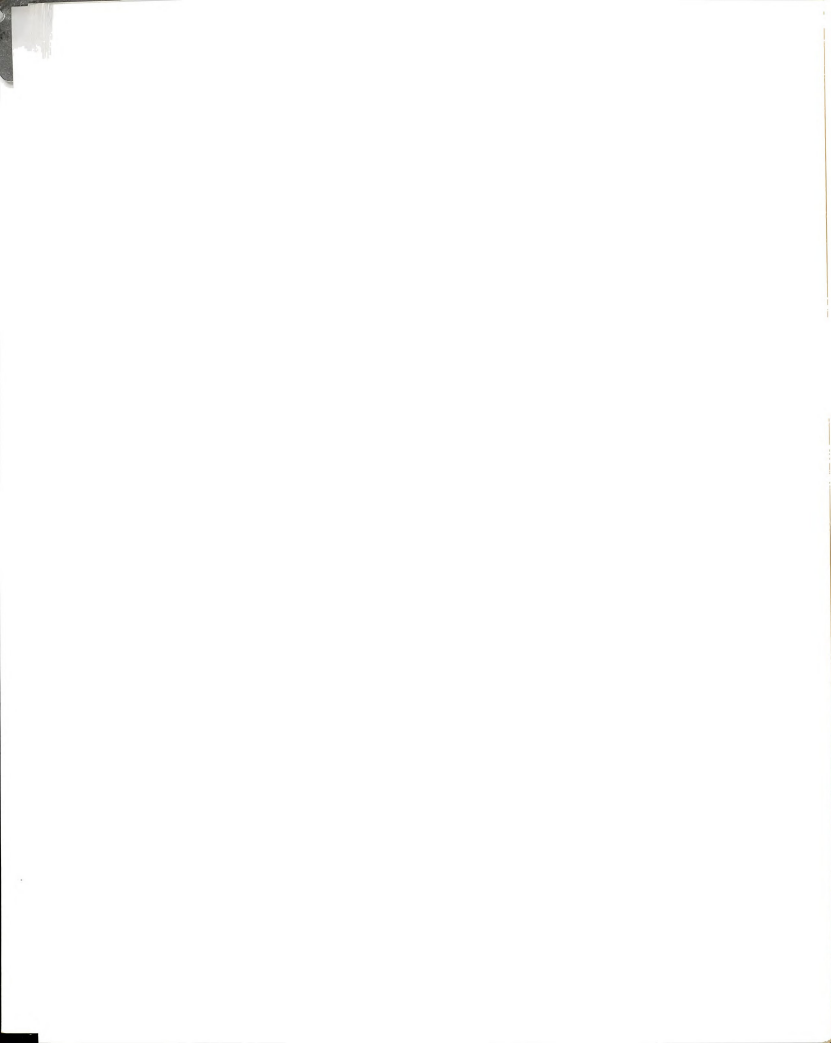
Sense of Financial Security. "...The extent to which the student feels secure about his financial situation, especially as it relates to his current and future college enrollment. The scale is not intended to measure the objective level of financial resources that the student has, only his feeling of being financially secure" (Stratil, 1988, p. 9). 18

Sociability. "...The student's general inclination to join in social activities" (Stratil, 1988, p. 8).

Social Enrichment. "...The student's desire to meet other students and to participate in group activities" (Stratil, 1988, p. 9).

Social Motivation. The College Student Inventory summary scale that consists of scales that measure self-reliance, sociability, and leadership.

Study Habits. The results of the College Student Inventory scale which measures "... the student's willingness to make the sacrifices needed to achieve academic success. It focuses on effort, not interest in intellectual matters or the desire for a degree" (Stratil, 1988, p. 7).



LIMITATIONS AND DELIMITATIONS

Limitations

1. Collegiate Skills Program (CSP) students are required to enter the program because they have less than a 2.00 high school grade point average. Other students may be underprepared, but are excused from the program and study because they had a 2.00 or higher grade average.

2. Nine CSP students did not follow the directions to the College Student Inventory which resulted in their response sheets being rejected.

3. Two CSP students dropped out of school and one transferred into another curriculum before complete data could be gathered.

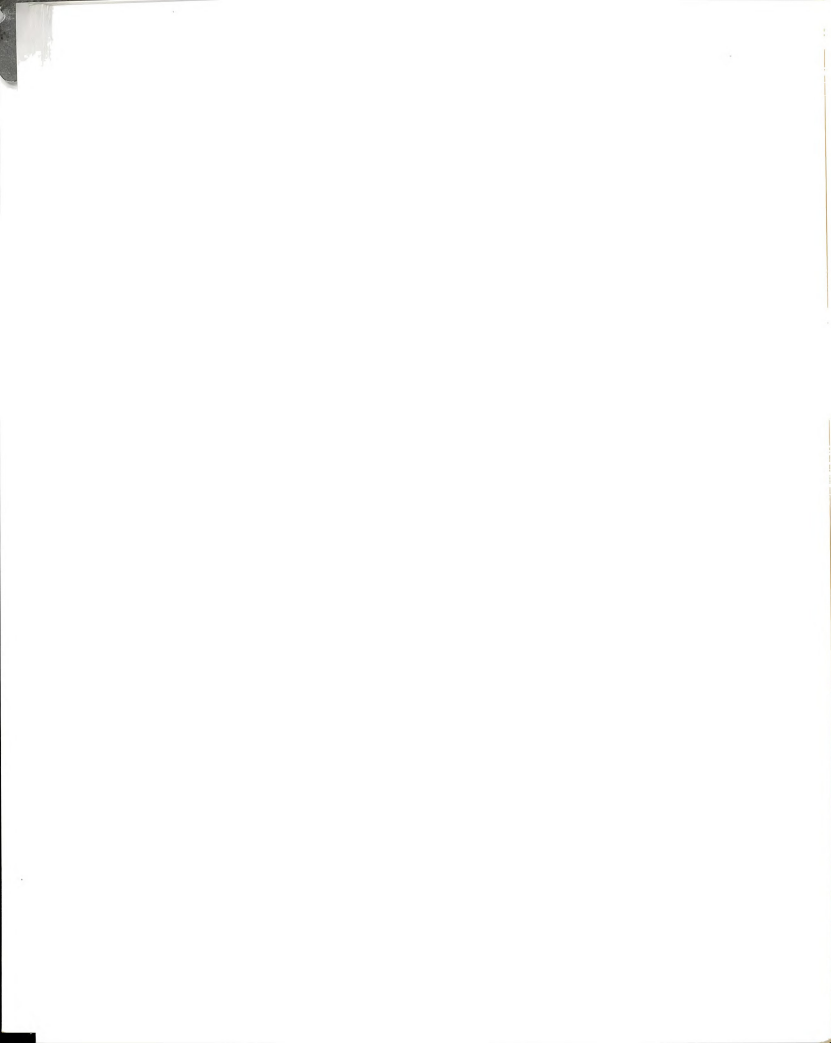
Delimitations

1. The sample was drawn from a population of 213 Collegiate Skills Program students enrolled at Ferris State University during Fall quarter, 1991.

2. The questionnaire data gathered was limited to a one-time response.

SETTING

The setting for this study is Ferris State University in Big Rapids, Michigan. Ferris is a state supported two-year and four-year degree-granting institution offering more than 120 programs. Ferris also offers a doctor of Optometry degree (O.D.) and several master's level degrees in business and education. Ferris enrolled 12,461 students in the Fall of 1991, 10,810 of whom were full-time students; 1,651 were part-time students; there were 7,314 male and 5,147 female students. Ferris' minority population consisted of 262 foreign students, 901 blacks, 81 Native Americans, 116 Hispanic, and 94 Oriental/Asian Americans. The Ferris State University campus is located on the outskirts of Big Rapids, a town of approximately 14,000 citizens. Big Rapids is located 60 miles north of



Grand Rapids in a predominantly white, middle class, rural area of west-central Michigan.

ORGANIZATION OF THE STUDY

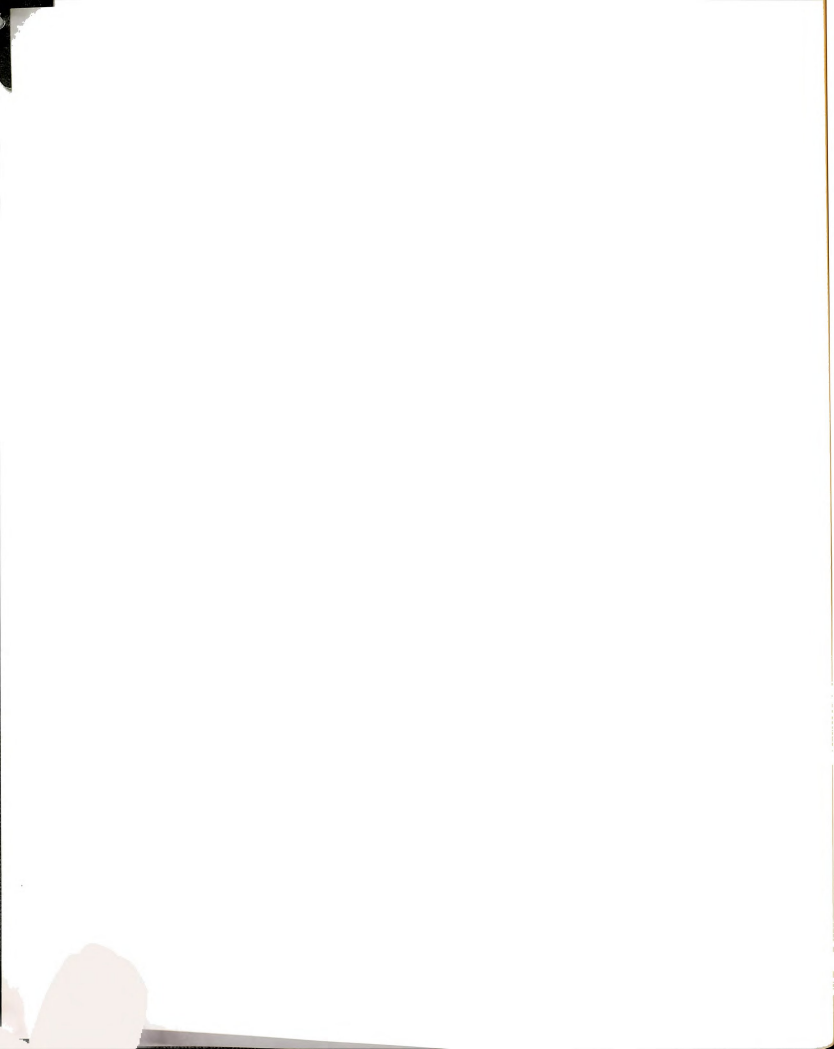
This study consists of five sections. Chapter I contains an introduction to the study, a statement of the problem, a statement of the purpose of the study, the research questions investigated, a statement of the practical value of the study, definitions of terms, identification of the limitations and delimitations, the setting, and an overview of the organization of the study. Chapter II contains a review of professional literature relevant to theoretical perspectives of student development, early student development theories, and an overview of the theories of several leading student development theorists.

Chapter II also covers student development theory as it relates to minority students, limitations of student development theories, demographics and growing diversity, central characteristics of academically underprepared students, values and attitudes, cognitive styles, developmental education programs, possible solutions, relevant studies and a summary.

Chapter III contains a description of the method used in conducting the study, including the sample, the design of the study, instrumentation and research variables, statistical treatment used for each research question, and the pilot study.

Chapter IV contains a description of the findings of the study.

Chapter V contains a summary of the study, conclusions, and recommendations.



CHAPTER II

REVIEW OF THE LITERATURE

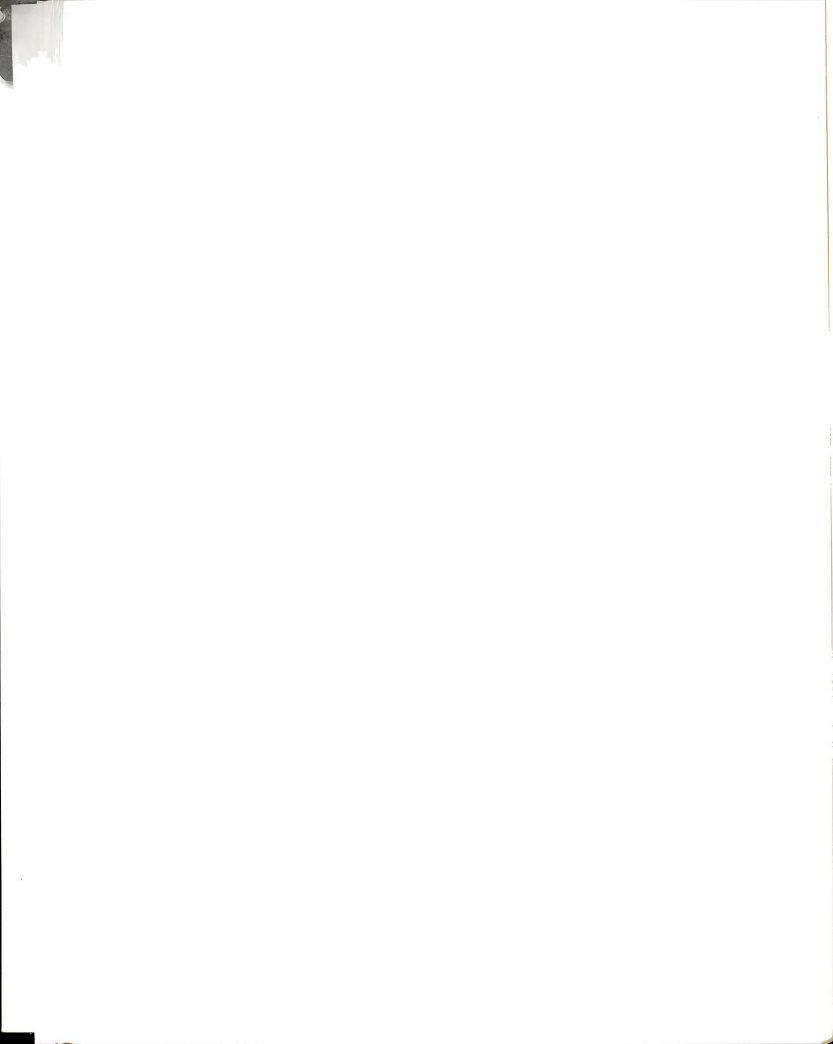
The purpose of this study was to examine the nature of the academically underprepared students enrolled in the Collegiate Skills Program (CSP) at Ferris State University, during the fall quarter of 1991. This was done in order to develop a more accurate profile of these students which, in turn, may be used to improve policies and programs designed to help these students become successful college students.

This chapter provides a review of the professional literature relevant to the purpose and scope of this dissertation, beginning with an examination of basic theories of student development. This chapter also reviews studies of the characteristics of academically underprepared students in addition to programs and advising techniques for dealing with these students.

THEORETICAL PERSPECTIVES OF STUDENT DEVELOPMENT

Student development theoretical frameworks serve to focus and guide inquiry into the question, "What do we know about the influence of college on student development?" (Pascarella and Terenzini, 1991). This inquiry has resulted in a significant body of research. "In the past twenty years, there has been an increasing interest on the part of student affairs professionals in the development of college students" (Stage, 1991, p. 56). "Indeed, the growth in theory development is one of the most striking and significant trends in the study of collegiate impact over the last two decades" (Pascarella and Terenzini, 1991, p. 15).

At the present time, there is no single, comprehensive, integrated theory of student development (Pascarella and Terenzini, 1991). However, as we proceed into the 1990's, Upcraft and Moore (1990), among others, believe that college and university



professionals have a responsibility to know and understand basic student development theories, in order to better understand the nature of current American college students. Given the extensive number and complexity of developmental theories, Thomas and Chickering (1984) point out some elements common to most developmental theories:

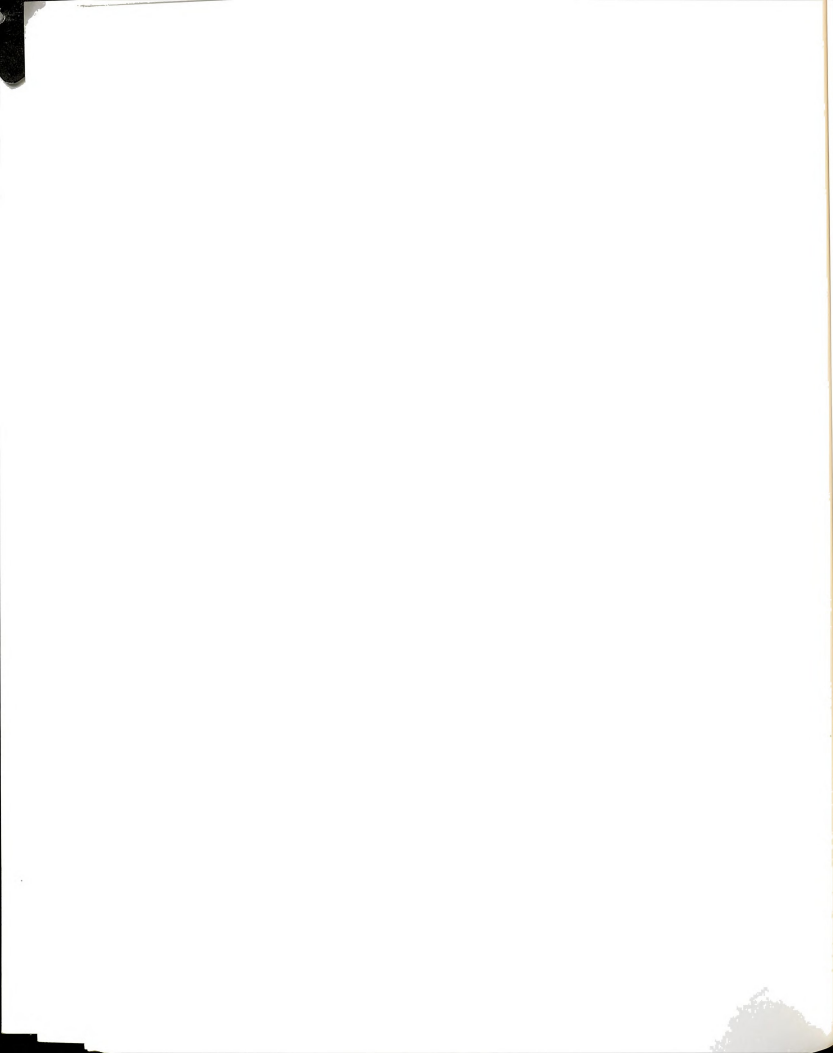
1. Development is a continuous process.
2. The developmental process is irreversible. (While not fully accepted today, the key point here is the notion that once a person has arrived at a particular stage of development, that person is changed forever. While that person may return to a previously achieved stage, such a return carries with it new capacities. Achievement of each new stage subsumes previously achieved stages of development.)
3. Developmental processes can be differentiated into patterns, thus making process and products more predictable and, hence, more manipulable.
4. Where development is proceeding normally, maturity is a natural outcome.
5. Normal, healthy development is characterized by increasing differentiation, and then integration of new elements.
6. The pace of development is rapid at the onset and slower as time passes.
7. Normal, healthy development proceeds from dependence to increasing independence.
8. Normal, healthy development proceeds from egocentric to social behavior.
9. Normal, healthy development results from the interaction of several variables operating simultaneously, or in succession (Thomas and Chickering, 1984, p. 102-103).

"Thus, behavior is seen to proceed from the simple to the complex, from the concrete to the abstract, from egocentric to social (Thomas and Chickering, 1984, p. 103).

EARLY STUDENT DEVELOPMENT THEORIES

The original theory of student development was *in loco parentis* (Upcraft and Moore, 1990). "The early colonial colleges believed they had a responsibility to act on behalf of parents for the good of their students. Students were considered children, and the institution their 'parents'" (Upcraft and Moore, 1990).

Starting in the early 1950's, psychologist Erik Erikson began to write about



personality development in a social context (Erikson, 1950). Later, Erikson articulated his concept of “identity crisis” (Erikson, 1968). “Erikson believed that the task of establishing one’s identity is especially critical during the college years—a time during which youths must redefine themselves” (Upcraft and Moore, 1990, p. 43).

In the landmark book, The American College (1962), Nevitt Sanford described his theory of differentiation and integration of the “typical freshman’s personality” (Sanford, 1962, p. 256).

Sanford felt that the dynamic relations among the various components of a student’s personality must be known by educators who work with freshmen. “Those relations, above all, must be known by the educator who would change the freshman’s personality” (Sanford, 1962, p. 257). Sanford’s research into student’s stages of development resulted in his belief that, “A high level of development in personality is characterized chiefly by complexity and by wholeness” (Sanford, 1962, p. 257). Hence, the “differentiation” or development of increasing complexity of one’s personality must also undergo a process of “integration” “...in order to serve the larger purposes of the person” (Sanford, 1962, p. 257).

Sanford later developed a widely cited theory of “support and challenge” (Sanford, 1967). He argued that students seek to restore equilibrium to their lives if they are overly challenged or feel excessive tension within the collegiate environment. “The extent to which students are successful depends on the degree of support that exists in the collegiate environment. Too much challenge is overwhelming; too much support is debilitating” (Upcraft and Moore, 1990, p. 46).

Chickering

Probably the most widely known and applied theory of student development is that of Arthur Chickering (Upcraft, 1989). Chickering extended Sanford’s differentiation/

integration concept and brought student development concepts into the mainstream of college practices, policies and programs (Upcraft, 1989).

In Education and Identity (1969), Arthur Chickering refers to the “major constellations of development” for college students. He identifies seven major “vectors of development” (Chickering, 1969). Among Chickering’s seven major developmental tasks, students must achieve intellectual, physical, and social competence, learn to manage their emotions, and become independent before they have the capacity to establish self-identity (Chickering 1969). They must also clarify purposes in life, learning to make plans and priorities. In addition, they must develop a sense of integrity and a personally valid set of beliefs that provide a guide for their behavior (Upcraft, 1989).

Chickering provides details on the “vectors” or tasks that students engage in to deal with three broad issues of identity formation (Rogers, 1989). These issues are:

1. Career development: Who am I? What am I to become?
2. Defining one’s sexuality and initiating the development of the capacity for intimacy: Whom am I to love? What does mature love mean anyway?
3. Finding and integrating an adult philosophy of life, morality, and values: What am I to believe? Am I to accept my heritage, or do I have to decide what I am really going to stand for (Rogers, 1989, p. 124)?

Chickering’s vectors provide a framework for helping students deal with these questions (Rogers, 1989). For example, most entering freshmen, according to Chickering’s research, engage in the process of attempting to resolve three vectors: competence, managing emotions, and developing autonomy (Rogers, 1989). Once students resolve these issues, they turn to resolving other issues such as establishing identity, “freeing” interpersonal relationships, developing purpose, and establishing integrity (Rogers, 1989).

Chickering's theories have numerous implications, especially for curriculum, teaching, and evaluation, all of which he thought were systematically linked (Chickering, 1969). Among other things, Chickering calls for more direct experience in classrooms with more discussion to promote active thinking (Chickering, 1969, 1971). Group discussions can also help contribute to positive changes in motivation and attitude (Chickering, 1971). Several aspects of Chickering's theory are similar to Astin's "Involvement Theory" (Astin, 1985).

Since 1969, Chickering has made some adjustments to his original seven vectors (Thomas and Chickering, 1984). With respect to developing competence, Chickering is now taking into account more recent advances in reflective thought, brain dominance, and learning theory (Upcraft and Moore, 1990). Chickering continues to see an urgency for students to learn to manage emotions, especially given the increase in campus violence such as date rape, and other problems such as student depression and suicide. These and other developments require colleges to respond with improved and appropriate program design, curriculum planning, teaching evaluation, counseling, and other support services (Chickering, 1985).

Perry

Another major developmental theorist is William G. Perry, Jr. Perry developed a theory that outlines the intellectual and ethical development of college students (King, 1978). Perry's scheme describes the nine steps by which students move from a simplistic, categorical view of the world to a more relativistic view, and then to the formulation and affirmation of their own commitments (Perry, 1968). "They move from an unquestioning, dualistic framework (right-wrong, good-bad, beautiful-ugly) to the realization of the contingent nature of knowledge, values, and truth. As students move through these stages, they integrate their intellect with their identity, resulting in a better

understanding of the world and finding personal meaning in it through an affirmation of their own commitments" (Upcraft, 1989, p. 43). Winston (1988) provides a summary of Perry's four main stages of intellectual and ethical development:

Dualism:: Knowledge is quantitative. Meaning is divided into two realms—for example, good versus bad or right versus wrong, we versus they or success versus failure. Right answers exist somewhere for every problem, and the authorities know them. Right answers are to be memorized by hard work. Locus of control is founded in external authority.

Multiplicity: Diversity of opinion and values is recognized as legitimate in areas where the right answers are not yet known. Opinions remain atomistic without defined patterns or system. It is not possible to make distinct judgments among all the alternatives, so people have a right to their own opinions; none can be called wrong.

Relativism: Knowledge is qualitative, dependent on contexts. Opinions, values, and judgments are derived from coherent sources, evidence, and patterns that provide the bases for analysis and comparison. Although some opinions will be judged worthless, on some matters reasonable people will reasonably disagree.

Commitment: Reasoned and consciously affirmed choices and decisions (career, value, political, relationship) are made in the full awareness of relativism. Locus of control is found within the individual (Winston, 1988, p. 98).

There are major implications of Perry's Theory for the student development services field. Knefelkamp (1974), at the University of Minnesota, experimented with matching students' development levels with instructional approach. The results suggested that growth along the scheme is affected by instructional approach (Knefelkamp, 1974).

Widick, Knefelkamp and Parker (1975) used Perry's scheme to design and structure career development classes. They found Perry's scheme to be very helpful in properly matching students' development levels with instructional approach and thereby improving the effectiveness on the class (Widick, Knefelkamp and Parker, 1975).

King (1978) suggests that Perry's scheme has proven useful in both understanding students and in designing programs to promote their development. King (1978) also maintains that Perry's scheme can also be used to establish realistic goals for developmental programs, and in evaluating the effectiveness of these programs.

Perry (1985) cautions that while Knefelkamp's work with matching developmental

levels and varying forms of instruction has proved fruitful, one cannot force students to develop; in all cases, that process takes time.

Kohlberg

"Whereas Perry's theory seeks to explain cognitive and ethical growth, Lawrence Kohlberg's theory focuses somewhat more narrowly on moral development" (Pascarella and Terenzini, 1991, p. 30). Kohlberg views moral judgment as developing through six stages (Kohlberg, 1971). "His theory attempts to describe justice reasoning—how people reason about what they should do when faced with a moral dilemma" (Rogers, 1989, p. 131). His principal concern, however, was not with the content of moral choice (which may be socially or culturally determined), but with modes of reasoning, with the cognitive processes (thought to be universal) by which moral choices are made" (Pascarella and Terenzini, 1991, p. 30-31).

"Passage through the presumably invariant sequence of stages involves an increasingly refined, differentiated set of principles and sense of justice. At the earlier stages, this sense is based on considerations of self-interest and material advantage. At the opposite end of the moral development continuum, an internalized, conscience-based set of moral principles guides an individual's actions" (Pascarella and Terenzini, 1991, p. 31).

Smith (1978) summarized Kohlberg's three general levels of moral development:

1. *Preconventional level.* At this level the child responds to basic cultural rules such as good/bad and right/wrong. Physical consequences (punishment) determine a behavior's goodness or badness and right actions are rewarded.
2. *Conventional level.* At this level the expectations of the individual's family and friends are perceived as valuable. Behavior is evaluated by whether others approve or disapprove.
3. *Postconventional, autonomous or principled level.* At this level the individual begins to define his/her own moral values and principles (Smith, 1978, p. 54-55).

Astin

Another highly influential student development theory is Alexander Astin's involvement theory which states that "... students learn by becoming involved ... student involvement refers to the amount of physical and psychological energy that the student devotes to the academic experience" (Astin, 1985, pp. 133-134).

Astin (1985) states that involvement theory consists of five basic postulates.

Upcraft (1989) summarizes the five postulates as follows:

1. Involvement refers to the investment of physical and psychological energy in various 'objects.' The objects may be highly generalized (the student experience) or highly specific (preparing for a chemistry examination).
2. Regardless of its object, involvement occurs along a continuum. Different students manifest different degrees of involvement in a given object, and the same student manifests different degrees of involvement in different objects at different times.
3. Involvement has both quantitative and qualitative features. The extent of a student's involvement in, say, academic work can be measured quantitatively (how many hours the student spends studying) and qualitatively (does the student review and comprehend reading assignments, or does the student simply stare at the textbook and daydream).
4. The amount of student learning and personal development associated with any educational program is directly proportional to the quality and quantity of student involvement in that program.
5. The effectiveness of any educational policy or practice is directly related to the capacity of that policy or practice to increase student involvement (Upcraft, 1989, p. 51-52).

Tinto

"Building upon the work of Spady (1975), Tinto theorizes that students enter a college or university with varying patterns of personal, family, and academic characteristics and skills, including initial dispositions and intentions with respect to college attendance and personal goals. These intentions and commitments are subsequently modified and reformulated on a continuing basis through a longitudinal series of interactions between the individual and the structures and members of the academic and social systems of the institution" (Pascarella and Terenzini, 1991, p. 51).

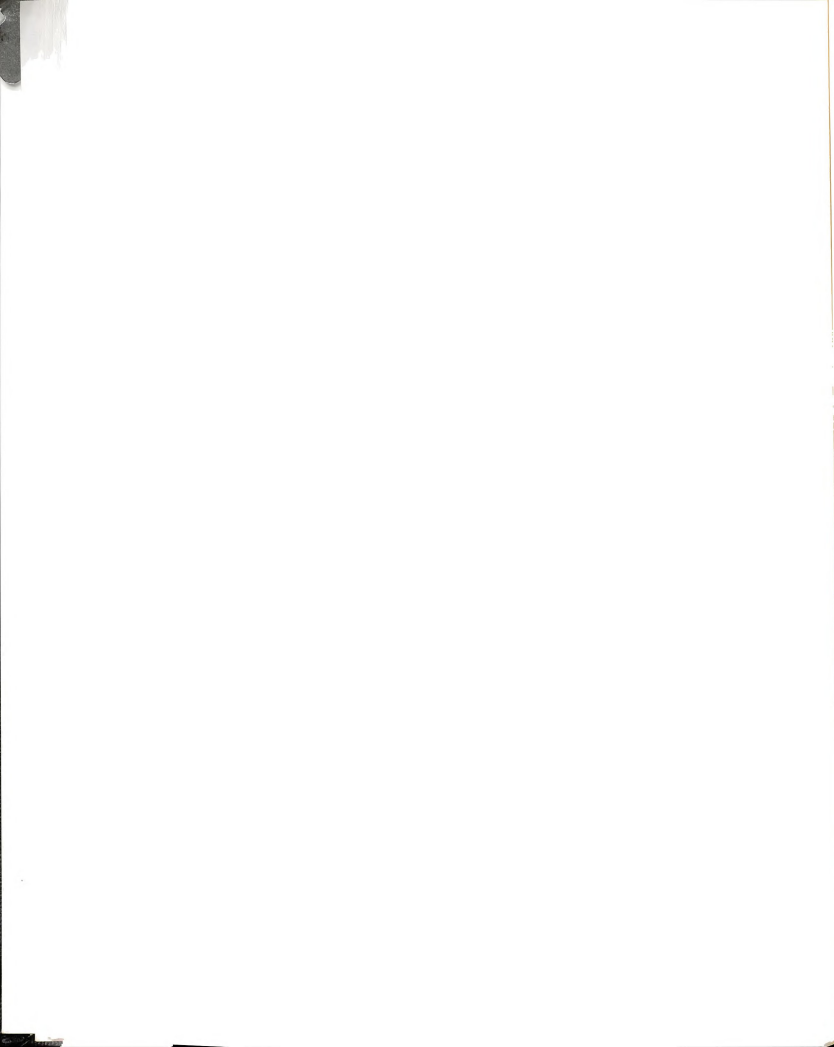
Tinto believes that when students experience satisfying formal and informal encounters within the academic and social systems of an institution, they will become more effectively integrated into those systems, and greater student retention will result. "The term *integration* can be understood to refer to the extent to which the individual shares the normative attitudes and values of peers and faculty in the institution and abides by the formal and informal structural requirements for membership in that community or in the subgroups of which the individual is a part" (Pascarella and Terenzini, 1991, p. 51).

Tinto (1987) believes that student departure may be conceptualized as occurring in three general stages. Upcraft and Moore (1990) summarizes these stages:

1. *Separation*. In this stage freshmen disassociate themselves from past communities such as home and high schools. Separation actually begins during the senior year in high school.
2. *Transition*. In this stage students have not yet acquired the norms of college life and may struggle with new values and behaviors. "Freshmen from different backgrounds will probably encounter more difficulties in learning the new norms, values, and behaviors. For example, the transition can be expected to be more difficult for ethnic minorities, older students, and those from very poor or rural backgrounds" (Upcraft and Moore, 1990, p. 52).
3. *Incorporation*. In order to successfully negotiate this stage, students must become a part of the social and academic communities. Students need to establish contact with students and faculty alike. Students that do not or cannot establish contact with members of the institution are at risk of dropping out. "Experiences important to freshmen success in this stage include participation in orientation seminars, good peer support, knowledge of student and academic services, and at least one caring relationship with a faculty or staff member" (Upcraft and Moore, 1990, p. 52).

Gilligan

In her book, *In a Different Voice* (1982), Carol Gilligan argues that "... Freud, Piaget, Kohlberg, and others have mistakenly based their concepts of human development on male development and, in the process, totally misrepresented female development. Gilligan believes that the concepts of *autonomy* and *separation* are indicative of male development and that female development is better explained by the concepts of *connectedness* and *relationships*" (Upcraft and Moore, 1990, p. 59).



Women have consistently scored lower than men on instruments used to operationalize Kohlberg's theory of moral development (Pascarella and Terenzini, 1991). "Gilligan suggests the problem lies not with women, but with conceptually biased theories, all of which emerged from studies of the moral development of male subjects (Pascarella and Terenzini, 1991, p. 33). Gilligan argues that Kohlberg's theories and the theories of others do not take into account women's concern for the needs of others, which constitutes "a different voice" from that used by men (Pascarella and Terenzini, 1991).

Gilligan believes that men and women simply represent different ways of perceiving the world (Gilligan, 1982). She warns that there may be a gender bias in any theory derived from research on only men (Rogers, 1989).

Student Development Theory and Minority Students

Current development research and theory clearly assumes that the development processes of white and nonwhite students are essentially the same (Pascarella and Terenzini, 1991). "Minority student development, while believed to follow patterns of growth similar to those of other college students, also reflects cultural and ethnic differences in progression through development stages" (Wright, 1987, p. 12).

Development theories help explain how a student matures and develops in college (Jones, 1987). Yet, "One may argue that student development theories misunderstand the role of race in the overall development of college students" (Jones, 1987, p. 85). According to Jones (1987) most student development theories make two major mistakes regarding minorities:

First, they err by omission, failing to consider the many environmental and internal factors related to race. Second, they accept stereotypical attitudes about the achievement and abilities of ethnic minorities. These theories ignore the variations in learning and development that minority students bring to college. In doing so, they overlook an important ingredient in the overall development of college students, that of cultural influence. Theories that misunderstand the effects of culture and race are of questionable value to understanding minorities' developmental process, for in reality, culture and race appear to have a profound effect on their development (Jones, 1987, p. 86).

Cross's model of black identity formation is perhaps the most widely known theory of black student development and has attracted a great deal of research attention (Pascarella and Terenzini, 1991). According to Cross (1971), black students pass through five stages of development. Pascarella and Terenzini (1991) summarize these developmental stages:

Stage 1: *Preencounter*. The individual's world view is dominated by white determinants and the individual emphasizes becoming assimilated or integrated into the dominant white culture.

Stage 2: *Encounter*. Significant events, such as the assassination of Martin Luther King, confronts the individual and forces him/her to reinterpret their place in a white world.

Stage 3: *Immersion-Emersion*. The individual seeks a new understanding of his/her own emerging black identity. In the immersion phase, the individual turns inward and may believe that everything of value must be black. In the emersion phase, the individual emerges from dualistic, either/or, racist thinking, into a less simplified view of the world.

Stage 4: *Internalization*. In this stage the individual may continue in the development process, which may bring a sense of inner security and self-satisfaction, or the individual may fixate at Stage 3. The individual may also discuss plans for further action, without actual commitment to action.

Stage 5: *Internalization-Commitment*. In this stage the individual commits to an action plan to continue the formation of his/her black identity, and to active political and sociocultural reform in his/her black community (Pascarella and Terenzini, 1991, p. 25).

Numerous studies "... clearly indicate that black identity comprises idiosyncratic and personal elements, as well as components derived from membership in a historically disadvantaged, racially based collectivity" (Pascarella and Terenzini, 1991, p. 168).

Fleming (1981) and others observe that excessive allegiance to minority group identity

may isolate black students and inadvertently block them from social and academic opportunities.

Limitations of Student Development Theories

Scholars caution that "... campus professionals must constantly weigh the value of theory against the fact that it may not be valid for many of the students with whom they work" (Stage, 1991, p. 57). In recent years "... we have become increasingly conscious of the inadequacies and gaps in our theories. For example, African-American student development is not adequately explained by the theories based on white students. Gender differences are not adequately explained by theories based on male students" (Upcraft and Moore, 1990, p. 41).

At every institution there are many problems with attempts to apply theory in practice (Parker, 1977; Stage, 1991). "In attempts to generalize, theorists must strip away the very idiosyncracies that practitioners may not ignore. Additionally, three other elements make theoretical practice difficult: a plethora of knowledge about student development, differences among college campuses, and the changing college student body" (Stage, 1991, p. 56). Student development theory can help inform actual practice, but "... many campus issues are difficult to address in a predetermined manner given the idiosyncracies of an institution and the people involved" (Stage, 1991, p. 57).

DEMOGRAPHICS AND GROWING DIVERSITY

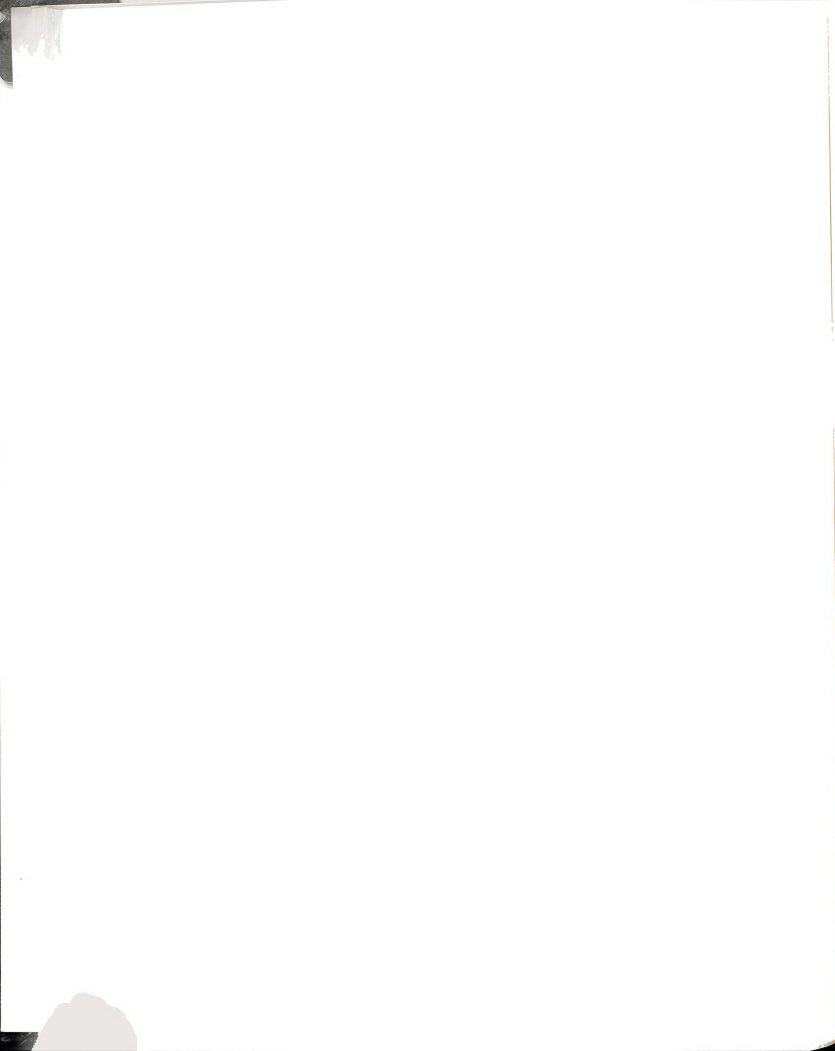
"Demographics is about people, groups of people, and their respective characteristics" (Merriam and Caffarella, 1991, p. 6). Changing demographics in the United States is a social reality shaping the provision of learning and teaching (Merriam and Caffarella, 1991). One of the most noticeable of the new social realities in American is that "... not only is America graying, the skin color of American is also changing"

(Briscoe and Ross, 1989, p. 584). "If current trends in immigration and birth rates persists, the Hispanic population will have further increased an estimated 21%, the Asian presence about 22%, blacks almost 12%, and whites a little more than 2% when the 20th century ends" (Henry, 1990, p. 28). By the start of the 21st century, "... minorities are expected to compose 29 percent of the population (Fay, McCune and Begin, 1987, p.17). Clearly "... the eighteen-year-old population available to consider higher education by the year 2000 will be much more ethnically diverse than has been the case in the past" (Levine, 1989, p. 34). Solmon states that by "... extrapolating the current characteristics of minorities, we conclude that the typical eighteen-year-old college entrant will be less well prepared for college than were his or her recent predecessors (Solmon, 1989, p. 35).

An optimistic view would be that by the year 2000, when minorities constitute a greater share of those considering college, we will find minorities who are better prepared for college and more closely resemble their white peers than has been the case to date. But if a larger share of eighteen-year-olds retains the characteristics of minorities as they are today, substantial adjustments will be required by the higher education system It is likely that a larger proportion of resources will have to be spent on remediation, that is, underprepared students will have to be brought up to the level where they can deal with college courses (Solmon, 1989, p. 35-36).

Referring to the demographic characteristics of the college students of the 1990's, Arthur Levine states quite simply, "We can expect the most varied student body in the history of higher education" (Levine, 1989, p. 15). According to Levine (1989), students of the 1990's will exhibit the following characteristics:

1. The majority of college students will continue to be women.
2. The student body will grow older. The average age of college students today is twenty-six. The number of traditional age college (eighteen to twenty-two) is declining. "The number of adults (persons twenty-five and older) will increase for the remainder of the century" (p. 162).
3. "More and more students will be asking for nontraditional scheduling as well: nights, early mornings, weekends, intensive, off-campus, at home, self-study" (p. 16).
4. The total population available for higher education will decline.

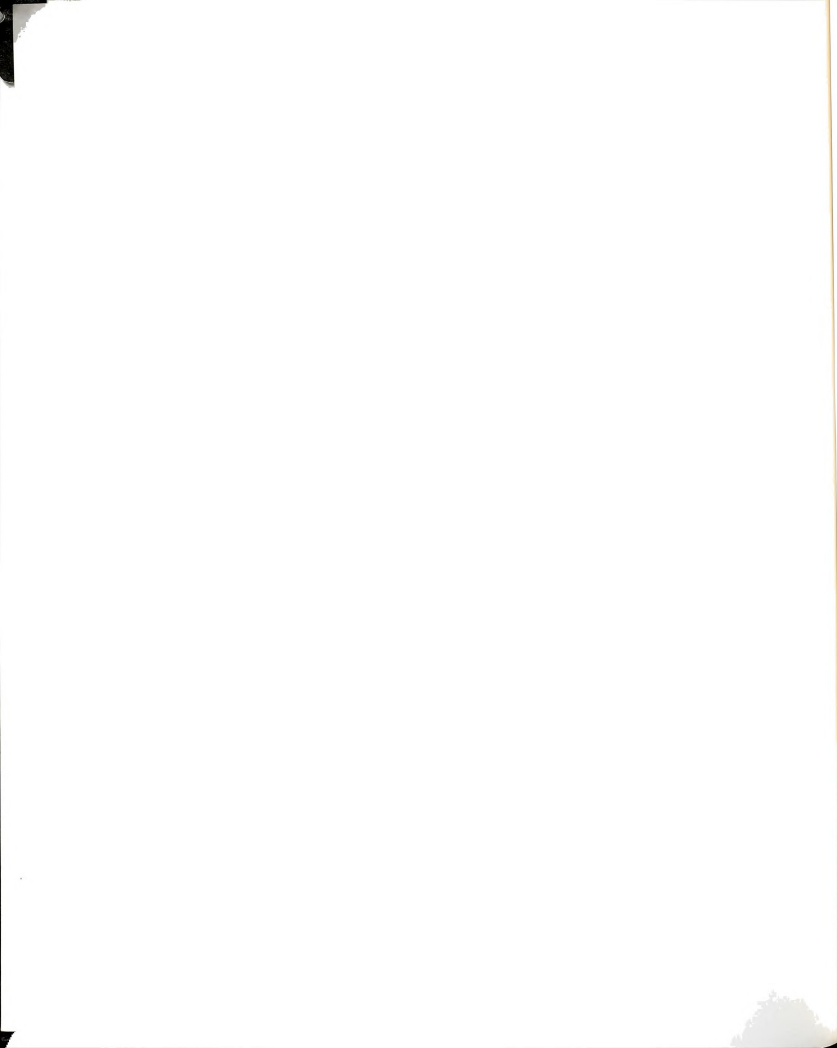


5. The proportion of minorities in the U.S. population is increasing. "This means that the college pool will reflect the increasing minority population to an even larger extent than will the nation as a whole" (p. 163).
6. "The fastest growing groups in our population have lower rates of educational attainment" (p. 164).

Central Characteristics of Academically Underprepared Students

Dr. Martha Maxwell, while at the University of California-Berkley, in the late 1970's, extensively researched the characteristics of underprepared college students. She writes in Improving Student Learning Skills (1979), that underprepared students tend not to have clear career and educational goals, and have inadequate conceptions of what is involved in succeeding. They usually require external motivation to learn and tend to view any course outside their interests as irrelevant (Maxwell, 1979). They tend not to assume responsibility for their own learning, lack an understanding of the need for core requirements, and seem apathetic toward college in general (Maxwell, 1979). Maxwell (1979) also reports that underprepared students tend not to respond well to the same financial and personal problems that most students face. In many cases, underprepared students simply do not respond with positive action to problems that face most college students (Maxwell, 1979). Yet evidence indicates that some high-risk students succeed. "Potentially successful high-risk students seem to be distinguished by a general adaptive factor that involves goal aspiration, goal orientation, goal involvement, willingness to study hard, ability to solve personal problems, and a feeling of support from significant others, such as parents" (Maxwell, 1979, p. 200).

Levitt (1988) maintains that most underprepared students are unwilling to take learning seriously and that they actually have a low regard for those who are well educated, or who employ intellectual arguments in discussions. He believes that the underprepared tend to have little tolerance for debate, or subtlety (Levitt, 1988). Levitt (1988) believes that these students tend to suffer from arrested intellectual and emotional



development. As evidence of this he maintains that many of these students meet a professor's criticism of their work with petulance and temper tantrums rather than appreciation for how their work may be improved (Levitt, 1988).

Another central characteristic of academically underprepared students is their propensity to be externally controlled (Knefelkamp and Slepitz, 1978). Students who are externally controlled rely on parental or teacher admonitions to direct their behavior rather than a self-directed sense of what is proper college behavior (Knefelkamp, 1978). Widick (1978) states that underprepared students have difficulty understanding at the conceptual level, tend to be more comfortable with highly structured assignments, and tend to view the world in simplistic ways, rather than in a more complex manner.

Nevitt Sanford (1964) wrote that essentially, development means the organization of increasing complexity. Yet many academically underprepared students have difficulty coping with complexity (Riesman, 1980). Riesman (1980) states that for many students who are underprepared to enter college, even finding their way to their first class can be extraordinarily difficult.

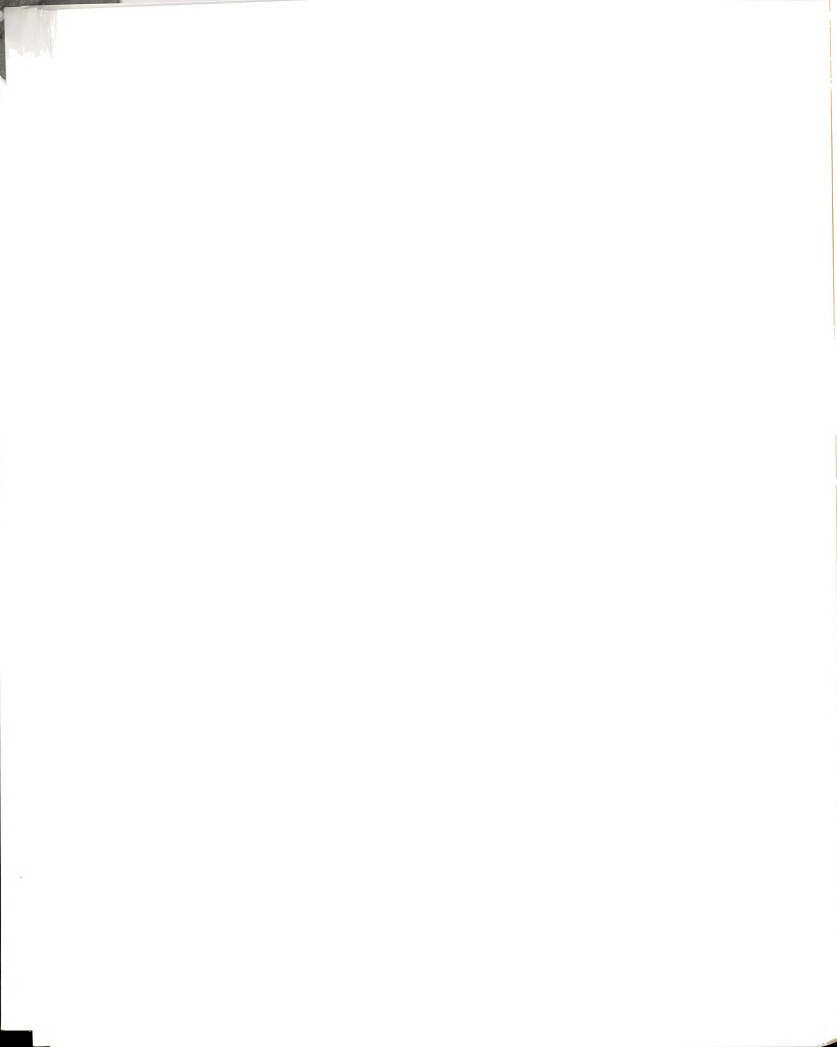
Additional studies have examined the central characteristics of the underprepared student. These students tend to attribute poor academic performance to bad luck rather than lack of ability (DeBoer, 1983). Underprepared students are less likely than other college students to have well-thought-out educational plans (Pollard, Benton, and Hinz, 1983). Underprepared students tend to have an unrealistic idea of the purpose of study and of school in general (Grites, 1982). Poor motivation among many underprepared students may stem from a lack of career focus (Grites, 1982). Underprepared students tend to have higher levels of anxiety than other students, especially in test situations (Mitchell and Piatowska, 1974). Cross (1976) maintains that many underprepared students make very late decisions about going to college, do not have these decisions

strongly reinforced by the families, and tend to be first generation college enrollees.

Other characteristics of freshman students as a group, many of whom are academically underprepared, have been studied by Noel and Levitz (1989). In examining perceptions and attributes of students that can be associated to attrition, Noel and Levitz (1989) discuss the following factors:

1. **Academic Boredom.** "Undecided freshmen often fall victim to boredom because learning is not quite as relevant to them as it is to students who have academic and career goals in mind" (p. 67).
2. **Irrelevancy.** "Freshmen are highly susceptible to feelings of irrelevancy. Freshmen who are uncertain about their own goals are not in a position to appreciate the relevance of their course work" (p. 67-68).
3. **Limited or Unrealistic Expectations of College.** Noel and Levitz quote the National Institute of Education report "Involvement in Learning" (1984): "Many students enter college with only vague notions of what undergraduate education is all about, where it is supposed to lead, and what their institutions expect of them" (p. 68).
4. **Academic Underpreparedness.** A growing number of students enter college academically underprepared and this "... soon manifests itself in frustration and feelings of failure" (p. 69).
5. **Transition or Adjustment Difficulties.** Freshmen report difficulties due to a lack of support prior to enrolling in college. "About 40 percent of the undergraduate respondents to the Carnegie Foundation's survey (Carnegie Foundation for the Advancement of Teaching, 1986) said no professors at their institution took a special personal interest in their academic progress" (p. 69).
6. **Lack of Certainty About a Major and/or a Career.** "Uncertainty about what to study is the most frequent reason high-ability students give for dropping out of college ... Tentativeness about career choice is typical among entering freshmen" (p. 69).
7. **Dissonance or Incompatibility.** "This force of attrition may be described as a mismatch between the individual student and the institution" (p. 70). Noel and Levitz also report that students can set themselves for failure and the institution does not guide them. "The student who desperately wants to be a doctor but who has received grades of D in high school science and math will soon feel the effects of incompatibility. Without intrusive advising from the college, this aspiring doctor can easily become another attrition statistic" (p. 70).

Many groups of college students exhibit underpreparedness to some degree. "In fact, it can be argued that all entering freshmen are, to some degree, underprepared for the academic and personal rigors of post-secondary education" (Saunders and Ervin,



1984, p. 256). For example, non-English speaking students and learning disabled students may be academically at-risk. Older students who have not attended college in many years, or not at all, may be at-risk. Economically disadvantaged students may have a diminished background which may also make college extremely difficult for them. "However, a large number of underprepared students are distinguishable only by their common weakness in basic academic skills" (Saunders and Ervin, 1984, p. 256).

Values and Attitudes

Relative to the values and attitudes of today's college students, Levine (1989) provides the following summary conclusions:

1. A majority of students are apprehensive about the future, yet more satisfied with the world than students 20 years ago. Anxiety seems to center around the job market. "Three out of four students are worried about their job prospects" (p. 19).
2. Fifty percent of students believe the main value of a college education is its effect on earning power.
3. Seventy-five percent of students want to be *very* well off financially. Astin (1987) also found this to be true.
4. Students are increasingly choosing vocational majors.
5. Essentially, students themselves "... say they are more conservative" (p. 20). "In the 1960's, four of five characterized themselves as middle of the road or liberal. Today, middle of the road or conservative accounts for three out of four" (p. 20).

Cognitive Styles

Academically underprepared students, like all students, exhibit a variety of cognitive styles. "Cognitive styles are conceptualized as stable attitudes, preferences, or habitual strategies that determine a person's typical mode of perceiving, remembering, thinking, and problem solving" (Maxwell, 1979, p. 209). Cognitive styles affect the way a person learns, but are not simple learning habits (Maxwell, 1979). "Cognitive styles differ from intellectual abilities, which concern content, or what is learned; cognitive styles concern how it is learned" (Maxwell, 1979, p. 209). Some students, for example, tend to be visual learners, others tend to favor auditory learning, while others may learn best in a verbal

mode of learning (Maxwell, 1979).

"Locus of control is another cognitive style that research suggests bears a real and consistent relationship to academic achievement and aspiration" (Maxwell, 1979, p. 211).

Individuals who have an internal locus of control believe that essentially they are responsible for the results of their behavior, but externally controlled individuals tend to believe that outside forces are responsible for what happens to them (Maxwell, 1979).

Academically disadvantaged students tend to feel powerless over their lives and tend to think that others, such as teachers, are responsible for their grades (Maxwell, 1979).

"Good teachers have always recognized that students differ in learning style and have tried to accommodate these differences. Some students prefer listening over reading, others learn better with pictures and graphs, and some even learn better with textbooks. Helping students discover what learning strategies work best for them is the essence of an effective skills program" (Maxwell, 1979, p. 221).

Developmental Education Programs

In 1977, John Roueche wrote "Developmental education programs will be commonplace in American colleges and universities within the next dozen years or so" (Roueche, 1977). Roueche concluded that in order to survive, many colleges and universities "... will be admitting more and more students who clearly are not academically prepared for college" (Roueche, 1977, p. 93). He also found that "... even selective colleges and universities are now busily installing developmental programs for their privileged and advantaged students who don't read, write, or figure very well" (Roueche, 1977, p. 94).

"There are relatively few areas in which there is as much uneasiness, inconsistency in attitudes and actions, and ambivalence in the academic community, the political community, and even the general community, as in remedial or developmental education. And yet there are also probably few areas more crucial to providing real educational opportunity, equity, and achievement of national educational goals" (Millard, 1991, p.

194). In fact, according to the Education Commission of the States (1986) by 1983-84, 94 percent of all public colleges and universities offered some remedial courses in basic skill areas.

More recently, a 1988 study by the Southern Regional Education Board shows that in its fifteen member states, "in almost thirty percent of the institutions, at least half of the first-time freshmen were in need of remedial education" (Millard, 1991, p. 195). Millard (1991) reports that the phenomenon of underprepared students is not just a regional one, rather a significant national concern. "A 1983 report released by the Institutional Resource Center at the City University of New York indicated that 30 percent of all first-time college students in the nation were academically deficient" (Millard, 1991, p. 195). "From these figures alone, it seems obvious that almost all higher education institutions are involved, and that the numbers of students is considerable—about one-third of entering freshmen" (Millard, 1991, p. 195).

Research also indicates that remediation is not just a minority issue: "Although minorities may be over-represented among freshmen with serious deficiencies in preparation, the problem of poor preparation cuts across all types of institutions and all student groups" (Millard, 1991, p. 195).

Possible Solutions

Dr. John E. Roueche's work at the University of Texas has made him a national figure in the area of dealing with the academically underprepared. He maintains that "Well conceived developmental programs can improve achievement levels so that the skill-deficient students can expect to survive and succeed in college" (Roueche, J., 1983, p. 1). Others maintain that "... numerous colleges and universities have found that it is possible to maintain the integrity of academic standards and at the same time see academically underprepared students successfully meet those standards" (Noel, Levitz,

and Kaufmann, 1982, p. 1). Some critics claim that developmental programs are not cost effective. Actually, numerous studies have demonstrated that programs designed to assist academically underprepared students generate more income through student retention than they cost to operate (Sellman-Obler, 1983; Stubbs, 1983). In a major nationwide study "... college and university basic skills development programs that reported the most complete and encouraging retention data seemed to have eleven elements in common" (Roueche, S., 1983, p. 5). These elements include:

1. **Strong Administrative Support.** "That is, the institution declares that it shares responsibility with its students for professional service in initial assessment, in placement, in early identification of poor academic performance, and in instruments designed to improve such performance, such as written plans and counseling strategies" (Roueche, S., 1983, p. 5). Attempts to increase retention must be viewed as a college wide effort related to all personnel policies and procedures.
2. **Mandatory Assessment and Placement.** Retention can be improved by expanding and improving advising services. "Students who receive effective academic advising tend to feel positive not only about the advising process but about the institution as a whole" (Roueche, S., 1983, p. 6). Retention can also be improved by requiring mandatory assessment of all entering students' basic skills achievement levels.
3. **Structured Courses.** Typically, successful basic skills developmental programs provide structured courses which serve a broad range of learning needs. The most common elements appear to be that (1) there is careful monitoring of student behavior and (2) there are strict attendance requirements.
4. **Award of Credit.** "Without exception, the successful skills development courses are credit bearing" (Roueche, S., 1983, p. 7). The credit is always transcript or institutional credit, not credit for graduation.
5. **Flexible Completion Strategies.** Academically underprepared students sometimes need extra time to complete course requirements for legitimate reasons. However, if students go beyond reasonable time limits, they should be "redirected into alternative career or academic choices or simply counseled out of the institution" (Roueche, S., 1983, p. 7).
6. **Multiple Learning Strategies.** "Successful basic skills courses use multiple learning systems and devices" (Roueche, S., 1983, p. 7). Typically courses are individualized, performance-based, self-paced modules of instruction with the use of pre- and post-tests.
7. **Volunteer Instructors.** Successful programs do not force instructors to work with underprepared students. It is critical that all instructors are philosophically in tune

to the overall purpose, function, and operation of the program. Also, a counseling component is considered to be an integral part of the basic skills instruction effort.

8. **Use of Peer Tutors.** Peer tutors are used as support personnel in the classroom. They receive pre-service training in working with low-achieving students.
9. **Monitoring of Student Behaviors.** All successful programs have integral systems for the monitoring of those student behaviors that contribute to failure. These monitoring systems attend to such student behaviors as excessive absences, failure to produce assigned work and failure to produce acceptable level of work. Appropriate interventions are then taken to insure the student receives an opportunity to reevaluate his/her counterproductive behavior.

The approach that seems to be the most effective in increasing retention is the intrusive approach. "The intrusive counseling and advising approach is based on the philosophy that institutions should not wait for students to get into trouble before they begin to give them advising or counseling" (Glennen, 1983, p. 63).

10. **Interfacing with Subsequent Courses.** "Course content and strategies for negotiating content are designed to reflect the reading, writing, and mathematical demands that subsequent courses will make on basic skills students" (Roueché, S., 1983, p. 8). In other words, there is an effort to identify what is expected of the students after they leave the program. These efforts frequently are formalized as written exit criteria.
11. **Program Evaluation.** The program should have a procedure that automatically and routinely gathers retention data to test overall program effectiveness. Data should also be collected to check on student success in subsequent academic work outside the basic skills program.

In summary, these eleven specific suggestions represent possible solutions to the problem of how to deal with large numbers of academically underprepared students.

RELEVANT STUDIES

The researcher, after extensive computer and manual searches of the professional literature, found no studies that are directly related to this study. There are however numerous studies that hold logical ties to this dissertation. For example, Friedlander (1980) found that most students do not voluntarily seek assistance, even when they admit they need help. One of the central purposes of this study was to help faculty and administrators better understand the nature and characteristics of their students. Knowing that research indicates that most students will not ask for help may encourage faculty to be more proactive in their approach to students, especially the academically

underprepared.

Much has been written concerning the attrition and retention of underprepared students, as well as students in general. "While a wealth of literature has explored the correlates of retention and the processes involved in persistence (Aitken, 1982; Astin, 1975, 1977; Bean, 1982; Noel, Levitz and Saluri, 1985; Pascarella and Terenzini, 1980; Stoecker, Pascarella and Wolfle, 1988; Tinto, 1975, 1982, 1987), few studies have attempted to delineate predictors of attrition or to measure such predictors in a comprehensive fashion early in a student's first term" (Schreiner, 1991, p. 1). The inability on the part of some college personnel to assess student needs early in the students' college experience contributes to student attrition in the first six weeks of their first term (Myers, 1981; Schreiner, 1991).

Research indicates a need for an "early warning system" to accurately identify students with risk factors, such as financial difficulties, home problems, transition to college difficulties, and social inadequacies (Aitken, 1982; Tinto, 1987, Schreiner, 1991). "These factors are often difficult to quantify, and too often they are discovered only in an exit interview. Most colleges simply do not have the personnel available to discover the individual risk factors for each first-year student in a timely manner so that intervention can be successfully implemented" (Schreiner, 1991, p. 1-2).

The most successful retention programs focus on the institution's responsiveness to student needs (Schreiner, 1991). Appropriate advising and/or counseling can help increase student retention, but the main problem exists in accurately identifying at-risk students early so they can be helped in a timely manner (Schreiner, 1991).

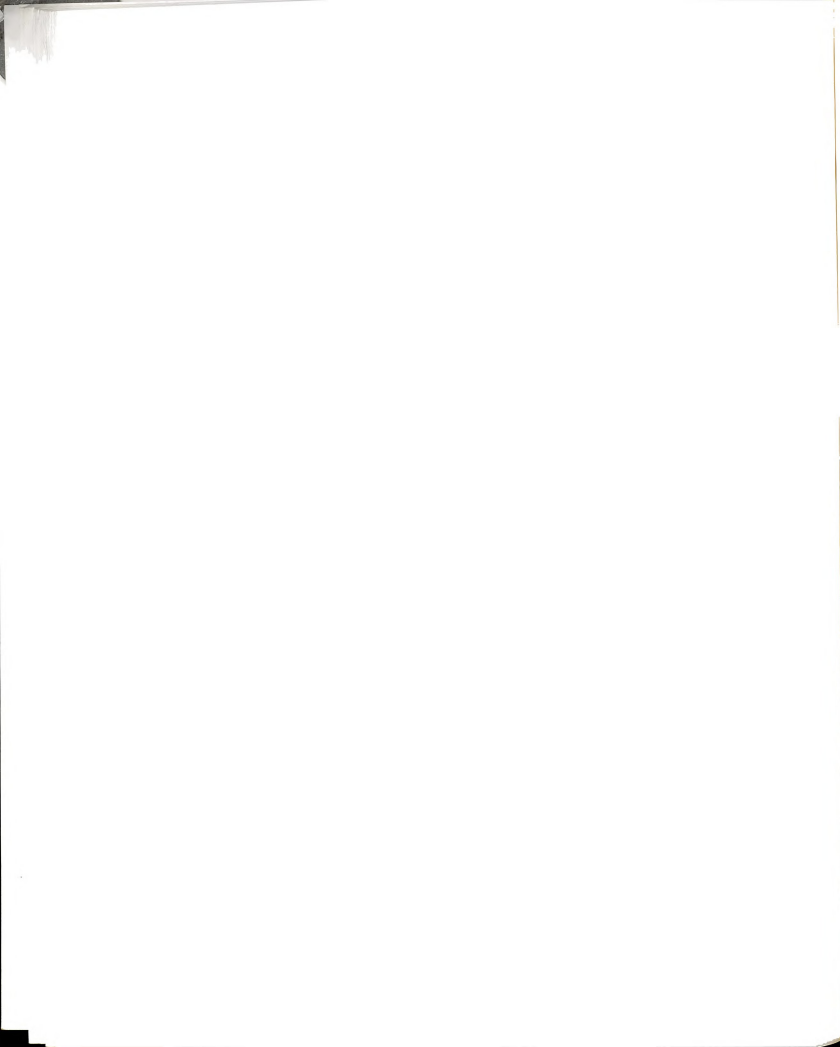
In a study of 4,915 students at 46 colleges and universities, researchers found several general characteristics of students who did not re-enroll their second year (Schreiner, 1991). These characteristics are: "... a more negative initial impression of

their institution, less likely to have completed a college preparatory program in high school, somewhat lower grades in high school, poorer study habits, higher academic confidence, lower desire to finish college, poorer ease of transition, lower receptivity to social enrichment, and lower levels of financial security" (Schreiner, 1991, p. 5).

These, and other findings, indicate that "... students manifestly differ in their educational and career goals, motivational levels, readiness to learn, prior preparation, and developmental status in both cognitive and noncognitive areas and in a range of other ways" (Pascarella and Terenzini, 1991, p. 645). However, even though much has been written about the need to adapt educational programs in order to respond to individual differences among students, "... there is little evidence to suggest that this challenge has been taken seriously on more than a handful of campuses" (Pascarella and Terenzini, 1991, p. 645).

Pascarella and Terenzini's (1991) extensive review of the professional literature of the last twenty years on how college affects students reveals that even though techniques such as individualized instructional approaches that accommodate variations in students' learning styles appear to produce positive results, most instruction continues to be delivered in conventional and recitation formats. "Course content continues to be presented in ways that make students passive participants in their learning . . . betraying a reliance on academic content packaging bereft of variety and flexibility" (Pascarella and Terenzini, 1991, p. 646).

Pascarella and Terenzini (1991) acknowledge that other factors impinge on course and curriculum design, such as the expense and extreme demands of faculty time and energy for individualized instruction. These considerations cannot be ignored. Nevertheless, "... it seems clear that current course and curriculum planning are not heavily influenced by individual variations in students' learning styles or readiness to



learn. Quite the contrary: modern colleges and especially universities seem far better structured to process large numbers of students efficiently than to maximize student learning" (Pascarella and Terenzini, 1991, p. 646).

SUMMARY

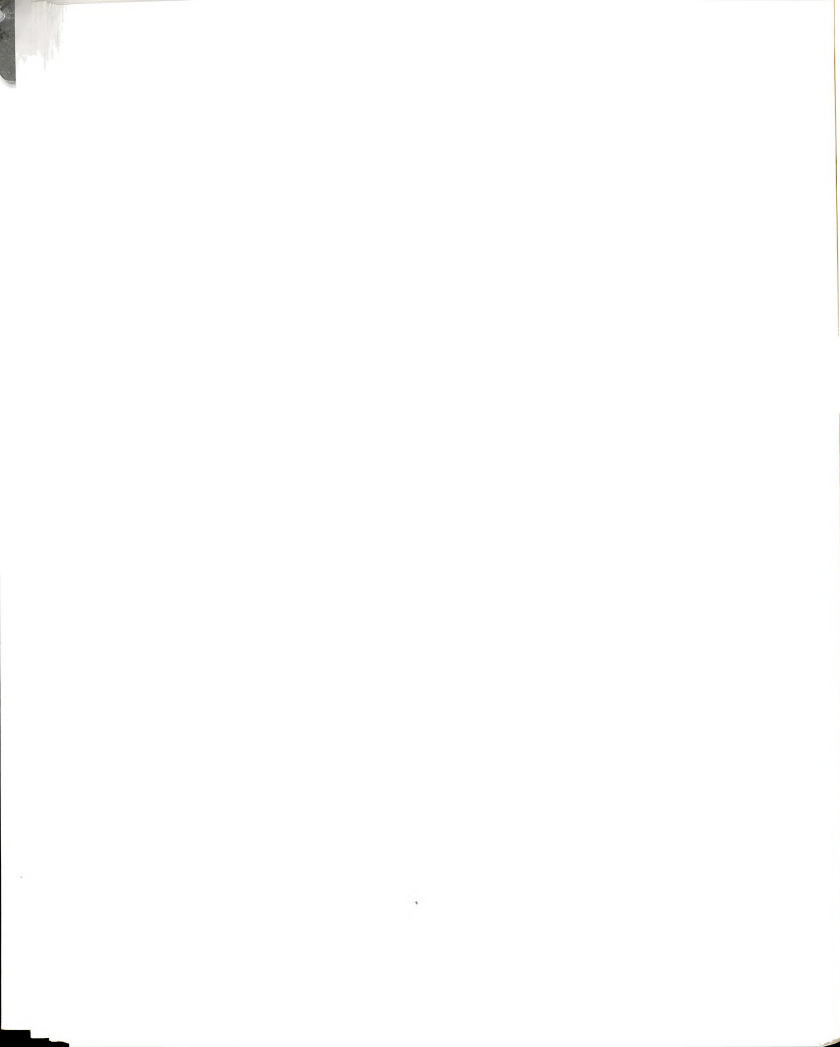
In this chapter numerous influential theories of student development are reviewed. These theories serve to focus and guide inquiry into what and how students learn in college. At the present time there is no single, unified theory of student development.

There are limitations to all student development theories. For example, Gilligan (1982) believes that theories based only on research of men does not adequately explain the development of women. Cross (1971) and others believe that black student development is not adequately addressed through research involving only white students.

Changing demographics in the United States is radically changing the composition of the college student body. In the 1990's the majority of students will continue to be women, the student population will grow older, more students will be nontraditional, and there will be an increasingly higher percentage of minority students attending college (Levine, 1989). Levine (1989) also reports that "The fastest growing groups in our population also have the lowest rates of educational attainment" (Levine, 1989, p. 164).

Academically underprepared students tend to exhibit attitudes and behavior characteristics that are counterproductive to achieving college success. These students tend to not have clear career and educational goals and they tend to have inadequate conceptions of what is involved in achieving success in college (Maxwell, 1979).

Academically underprepared students tend to be externally controlled and tend to rely on parent or teacher admonitions to direct their behavior (Knefelkamp, 1978). Many students exhibit some degree of underpreparedness. "In fact, it can be argued that all



entering freshmen are, to some degree, underprepared for the academic and personal rigors of post-secondary education" (Saunders and Ervin, 1984. p. 256).

Developmental education programs are designed to help academically underprepared students attain a reasonable chance of achieving collegiate success. Over ninety percent of all public colleges and universities provide developmental courses and/or programs (Millard, 1991). Numerous successful solutions are available for institutions concerned with helping their academically underprepared students. A national survey of successful developmental education programs suggested many effective strategies for working with underprepared students (Roueche, 1983). These included, mandatory assessment and course placement, structured courses, multiple learning strategies, and intrusive advising to intervene early into the failure process.

Numerous studies indicate a need to provide for an "early warning system" to identify and help students who are experiencing difficulty before they drop out (Schreiner, 1991). Many studies have researched the correlates of retention and the processes involved in student persistence. It appears that institutions that develop systems to maintain a high degree of responsiveness to student needs tend to experience the most positive results (Schreiner, 1991).

CHAPTER III

METHOD

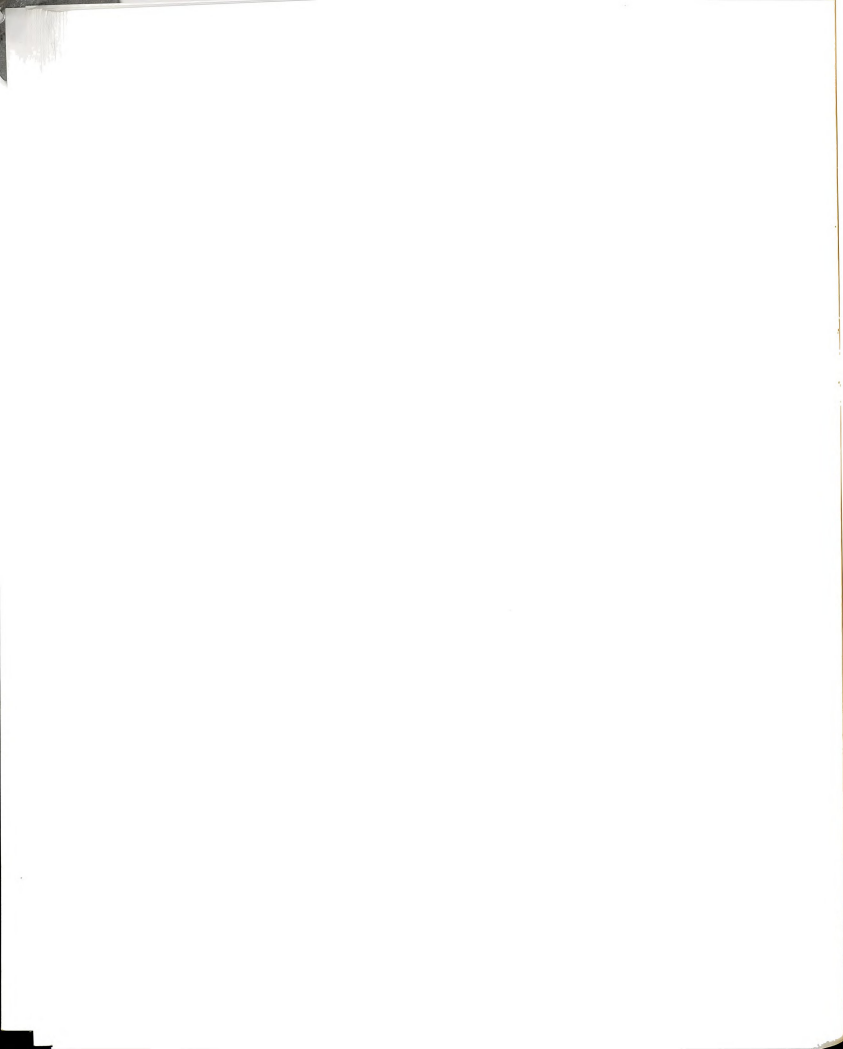
The purpose of this study was to examine the nature of the academically underprepared students enrolled in the Collegiate Skills Program (CSP), at Ferris State University, during the fall quarter of 1991. This was done in order to develop a more accurate profile of these students which, in turn, may be used to improve policies and programs designed to help these students become successful college students.

Chapter Three includes a discussion of the sample, design of the study, measurement instruments and research variables, data analysis, the statistical treatment of each research question, and the pilot study.

THE POPULATION STUDIED

The population of this study consisted of 193 of the 213 students (91%) admitted to Ferris State University, fall quarter 1991, with less than a 2.00 high school grade point average (on a 4.00 scale). Students with less than a 2.00 high school g.p.a. must enroll in the Collegiate Skills Program (CSP) which is administered through the department of Student Development Services, College of Arts and Sciences. The CSP is a comprehensive developmental education program designed to improve students' academic background, thereby increasing their chances of achieving academic success.

Of the 193 students who completed an acceptable survey, 63 (32.6%) were female and 130 (67.4%) were male. Of the sample of 193, 138 (71.5%) were white, 52 (26.9%) were black, 2 (1%) were Native American and 1 (.5%) was Hispanic. The mean age of the sample was 18.6 years with one student at 16 years old, representing the youngest age, and two students at 34 years old as the oldest. One hundred and nineteen students (61.7%) were 18 years old, which represents the mode. Twenty-one students (10.9%)



were 17 years old and 29 (15%) were 19 years old. Therefore, 87.6% of the sample was 17, 18, or 19 years old, a highly traditional college age group.

The mean high school grade point average for the sample of 193 CSP students was 1.782 on a 4.0 scale. The lowest high school g.p.a. was .90 and the highest was 2.16 (one student). One other student had a 2.09 high school g.p.a. which represents a total of 2 students (1%) with a g.p.a. above the 2.0 cut-off level. These students were allowed to stay in the CSP at their request. Typically students do not request and/or are not permitted to remain in the CSP if their high school grade point average is 2.0 or higher.

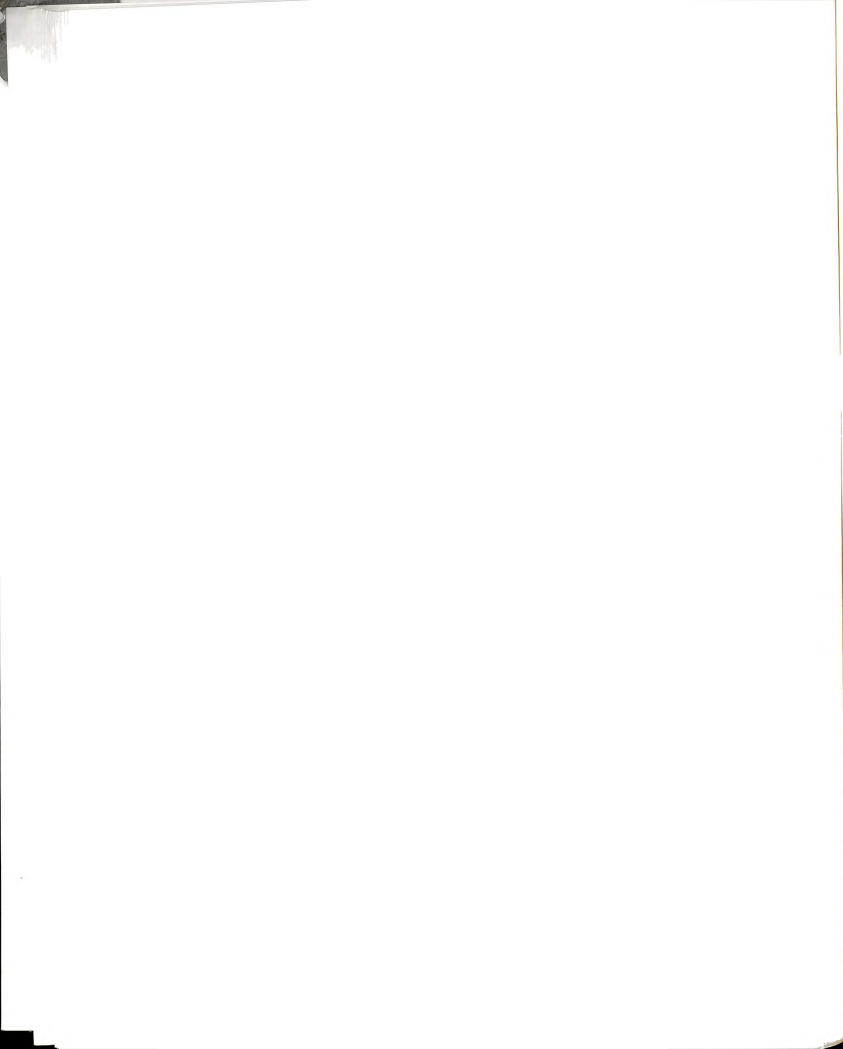
DESIGN OF THE STUDY

The study is quantitative, descriptive, and cross-sectional in nature. The data was collected using the College Student Inventory (CSI). The College Student Inventory was administered at Ferris State University to 205 Collegiate Skills Program students during the first half of Fall Quarter 1991.

The results of the College Student Inventory were shared and discussed with each student by an academic advisor trained to fully understand the implications of the reported College Student Inventory data.

The College Student Inventory is a 194-item multidimensional inventory of student motivation, using nineteen scales in five general categories. The five general categories are 1) Academic Motivation, 2) Social Motivation, 3) General Coping Skills, 4) Receptivity to Support Services, and 5) Initial Impression. Test data (ACT and Degrees of Reading Power) was also used, as was demographic data such as age, gender, ethnicity, and high school grade point average.

Research Hypothesis 1 involved using z-tests to compare the ACT scores, attitudes,



as measured by the College Student Inventory, Degrees of Reading Power test scores, and demographic characteristics of Ferris Collegiate Skills Program students and those of entering college students in general. National norms relative to these characteristics were obtained from ACT, the Degrees of Reading Power test, and the College Student Inventory technical and support data. Chi-square was performed on the gender and ethnicity variables. The .05 alpha level was used.

Research Hypotheses 2 through 6 involved two-way MANOVAs. MANOVA (multivariate analysis of variance) explores simultaneously the relationship between multiple independent variables and multiple dependent variables. Aptitude was measured by ACT composite score. High and low ACT groups were cross classified with gender, ethnicity, age, DRP, and high school grade point average. The dependent variables measured the following: Academic Motivation, Social Motivation, General Coping Skills, Receptivity To Support Services, and Initial Impression of Ferris State University. Follow-up ANOVAs (univariate analysis of variance) and Scheffe's post-hoc comparisons were used where statistical significance was found.

Research Hypothesis 7 involved stepwise multiple regression to predict first term success among Collegiate Skills Program students.

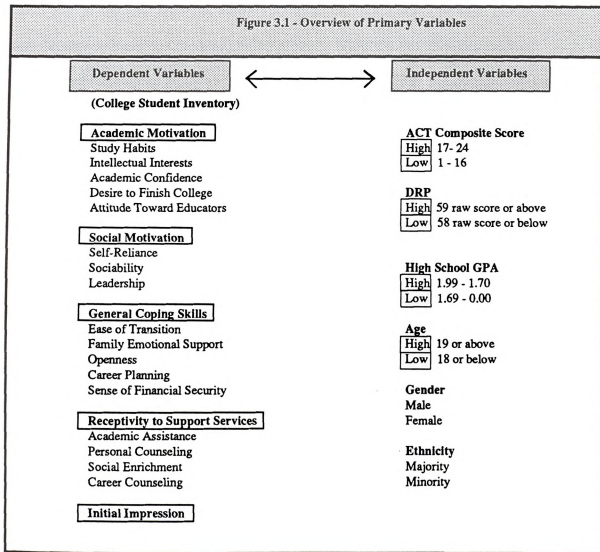
MEASUREMENT INSTRUMENTS AND RESEARCH VARIABLES

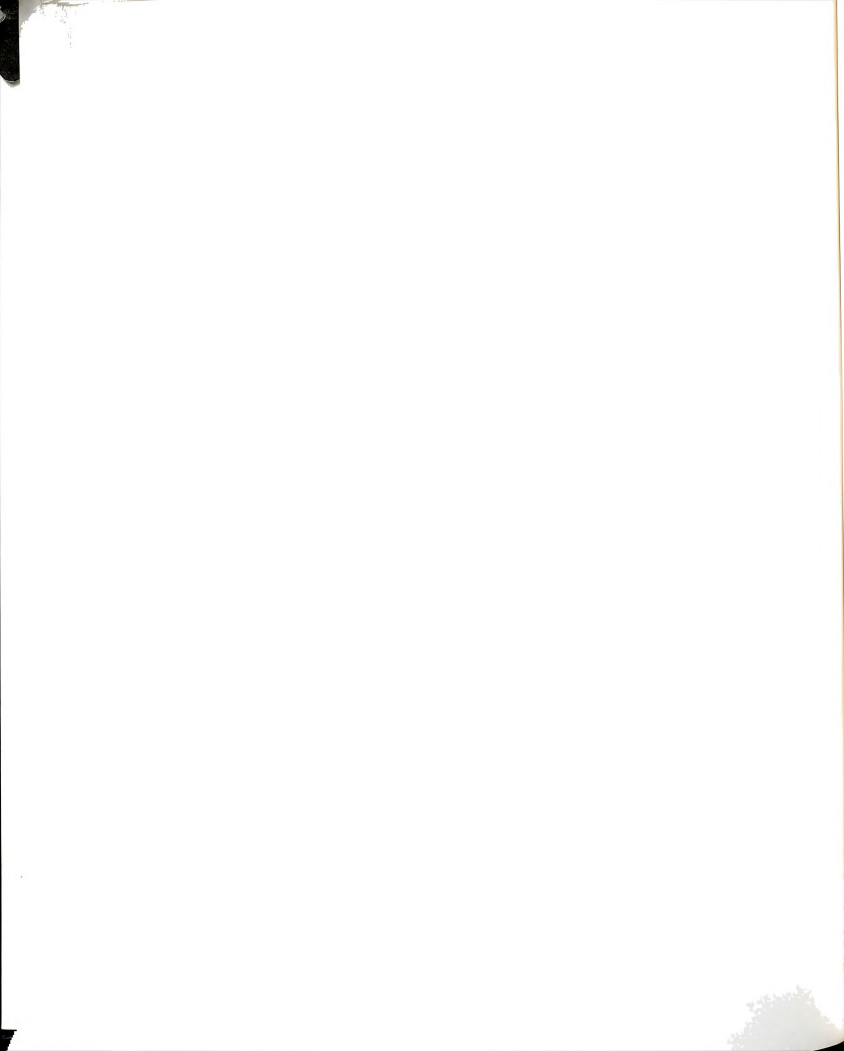
Measures used in this study were the Enhanced ACT Assessment Battery (ACT), the Degree of Reading Power reading test (DRP), and the College Student Inventory (CSI). **The Enhanced ACT Assessment Battery.**

The Enhanced ACT Assessment Battery is a nationally normed, standardized aptitude test used by hundreds of colleges and universities for academic advising and course placement purposes. The tests of educational development consist of a 75-item,

45-minute English test, a 60-minute, 60-item mathematics test, a 35-minute, 40-item reading test, and a 35-minute, 40-item science reasoning test. Ferris State University requires all incoming freshmen to take the ACT.

The Enhanced ACT Assessment reliability coefficients and standard errors of measurement for the four tests and composite are shown in Table 3.1 for national and college-bound groups of examinees. "Because the enhanced ACT Assessment is a new program that, at this writing, has not been administered operationally, little statistical data on criterion-related validity are currently available" (ACT, 1989, p. 43).





Blocking

The ACT composite score was used as a blocking variable. The score distribution was divided into two levels; high and low. Three level blocking is not recommended by Cronbach and Snow (1981).

The high ACT group consisted of students with an ACT composite of 17 or above. The low ACT group consisted of students with an ACT composite score of 16 or below. The DRP score distribution was also blocked into high and low groups. The high DRP group had DRP raw scores of 59 or above and the low DRP group had raw scores of 58 or below. Students with a high school grade point average of 1.80 or below were blocked into a low group, and students with a 1.81 or above represented the high group. Males and females represented the two gender groups. Majority and minority students represented the two ethnicity groups. Students 18 years old or below made up the low group, while students 19 or above made up the high age group. In all of these groups, the primary rationale was to arrive at equally distributed n counts. This, of course, was not a consideration for gender or ethnicity.

The Degree of Reading Power Test

The Degree of Reading Power test is a widely used, standardized, nationally normed reading comprehension test. The Degrees of Reading Power is designed to test "... how well a student reads under 'real life' conditions in and out of school" (The College Board, 1986, p. 1). A primary purpose of the Degrees of Reading Power is to identify the most difficult written material a student can comprehend. Evidence that Degrees of Reading Power test scores do, in fact, accurately forecast a student's level of comprehension on text of varying readability is available in the form of a study in which a reading comprehension test similar to the Degrees of Reading Power was used as a criterion measure. "Research showed that the Degrees of Reading Power scores

correlated highly ($r = .90$) with the criterion measure" (The College Board, 1986, p. 43).

"The reliability of a test describes its dependability—the accuracy of its scores. It may be expressed in terms of a reliability coefficient, a standard error of measurement derived from the reliability coefficient, or other more modern measures" (The College Board, 1986, p. 44). In all of these measures the Degrees of Reading Power test has proven to be a highly reliable test instrument (The College Board, 1986).

The College Student Inventory

The College Student Inventory is a standardized, nationally normed, multidimensional inventory of student motivation. Its purpose is to give colleges and universities a survey instrument that can be used proactively to help improve student retention (Schreiner, 1991). Used as an "early warning system," the CSI can accurately identify at-risk students for intervention (Schreiner, 1991). "Based on years of extensive research (Stratil, 1984, 1988), the instrument consists of 194 items on 19 scales and is designed to identify those predispositions and precollege experiences and attributes which subsequently influence precollege experiences and attributes which may subsequently influence the student's ability to succeed and persist in college. In addition, the CSI contains demographic information about the student and a list of prioritized recommendations for intervention, weighted on the basis of the student's need for campus service and expressed desire for the service" (Schreiner, 1991, p. 2-3).

In order to examine the psychometric properties of the College Student Inventory (Stratil, 1988), 4,915 college students from forty-six American colleges and universities were surveyed. Schreiner (1991) reports the following results from the validation study: Several methods were utilized to determine if the CSI is a reliable and valid measure of students' ability to succeed and persist in college. Reliability estimates averaged .80 via coefficient alpha. Factor analysis confirmed that the 194 items loaded on factors which basically corresponded to their designated scales. Discriminant analyses indicated that the CSI is able to significantly discriminate between dropouts and persisters and by GPA ($p < .0001$). Regression analyses indicated that five of the scales were most predictive of first-year GPA (multiple $r = .48$). The MANOVA also found significant differences between dropouts and persisters ($p < .0001$). The CSI therefore appears to be a promising tool for measuring a student's ability to succeed and persist in college (Schreiner, 1991, p. i).

Research Variables

The College Student Inventory scale scores represent the **dependent variables**, and are therefore beyond the control of the researcher. In Research Hypothesis 7, college GPA is also a dependent variable. The **independent variables** of this study include ACT ability range (high and low), Degrees of Reading Power test scores, age, gender, ethnicity, and high school grade point average.

STATISTICAL TREATMENT

It is important to note that the College Student Inventory used in this study surveys student attitudes relative to the following general categories: Academic Motivation, Social Motivation, General Coping Skills, Receptivity to Support Services, and Initial Impression. These categories, or scales, contain the following specific variables:

Academic Motivation

Study Habits
Intellectual Interests
Academic Confidence
Desire to Finish College
Attitude Toward Educators

Social Motivation

Self-Reliance
Sociability
Leadership

General Coping Skills

Ease of Transition
Family Emotional Support
Openness Career Planning
Sense of Financial Security

Receptivity to Support Services

Academic Assistance
Personal Counseling
Social Enrichment
Career Counseling

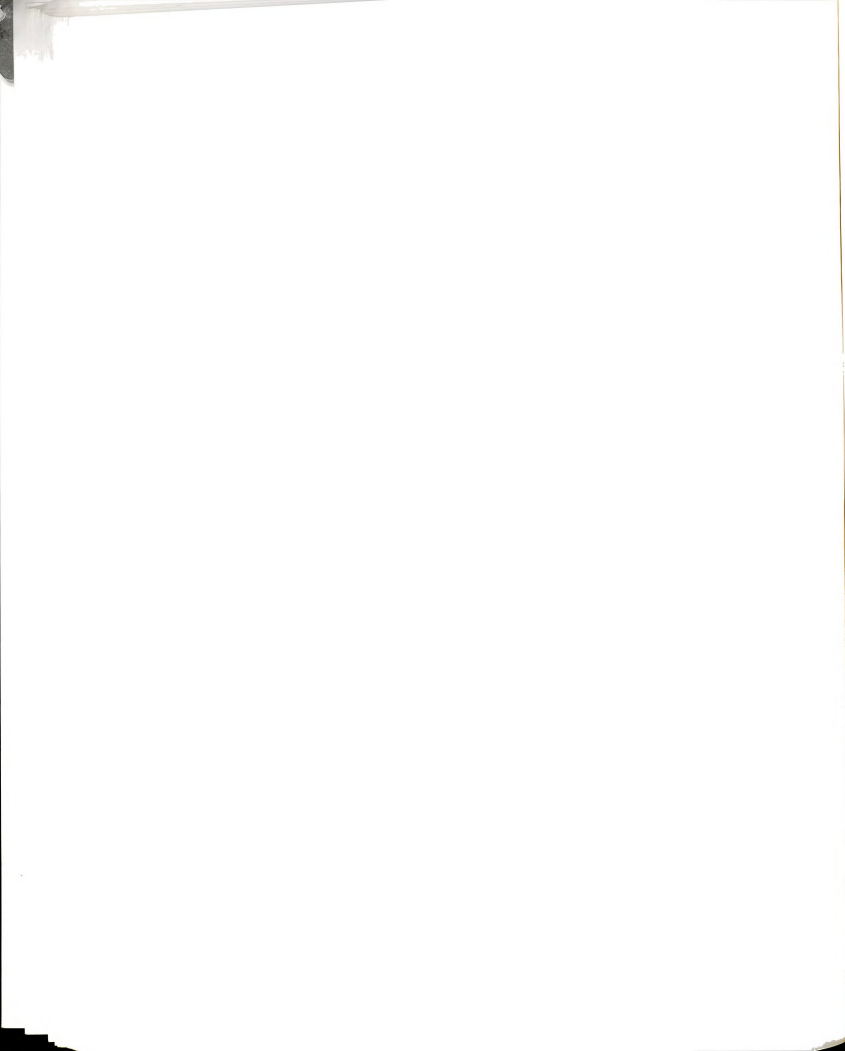
Initial Impression

The specific variables listed under the underlined categories shown above are the variables that are tested individually in this study. For example, Hypothesis 2 refers to Academic Motivation, as a general category within the College Student Inventory. This category contains the following variables: Study Habits, Intellectual Interests, Academic Confidence, Desire to Finish College and Attitude Toward Educators.

In order to study the nature of academically underprepared students at Ferris State University, and to study the interaction among the aptitudes, as measured by ACT, attitudes, as measured by the College Student Inventory, and demographic characteristics of these students, the following seven research hypotheses were tested:

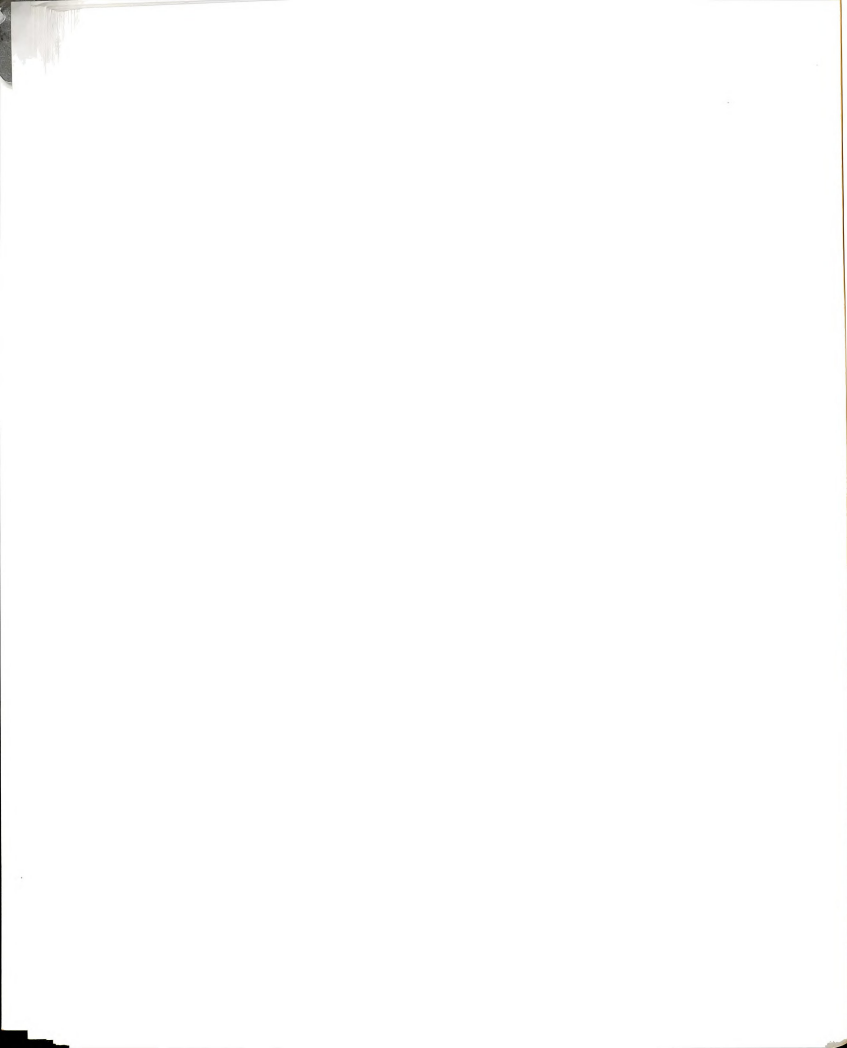
Hypothesis 1

- H₀1.1 There is no difference between the **aptitude**, as measured by ACT scores, of Ferris CSP students and the **aptitude**, as measured by ACT scores, of entering college students in general.
- H₀1.2 There is no difference between the **study habits**, as measured by the College Student Inventory, of Ferris CSP students and the **study habits**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.3 There is no difference between the **intellectual interests**, as measured by the College Student Inventory, of Ferris CSP students and the **intellectual interests**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.4 There is no difference between the **academic confidence**, as measured by the College Student Inventory, of Ferris CSP students and the **academic confidence**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.5 There is no difference between the **desire to finish college**, as measured by the College Student Inventory, of Ferris CSP students and the **desire to finish college**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.6 There is no difference between the **attitudes toward educators**, as measured by the College Student Inventory, of Ferris CSP students and the **attitudes toward educators**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.7 There is no difference between the **self reliance**, as measured by the College Student Inventory, of Ferris CSP students and the **self reliance**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.8 There is no difference between the **sociability**, as measured by the College Student Inventory, of Ferris CSP students and the **sociability**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.9 There is no difference between the **leadership**, as measured by the College Student Inventory, of Ferris CSP students and the **leadership**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.10 There is no difference between the **ease of transition**, as measured by the College Student Inventory, of Ferris CSP students and the **ease of transition**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.11 There is no difference between the **family emotional support**, as measured by the College Student Inventory, of Ferris CSP students and the **family emotional support**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.12 There is no difference between the **openness**, as measured by the College Student Inventory, of Ferris CSP students and the **openness**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.13 There is no difference between the **career planning**, as measured by the College Student Inventory, of Ferris CSP students and the **career planning**, as measured by the College Student Inventory, of entering college students in general.



- H₀1.14** There is no difference between the **sense of financial security**, as measured by the College Student Inventory, of Ferris CSP students and the **sense of financial security**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.15** There is no difference between the **receptivity to academic assistance**, as measured by the College Student Inventory, of Ferris CSP students and the **receptivity to academic assistance**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.16** There is no difference between the **receptivity to personal counseling**, as measured by the College Student Inventory, of Ferris CSP students and the **receptivity to personal counseling**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.17** There is no difference between the **receptivity to social enrichment**, as measured by the College Student Inventory, of Ferris CSP students and the **receptivity to social enrichment**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.18** There is no difference between the **receptivity to career counseling**, as measured by the College Student Inventory, of Ferris CSP students and the **receptivity to career counseling**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.19** There is no difference between the **initial impression**, as measured by the College Student Inventory, CSP students have of Ferris, and the **initial impression**, as measured by the College Student Inventory, entering college students in general have of their colleges.
- H₀1.20** There is no difference between the **mean age** of Ferris CSP students and the **mean age** of entering college students in general.
- H₀1.21** There is no difference between the **gender ratio** of Ferris CSP students and the **gender ratio** of entering college students in general.
- H₀1.22** There is no difference between the **ethnicity ratio** of Ferris CSP students and the **ethnicity ratio** of entering college students in general.
- H₀1.23** There is no difference between the **DRP scores** of Ferris CSP students and the **DRP scores** of entering college students in general.
- H₀1.24** There is no difference between the **high school GPA's** of Ferris CSP students and the **high school GPA's** of entering college students in general.

Z-tests were performed to determine the difference, if any, in the aptitudes, as measured by ACT scores, attitudes, as measured by the College Student Inventory, and demographic characteristics of the sample and the national population. Chi-square was performed on the gender and ethnicity variables. The .05 alpha level was used.



Hypothesis 2

- H₀2.1:** When controlling for tested aptitude, as measured by ACT composite score, the **academic motivation**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **age**, or by age unmodified by ACT.
- H₀2.2:** When controlling for tested aptitude, as measured by ACT composite score, the **academic motivation**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **gender**, or by gender unmodified by ACT.
- H₀2.3:** When controlling for tested aptitude, as measured by ACT composite score, the **academic motivation**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **ethnicity**, or by ethnicity unmodified by ACT.
- H₀2.4:** When controlling for tested aptitude, as measured by ACT composite score, the **academic motivation**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **Degrees of Reading Power score**, or by Degrees of Reading Power score unmodified by ACT.
- H₀2.5:** When controlling for tested aptitude, as measured by ACT composite score, the **academic motivation**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **high school grade point average**, or by high school grade point average unmodified by ACT.

Two-way MANOVAs were performed to analyze Academic Motivation with tested aptitude (ACT composite score) and selected variables—age, gender, ethnicity, Degrees of Reading Power scores, and high school grade point average. Follow-up ANOVAs were performed where statistical significance was found. The .05 alpha level was used. Two-way MANOVA was performed to help avoid Type I error.

The dependent variables are the scores on the Academic Motivation variables of the College Student Inventory. These variables are the following: Study Habits, Intellectual Interests, Academic Confidence, Desire to Finish College, and Attitude Toward Educators.

Hypothesis 3

- H₀3.1:** When controlling for tested aptitude, as measured by ACT composite score, the **social motivation**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **age**, or age unmodified by ACT.
- H₀3.2:** When controlling for tested aptitude, as measured by ACT composite score, the **social motivation**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **gender**, or by gender unmodified by ACT.
- H₀3.3:** When controlling for tested aptitude, as measured by ACT composite score, the **social motivation**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **ethnicity**, or by ethnicity unmodified by ACT.
- H₀3.4:** When controlling for tested aptitude, as measured by ACT composite score, the **social motivation**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **Degrees of Reading Power score**, or by Degrees of Reading Power score unmodified by ACT.
- H₀3.5:** When controlling for tested aptitude, as measured by ACT composite score, the **social motivation**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **high school grade point average**, or by high school grade point average unmodified by ACT.

Two-way MANOVAs were performed to analyze Social Motivation with tested aptitude (ACT composite score) and selected variables: age, gender, ethnicity, Degrees of Reading Power score, and high school grade point average. Follow-up ANOVAs were performed where statistical significance was found. Two-way MANOVAs were performed to help avoid Type I error. The .05 alpha level was used. The dependent variables are the scores on the Social Motivation variables of the College Student Inventory. These variables are the following: Self-Reliance, Sociability, and Leadership.

Hypothesis 4

- H₀4.1:** When controlling for tested aptitude, as measured by ACT composite score, the **general coping skills**, as measured by the College Student Inventory, of Ferris CSP students do not vary according to **age**, or by age unmodified by ACT.
- H₀4.2:** When controlling for tested aptitude, as measured by ACT composite score, the **general coping skills**, as measured by the College Student Inventory, of Ferris CSP students do not vary according to **gender**, or by gender unmodified by ACT.

- H_{4.3}:** When controlling for tested aptitude, as measured by ACT composite score, the **general coping skills**, as measured by the College Student Inventory, of Ferris CSP students do not vary according to **ethnicity**, or by ethnicity unmodified by ACT.
- H_{4.4}:** When controlling for tested aptitude, as measured by ACT composite score, the **general coping skills**, as measured by the College Student Inventory, of Ferris CSP students do not vary according to **Degrees of Reading Power score**, or by Degrees of Reading Power score unmodified by ACT.
- H_{4.5}:** When controlling for tested aptitude, as measured by ACT composite score, the **general coping skills**, as measured by the College Student Inventory, of Ferris CSP students do not vary according to **high school grade point average**, or by **high school grade point average unmodified by ACT**.

Two-way MANOVAs were performed to analyze General Coping Skills with tested aptitude (ACT composite score) and selected variables: age, gender, ethnicity, Degrees of Reading Power score, and high school grade point average. Follow-up ANOVAs were performed where statistical significance was found. Two-way MANOVAs were performed to help avoid Type I error. The .05 alpha level was used. The dependent variables are the scores on the General Coping Skills variables of the College Student Inventory. These variables are the following: Ease of Transition, Family Emotional Support, Openness, Career Planning, Sense of Financial Security.

Hypothesis 5

- H_{5.1}:** When controlling for tested aptitude, as measured by ACT composite score, the **receptivity to support services**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **age**, or age unmodified by ACT.
- H_{5.2}:** When controlling for tested aptitude, as measured by ACT composite score, the **receptivity to support services**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **gender**, or by gender unmodified by ACT.
- H_{5.3}:** When controlling for tested aptitude, as measured by ACT composite score, the **receptivity to support services**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **ethnicity**, or by ethnicity unmodified by ACT.
- H_{5.4}:** When controlling for tested aptitude, as measured by ACT composite score, the **receptivity to support services**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **Degrees of Reading Power score**, or by Degrees of Reading Power score unmodified by ACT.

H₀5.5: When controlling for tested aptitude, as measured by ACT composite score, the **receptivity to support services**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **high school grade point average**, or by **high school grade point average unmodified by ACT**.

Two-way MANOVAs were performed to analyze Receptivity to Support Services with tested aptitude (ACT composite score) and selected variables: age, gender, ethnicity, Degrees of Reading Power score, and high school grade point average. Follow-up ANOVAs were performed where statistical significance was found. Two-way MANOVAs were performed to help avoid Type I error. The .05 alpha level was used.

The dependent variables are the scores on the Receptivity to Support Services variables of the College Student Inventory. These variables are the following: Academic Assistance, Personal Counseling, Social Enrichment, and Career Counseling.

Hypothesis 6

H₀6.1: When controlling for tested aptitude, as measured by ACT composite score, Ferris CSP students' **initial impressions** of Ferris State University, as measured by the College Student Inventory, do not vary according to **age**, or **age unmodified by ACT**.

H₀6.2: When controlling for tested aptitude, as measured by ACT composite score, Ferris CSP students' **initial impressions** of Ferris State University, as measured by the College Student Inventory, do not vary according to **gender**, or by **gender unmodified by ACT**.

H₀6.3: When controlling for tested aptitude, as measured by ACT composite score, Ferris CSP students' **initial impressions** of Ferris State University, as measured by the College Student Inventory, do not vary according to **ethnicity**, or by **ethnicity unmodified by ACT**.

H₀6.4: When controlling for tested aptitude, as measured by ACT composite score, Ferris CSP students' **initial impressions** of Ferris State University, as measured by the College Student Inventory, do not vary according to **Degrees of Reading Power score**, or by **Degrees of Reading Power unmodified by ACT**.

H₀6.5: When controlling for tested aptitude, as measured by ACT composite score, Ferris CSP students' **initial impressions** of Ferris State University, as measured by the College Student Inventory, do not vary according to **high school grade point average**, or by **high school grade point average unmodified by ACT**.

Two-way MANOVAs were performed to analyze Initial Impression of Ferris State University with tested aptitude (ACT composite score), and selected variables: age, gender, ethnicity, Degrees of Reading Power score, and high school grade point average. Follow-up ANOVAs were performed where statistical significance was found. Two-way MANOVAs were performed to help avoid Type I error. The .05 alpha level was used. The dependent variable is the student's score on the Initial Impression variable of the College Student Inventory. "This scale measures the student's initial predisposition toward his college on a variety of dimensions. . . it is not intended to measure the college's true characteristics, but rather the prejudgements and preconceptions that the student has acquired from friends, family, and the media" (Stratil, 1988, p. A-28).

Hypothesis 7

- H₀7.1:** College Student Inventory variables do not predict the first term success among Ferris CSP students, as measured by college grade point average.
- H₀7.2:** ACT, high school grade point average, and Degrees of Reading Power scores do not predict the first term success among Ferris CSP students, as measured by college grade point average.
- H₀7.3:** Demographic information does not predict the first term success among Ferris CSP students, as measured by college grade point average.
- H₀7.4:** A combination of the above variables does not predict the first term success among Ferris CSP students, as measured by college grade point average.

Stepwise multiple regression was used to analyze how well the various sets of variables predict the first term success among Collegiate Skills Program students, as measured by college grade point average.

Hypotheses 7.1, 7.2, and 7.3 enabled a detailed view of the predictive power of each set of variables. This procedure maximized the information available for decision making on the relative merits of the academic measure.

PILOT STUDY

A pilot study was conducted to gain insight into the effectiveness of the College Student Inventory. On April 2, 1991, at Ferris State University, ten student volunteers completed the College Student Inventory. Five of these students were enrolled in the Collegiate Skills Program and five were enrolled in other programs. There were seven male students and three female students. One male was black and one female was black; the remaining students were white. The ages of the participants ranged from 17 to 23 years.

It took each student less than one hour to complete the inventory. All ten students were asked for their initial reaction immediately after completing the survey. All ten students said the instrument's directions were clear and that they had no difficulty understanding the questions.

After the results came back from the Noel/Levitz Center, the researcher met with five of the participating students for lengthy interviews concerning the College Student Inventory results. All of the students interviewed stated that they honestly felt the results to be accurate. Even results that indicated negative characteristics of the students were verified as accurate by the students.

Two GE 103 Freshman Seminar instructors, Mr. Neil Michaels and Ms. Patti Russell, assisted in this pilot study. Both instructors expressed pleasant surprise at the positive response from their students relative to the accuracy of the College Student Inventory.

SUMMARY

The study was quantitative, descriptive, and cross-sectional in nature. The data was collected using the College Student Inventory (CSI). The College Student Inventory is a 194-item multidimensional inventory of student motivation, using nineteen scales in five general categories. Test data (ACT and Degrees of Reading Power) was also used, as was demographic data such as age, gender, ethnicity, and high school grade point average.

Research Hypothesis 1 involved using z-tests to compare the ACT scores, attitudes, as measured by the College Student Inventory, Degrees of Reading Power test scores, and demographic characteristics of Ferris Collegiate Skills Program students and those of entering college students in general. Chi-square was performed on the gender and ethnicity variables. The .05 alpha level was used.

Research Hypotheses 2 through 6 involved two-way MANOVAs. MANOVA (multivariate analysis of variance) explores simultaneously the relationship between multiple independent variables and multiple dependent variables. Aptitude was measured by ACT composite score. High and low ACT groups were cross classified with gender, ethnicity, age, DRP, and high school grade point average. The dependent variables measured the following: Academic Motivation, Social Motivation, General Coping Skills, Receptivity To Support Services, and Initial Impression of Ferris State University. Follow-up ANOVAS (univariate analysis of variance) and Scheffe's post-hoc comparisons were used where statistical significance was found.

Research Hypothesis 7 involved stepwise multiple regression to predict first term success among Collegiate Skills Program students.

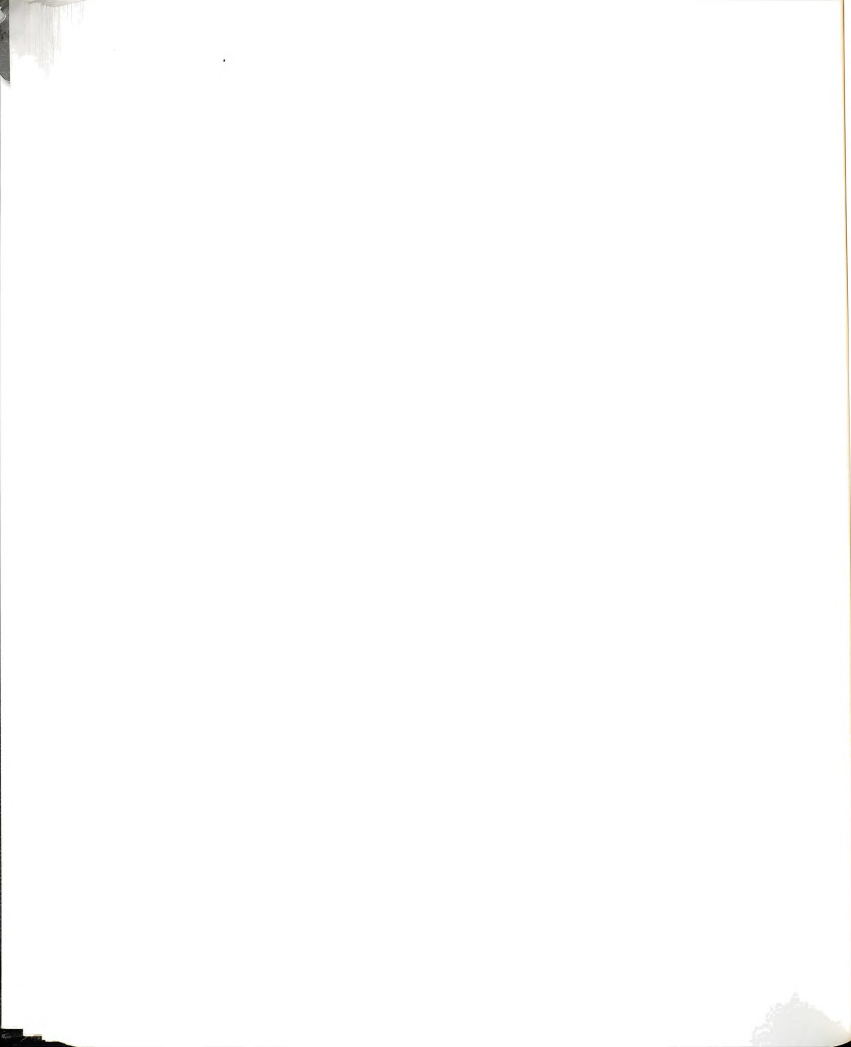
CHAPTER IV

FINDINGS

The primary purpose of this study was to examine the nature of academically underprepared students enrolled at Ferris State University, in the Fall of 1991, in order to develop a more accurate profile of these students. Academically underprepared students were surveyed using the College Student Inventory (Noel/Levitz, 1988), in order to examine their attitudes relative to their academic motivation, social motivation, general coping skills, receptivity to support services, and initial impression of Ferris State University. Furthermore, the College Student Inventory (CSI) results were examined in relation to students' ACT composite scores, age, gender, ethnicity, high school grade point average, and Degrees of Reading Power test results. The methodology used in this study was described in detail in Chapter III.

THE POPULATION STUDIED

The population of this study consisted of 193 of the 213 students (91%) admitted to Ferris State University, Fall quarter 1991, with less than a 2.00 high school grade point average (on a 4.00 scale). Students with less than a 2.00 high school g.p.a. must enroll in the Collegiate Skills Program (CSP) which is administered through the department of Student Development Services, College of Arts and Sciences. The CSP is a comprehensive developmental education program designed to improve students' academic background, thereby increasing their chances of achieving academic success. Students entering Ferris State University with a higher high school grade point average may also be academically underprepared, but are not allowed and/or required to enter the Collegiate Skills Program due to size limitations. Of the 213 students in the fall of 1991 required to enroll in the CSP, eight were not registered properly and, consequently, were



not mandated into a GE 103 Freshman Seminar class, in which the College Student Inventory (CSI) was administered. Therefore, the CSI was administered to 205 CSP students, which represents 96% of the total CSP population. Nine CSI computer-scored student response sheets were rejected by Noel/Levitz because they each contained ten or more omissions. Two CSP students dropped out of Ferris before a complete data file could be obtained and one student was allowed to transfer to another curriculum because of an initial placement error. **Therefore, 193 out of 213 CSP students (91%) completed CSI inventory response sheets which were accepted and scored by Noel/Levitz for a response rate of 91 percent.**

Of the 193 students who completed an acceptable survey, 63 (32.6%) were female and 130 (67.4%) were male. Of the sample of 193, 138 (71.5%) were white, 52 (27%) were black, 2 (1%) were Native American and 1 (.5%) was Hispanic. The mean age of the sample was 18.6 years with one student at 16 years old, representing the youngest age, and two students at 34 years old as the oldest. One hundred and nineteen students (61.7%) were 18 years old, which represents the mode. Twenty-one students (10.9%) were 17 years old and 29 (15%) were 19 years old. Therefore, 87.6% of the sample was 17, 18, or 19 years old, a highly traditional college age group.

The mean high school grade point average for the sample of 193 CSP students was 1.782 on a 4.0 scale. The lowest high school g.p.a. was .90 and the highest was 2.16 (one student). One other student had a 2.09 high school g.p.a. which represents a total of 2 students (1%) with g.p.a.'s above the 2.0 cut-off level. These students were allowed to stay in the CSP at their request. Typically students do not request and/or are not permitted to remain in the CSP if their high school grade point average is 2.0 or higher.

The mean ACT scores for the sample were as follows: English 15.02, Math 15.99, Reading 15.99, Science Reasoning 17.09, and the ACT composite score 16.22, which

falls at the 20th percentile on national norms. In the Fall of 1990, students entering Michigan public four-year institutions, with Ferris excluded, had an ACT composite average of 23 (ACT, 1991). The Ferris ACT composite average in the same year was 18.2 for entering freshmen. **Therefore, in the fall of 1990, approximately 85% of the students in Ferris' entire entering freshmen class were below the ACT composite average for the rest of the Michigan post-secondary, 4-year institutions.**

In the fall of 1991, 98.4% of the entering Ferris CSP students were below 23 for their ACT composite score. In the fall of 1991, 2 CSP students (1%) had an ACT composite score of 23, and 1 CSP student (.5%) had an ACT composite score of 24. The national ACT mean composite score for fall of 1991 was 20.6 (ACT, 1991). In this study, 87.6% of the sample had an ACT composite score below 20; 40.4% had an ACT composite score of 15 or below.

STATISTICAL ANALYSIS

The purpose of the statistical analysis of the data presented in this study is analogous to the purpose of a stereo receiver. "Like a good stereo receiver, statistical analysis is designed to pluck a faint signal out of a sea of noise" (Norman and Streiner, 1988, p. 12). Therefore, the objective of statistical analysis is to reveal underlying systematic variation in the data sets resulting from the effect of other measured variables (Norman and Streiner, 1988). This strategy "... which forms the basis of all statistical tests, is a comparison between an observed effect or difference, and the anticipated result of random variation" (Norman and Streiner, 1988, p. 12).

Hypothesis One

Hypothesis 1 involved using z-tests to compare the ACT scores, attitudes, as measured by the College Student Inventory, Degrees of Reading Power test scores, and demographic characteristics of Ferris Collegiate Skills Program students, and those of entering college students in general. National norms relative to these characteristics were obtained from ACT, the Degrees of Reading Power test, the College Student Inventory technical and support data, and the Cooperative Institutional Research Program (Astin, 1990). Chi-square was performed on the gender and ethnicity variables. **The .05 alpha level was used.**

Analysis of Hypothesis 1.1

H₀ 1.1 There is no difference between the **aptitude**, as measured by ACT scores, of Ferris CSP students and the **aptitude**, as measured by ACT scores, of entering college students in general.

As shown in Table 1, significant difference was found between the aptitude, as measured by all ACT sub-scores and composite scores, of the sample and the ACT national population. Therefore, Hypothesis 1.1 was rejected.

A summary of z-values and levels of significance for ACT composite scores of the sample and population is provided in Table 1. The sample numbers, sample and population means, and standard deviations are also provided. As illustrated by Table 1, the sample mean ACT sub-scores and mean composite score are all statistically significant at the .01 level.

As indicated by Table 1, the most significant difference between the sample and the ACT national population occurred on the English sub-test (z-value = -14.27), followed by a significant difference (z-value = -13.6) on the ACT composite score. The mean ACT composite score for the sample was 16.22, which falls at the 20th percentile on national norms.

Table 1 - Summary of z-values and significance for ACT scores of sample and population

Variable	Sample			Population		z-value	Significance
	n	mean	sd	mean	sd		
ACT English	193	15.02	3.422	20.3	5.2	-14.27	$p < .01$
ACT Math	193	15.99	2.574	20.0	4.7	-11.86	$p < .01$
ACT Reading	193	15.99	4.230	21.2	6.1	11.87	$p < .01$
ACT Science	193	17.09	2.832	20.7	4.5	11.13	$p < .01$
ACT Composite	193	16.22	2.682	20.6	4.5	-13.60	$p < .01$

Analysis of Hypotheses 1.2, 1.3, 1.4, 1.5 and 1.6

H₀1.2 There is no difference between the **Study Habits**, as measured by the College Student Inventory, of Ferris CSP students and the **Study Habits**, as measured by the College Student Inventory, of entering college students in general.

H₀1.3 There is no difference between the **Intellectual Interests**, as measured by the College Student Inventory, of Ferris CSP students and the **Intellectual Interests**, as measured by the College Student Inventory, of entering college students in general.

H₀1.4 There is no difference between the **Academic Confidence**, as measured by the College Student Inventory, of Ferris CSP students and the **Academic Confidence**, as measured by the College Student Inventory, of entering college students in general.

H₀1.5 There is no difference between the **Desire to Finish College**, as measured by the College Student Inventory, of Ferris CSP students and the **Desire to Finish College**, as measured by the College Student Inventory, of entering college students in general.

H₀1.6 There is no difference between the **Attitudes Toward Educators**, as measured by the College Student Inventory, of Ferris CSP students and the **Attitudes Toward Educators**, as measured by the College Student Inventory, of entering college students in general.

As shown in Table 2, there was a statistically significant difference between the sample and the population on the following Academic Motivation variables: Study Habits, Intellectual Interests, Academic Confidence and Attitude Toward Educators. Therefore, H₀1.2, H₀1.3, H₀1.4, and H₀1.6 were rejected.

A summary of z-values and levels of significance for the Academic Motivation variables of the College Student Inventory, for the sample and the population is provided in Table 2. All population means and standard deviations were obtained from a validation study of the CSI by Noel/Levitz, 1991, involving 4,915 college students from 46 American colleges and universities. As indicated by Table 2, the greatest amount of significance occurred on the **Academic Confidence** scale (z-value = -6.621). There was no statistically significant difference on the **Desire To Finish** scale (z-value = -1.557). Therefore, $H_0 1.5$ was not rejected.

Table 2 - Summary of z-values and significance for Academic Motivation variables, of sample and population

Academic Motivation Variables	Sample			Population		z-value	Significance
	n	mean	sd	mean	sd		
Study Habits	193	5.05	12.537	7.26	13.347	2.30	p < .05
Intellectual Interests	193	-.64	8.035	2.37	9.236	-4.52	p < .01
Academic Confidence	193	1.51	10.139	6.47	10.414	-6.62	p < .01
Desire to Finish College	193	15.73	9.749	16.85	10.000	-1.56	no
Attitude Toward Educators	193	6.44	9.121	9.91	9.527	-5.06	p < .01

Analysis of Hypotheses 1.7, 1.8, and 1.9

H₀1.7 There is no difference between the **Self Reliance**, as measured by the College Student Inventory, of Ferris CSP students and the **Self Reliance**, as measured by the College Student Inventory, of entering college students in general.

H₀1.8 There is no difference between the **Sociability**, as measured by the College Student Inventory, of Ferris CSP students and the **Sociability**, as measured by the College Student Inventory, of entering college students in general.

H₀1.9 There is no difference between the **Leadership**, as measured by the College Student Inventory, of Ferris CSP students and the **Leadership**, as measured by the College Student Inventory, of entering college students in general.

There was no statistically significant difference on the CSI Self-Reliance and Sociability scales, between the sample and the population. Therefore, **H₀1.7** and **H₀1.8** were not rejected. The sample and population means for the Self-Reliance scale were very similar. The means on the Sociability scale was also similar for both groups.

As shown in Table 3, there was statistical difference at the .05 alpha level on the Leadership scale between the two groups surveyed. Therefore, **H₀1.9** was rejected.

A summary of z-values and levels of significance for the CSI Social Motivation variables for the sample and the population is provided in Table 3.

Table 3 - Summary of z-values and significance for Social Motivation variables for sample and population							
Social Motivation Variables	Sample			Population		z-value	Significance
	n	mean	sd	mean	sd		
Self Reliance	193	11.32	8.850	11.65	8.911	-0.52	no
Sociability	193	12.37	7.750	11.62	8.117	1.29	no
Leadership	193	5.06	8.791	6.42	8.144	-2.32	p < .05

Analysis of Hypotheses 1.10, 1.11, 1.12, 1.13 and 1.14

- H₀1.10** There is no difference between the **Ease of Transition**, as measured by the College Student Inventory, of Ferris CSP students and the **Ease of Transition**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.11** There is no difference between the **Family Emotional Support**, as measured by the College Student Inventory, of Ferris CSP students and the **Family Emotional Support**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.12** There is no difference between the **Openness**, as measured by the College Student Inventory, of Ferris CSP students and the **Openness**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.13** There is no difference between the **Career Planning**, as measured by the College Student Inventory, of Ferris CSP students and the **Career Planning**, as measured by the College Student Inventory, of entering college students in general.
- H₀1.14** There is no difference between the **Sense of Financial Security**, as measured by the College Student Inventory, of Ferris CSP students and the **Sense of Financial Security** as measured by the College Student Inventory, of entering college students in general.

The CSI contains five General Coping Skills variables: Ease of Transition, Family Emotional Support, Openness, Career Planning and Sense of Financial Security. There was a statistically significant difference between the sample and the population on the Family Emotional Support, Openness, and Career Planning Variables. **Therefore, H₀1.11, H₀1.12, and H₀1.13 were rejected.** As shown in Table 4, Family Emotional Support, Openness and Career Planning were all statistically significant at the .01 level.

As shown in Table 4, there was no statistically significant difference between the sample and population on the Ease of Transition and Sense of Financial Security variables. Therefore $H_{0.1.10}$ and $H_{0.1.14}$ were not rejected.

Table 4 - Summary of z-values and significance for College Student Inventory General Coping Skills variables for sample and population

General Coping Skills Variables	Sample			Population		z-value	Significance
	n	mean	sd	mean	sd		
Ease of Transition	193	11.48	9.855	11.65	10.907	-.217	no
Family Emotional Support	193	11.21	11.709	14.65	9.527	-5.015	$p < .01$
Openess	193	18.83	10.774	21.86	10.351	-4.067	$p < .01$
Career Planning	193	6.31	12.736	9.18	13.289	-2.999	$p < .01$
Sense of Financial Security	193	2.30	7.233	2.91	6.815	-1.242	no

Analysis of Hypotheses 1.15, 1.16, 1.17 and 1.18

$H_{0.1.15}$ There is no difference between the **Receptivity to Academic Assistance**, as measured by the College Student Inventory, of Ferris CSP students and the **Receptivity to Academic Assistance**, as measured by the College Student Inventory, of entering college students in general.

$H_{0.1.16}$ There is no difference between the **Receptivity to Personal Counseling**, as measured by the College Student Inventory, of Ferris CSP students and the **Receptivity to Personal Counseling**, as measured by the College Student Inventory, of entering college students in general.

$H_{0.1.17}$ There is no difference between the **Receptivity to Social Enrichment**, as measured by the College Student Inventory, of Ferris CSP students and the **Receptivity to Social Enrichment**, as measured by the College Student Inventory, of entering college students in general.

H₀1.18 There is no difference between the **Receptivity to Career Counseling**, as measured by the College Student Inventory, of Ferris CSP students and the **Receptivity to Career Counseling**, as measured by the College Student Inventory, of entering college students in general.

The CSI contains four Receptivity To Support Services variables:

Academic Assistance, Personal Counseling, Social Enrichment, and Career Counseling.

As shown in Table 5, there was a statistically significant difference between the sample and the population on the Academic Assistance, Social Enrichment, and Career Counseling scales. Therefore, H₀1.15, H₀1.17 and H₀1.18 were rejected.

As also shown in Table 5, the Receptivity to Academic Assistance and Receptivity to Social Enrichment variables were both statistically significant at the .01 alpha level. There was statistically significant difference between the two groups on the Career Counseling variable at the .05 alpha level.

There was almost no difference between the two groups on the Receptivity to Personal Counseling variable. Therefore, H₀1.16 was not rejected [Table 5].

Table 5 - Summary of z-values and significance for Receptivity Scales variables for sample and population

Receptivity to Support Services Scales Variables	Sample			Population		z-value	Significance
	n	mean	sd	mean	sd		
Academic Assistance	193	27.32	7.909	24.84	8.117	4.24	p < .01
Personal Counseling	193	13.46	6.181	13.26	6.462	.43	no
Social Enrichment	193	16.71	5.536	18.24	5.275	-4.04	p < .01
Career Counseling	193	24.83	6.986	23.54	7.225	2.47	p < .05

Analysis of Hypothesis 1.19

H₀1.19 There is no difference between the Initial Impression, as measured by the College Student Inventory, CSP students have of Ferris, and the Initial Impression, as measured by the College Student Inventory, entering college students in general have of their colleges.

As shown by Table 6, there is a statistically significant difference between the sample and the population on the Initial Impression scale. Therefore, H₀1.19 is rejected.

The purpose of this scale is to measure students' initial predisposition toward, in this study, Ferris State University. "Keep in mind that it is not intended to measure the college's true characteristics, but rather the prejudgments and preconceptions that the student has acquired from friends, family, and the media" (Schreiner, 1990, p. A-28). As shown by Table 6, the sample and the population were statistically different at the .01 alpha level.

Table 6 - Summary of z-value and significance for Initial Impression variable for sample and population							
Variable	Sample			Population		z-value	Significance
	n	mean	sd	mean	sd		
Initial Impression	193	62.61	12.819	68.28	12.744	-6.18	p < .01

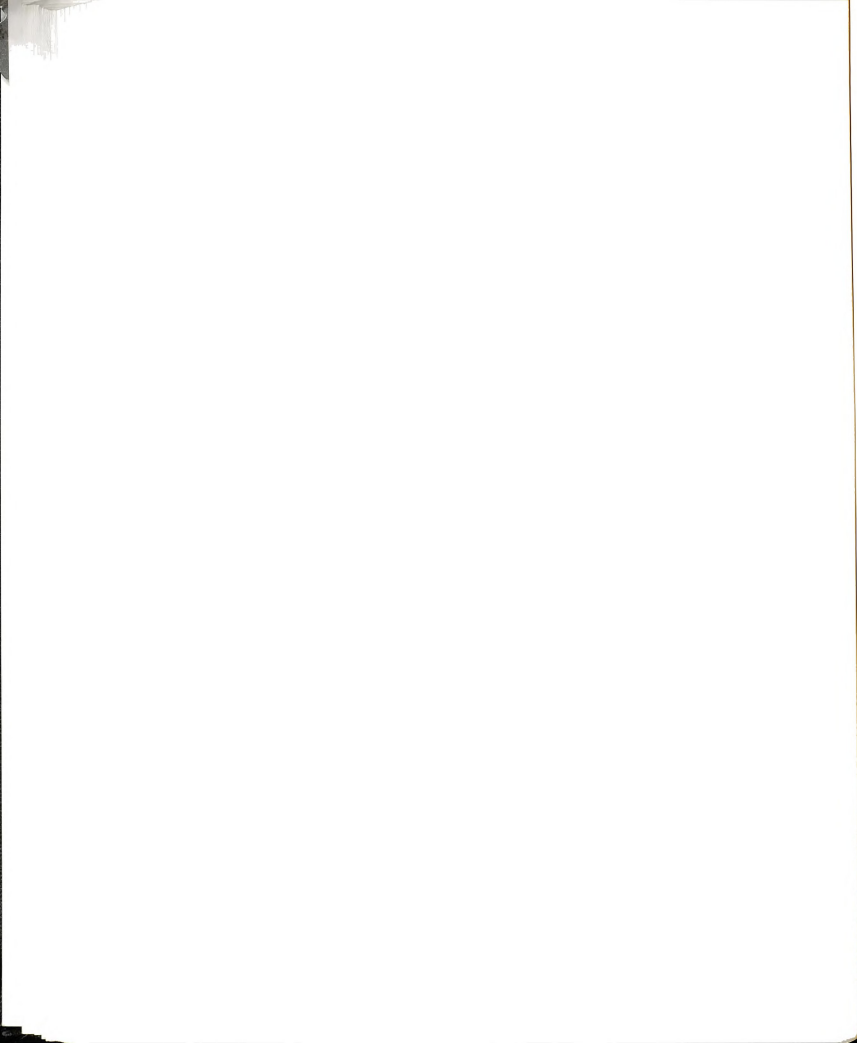
Analysis of Hypothesis 1.20

H₀1.20 There is no difference between the **mean age** of Ferris CSP students and the **mean age** of entering college students in general.

As shown by Table 7, there is no statistically significant difference between the mean age of the sample and the population. Therefore, H₀1.20 is not rejected.

The mean age of the sample and the population is provided in Table 7. The population age data was obtained from the Cooperative Institutional Research Program (Astin, 1990). This data was also consistent with data received from Ferris State University's Institutional Research Department, which calculated the mean age of all 1991 Ferris first-time freshmen as 18.32, from a sample of more than 2,000.

Table 7 - Comparison of sample and population age means						
Sample			Population		z-value	Significance
n	mean	sd	mean	sd		
193	18.6	2.22	18.7	2.22	-.39	no



Analysis of Hypotheses 1.21 and 1.22

H₀1.21 There is no difference between the **gender ratio** of Ferris CSP students and the **gender ratio** of entering college students in general.

H₀1.22 There is no difference between the **ethnicity ratio** of Ferris CSP students and the **ethnicity ratio** of entering college students in general.

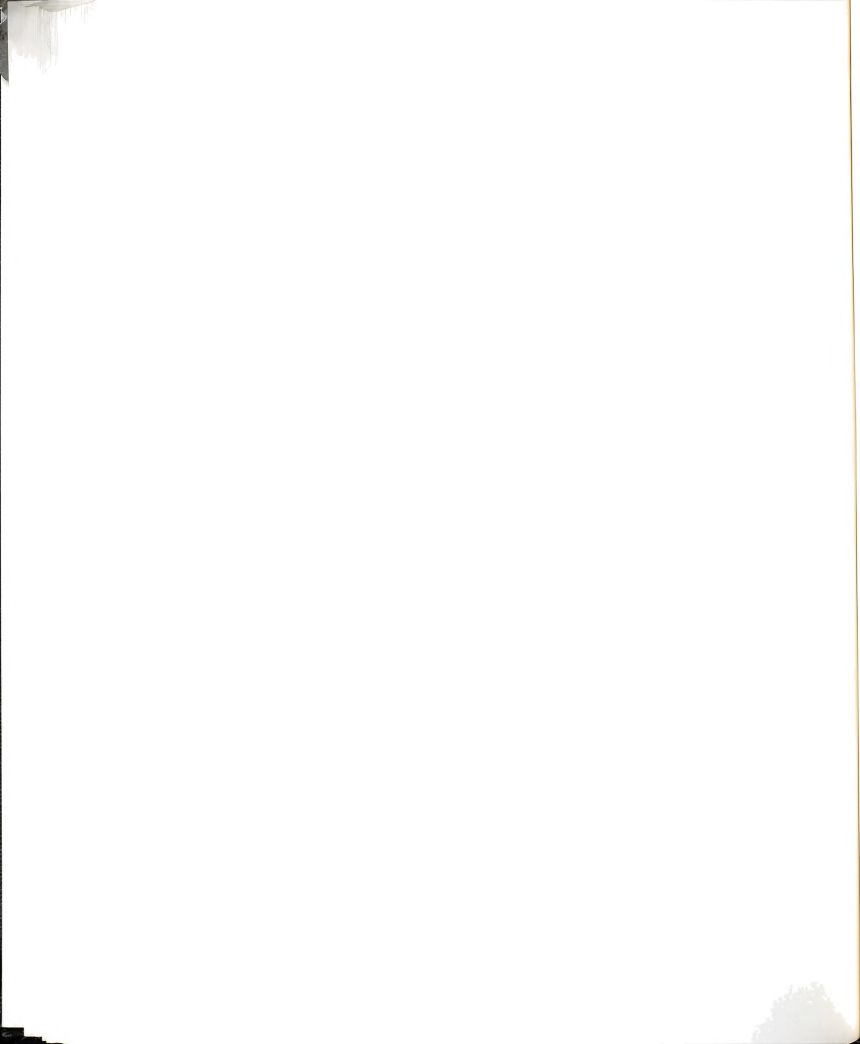
As shown in Table 8, there is a statistically significant difference between the gender and ethnicity ratio's of the sample and the population. Therefore, **H₀1.21** and **H₀1.22** are rejected.

The percentages of sample and population males, females, majority, and minority students is provided in Table 8. Only three students out of 193 in the sample were not white or black (one Hispanic and two Native Americans). The sample was grouped as either majority (white) or minority (Black, Hispanic, and Native American). Chi-square was performed on the gender and ethnicity variables, yielding statistical significance at the .01 alpha level for gender and at the .05 alpha level for ethnicity.

Table 8 - Comparison of sample Ethnicity and Gender to national college bound student population

Variable	Sample		Population		Chi-square	Significance
	n	%	n	%		
Gender						
Male	130	67.4	361, 276	.45	20.51	p < .01
Female	63	32.6	435,707	.55		
Ethnicity						
Majority	138	71.5	588,060	.81	4.52	p < .05
Minority	55	28.5	137,865	.19		

Note: Ethnicity and Gender population numbers represent the best estimates available obtained from ACT Michigan High School Profile Report of college bound students, 1991.



Analysis of Hypotheses 1.23 and 1.24

H_0 1.23 There is no difference between the **DRP scores** of Ferris CSP students and the **DRP scores** of entering college students in general.

H_0 1.24 There is no difference between the **high school GPA's** of Ferris CSP students and the **high school GPA's** of entering college students in general.

As shown by Table 9, there is not a statistically significant difference between the **DRP scores** of the sample and the population. Therefore, H_0 1.23 is not rejected.

There is a statistically significant difference between the sample and population **H.S.G.P.A. means**. Therefore, H_0 1.24 is rejected.

Table 9 - Summary of z-values for high school grade point averages and Degree of Reading Power Test scores

Variables	Sample		Population		z-value	Significance
	n	mean	mean	sd		
DRP Scores	193	77.00	75.00	16.67	1.67	no
H.S. G.P.A.	193	1.78	2.98	.500	-33.28	p < .01

A summary of rejected and not rejected sub-hypotheses from Hypothesis 1 is provided in Table 10.

Table 10 - Summary of the rejected and not rejected hypotheses within hypothesis 1		
Hypothesis 1.1	Aptitude	Rejected
Hypothesis 1.2	Study Habits	Rejected
Hypothesis 1.3	Intellectual Interests	Rejected
Hypothesis 1.4	Academic Confidence	Rejected
Hypothesis 1.5	Desire to Finish College	Not Rejected
Hypothesis 1.6	Attitudes Toward Educators	Rejected
Hypothesis 1.7	Self Reliance	Not Rejected
Hypothesis 1.8	Sociability	Not Rejected
Hypothesis 1.9	Leadership	Rejected
Hypothesis 1.10	Ease of Transition	Not Rejected
Hypothesis 1.11	Family Emotional Support	Rejected
Hypothesis 1.12	Openess	Rejected
Hypothesis 1.13	Career Planning	Rejected
Hypothesis 1.14	Sense of Financial Security	Not Rejected
Hypothesis 1.15	Receptivity to Academic Assistance	Rejected
Hypothesis 1.16	Receptivity to Personal Counseling	Not Rejected
Hypothesis 1.17	Receptivity to Social Enrichment	Rejected
Hypothesis 1.18	Receptivity to Career Counseling	Rejected
Hypothesis 1.19	Initial Impression	Rejected
Hypothesis 1.20	Mean Age	Not Rejected
Hypothesis 1.21	Gender Ratio	Rejected
Hypothesis 1.22	Ethnicity Ratio	Rejected
Hypothesis 1.23	DRP Scores	Not Rejected
Hypothesis 1.24	High School G.P.A.'s	Rejected

Analysis of Hypothesis 2.1

H₀2.1 When controlling for tested aptitude, as measured by ACT composite score, the Academic Motivation, as measured by the College Student Inventory, of Ferris CSP students does not vary according to age, or by age unmodified by ACT.

The null hypothesis for measure of Academic Motivation was tested with a two-way multivariate analysis of variance (MANOVA), specifically Wilks' lambda, to test for significance at the .05 level. MANOVA simultaneously explores the relationships between multiple independent variables and multiple dependent variables. Aptitude was measured by ACT composite score. ACT was also used as a controlling variable. High and low ACT groups were cross classified with Age in H₀2.1. The dependent variables from the College Student Inventory measured Academic Motivation in H₀2.1. If Wilks' lambda was not significant in MANOVA, and follow-up ANOVAs were less than .05, those occurrences were interpreted as occurring by chance only.

As shown in Table 11, the two-way MANOVA produced three tests of significance: one for interaction, ACT by Age and one for each of two main effects, Age and ACT. Wilks' lambda for interaction was not significant, **but Wilks' lambda for both main effects was significant. Therefore, the null hypothesis was rejected.**

Differences were revealed on the variables Intellectual Interests and Attitude Toward Educators [Table 11] by follow-up univariate analysis of variance (ANOVA) on the main effect Age. On Intellectual Interests, the low age group had a mean of -1.32, while the high age group had a mean of 1.19. On Attitude Toward Educators, the low age group had a mean of 5.46, while the high age group had a mean of 9.10 (Table 12).

Differences were revealed on the variables Intellectual Interests and Academic Confidence [Table 11] by follow-up univariate analysis of variance (ANOVA) on the main effect ACT. On Intellectual Interests, the low ACT group had a mean of -1.86, while the high ACT group had a mean of 1.11. On Academic Confidence, the low ACT group had a mean of -.66, while the high ACT group had a mean of 4.63 (Table 12).

Table 11 - Results of hypothesis test of Academic Motivation using two-way MANOVA and follow-up ANOVAs - main effect age ($H_{2.1}$)

MANOVA	Wilks' lambda	F	p
Interaction Effect: ACT by Age	.947	2.066	.072
Main Effect: Age	.904	3.951	.002
Main Effect: ACT	.829	7.628	.000
ANOVA		F	p
Interaction Effect: ACT by Age			
Study Habits		.184	.669
Intellectual Interests		1.089	.298
Academic Confidence		5.954	.016
Desire to Finish College		1.360	.245
Attitude Toward Educators		.006	.938
Main Effect: Age		F	p
Study Habits		.003	.957
Intellectual Interest		4.956	.027
Academic Confidence		.781	.328
Desire to Finish College		.362	.548
Attitude Toward Educators		5.828	.017
Main Effect: ACT		F	p
Study Habits		1.468	.227
Intellectual Interest		7.992	.005
Academic Confidence		19.412	.000
Desire to Finish College		.3349	.556
Attitude Toward Educators		.523	.470

Table 12 - Means and standard deviations for main effects,
ACT and Age for hypothesis 2.1

Main effect	Variable	Low Age		High Age	
		mean	sd	mean	sd
Age	Intellectual Interest	-1.32	7.668	1.19	8.774
	Attitude Toward Educators	5.46	8.926	9.10	9.198
Main effect	Variable	Low ACT		High ACT	
		mean	sd	mean	sd
ACT	Intellectual Interest	-1.86	6.966	1.11	9.129
	Academic Confidence	-.66	10.298	4.63	9.091

Analysis of Hypothesis 2.2

H₀2.2: When controlling for tested aptitude, as measured by ACT composite score, the Academic Motivation, as measured by the College Student Inventory, of Ferris CSP students does not vary according to gender, or by gender unmodified by ACT.

The null hypothesis for measure of Academic Motivation was tested with a two-way multivariate analysis of variance (MANOVA), specifically Wilks' lambda, to test for significance at the .05 level. MANOVA simultaneously explores the relationships between multiple independent variables and multiple dependent variables. Aptitude was measured by ACT composite score. ACT was also used as a controlling variable. High and low ACT groups were cross classified with Gender in H₀2.2. The dependent variables from the College Student Inventory measured Academic Motivation in H₀2.2.

As shown in Table 13, the two-way MANOVA produced three tests of significance: one for interaction, ACT by Gender and one for each of two main effects, Gender and ACT. Wilks' lambda for interaction was not significant, but **Wilks' lambda for both main effects was significant. Therefore, the null hypothesis was rejected.**

Differences were revealed on the variable Academic Confidence [Table 13] by follow-up univariate analysis of variance (ANOVA) on the main effect Gender. On Academic Confidence, the male group had a mean of 2.96, while the female group had a mean of -1.49 [Table 14].

Differences were revealed on the variables Intellectual Interests and Academic Confidence [Table 13] by follow-up univariate analysis of variance (ANOVA) on the main effect ACT. On Intellectual Interests, the low ACT group had a mean of -1.86, while the high ACT group had a mean of 1.11. On Academic Confidence, the low ACT group had a mean of -.66, while the high ACT group had a mean of 4.63 [Table 14].

Table 13 - Results of hypothesis test of Academic Motivation using two-way MANOVA and follow-up ANOVAs - main effect gender (H_0 2.2)

MANOVA	Wilks' lambda	F	p
Interaction Effect: ACT by Gender	.976	.908	.477
Main Effect: Gender	.915	3.446	.005
Main Effect: ACT	.884	7.856	.000
ANOVA		F	p
Interaction Effect: ACT by Gender			
Study Habits		.002	.962
Intellectual Interests		.029	.863
Academic Confidence		.186	.667
Desire to Finish College		.239	.625
Attitude Toward Educators		3.645	.058
Main Effect: Gender		F	p
Study Habits		.127	.722
Intellectual Interest		.001	.975
Academic Confidence		6.473	.012
Desire to Finish College		3.130	.078
Attitude Toward Educators		3.573	.060
Main Effect: ACT		F	p
Study Habits		2.181	.141
Intellectual Interest		5.631	.019
Academic Confidence		8.413	.004
Desire to Finish College		.136	.713
Attitude Toward Educators		.008	.927

Table 14 - Means and standard deviations for main effects,
ACT and Gender for hypothesis 2.2

Main effect	Variable	Male		Female	
		mean	sd	mean	sd
Gender	Academic Confidence	2.96	10.388	-1.49	8.957
Main effect	Variable	Low ACT		High ACT	
		mean	sd	mean	sd
ACT	Intellectual Interest	-1.86	6.966	1.11	9.129
	Academic Confidence	-.66	10.298	4.63	9.091

Analysis of Hypothesis 2.3

H₀2.3: When controlling for tested aptitude, as measured by ACT composite score, the Academic Motivation, as measured by the College Student Inventory, of Ferris CSP students does not vary according to ethnicity, or by ethnicity unmodified by ACT.

The null hypothesis for measure of Academic Motivation was tested with a two-way multivariate analysis of variance (MANOVA), specifically Wilks' lambda, to test for significance at the .05 level. MANOVA simultaneously explores the relationships between multiple independent variables and multiple dependent variables. Aptitude was measured by ACT composite score. ACT was also used as a controlling variable. High and low ACT groups were cross classified with Ethnicity in H₀2.3. The dependent variables from the College Student Inventory measured Academic Motivation in H₀2.3. If Wilks' lambda was not significant in MANOVA, and follow-up ANOVAs were less than .05, those occurrences were interpreted as occurring by chance only.

As shown in Table 15, the two-way MANOVA produced three tests of significance: one for interaction, ACT by Ethnicity and one for each of two main effects, Ethnicity and ACT. Wilks' lambda for interaction was not significant, but **Wilks' lambda for main effect ACT was significant. Therefore, the null hypothesis was rejected.**

Differences were revealed on the variable Study Habits [Table 15] by follow-up univariate analysis of variance (ANOVA) on the main effect Ethnicity. On Study Habits, the majority group had a mean of 3.46, while the minority group had a mean of 9.04 [Table 16].

Differences were revealed on the variable Academic Confidence [Table 15] by follow-up univariate analysis of variance (ANOVA) on the main effect ACT. On Academic Confidence, the low ACT group had a mean of -.66, while the high ACT group had a mean of 4.63 [Table 16].

Table 15 - Results of hypothesis test of Academic Motivation using two-way MANOVA and follow-up ANOVAs - main effect ethnicity (H_0 2.3)

MANOVA	Wilks' lambda	F	p
Interaction Effect: ACT by Ethnicity	.98	.603	.698
Main Effect: Ethnicity	.95	1.989	.082
Main Effect: ACT	.93	2.959	.014
ANOVA		F	p
Interaction Effect: ACT by Ethnicity			
Study Habits		.991	.321
Intellectual Interests		.004	.948
Academic Confidence		.004	.951
Desire to Finish College		2.207	.139
Attitude Toward Educators		.067	.796
Main Effect: Ethnicity		F	p
Study Habits		6.909	.009
Intellectual Interest		.089	.766
Academic Confidence		2.991	.085
Desire to Finish College		.321	.572
Attitude Toward Educators		.489	.485
Main Effect: ACT		F	p
Study Habits		.002	.964
Intellectual Interest		3.508	.063
Academic Confidence		10.374	.002
Desire to Finish College		.701	.404
Attitude Toward Educators		.147	.702

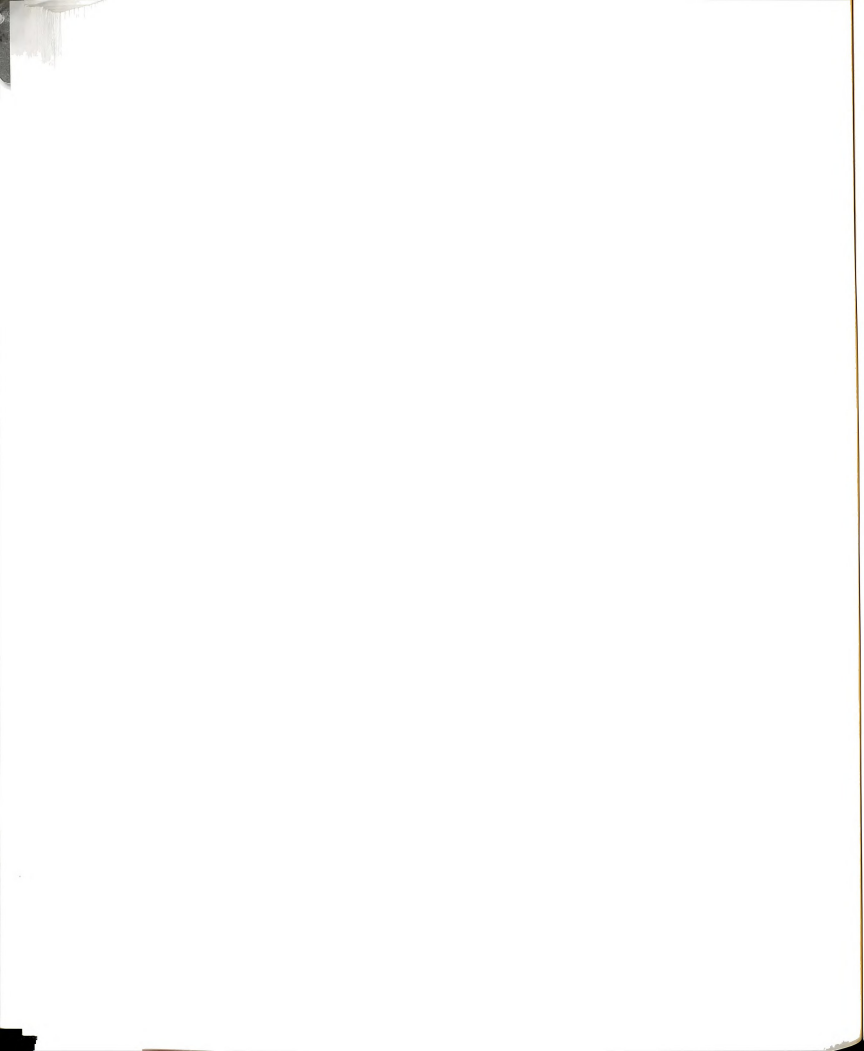


Table 16 - Means and standard deviations for main effects,
ACT and Ethnicity for hypothesis 2.3

Main effect	Variable	Majority		Minority	
		mean	sd	mean	sd
Ethnicity	Study Habits	3.46	12.135	9.04	12.753
Main effect	Variable	Low ACT		High ACT	
		mean	sd	mean	sd
ACT	Academic Confidence	-.66	10.298	4.63	9.091

Analysis of Hypothesis 2.4

H₀2.4: When controlling for tested aptitude, as measured by ACT composite score, the **Academic Motivation**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to Degrees of Reading Power score_, or by **Degrees of Reading Power score** unmodified by ACT.

The null hypothesis for measure of Academic Motivation was tested with a two-way multivariate analysis of variance (MANOVA), specifically Wilks' lambda, to test for significance at the .05 level. MANOVA simultaneously explores the relationships between multiple independent variables and multiple dependent variables. Aptitude was measured by ACT composite score. ACT was also used as a controlling variable. High and low ACT groups were cross classified with Degrees of Reading Power (DRP) score in H₀2.4. The dependent variables from the College Student Inventory measured Academic Motivation in H₀2.4.

As shown in Table 17, the two-way MANOVA produced three tests of significance: one for interaction, ACT by DRP and one for each of two main effects, DRP and ACT. Wilks' lambda for interaction was not significant, but **Wilks' lambda for both main effects was significant. Therefore, the null hypothesis was rejected.**

Differences were revealed on the variables Intellectual Interests, Academic Confidence, and Desire to Finish College [Table 17] by follow-up univariate analysis of variance (ANOVA) on the main effect DRP. On Intellectual Interests, the low DRP group had a mean of -2.49, while the high DRP group had a mean of 1.47. On Academic Confidence, the low DRP group had a mean of -.82, while the high DRP group had a mean of 4.17. On Desire to finish College, the low DRP group had a mean of 14.18, while the high DRP group had a mean of 17.49 [Table 18].

Differences were revealed on the variable Academic Confidence [Table 17] by follow-up univariate analysis of variance (ANOVA) on the main effect ACT. On Academic Confidence, the low ACT group had a mean of -.66, while the high ACT group had a mean of 4.63 [Table 18].

Table 17 - Results of hypothesis test of Academic Motivation using two-way MANOVA and follow-up ANOVAs - main effect DRP (H_1 , 2,4)

MANOVA	Wilks' lambda	F	p
Interaction Effect: ACT by DRP	.96	1.262	.282
Main Effect: Ethnicity	.90	4.207	.001
Main Effect: ACT	.93	2.955	.014
ANOVA		F	p
Interaction Effect: ACT by DRP			
Study Habits		1.071	.302
Intellectual Interests		2.374	.125
Academic Confidence		.231	.632
Desire to Finish College		.194	.660
Attitude Toward Educators		1.755	.187
Main Effect: DRP		F	p
Study Habits		.000	.989
Intellectual Interest		8.186	.005
Academic Confidence		4.395	.037
Desire to Finish College		6.563	.011
Attitude Toward Educators		.915	.340
Main Effect: ACT		F	p
Study Habits		1.910	.169
Intellectual Interest		.819	.367
Academic Confidence		5.041	.026
Desire to Finish College		1.535	.217
Attitude Toward Educators		.112	.738

Table 18 - Means and standard deviations for main effects,
ACT and DRP for hypothesis 2.4

Main effect	Variable	Low DRP		High DRP	
		mean	sd	mean	sd
DRP	Intellectual Interest	-2.49	6.943	1.47	8.695
	Academic Confidence	-.82	9.788	4.17	9.928
	Desire to Finish College	14.18	9.460	17.49	9.827
Main effect	Variable	Low ACT		High ACT	
		mean	sd	mean	sd
ACT	Academic Confidence	-.66	10.298	4.63	9.091

Analysis of Hypothesis 2.5

H₀2.5: When controlling for tested aptitude, as measured by ACT composite score, the **Academic Motivation**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to high school grade point average, or by **high school grade point average** unmodified by ACT.

The null hypothesis for measure of Academic Motivation was tested with a two-way multivariate analysis of variance (MANOVA), specifically Wilks' lambda, to test for significance at the .05 level. MANOVA simultaneously explores the relationships between multiple independent variables and multiple dependent variables. Aptitude was measured by ACT composite score. ACT was also used as a controlling variable. High and low ACT groups were cross classified with high school grade point average (HSGPA) in H₀2.5. The dependent variables from the College Student Inventory measured Academic Motivation in H₀2.5. If Wilks' lambda was not significant in MANOVA, and follow-up ANOVAs were less than .05, those occurrences were interpreted as occurring by chance only.

As shown in Table 19, the two-way MANOVA produced three tests of significance: one for interaction, ACT by HSGPA and one for each of two main effects, HSGPA and ACT. Wilks' lambda for interaction was not significant, but Wilks'

lambda for main effect ACT was significant. Therefore, the null hypothesis was rejected.

Differences were revealed on the variable Attitude Toward Educators [Table 19] by follow-up univariate analysis of variance (ANOVA) on the main effect HSGPA. On Attitude Toward Educators, the low HSGPA group had a mean of 8.24, while the high HSGPA group had a mean of 4.83 [Table 20].

Differences were revealed on the variables Intellectual Interests and Academic Confidence [Table 19] by follow-up univariate analysis of variance (ANOVA) on the main effect ACT. On Intellectual Interests, the low ACT group had a mean of -1.86, while the high ACT group had a mean of 1.11. On Academic Confidence, the low ACT group had a mean of -.66, while the high ACT group had a mean of 4.63 [Table 20].

Table 19 - Results of hypothesis test of Academic Motivation using two-way MANOVA and follow-up ANOVAs - main effect H.S.G.P.A. (H_0 2.5)

MANOVA	Wilks' lambda	F	p
Interaction Effect: ACT by H.S.G.P.A.	.98	.679	.640
Main Effect: H.S.G.P.A.	.95	1.923	.092
Main Effect: ACT	.84	6.774	.000
ANOVA		F	p
Interaction Effect: ACT by H.S.G.P.A.			
Study Habits		.001	.973
Intellectual Interests		.339	.561
Academic Confidence		.844	.359
Desire to Finish College		1.727	.190
Attitude Toward Educators		.215	.643
Main Effect: H.S.G.P.A.		F	p
Study Habits		.000	.990
Intellectual Interest		.627	.429
Academic Confidence		.543	.462
Desire to Finish College		.787	.376
Attitude Toward Educators		6.792	.010
Main Effect: ACT		F	p
Study Habits		2.532	.113
Intellectual Interest		6.955	.009
Academic Confidence		14.178	.000
Desire to Finish College		.014	.905
Attitude Toward Educators		.518	.473

Table 20 - Means and standard deviations for main effects,
ACT and H.S.G.P.A. for hypothesis 2.5

Main effect	Variable	Low H.S.G.P.A.		High H.S.G.P.A.	
		mean	sd	mean	sd
H.S.G.P.A.	Attitude Toward Educators	8.24	8.872	4.83	9.081
Main effect	Variable	Low ACT		High ACT	
		mean	sd	mean	sd
ACT	Intellectual Interests	-1.86	6.966	1.11	9.129
	Academic Confidence	-.66	10.298	4.63	9.091

Analysis of Hypothesis 3.1

H₀3.1: When controlling for tested aptitude, as measured by ACT composite score, the **Social Motivation**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to age, or by age unmodified by ACT.

The null hypothesis for measure of Social Motivation was tested with a two-way multivariate analysis of variance (MANOVA), specifically Wilks' lambda, to test for significance at the .05 level. MANOVA simultaneously explores the relationships between multiple independent variables and multiple dependent variables. Aptitude was measured by ACT composite score. ACT was also used as a controlling variable. High and low ACT groups were cross classified with age in H₀3.1. The dependent variables from the College Student Inventory measured Social Motivation in H₀3.1.

As shown in Table 21, the two-way MANOVA produced three tests of significance: one for interaction, ACT by age and one for each of two main effects, Age and ACT. Wilks' lambda for interaction was not significant, but Wilks' lambda for main effect Age was significant.

For this test of the hypothesis, a statistical phenomena created a problem for interpretation. Namely, the main effect Age was significant ($p = .025$). However, the follow-up ANOVAs were not significant [Table 21]. F values with probabilities near .05 were produced by two of the dependent variables, Sociability and Leadership. The probability for Sociability was .057 and the probability for Leadership was .052. The linear combination of these variables plus Self-Reliance was sufficient to produce a significant, but conflicting MANOVA.

Since the main effect for the variable Age turned out to be a strong contributor throughout the remainder of the study and two of the three dependent variables were involved, a decision was made to reject the null hypothesis. The conclusion, however arbitrary, was that the Sociability and Leadership variables did differ according

to Age. Such a statement assumes that a replication of the study would produce probabilities of less than .05 for these two variables.

No significant differences were revealed on the Social Motivation variables [Table 21] by follow-up univariate analysis of variance (ANOVA) on the main effect Age. No significant differences were revealed on the Social Motivation variables [Table 21] by follow-up univariate analysis of variance (ANOVA) on the main effect ACT.

Table 21 - Results of hypothesis test of Social Motivation using two-way MANOVA and follow-up ANOVAs - main effect Age (H_0 3.1)

MANOVA	Wilks' lambda	F	p
Interaction Effect: ACT by Age	.99	.037	.991
Main Effect: Age	.95	3.190	.025
Main Effect: ACT	.99	.561	.641
ANOVA		F	p
Interaction Effect: ACT by Age			
Self-Reliance		.000	.997
Sociability		.066	.798
Leadership		.061	.806
Main Effect: Age		F	p
Self-Reliance		.528	.468
Sociability		3.667	.057
Leadership		3.827	.052
Main Effect: ACT		F	p
Self-Reliance		1.600	.207
Sociability		.056	.813
Leadership		.154	.695

Analysis of Hypothesis 3.2

H₀3.2: When controlling for tested aptitude, as measured by ACT composite score, the **Social Motivation**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **gender**, or by gender unmodified by ACT.

The null hypothesis for measure of Social Motivation was tested with a two-way multivariate analysis of variance (MANOVA), specifically Wilks' lambda, to test for significance at the .05 level. MANOVA simultaneously explores the relationships between multiple independent variables and multiple dependent variables. Aptitude was measured by ACT composite score. ACT was also used as a controlling variable. High and low ACT groups were cross classified with Gender in H₀3.2. The dependent variables from the College Student Inventory measured Social Motivation in H₀3.2.

As shown in Table 22, the two-way MANOVA produced three tests of significance: one for interaction, ACT by Gender and one for each of two main effects, Gender and ACT. Wilks' lambda for interaction was not significant, but **Wilks' lambda for main effect Gender was significant. Therefore, the null hypothesis was rejected.**

Differences were revealed on the variable Sociability [Table 22] by follow-up univariate analysis of variance (ANOVA) on the main effect Gender. On Sociability, the female group had a mean of 13.94, while the male group had a mean of 11.62 [Table 23].

No significant differences were revealed on any of the Social Motivation variables [Table 22] by follow-up univariate analysis of variance (ANOVA) on the main effect ACT.

Table 22 - Results of hypothesis test of Social Motivation using two-way MANOVA and follow-up ANOVAs - main effect Gender (H_0 3.2)

MANOVA	Wilks' lambda	F	p
Interaction Effect: ACT by Gender	.98	1.165	.325
Main Effect: Gender	.96	2.858	.039
Main Effect: ACT	.99	.453	.715
ANOVA		F	p
Interaction Effect: ACT by Gender			
Self-Reliance		.641	.425
Sociability		.085	.771
Leadership		1.053	.306
Main Effect: Gender		F	p
Self-Reliance		1.272	.261
Sociability		4.141	.043
Leadership		1.203	.274
Main Effect: ACT		F	p
Self-Reliance		.723	.396
Sociability		.611	.435
Leadership		1.186	.277

Table 23 - Means and standard deviation for main effect,
Gender, for hypothesis 3.2

Main effect	Variable	Male		Female	
		mean	sd	mean	sd
Gender	Sociability	11.62	7.323	13.94	8.413

Analysis of Hypothesis 3.3

H₀3.3: When controlling for tested aptitude, as measured by ACT composite score, the Social Motivation, as measured by the College Student Inventory, of Ferris CSP students does not vary according to ethnicity, or by ethnicity unmodified by ACT.

The null hypothesis for measure of Social Motivation was tested with a two-way multivariate analysis of variance (MANOVA), specifically Wilks' lambda, to test for significance at the .05 level. MANOVA simultaneously explores the relationships between multiple independent variables and multiple dependent variables. Aptitude was measured by ACT composite score. ACT was also used as a controlling variable. High and low ACT groups were cross classified with Ethnicity in H₀3.3. The dependent variables from the College Student Inventory measured Social Motivation in H₀3.3.

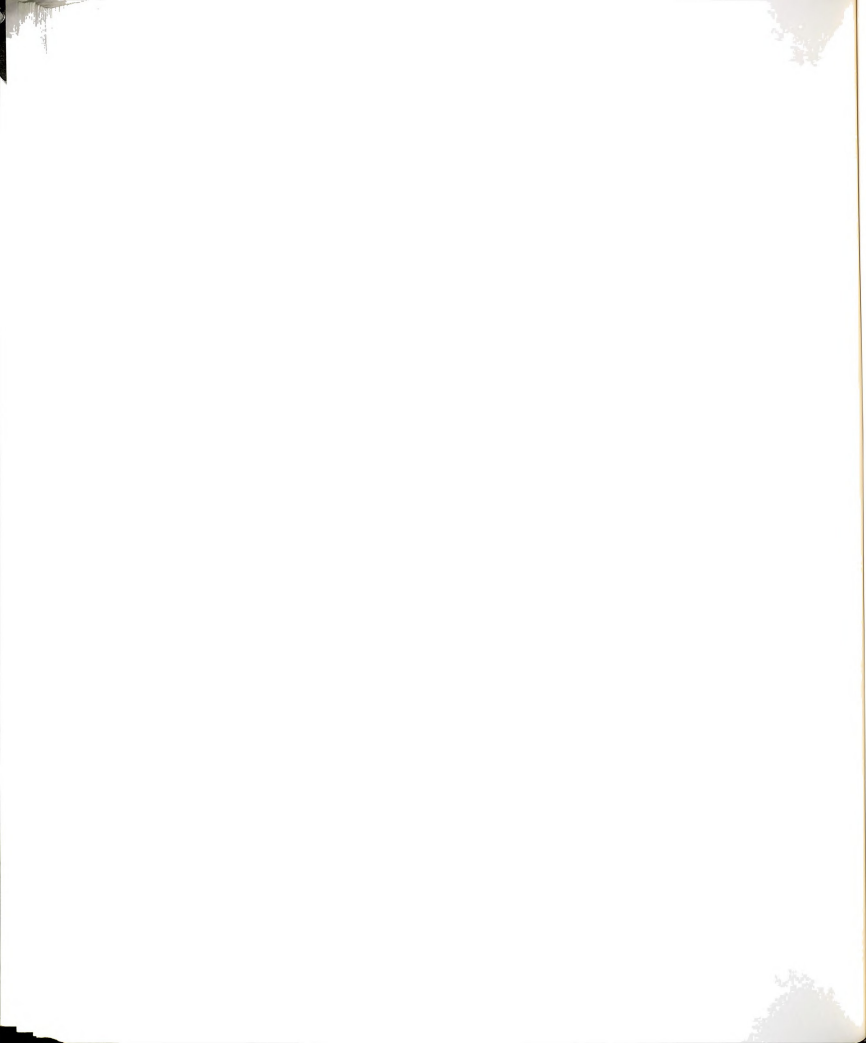
As shown in Table 24, the two-way MANOVA produced three tests of significance: one for interaction, ACT by Ethnicity and one for each of two main effects, Ethnicity and ACT. Wilks' lambda for interaction was not significant and **Wilks' lambda for both main effects was not significant. Therefore, the null hypothesis was not rejected.**

No significant differences were revealed on any of the Social Motivation variables [Table 24] by follow-up univariate analysis of variance (ANOVA) on the main effect Ethnicity.

No significant differences on any of the Social Motivation variables [Table 24] by follow-up univariate analysis of variance (ANOVA) on the main effect ACT.

Table 24- Results of hypothesis test of Social Motivation using two-way MANOVA and follow-up ANOVAs - main effect Ethnicity (H_0 3.3)

MANOVA	Wilks' lambda	F	p
Interaction Effect: ACT by Ethnicity	.99	.010	.960
Main Effect: Ethnicity	.97	2.237	.085
Main Effect: ACT	.99	.747	.525
ANOVA		F	p
Interaction Effect: ACT by Ethnicity			
Self-Reliance		.038	.845
Sociability		.008	.930
Leadership		.187	.666
Main Effect: Ethnicity		F	p
Self-Reliance		2.145	.145
Sociability		2.557	.111
Leadership		.017	.897
Main Effect: ACT		F	p
Self-Reliance		1.88	.172
Sociability		.001	.971
Leadership		.054	.816



Analysis of Hypothesis 3.4

H₀3.4: When controlling for tested aptitude, as measured by ACT composite score, the **Social Motivation**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **Degrees of Reading Power score**, or by **Degrees of Reading Power score unmodified by ACT**.

The null hypothesis for measure of Social Motivation was tested with a two-way multivariate analysis of variance (MANOVA), specifically Wilks' lambda, to test for significance at the .05 level. MANOVA simultaneously explores the relationships between multiple independent variables and multiple dependent variables. Aptitude was measured by ACT composite score. ACT was also used as a controlling variable. High and low ACT groups were cross classified with Degrees of Reading Power (DRP) score in H₀3.4. The dependent variables from the College Student Inventory measured Social Motivation in H₀3.4.

As shown by Table 25, the two-way MANOVA produced three tests of significance: one for interaction, ACT by DRP and one for each of two main effects, DRP and ACT. Wilks' lambda for interaction was not significant, but **Wilks' lambda for main effect DRP was significant. Therefore, the null hypothesis was rejected.**

Differences were revealed on the variables Self-Reliance and Sociability [Table 25] by follow-up univariate analysis of variance (ANOVA) on the main effect DRP. On Self-Reliance, the low DRP group had a mean of 9.55, while the high DRP group had a mean of 13.34. On Sociability, the low DRP group had a mean of 10.87, while the high DRP group had a mean of 14.09 [Table 26].

No significant differences were revealed on any of the Social Motivation variables [Table 25] by follow-up univariate analysis of variance (ANOVA) on the main effect ACT.

Table 25 - Results of hypothesis test of Social Motivation using two-way MANOVA and follow-up ANOVAs - main effect DRP (H_1 3.4)

MANOVA	Wilks' lambda	F	p
Interaction Effect: ACT by DRP	.99	.783	.505
Main Effect: DRP	.94	4.286	.006
Main Effect: ACT	.99	.418	.740
ANOVA		F	p
Interaction Effect: ACT by DRP			
Self-Reliance		1.092	.297
Sociability		.073	.787
Leadership		.123	.726
Main Effect: DRP		F	p
Self-Reliance		5.711	.018
Sociability		8.647	.004
Leadership		1.314	.253
Main Effect: ACT		F	p
Self-Reliance		.23	.880
Sociability		.956	.329
Leadership		.000	.997

Table 26 - Means and standard deviation for main effect, DRP for hypothesis 3.4

Main effect	Variable	Low DRP		High DRP	
		mean	sd	mean	sd
DRP	Self-Reliance	9.55	8.554	13.34	8.795
	Sociability	10.87	7.649	14.09	7.547

Analysis of Hypothesis 3.5

H₀3.5: When controlling for tested aptitude, as measured by ACT composite score, the Social Motivation, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **high school grade point average**, or by high school grade point average unmodified by ACT.

The null hypothesis for measure of Social Motivation was tested with a two-way multivariate analysis of variance (MANOVA), specifically Wilks' lambda, to test for significance at the .05 level. MANOVA simultaneously explores the relationships between multiple independent variables and multiple dependent variables. Aptitude was measured by ACT composite score. ACT was also used as a controlling variable. High and low ACT groups were cross classified with high school grade point average (HSGPA) in H₀3.5. The dependent variables from the College Student Inventory measured Social Motivation in H03.5.

As shown by Table 27, the two-way MANOVA produced three tests of significance: one for interaction, ACT by HSGPA and one for each of two main effects, HSGPA and ACT. Wilks' lambda for interaction was not significant and **Wilks' lambda for both main effects was not significant. Therefore, the null hypothesis was not rejected.**

No significant differences were revealed on any of the Social Motivation variables [Table 27] by follow-up univariate analysis of variance (ANOVA) on the main effect HSGPA. No significant differences were revealed on any of the Social Motivation variables [Table 27] by follow-up univariate analysis of variance (ANOVA) on the main effect ACT.

Table 27 - Results of hypothesis test of Social Motivation using two-way MANOVA and follow-up ANOVAs - main effect H.S.G.P.A. (H_0 3.5)

MANOVA	Wilks' lambda	F	p
Interaction Effect: ACT by H.S.G.P.A.	.99	.492	.688
Main Effect: H.S.G.P.A.	.99	.657	.579
Main Effect: ACT	.99	.768	.513
ANOVA		F	p
Interaction Effect: ACT by H.S.G.P.A.			
Self-Reliance		.439	.509
Sociability		.830	.364
Leadership		1.312	.254
Main Effect: H.S.G.P.A.		F	p
Self-Reliance		.945	.332
Sociability		.000	.981
Leadership		1.406	.237
Main Effect: ACT		F	p
Self-Reliance		2.318	.130
Sociability		.274	.601
Leadership		.628	.429

Analysis of Hypothesis 4.1

H₀4.1: When controlling for tested aptitude, as measured by ACT composite score, the **General Coping Skills**, as measured by the College Student Inventory, of Ferris CSP students do not vary according to age, or by age unmodified by ACT.

The null hypothesis for measure of General Coping Skills was tested with a two-way multivariate analysis of variance (MANOVA), specifically Wilks' lambda, to test for significance at the .05 level. MANOVA simultaneously explores the relationships between multiple independent variables and multiple dependent variables. Aptitude was measured by ACT composite score. ACT was also used as a controlling variable. High and low ACT groups were cross classified with age in H₀4.1. The dependent variables from the College Student Inventory measured General Coping Skills in H₀4.1.

As shown by Table 28, the two-way MANOVA produced three tests of significance: one for interaction, ACT by Age and one for each of two main effects, Age and ACT. Wilks' lambda for interaction was not significant, but **Wilks' lambda for both main effects was significant. Therefore, the null hypothesis was rejected.**

Differences were revealed on the variable Sense of Financial Security [Table 28] by follow-up univariate analysis of variance (ANOVA) on the main effect Age. On Sense of Financial Security, the low age group had a mean of 3.00, while the high age group had a mean of .38 [Table 29].

Differences were revealed on the variable Openness [Table 28] by follow-up univariate analysis of variance (ANOVA) on the main effect ACT. On Openness, the low ACT group had a mean of 16.93, while the high ACT group had a mean of 21.58 [Table 29].

Table 28 - Results of hypothesis test of General Coping Skills using two-way MANOVA and follow-up ANOVAs - main effect Age (H_1 , 4.1)

MANOVA	Wilks' lambda	F	p
Interaction Effect: ACT by Age	.97	1.181	.320
Main Effect: Age	.94	2.293	.047
Main Effect: ACT	.92	3.123	.010
ANOVA		F	p
Interaction Effect: ACT by Age			
Ease of Transition		.128	.720
Family Emotional Support		1.274	.260
Openness		.929	.336
Career Planning		.398	.529
Sense of Financial Security		3.255	.073
Main Effect: DRP		F	p
Ease of Transition		.032	.859
Family Emotional Support		2.837	.094
Openness		1.801	.181
Career Planning		.206	.651
Sense of Financial Security		6.869	.009
Main Effect: ACT		F	p
Ease of Transition		.027	.869
Family Emotional Support		.115	.735
Openness		9.870	.002
Career Planning		.901	.344
Sense of Financial Security		2.160	.143

Table 29 - Means and standard deviations for main effects,
ACT and Age for hypothesis 4.1

Main effect	Variable	Low Age		High Age	
		mean	sd	mean	sd
Age	Sense of Financial Security	3.00	7.112	.38	7.279
Main effect	Variable	Low ACT		High ACT	
		mean	sd	mean	sd
ACT	Openness	16.93	10.678	21.58	10.373

Analysis of Hypothesis 4.2

H₀4.2: When controlling for tested aptitude, as measured by ACT composite score, the **General Coping Skills**, as measured by the College Student Inventory, of Ferris CSP students do not vary according to **gender**, or by gender unmodified by ACT.

The null hypothesis for measure of General Coping Skills was tested with a two-way multivariate analysis of variance (MANOVA), specifically Wilks' lambda, to test for significance at the .05 level. MANOVA simultaneously explores the relationships between multiple independent variables and multiple dependent variables. Aptitude was measured by ACT composite score. ACT was also used as a controlling variable. High and low ACT groups were cross classified with Gender in H₀4.2. The dependent variables from the College Student Inventory measured General Coping Skills in H₀4.2. If Wilks' lambda was not significant in MANOVA, and follow-up ANOVA's were less than .05, those occurrences were interpreted as occurring by chance only.

As shown by Table 30, the two-way MANOVA produced three tests of significance: one for interaction, ACT by Gender and one for each of two main effects, Gender and ACT. Wilks' lambda for interaction was not significant, but **Wilks' lambda for both main effects was significant. Therefore, the null hypothesis was rejected.**

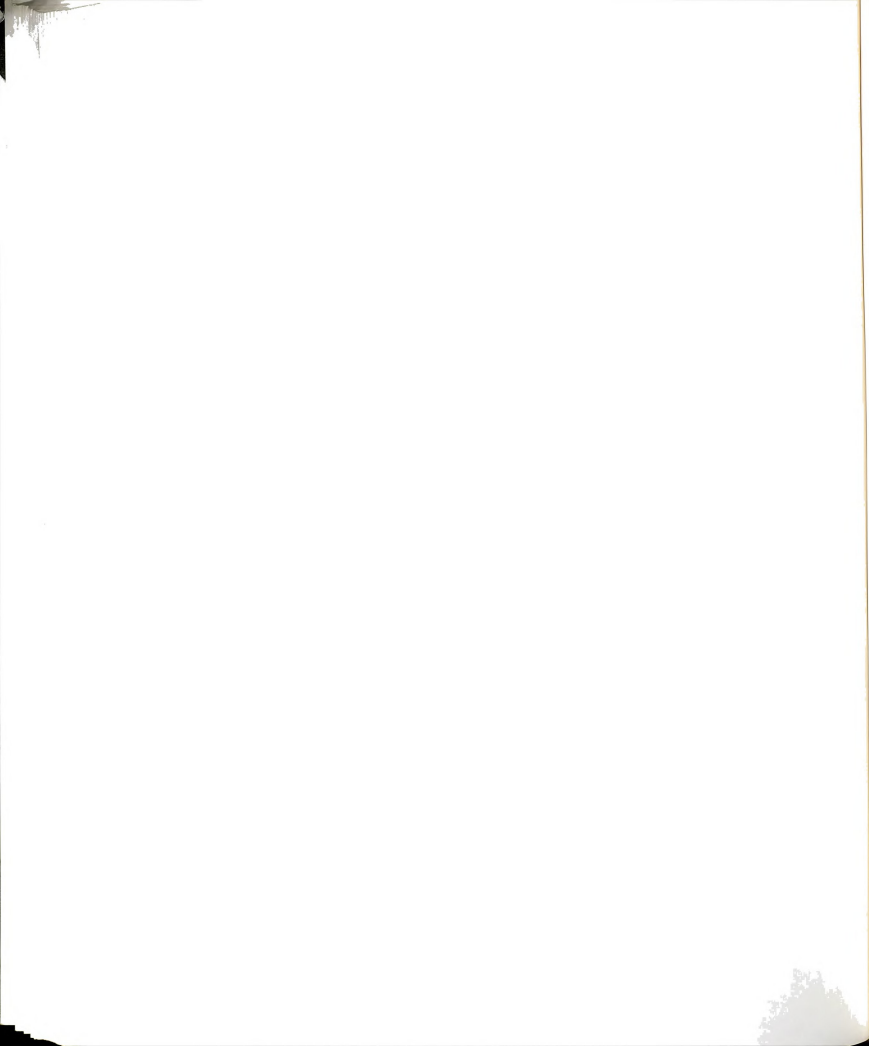
Differences were revealed on the variable Openness [Table 30] by follow-up univariate analysis of variance (ANOVA) on the main effect Gender. On Openness, the female group had a mean of 20.76, while the male group had a mean of 17.90 [Table 31].

Differences were revealed on the variable Openness [Table 30] by follow-up univariate analysis of variance (ANOVA) on the main effect ACT. On Openness, the low ACT group had a mean of 16.93, while the high ACT group had a mean of 21.58 [Table 31].

Table 30 - Results of hypothesis test of General Coping Skills using two-way MANOVA and follow-up ANOVAs - main effect Gender ($H_1, 4, 2$)			
MANOVA	Wilks' lambda	F	p
Interaction Effect: ACT by Gender	.95	2.003	.080
Main Effect: Gender	.94	2.369	.041
Main Effect: ACT	.90	4.169	.001
ANOVA		F	p
Interaction Effect: ACT by Gender			
Ease of Transition		6.578	.011
Family Emotional Support		.425	.515
Openness		4.130	.044
Career Planning		.450	.503
Sense of Financial Security		.286	.593
Main Effect: Gender		F	p
Ease of Transition		.000	.984
Family Emotional Support		3.671	.057
Openness		7.301	.008
Career Planning		2.154	.144
Sense of Financial Security		.022	.882
Main Effect: ACT		F	p
Ease of Transition		1.686	.196
Family Emotional Support		.518	.473
Openness		14.948	.000
Career Planning		1.872	.173
Sense of Financial Security		.146	.703

Table 31 - Means and standard deviations for main effects,
ACT and Gender for hypothesis 4.2

Main effect	Variable	Male		Female	
		mean	sd	mean	sd
Gender	Openness	17.90	10.227	20.76	11.671
Main effect	Variable	Low ACT		High ACT	
		mean	sd	mean	sd
ACT	Openness	16.93	10.678	21.58	10.373



Analysis of Hypothesis 4.3

H₀4.3: When controlling for tested aptitude, as measured by ACT composite score, the **General Coping Skills**, as measured by the College Student Inventory, of Ferris CSP students do not vary according to **ethnicity**, or by ethnicity unmodified by ACT.

The null hypothesis for measure of General Coping Skills was tested with a two-way multivariate analysis of variance (MANOVA), specifically Wilks' lambda, to test for significance at the .05 level. MANOVA explores the relationships between multiple independent variables and multiple dependent variables. Aptitude was measured by ACT composite score. ACT was also used as a controlling variable. High and low ACT groups were cross classified with Ethnicity in H₀4.3. The dependent variables from the College Student Inventory measured General Coping Skills in H₀4.3. If Wilks' lambda was not significant in MANOVA, and follow-up ANOVAs were less than .05, those occurrences were interpreted as occurring by chance only.

As shown in Table 32, the two-way MANOVA produced three tests of significance: one for interaction, ACT by Ethnicity and one for each of two main effects, Ethnicity and ACT. Wilks' lambda for interaction was not significant and **Wilks' lambda for both main effects was not significant. Therefore, the null hypothesis was not rejected.**

Differences were revealed on the variables Family Emotional Support and Sense of Financial Security [Table 32] by follow-up univariate analysis of variance (ANOVA) on the main effect Ethnicity. On Family Emotional Support, the majority group had a mean of 10.42, while the minority group had a mean of 13.20. On Sense of Financial Security, the majority group had a mean of 2.51, while the minority group had a mean of 1.76 [Table 33].

Differences were revealed on the variable Openness [Table 32] by follow-up

univariate analysis of variance (ANOVA) on the main effect ACT. On Openness, the low ACT group had a mean of 16.93, while the high ACT group had a mean of 21.58 [Table 33].

Table 32 - Results of hypothesis test of General Coping Skills using two-way MANOVA and follow-up ANOVAs - main effect Ethnicity (H_0 4.3)

MANOVA	Wilks' lambda	F	p
Interaction Effect: ACT by Ethnicity	.97	1.039	.396
Main Effect: Ethnicity	.94	2.175	.059
Main Effect: ACT	.95	2.125	.064
ANOVA		F	p
Interaction Effect: ACT by Ethnicity			
Ease of Transition		1.766	.185
Family Emotional Support		.598	.440
Openness		4.204	.042
Career Planning		.714	.399
Sense of Financial Security		.651	.421
Main Effect: Ethnicity		F	p
Ease of Transition		1.625	.204
Family Emotional Support		3.253	.073
Openness		1.030	.311
Career Planning		4.120	.044
Sense of Financial Security		.108	.742
Main Effect: ACT		F	p
Ease of Transition		.345	.558
Family Emotional Support		1.110	.293
Openness		9.142	.003
Career Planning		.018	.843
Sense of Financial Security		.029	.866

Table 33 - Means and standard deviations for main effects,
ACT and Ethnicity for hypothesis 4.3

Main effect	Variable	Majority		Minority	
		mean	sd	mean	sd
Ethnicity	Family Emotional Support	10.42	11.928	13.20	10.994
	Sense of Financial Security	2.51	7.102	1.76	7.591
Main effect	Variable	Low ACT		High ACT	
		mean	sd	mean	sd
ACT	Openness	16.93	10.678	21.58	10.373

Analysis of Hypothesis 4.4

H₀4.4: When controlling for tested aptitude, as measured by ACT composite score, the **General Coping Skills**, as measured by the College Student Inventory, of Ferris CSP students do not vary according to **Degrees of Reading Power score**, or by Degrees of Reading Power score unmodified by ACT.

The null hypothesis for measure of General Coping Skills was tested with a two-way multivariate analysis of variance (MANOVA), specifically Wilks' lambda, to test for significance at the .05 level. MANOVA simultaneously explores the relationships between multiple independent variables and multiple dependent variables. Aptitude was measured by ACT composite score. ACT was also used as a controlling variable. High and low ACT groups were cross classified with Degrees of Reading Power (DRP) score in H₀4.4. The dependent variables from the College Student Inventory measured General Coping Skills in H₀4.4. Follow-up univariate analysis of variance (ANOVA) and Scheffe's post-hoc comparisons were used where statistical significance was found. A graphic display of variable means is provided.

The CSI category General Coping Skills was subjected to further analysis using follow-up univariate analysis of variance (ANOVA) to determine the specific variable in which significance occurred.

As shown in Table 34, the two-way MANOVA produced three tests of significance: one for interaction, ACT by DRP and one for each of two main effects, DRP and ACT. Wilks' lambda for interaction was significant. Wilks' lambda for main effect DRP was also significant. Therefore, the null hypothesis was rejected.

Differences were revealed on the variable Openness [Table 34] by follow-up univariate analysis of variance (ANOVA) for interaction effect ACT by DRP. As indicated by the Scheffe's procedure for post-hoc comparisons, the Low ACT/Low DRP group mean (14.27) is significantly different from the Low ACT/High DRP group mean (24.06), the High ACT/Low DRP group mean (21.50), and the High ACT/High DRP group mean (21.61) [Figure 4.1].

Differences were revealed on the variable Openness [Table 34] by follow-up univariate analysis of variance (ANOVA) on the main effect DRP. On Openness, the low DRP group had a mean of 15.67, while the high DRP group had a mean of 22.46 [Table 35].

No differences on any of the General Coping Skills variables [Table 34] by follow-up univariate analysis of variance (ANOVA) on the main effect ACT.

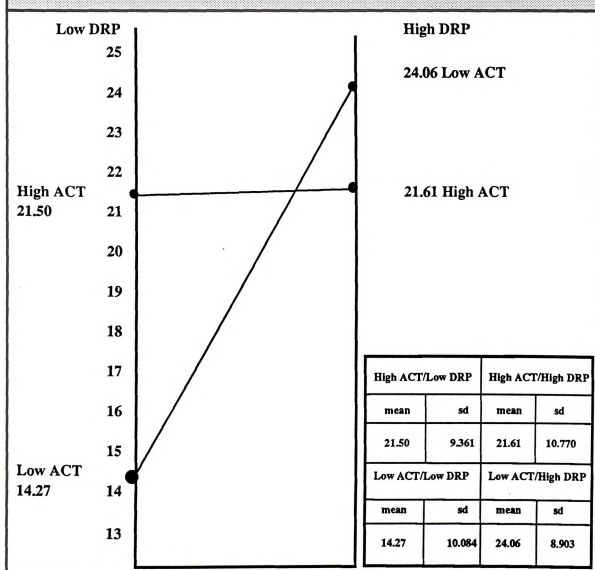
Table 34 - Results of hypothesis test of General Coping Skills using two-way MANOVA and follow-up ANOVAs - main effect DRP (H_0 4.4)

MANOVA	Wilks' lambda	F	p
Interaction Effect: ACT by DRP	.941	2.333	.044
Main Effect: DRP	.935	2.585	.027
Main Effect: ACT	.953	1.815	.112
ANOVA		F	p
Interaction Effect: ACT by DRP			
Ease of Transition		.218	.398
Family Emotional Support		.161	.688
Openness		8.346	.004
Career Planning		.088	.768
Sense of Financial Security		3.487	.063
Main Effect: DRP		F	p
Ease of Transition		3.381	.068
Family Emotional Support		.541	.463
Openness		8.730	.004
Career Planning		1.620	.205
Sense of Financial Security		.186	.667
Main Effect: ACT		F	p
Ease of Transition		.268	.605
Family Emotional Support		.346	.557
Openness		2.032	.156
Career Planning		3.478	.064
Sense of Financial Security		.516	.474

Table 35 - Means and standard deviations for main effect
DRP for hypothesis 4.4

Main effect	Variable	Low DRP		High DRP	
		mean	sd	mean	sd
DRP	Openness	15.67	10.312	22.46	10.183

Figure 4.1 - Means for interaction effect ACT by DRP-Openness in hypothesis 4.4



Analysis of Hypothesis 4.5

H₀4.5: When controlling for tested aptitude, as measured by ACT composite score, the **General Coping Skills**, as measured by the College Student Inventory, of Ferris CSP students do not vary according to **high school grade point average**, or by high school grade point average unmodified by ACT.

The null hypothesis for measure of General Coping Skills was tested with a two-way multivariate analysis of variance (MANOVA), specifically Wilks' lambda, to test for significance at the .05 level. MANOVA simultaneously explores the relationships between multiple independent variables and multiple dependent variables. Aptitude was measured by ACT composite score. ACT was also used as a controlling variable. High and low ACT groups were cross classified with High School Grade Point Average (HSGPA) in H₀4.5. The dependent variables from the College Student Inventory measured General Coping Skills in H₀4.5. If Wilks' lambda was not significant in MANOVA, and follow-up ANOVA's were less than .05, those occurrences were interpreted as occurring by chance only.

As shown in Table 36, the two-way MANOVA produced three tests of significance: one for interaction, ACT by HSGPA and one for each of two main effects, HSGPA and ACT. Wilks' lambda for interaction was not significant, but **Wilks' lambda for main effect ACT was significant. Therefore, the null hypothesis was rejected.**

No significant differences were revealed on the General Coping Skills variables [Table 36] by follow-up univariate analysis of variance (ANOVA) on the main effect HSGPA.

Differences were revealed on the variable Openness [Table 36] by follow-up univariate analysis of variance (ANOVA) on the main effect ACT. On Openness, the low ACT group had a mean of 16.93, while the high ACT group had a mean of 21.58 [Table 37].

Table 36 - Results of hypothesis test of General Coping Skills using two-way MANOVA and follow-up ANOVAs - main effect H.S.G.P.A. (H_1 , 4.5)

MANOVA	Wilks' lambda	F	p
Interaction Effect: ACT by H.S.G.P.A.	.97	1.250	.288
Main Effect: H.S.G.P.A.	.99	.487	.786
Main Effect: ACT	.93	2.721	.021
ANOVA		F	p
Interaction Effect: ACT by H.S.G.P.A.			
Ease of Transition		.503	.479
Family Emotional Support		2.435	.120
Openness		2.065	.152
Career Planning		4.023	.046
Sense of Financial Security		.526	.469
Main Effect: H.S.G.P.A.		F	p
Ease of Transition		.630	.428
Family Emotional Support		.000	.988
Openness		.027	.868
Career Planning		1.229	.269
Sense of Financial Security		.334	.564
Main Effect: ACT		F	p
Ease of Transition		.236	.628
Family Emotional Support		.138	.711
Openness		9.512	.002
Career Planning		1.477	.226
Sense of Financial Security		.275	.600

Table 37 - Means and standard deviations for main affect, ACT, for hypothesis 4.5

Main effect	Variable	Low ACT		High ACT	
		mean	sd	mean	sd
ACT	Openness	16.93	10.678	21.58	10.373

Analysis of Hypothesis 5.1

H₀5.1: When controlling for tested aptitude, as measured by ACT composite score, the **Receptivity To Support Services**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to age, or by age unmodified by ACT.

The null hypothesis for measure of Receptivity To Support Services was tested with a two-way multivariate analysis of variance (MANOVA), specifically Wilks' lambda, to test for significance at the .05 level. MANOVA simultaneously explores the relationships between multiple independent variables and multiple dependent variables. Aptitude was measured by ACT composite score. ACT was also used as a controlling variable. High and low ACT groups were cross classified with Age in H₀5.1. The dependent variables from the College Student Inventory measured Receptivity To Support Services in H₀5.1. If Wilks' lambda was not significant in MANOVA, and follow-up ANOVAs were less than .05, those occurrences were interpreted as occurring by chance only.

As shown in Table 38, the two-way MANOVA produced three tests of significance: one for interaction, ACT by Age and one for each of two main effects, Age and ACT. Wilks' lambda for interaction was not significant, but **Wilks' lambda for main effect ACT was significant. Therefore, the null hypothesis was rejected.**

Differences were revealed on the variable Receptivity To Social Enrichment [Table 38] by follow-up univariate analysis of variance (ANOVA) on the main effect Age. On Receptivity To Social Enrichment, the low age group had a mean of 17.19, while the high age group had a mean of 15.39 [Table 39].

Differences were revealed on the variables Receptivity To Academic Assistance, Receptivity to Social Enrichment, and Receptivity to Career Counseling [Table 38] by follow-up univariate analysis of variance (ANOVA) on the main effect ACT. On

Receptivity to Academic Assistance, the low ACT group had a mean of 29.39, while the high ACT group had a mean of 24.32 [Table 39]. On Receptivity to Social Enrichment, the low ACT group had a mean of 17.94, while the high ACT group had a mean of 14.92 [Table 39]. On Receptivity to Career Counseling, the low ACT group had a mean of 25.61, while the high ACT group had a mean of 23.71 [Table 39].

Table 38 - Results of hypothesis test of Receptivity to Support Services using two-way MANOVA and follow-up ANOVAs - main effect Age (H_0 5.1)			
MANOVA	Wilks' lambda	F	p
Interaction Effect: ACT by Age	.96	1.691	.154
Main Effect: Age	.96	2.109	.081
Main Effect: ACT	.85	8.256	.000
ANOVA		F	p
Interaction Effect: ACT by Age			
Receptivity to Academic Assistance		4.342	.039
Receptivity to Personal Counseling		4.709	.031
Receptivity to Social Enrichment		.561	.455
Receptivity to Career Counseling		1.040	.309
Main Effect: Age		F	p
Receptivity to Academic Assistance		.455	.501
Receptivity to Personal Counseling		.007	.932
Receptivity to Social Enrichment		5.429	.021
Receptivity to Career Counseling		.437	.509
Main Effect: ACT		F	p
Receptivity to Academic Assistance		26.773	.000
Receptivity to Personal Counseling		3.504	.063
Receptivity to Social Enrichment		14.731	.000
Receptivity to Career Counseling		4.414	.037

Table 39 - Means and standard deviations for main effect
ACT for hypothesis 5.1

Main effect	Variable	Low Age		High Age	
		mean	sd	mean	sd
ACT	Receptivity to Academic Assistance	29.39	7.348	24.32	7.255
	Receptivity to Social Enrichment	17.94	4.996	14.92	5.817
	Receptivity to Career Counseling	25.61	6.726	23.71	7.243

Analysis of Hypothesis 5.2

H₀5.2: When controlling for tested aptitude, as measured by ACT composite score, the **Receptivity To Support Services**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **gender**, or by gender unmodified by ACT.

The null hypothesis for measure of Receptivity To Support Services was tested with a two-way multivariate analysis of variance (MANOVA), specifically Wilks' lambda, to test for significance at the .05 level. MANOVA simultaneously explores the relationships between multiple independent variables and multiple dependent variables. Aptitude was measured by ACT composite score. ACT was also used as a controlling variable. High and low ACT groups were cross classified with Gender in H₀5.2. The dependent variables from the College Student Inventory measured Receptivity To Support Services in H₀5.2.

As shown in Table 43, the two-way MANOVA produced three tests of significance: one for interaction, ACT by Gender and one for each of two main effects, Gender and ACT. Wilks' lambda for interaction was not significant, but **Wilks' lambda for main effect ACT was significant. Therefore, the null hypothesis was rejected.**

No significant were revealed differences on the Receptivity To Support Services

variables [Table 40] by follow-up univariate analysis of variance (ANOVA) on the main effect Gender.

Differences were revealed on the variables Receptivity To Academic Assistance and Receptivity to Social Enrichment [Table 40] by follow-up univariate analysis of variance (ANOVA) on the main effect ACT. On Receptivity to Academic Assistance, the low ACT group had a mean of 29.39, while the high ACT group had a mean of 24.32 [Table 41]. On Receptivity to Social Enrichment, the low ACT group had a mean of 17.94, while the high ACT group had a mean of 14.92 [Table 41].

Table 40 - Results of hypothesis test of Receptivity to Support Services using two-way MANOVA and follow-up ANOVAs - main effect Gender (H_0 5.2)

MANOVA	Wilks' lambda	F	p
Interaction Effect: ACT by Gender	.96	2.054	.089
Main Effect: Gender	.97	1.661	.161
Main Effect: ACT	.86	7.821	.000
ANOVA		F	p
Interaction Effect: ACT by Gender			
Receptivity to Academic Assistance		.173	.678
Receptivity to Personal Counseling		.007	.932
Receptivity to Social Enrichment		.636	.426
Receptivity to Career Counseling		3.730	.055
Main Effect: Gender		F	p
Receptivity to Academic Assistance		2.722	.101
Receptivity to Personal Counseling		2.092	.150
Receptivity to Social Enrichment		.888	.347
Receptivity to Career Counseling		.210	.647
Main Effect: ACT		F	p
Receptivity to Academic Assistance		18.225	.000
Receptivity to Personal Counseling		.538	.464
Receptivity to Social Enrichment		15.179	.000
Receptivity to Career Counseling		.863	.354

Table 41 - Means and standard deviations for main effect
ACT for hypothesis 5.2

Main effect	Variable	Low ACT		High ACT	
		mean	sd	mean	sd
ACT	Receptivity to Academic Assistance	29.39	7.348	24.32	7.255
	Receptivity to Social Enrichment	17.94	4.996	14.92	5.817

Analysis of Hypothesis 5.3

H₀5.3: When controlling for tested aptitude, as measured by ACT composite score, the **Receptivity To Support Services**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **ethnicity**, or by ethnicity unmodified by ACT.

The null hypothesis for measure of Receptivity To Support Services was tested with a two-way multivariate analysis of variance (MANOVA), specifically Wilks' lambda, to test for significance at the .05 level. MANOVA simultaneously explores the relationships between multiple independent variables and multiple dependent variables. Aptitude was measured by ACT composite score. ACT was also used as a controlling variable. High and low ACT groups were cross classified with Ethnicity in H₀5.3. The dependent variables from the College Student Inventory measured Receptivity To Support Services in H₀5.3.

As shown in Table 42, the two-way MANOVA produced three tests of significance: one for interaction, ACT by Ethnicity and one for each of two main effects, Ethnicity and ACT. Wilks' lambda for interaction was not significant, but **Wilks' lambda for main effect ACT was significant. Therefore, the null hypothesis was rejected.** No significant differences were revealed on the Receptivity To Support Services variables [Table 42] by follow-up univariate analysis of variance (ANOVA) on the main effect Ethnicity.

Differences were revealed on the variables Receptivity To Academic Assistance and Receptivity to Social Enrichment [Table 42] by follow-up univariate analysis of variance (ANOVA) on the main effect ACT. On Receptivity to Academic Assistance, the low ACT group had a mean of 29.39, while the high ACT group had a mean of 24.32 [Table 43]. On Receptivity to Social Enrichment, the low ACT group had a mean of 17.94, while the high ACT group had a mean of 14.92 [Table 43].

Table 42 - Results of hypothesis test of Receptivity to Support Services using two-way MANOVA and follow-up ANOVAs - main effect Ethnicity (H_0 5.3)

MANOVA	Wilks' lambda	F	p
Interaction Effect: ACT by Ethnicity	.98	.986	.536
Main Effect: Ethnicity	.98	.893	.469
Main Effect: ACT	.88	6.38	.000
ANOVA		F	p
Interaction Effect: ACT by Ethnicity			
Receptivity to Academic Assistance		2.363	.126
Receptivity to Personal Counseling		.482	.489
Receptivity to Social Enrichment		.800	.372
Receptivity to Career Counseling		.055	.815
Main Effect: Ethnicity		F	p
Receptivity to Academic Assistance		.398	.529
Receptivity to Personal Counseling		.084	.772
Receptivity to Social Enrichment		.115	.735
Receptivity to Career Counseling		2.533	.113
Main Effect: ACT		F	p
Receptivity to Academic Assistance		17.379	.000
Receptivity to Personal Counseling		1.296	.256
Receptivity to Social Enrichment		11.629	.001
Receptivity to Career Counseling		1.226	.274

Table 43 - Means and standard deviations for main effect
ACT for hypothesis 5.3

Main effect	Variable	Low ACT		High ACT	
		mean	sd	mean	sd
ACT	Receptivity to Academic Assistance	29.29	7.348	24.32	7.255
	Receptivity to Social Enrichment	17.94	41.996	4.996	5.817

Analysis of Hypothesis 5.4

H₀5.4: When controlling for tested aptitude, as measured by ACT composite score, the **Receptivity To Support Services**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **Degrees of Reading Power** score, or by Degrees of Reading Power score unmodified by ACT.

The null hypothesis for measure of Receptivity To Support Services was tested with a two-way multivariate analysis of variance (MANOVA), specifically Wilks' lambda, to test for significance at the .05 level. MANOVA simultaneously explores the relationships between multiple independent variables and multiple dependent variables. Aptitude was measured by ACT composite score. ACT was also used as a controlling variable. High and low ACT groups were cross classified with Degrees of Reading Power (DRP) score in H₀5.4. The dependent variables from the College Student Inventory measured Receptivity To Support Services in H₀5.4.

As shown by Table 44, the two-way MANOVA produced three tests of significance: one for interaction, ACT by DRP and one for each of two main effects, DRP and ACT. Wilks' lambda for interaction was not significant, but **Wilks' lambda for main effect ACT was significant. Therefore, the null hypothesis was rejected.**

No significant differences were revealed on the Receptivity To Support Services variables [Table 44] by follow-up univariate analysis of variance (ANOVA) on the main

effect DRP.

Differences were revealed on the variables Receptivity To Academic Assistance and Receptivity to Social Enrichment [Table 44] by follow-up univariate analysis of variance (ANOVA) on the main effect ACT. On Receptivity to Academic Assistance, the low ACT group had a mean of 29.39, while the high ACT group had a mean of 24.32 [Table 45]. On Receptivity to Social Enrichment, the low ACT group had a mean of 17.94, while the high ACT group had a mean of 14.92 [Table 45].

Table 44 - Results of hypothesis test of Receptivity to Support Services using two-way MANOVA and follow-up ANOVAs - main effect DRP (H_0 5.4)

MANOVA	Wilks' lambda	F	p
Interaction Effect: ACT by DRP	.99	.437	.782
Main Effect: DRP	.99	.156	.960
Main Effect: ACT	.88	6.401	.000
ANOVA		F	p
Interaction Effect: ACT by DRP			
Receptivity to Academic Assistance		.422	.517
Receptivity to Personal Counseling		.469	.494
Receptivity to Social Enrichment		.079	.778
Receptivity to Career Counseling		.438	.509
Main Effect: DRP		F	p
Receptivity to Academic Assistance		.004	.948
Receptivity to Personal Counseling		.003	.956
Receptivity to Social Enrichment		.077	.782
Receptivity to Career Counseling		.290	.592
Main Effect: ACT		F	p
Receptivity to Academic Assistance		17.371	.000
Receptivity to Personal Counseling		.670	.404
Receptivity to Social Enrichment		12.257	.001
Receptivity to Career Counseling		1.861	.174

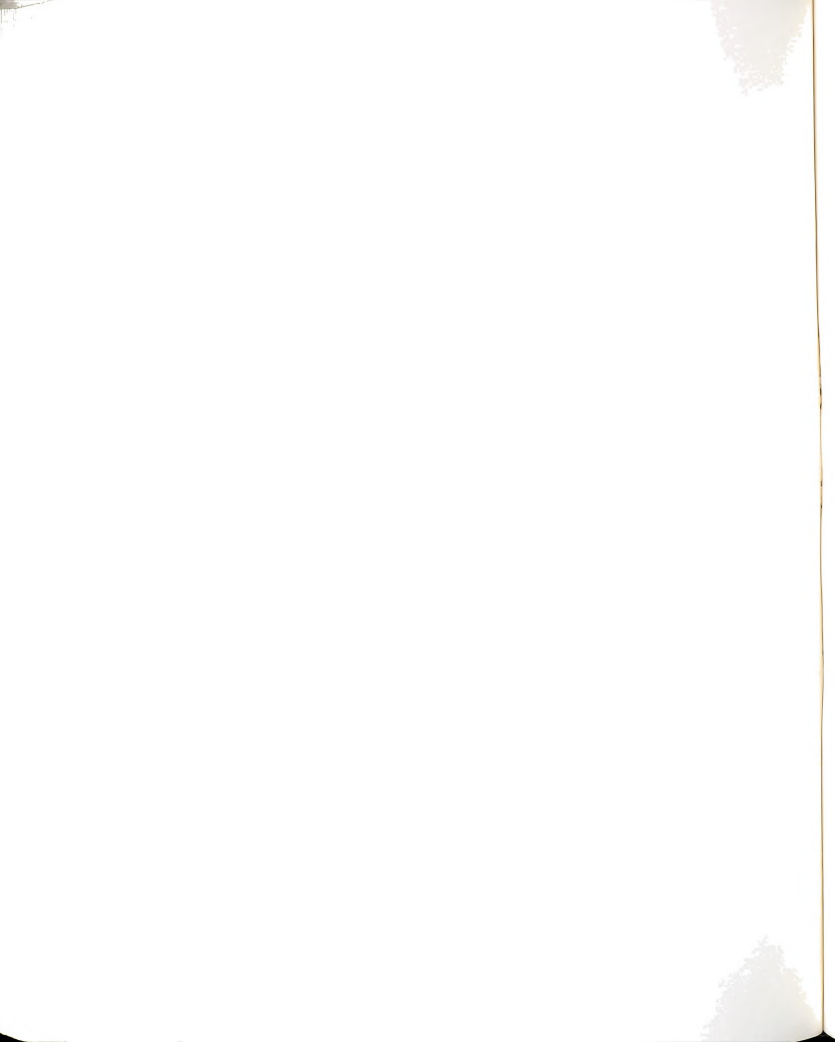


Table 45 - Means and standard deviations for main effect
ACT for hypothesis 5.4

Main effect	Variable	Low ACT		High ACT	
		mean	sd	mean	sd
ACT	Receptivity to Academic Assistance	29.39	7.348	24.32	7.255
	Receptivity to Social Enrichment	17.94	4.996	14.92	5.817

Analysis of Hypothesis 5.5

H₀5.5: When controlling for tested aptitude, as measured by ACT composite score, the **Receptivity To Support Services**, as measured by the College Student Inventory, of Ferris CSP students does not vary according to **high school grade point average**, or by high school grade point average unmodified by ACT.

The null hypothesis for measure of Receptivity To Support Services was tested with a two-way multivariate analysis of variance (MANOVA), specifically Wilks' lambda, to test for significance at the .05 level. MANOVA simultaneously explores the relationships between multiple independent variables and multiple dependent variables. Aptitude was measured by ACT composite score. ACT was also used as a controlling variable. High and low ACT groups were cross classified with High School Grade Point Average (HSGPA) in H₀5.5. The dependent variables from the College Student Inventory measured Receptivity To Support Services in H₀5.5.

As shown in Table 46, the two-way MANOVA produced three tests of significance: one for interaction, ACT by HSGPA and one for each of two main effects, HSGPA and ACT. Wilks' lambda for interaction was not significant, but **Wilks' lambda for main effect ACT was significant. Therefore, the null hypothesis was rejected.**

No significant differences on the Receptivity To Support Services variables [Table 46] by follow-up univariate analysis of variance (ANOVA) on the main effect HSGPA.

Differences on the variables Receptivity To Academic Assistance, Receptivity to Social Enrichment, and Receptivity to Career Counseling [Table 46] by follow-up univariate analysis of variance (ANOVA) on the main effect ACT. On Receptivity to Academic Assistance, the low ACT group had a mean of 29.39, while the high ACT group had a mean of 24.32 [Table 47]. On Receptivity to Social Enrichment, the low ACT group had a mean of 17.94, while the high ACT group had a mean of 14.92 [Table 47]. On Receptivity to Career Counseling, the low ACT group had a mean of 25.70, while the high ACT group had a mean of 23.71 [Table 47].

Table 46- Results of hypothesis test of Receptivity to Support Services using two-way MANOVA and follow-up ANOVAs - main effect H.S.G.P.A. (H_0 5.5)

MANOVA	Wilks' lambda	F	p
Interaction Effect: ACT by H.S.G.P.A.	.98	1.148	.336
Main Effect: H.S.G.P.A.	.99	.480	.750
Main Effect: ACT	.85	8.270	.000
ANOVA		F	p
Interaction Effect: ACT by H.S.G.P.A.			
Receptivity to Academic Assistance		3.105	.080
Receptivity to Personal Counseling		.033	.856
Receptivity to Social Enrichment		1.489	.224
Receptivity to Career Counseling		2.858	.093
Main Effect: H.S.G.P.A.		F	p
Receptivity to Academic Assistance		.287	.593
Receptivity to Personal Counseling		.280	.598
Receptivity to Social Enrichment		.501	.480
Receptivity to Career Counseling		.903	.343
Main Effect: ACT		F	p
Receptivity to Academic Assistance		23.934	.000
Receptivity to Personal Counseling		.879	.350
Receptivity to Social Enrichment		15.686	.000
Receptivity to Career Counseling		4.184	.042

Table 47 - Means and standard deviations for main effects, ACT for hypothesis 5.5

Main effect	Variable	Low ACT		High ACT	
		mean	sd	mean	sd
ACT	Receptivity to Academic Assistance	29.39	7.348	24.32	7.255
	Receptivity to Social Enrichment	17.94	4.996	14.92	5.817
	Receptivity to Career Counseling	25.71	6.726	23.71	7.243

Analysis of Hypothesis 6.1

H₀6.1: When controlling for tested aptitude, as measured by ACT composite score, Ferris CSP students' **Initial Impressions** of Ferris State University, as measured by the College Student Inventory, do not vary according to age, or by age unmodified by ACT.

The null hypothesis for measure of Initial Impression was tested with a two-way analysis of variance (ANOVA) to test for significance at the .05 level. Two-way ANOVA simultaneously explores the relationships between two independent variables and a dependent variable. Aptitude was measured by ACT composite score. ACT was also used as a controlling variable. High and low ACT groups were cross classified with Age in H₀6.1. The dependent variable from the College Student Inventory measured Initial Impression in H₀6.1.

As shown in Table 48, the two-way ANOVA produced three tests of significance: one for interaction, ACT by Age and one for each of two main effects, Age and ACT. **As revealed by ANOVA, the interaction effect was not significant, nor was the main effect Age, but main effect ACT was significant. Therefore the null hypothesis was rejected.**

No significant differences were revealed on the variable Initial Impression [Table 48] by analysis of variance (ANOVA) on the main effect Age. Differences were revealed on the variable Initial Impression [Table 49] by analysis of variance (ANOVA) on the main effect ACT. On Initial Impression, the low ACT group had a mean of 63.87, while the high ACT group had a mean of 60.80 [Table 49].

Table 48 - Results of two-way ANOVA for test of
Age for H_0 6.1

ANOVA	F	p
Interaction Effect: ACT by Age	2.42	.122
Main Effect: Age	2.84	.094
Main Effect: ACT	4.60	.033

Table 49 - Means and standard deviations for main effect,
ACT for hypothesis 6.1

Main effect	Variable	Low ACT		High ACT	
		mean	sd	mean	sd
ACT	Initial Impression	63.87	13.319	60.80	11.909

Analysis of Hypothesis 6.2

H₀ 6.2: When controlling for tested aptitude, as measured by ACT composite score, Ferris CSP students' **Initial Impressions** of Ferris State University, as measured by the College Student Inventory, do not vary according to **gender**, or by gender unmodified by ACT.

The null hypothesis for measure of Initial Impression was tested with a two-way analysis of variance (ANOVA) to test for significance at the .05 level. Two-way ANOVA simultaneously explores the relationships between two independent variables and a dependent variable. Aptitude was measured by ACT composite score. ACT was also used as a controlling variable. High and low ACT groups were cross classified with Gender in H₀ 6.2. The dependent variable from the College Student Inventory measured Initial Impression in H₀ 6.2.

As shown in Table 50, the two-way ANOVA produced three tests of significance: one for interaction, ACT by Gender and one for each of two main effects, Gender and ACT. As revealed by ANOVA, the interaction effect was not significant. ANOVA for both main effects was also not significant. Therefore the null hypothesis was accepted.

Table 50 -Results of two-way ANOVA for test of
Gender for H₀ 6.2

ANOVA	F	p
Interaction Effect: ACT by Gender	.90	.344
Main Effect: Gender	2.97	.086
Main Effect: ACT	.87	.354

Analysis of Hypothesis 6.3

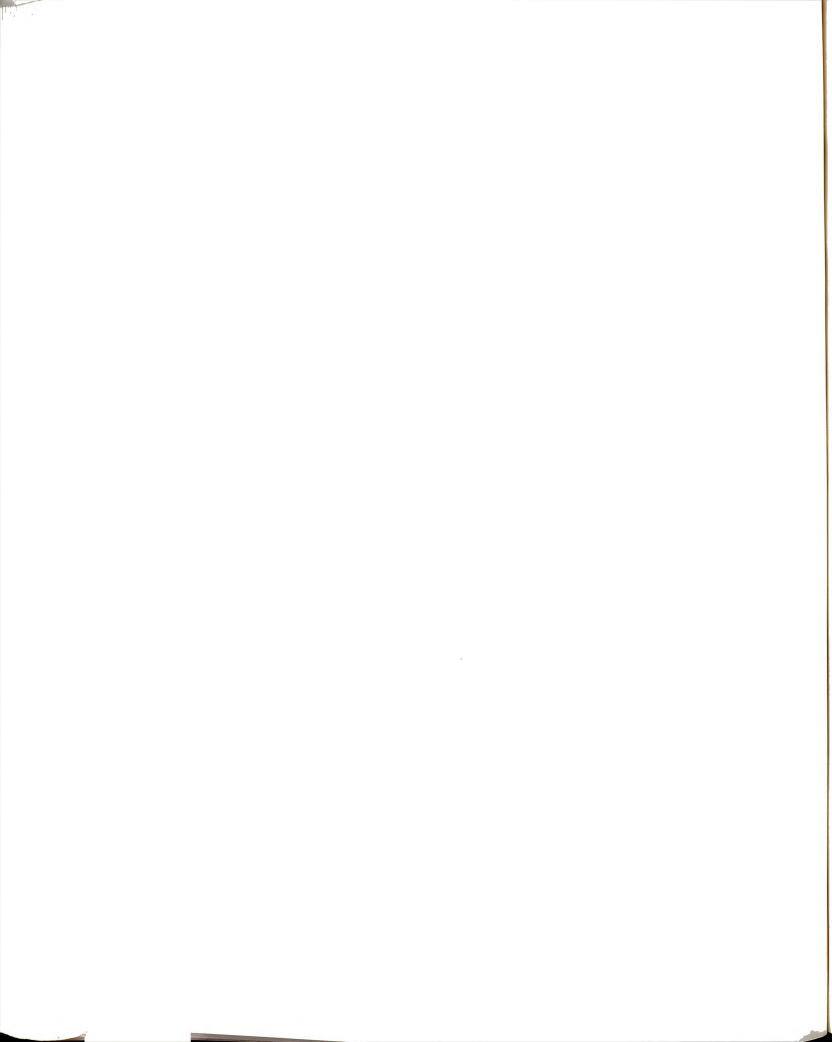
H₀6.3: When controlling for tested aptitude, as measured by ACT composite score, Ferris CSP students' **Initial Impressions** of Ferris State University, as measured by the College Student Inventory, do not vary according to **ethnicity**, or by ethnicity unmodified by ACT.

The null hypothesis for measure of Initial Impression was tested with a two-way analysis of variance (ANOVA) to test for significance at the .05 level. Two-way ANOVA simultaneously explores the relationships between two independent variables and a dependent variable. Aptitude was measured by ACT composite score. ACT was also used as a controlling variable. High and low ACT groups were cross classified with Ethnicity in H₀6.3. The dependent variable from the College Student Inventory measured Initial Impression in H₀6.3.

As shown in Table 51, the two-way ANOVA produced three tests of significance: one for interaction, ACT by Ethnicity and one for each of two main effects, Ethnicity and ACT. As revealed by ANOVA, the interaction effect was not significant. ANOVA for both main effects was also not significant. Therefore the null hypothesis was accepted.

Table 51 -Results of two-way ANOVA for test of
Ethnicity for H₀ 6.3

ANOVA	F	p
Interaction Effect: ACT by Ethnicity	.64	.424
Main Effect: Ethnicity	2.54	.113
Main Effect: ACT	1.68	.197



Analysis of Hypothesis 6.4

H₀6.4: When controlling for tested aptitude, as measured by ACT composite score, Ferris CSP students' **Initial Impressions** of Ferris State University, as measured by the College Student Inventory, do not vary according to **Degrees of Reading Power score**, or by Degrees of Reading Power score unmodified by ACT.

The null hypothesis for measure of Initial Impression was tested with a two-way analysis of variance (ANOVA) to test for significance at the .05 level. Two-way ANOVA simultaneously explores the relationships between two independent variables and a dependent variable. Aptitude was measured by ACT composite score. ACT was also used as a controlling variable. High and low ACT groups were cross classified with Degrees of Reading Power (DRP) score in H₀6.4. The dependent variable from the College Student Inventory measured Initial Impression in H₀6.4.

As shown in Table 52, the two-way ANOVA produced three tests of significance: one for interaction, ACT by DRP and one for each of two main effects, DRP and ACT. **ANOVA for interaction effect and ANOVA for main effect DRP were not significant, but ANOVA for main effect ACT was significant. Therefore the null hypothesis was rejected.**

No significant differences were revealed on the variable Initial Impression [Table 52] by analysis of variance (ANOVA) on the main effect DRP.

Differences were revealed on the variable Initial Impression [Table 52] by analysis of variance (ANOVA) on the main effect ACT. On Initial Impression, ACT group had a mean of 63.87, while the high ACT group had a mean of 60.80 [Table 53].

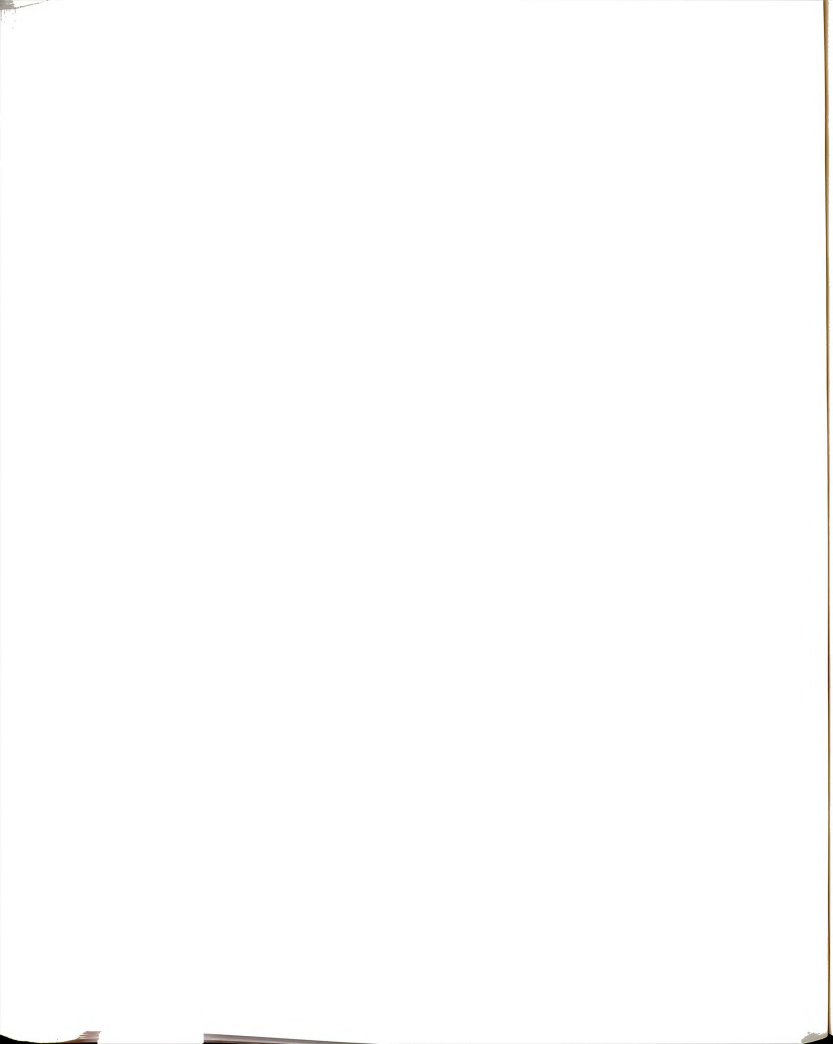


Table 52 -Results of two-way ANOVA for test of
DRP for H_0 6.4

ANOVA	F	p
Interaction Effect: ACT by DRP	1.52	.219
Main Effect: DRP	2.70	.102
Main Effect: ACT	4.90	.028

Table 53 - Means and standard deviations for main effect,
ACT for hypothesis 6.4

Main effect	Variable	Low ACT		High ACT	
		mean	sd	mean	sd
ACT	Initial Impression	63.87	13.319	60.80	11.909

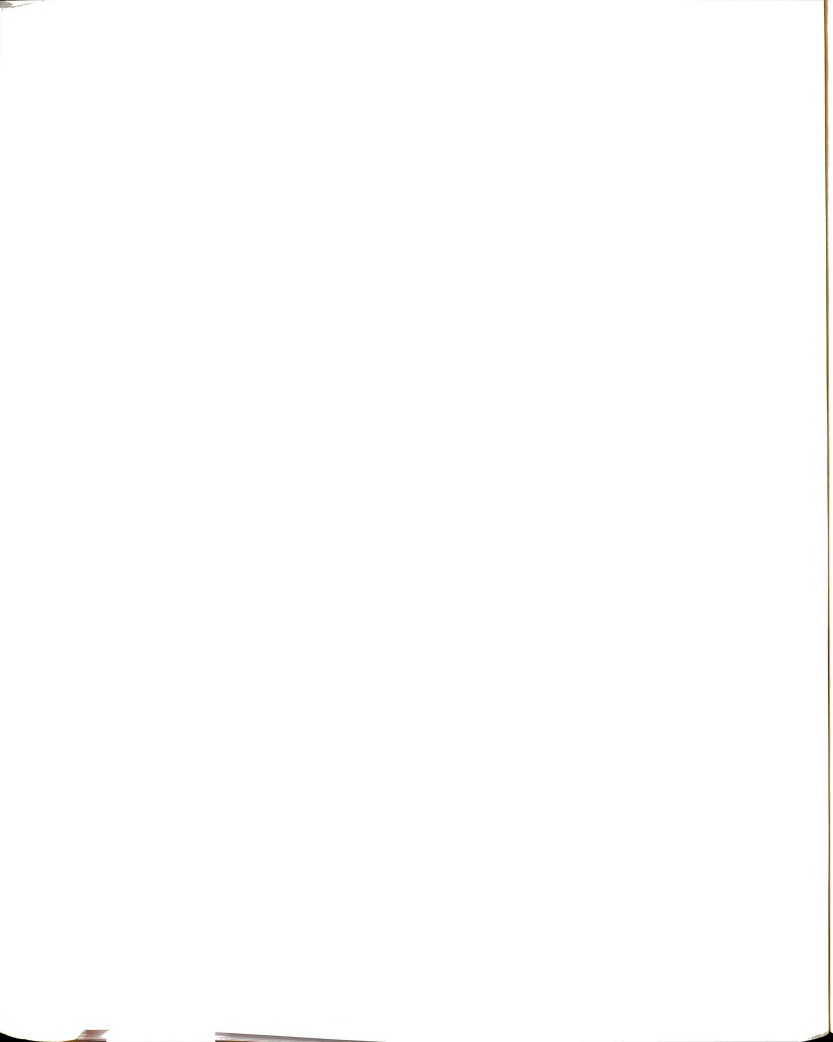
Analysis of Hypothesis 6.5

H₀ 6.5: When controlling for tested aptitude, as measured by ACT composite score, Ferris CSP students' **Initial Impressions** of Ferris State University, as measured by the College Student Inventory, do not vary according to **high school grade point average**, or by high school grade point average unmodified by ACT.

The null hypothesis for measure of Initial Impression was tested with a two-way analysis of variance (ANOVA) to test for significance at the .05 level. Two-way ANOVA simultaneously explores the relationships between two independent variables and a dependent variable. Aptitude was measured by ACT composite score. ACT was also used as a controlling variable. High and low ACT groups were cross classified with High School Grade Point Average (HSGPA) in H₀ 6.5. The dependent variable from the College Student Inventory measured Initial Impression in H₀ 6.5.

As shown in Table 54, the two-way ANOVA produced three tests of significance: one for interaction, ACT by HSGPA and one for each of two main effects, HSGPA and ACT. ANOVA for interaction effect, ANOVA for main effect HSGPA, and ANOVA for main effect ACT were not significant. Therefore the null hypothesis was not rejected.

Table 54 -Results of two-way ANOVA for test of H.S.G.P.A. for H ₀ 6.5		
ANOVA	F	p
Interaction Effect: ACT by H.S.G.P.A.	.19	.665
Main Effect: H.S.G.P.A.	1.89	.170
Main Effect: ACT	2.27	.133



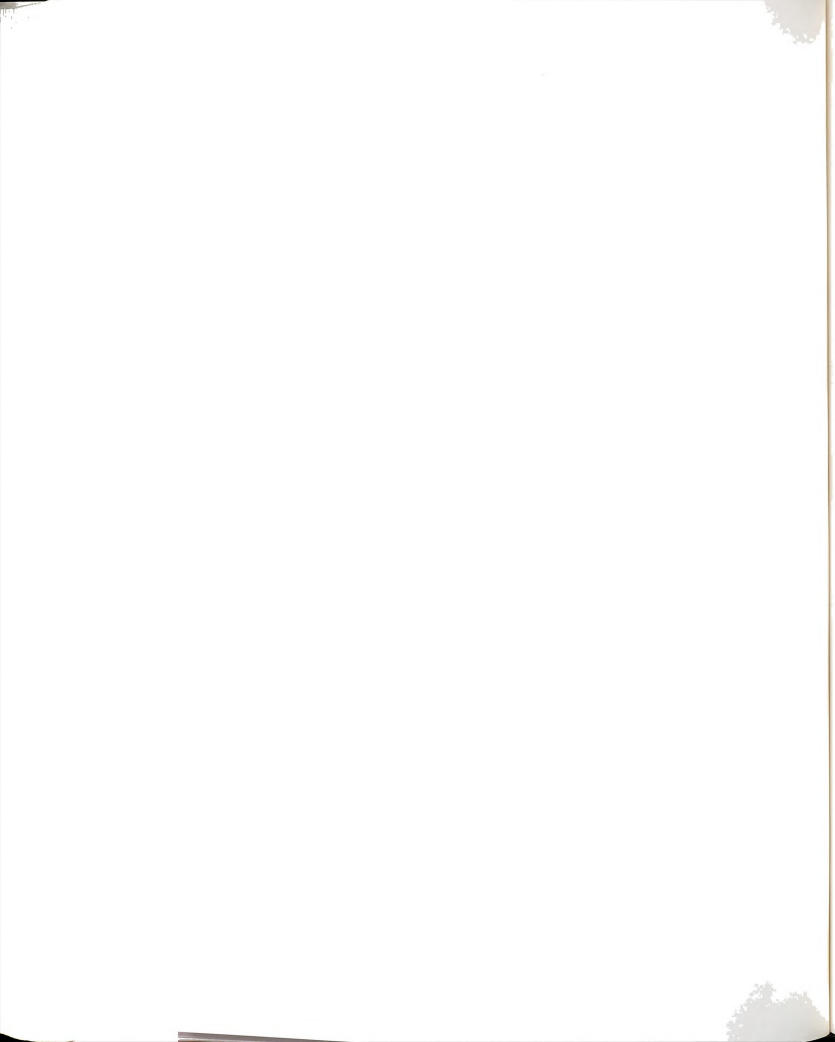
Analysis of Hypothesis 7.1

H₀ 7.1: College Student Inventory variables do not predict the first term success among Ferris CSP students, as measured by college grade point average.

A two-step multiple regression analysis was sufficient to explain the significant relationships between the CSI variables and the college grade point average. The CSI variable Attitude Toward Educators explained 5.6 percent of the variance and the CSI variable Openness explained another 2.6 percent of the variance in first term college gradepoint average. Both variables were significant at the .05 level. The additional CSI variables did not contribute sufficiently to the explanation of variance in the grade point average [Table 55]. **Therefore, the null hypothesis was rejected.**

Table 55 - Prediction of first term grades using CSI measures

Step No.	Variable	Multiple R	Multiple R ²	Increase in R ²	F-to Enter	Significance
1	Attitude Toward Educators	.237	.056	.056	11.352	.001
2	Openness	.286	.082	.026	5.369	.022



Analysis of Hypothesis 7.2

H₀7.2: ACT, high school grade point average, and Degrees of Reading Power scores do not predict the first term success among Ferris CSP students, as measured by college grade point average.

A one-step multiple regression analysis was sufficient to explain the significant relationships between CSP students' ACT, high school grade point average, and Degrees of Reading Power scores and Ferris first term grade point average. The DRP scores explained 7.5 percent of the variance in first term grade point average [Table 56]. Multiple regression revealed that the DRP results were significant at the .05 level. **Therefore, the null hypothesis was rejected.**

Table 56 - Prediction of first term grades using ACT,
high school grade point average and DRP scores

Step No.	Variable	Multifple R	Multiple R ²	Increase in R ²	F-to Enter	Significance
1	DRP	.275	.075	.075	15.569	.000

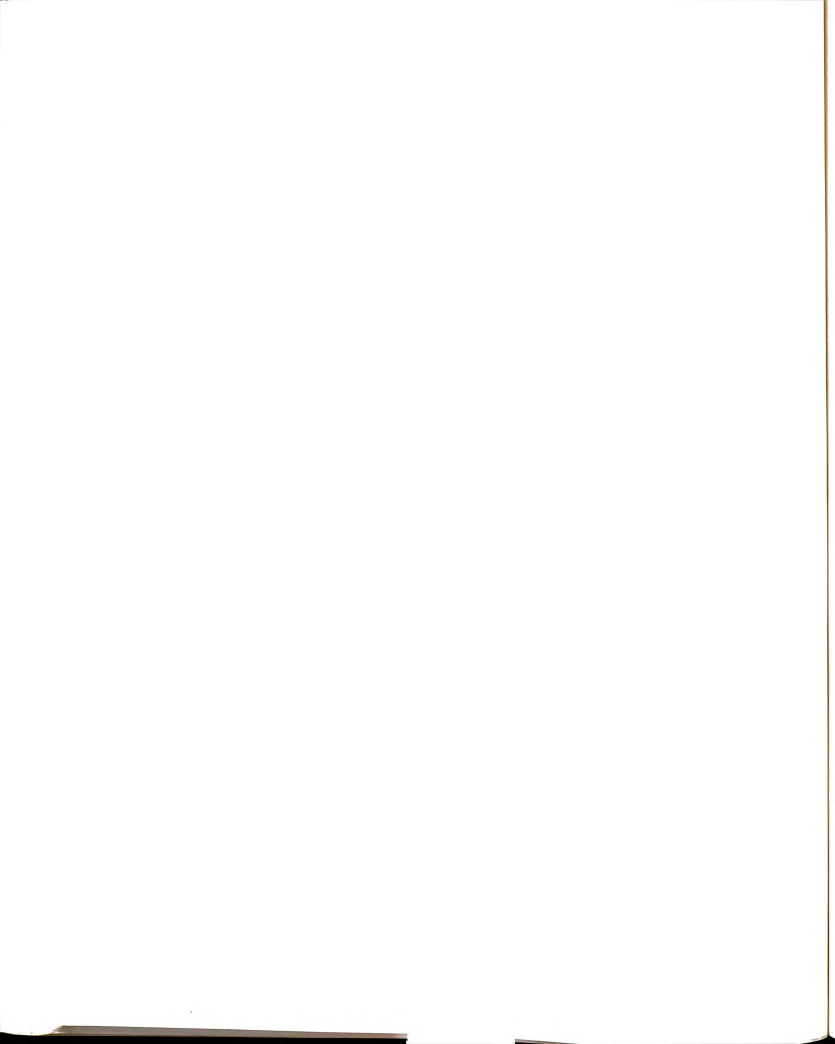
Analysis of Hypothesis 7.3

H₀ 7.3: Demographic information does not predict the first term success among Ferris CSP students, as measured by college grade point average.

A one-step multiple regression analysis was sufficient to explain the significant relationships between CSP students' demographic characteristics and their first term college grade point average. Ethnicity explained 5.4 percent of the variance in first term grade point average [Table 57]. As revealed by multiple regression analysis, Ethnicity was significant at the .05 level, while no other demographic characteristics were statistically significant. Therefore, the null hypothesis was rejected.

Table 57 - Prediction of first term grades using
demographic information

Step No.	Variable	Multiple R	Multiple R ²	Increase in R ²	F-to Enter	Significance
1	Ethnicity	.232	.054	.054	10.825	.001



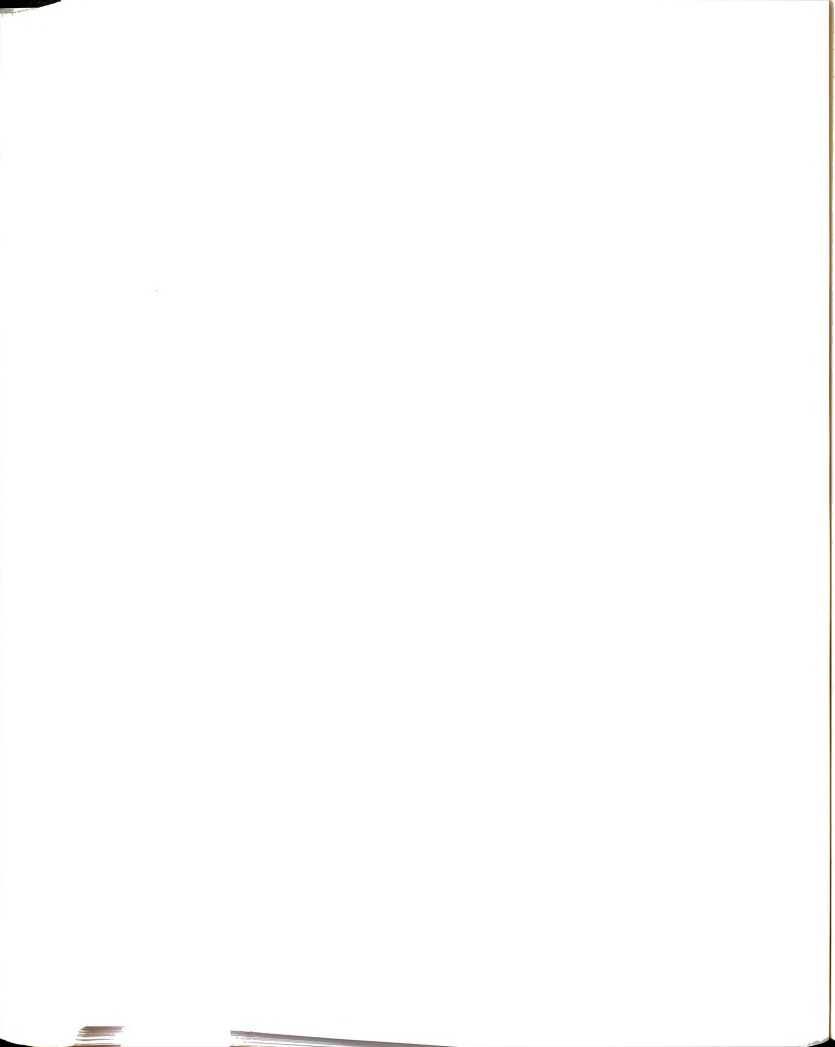
Analysis of Hypothesis 7.4

H₀ 7.4: A combination of the above variables does not predict the first term success among Ferris CSP students, as measured by college grade point average.

A two-step multiple regression analysis was sufficient to explain the significant relationships between a combination of Hypothesis 7 variables and college grade point average. The Degree of Reading Power scores explained 7.5 percent of the variance and the CSI variable Attitude Toward Educators explained another 6.4 percent of the variance in first term grade point average among CSP students in this study. Both variables were significant at the .05 level [Table 58]. **Therefore, the null hypothesis was rejected.**

Table 58 - Prediction of first term grades using CSI variables, ACT, high school grade point averages, DRP scores and demographic information

Step No.	Variable	Multiple R	Multiple R ²	Increase in R ²	F-to Enter	Significance
1	DRP	.275	.075	.075	15.569	.000
2	Attitude Toward Educators	.373	.139	.064	14.008	.000



CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

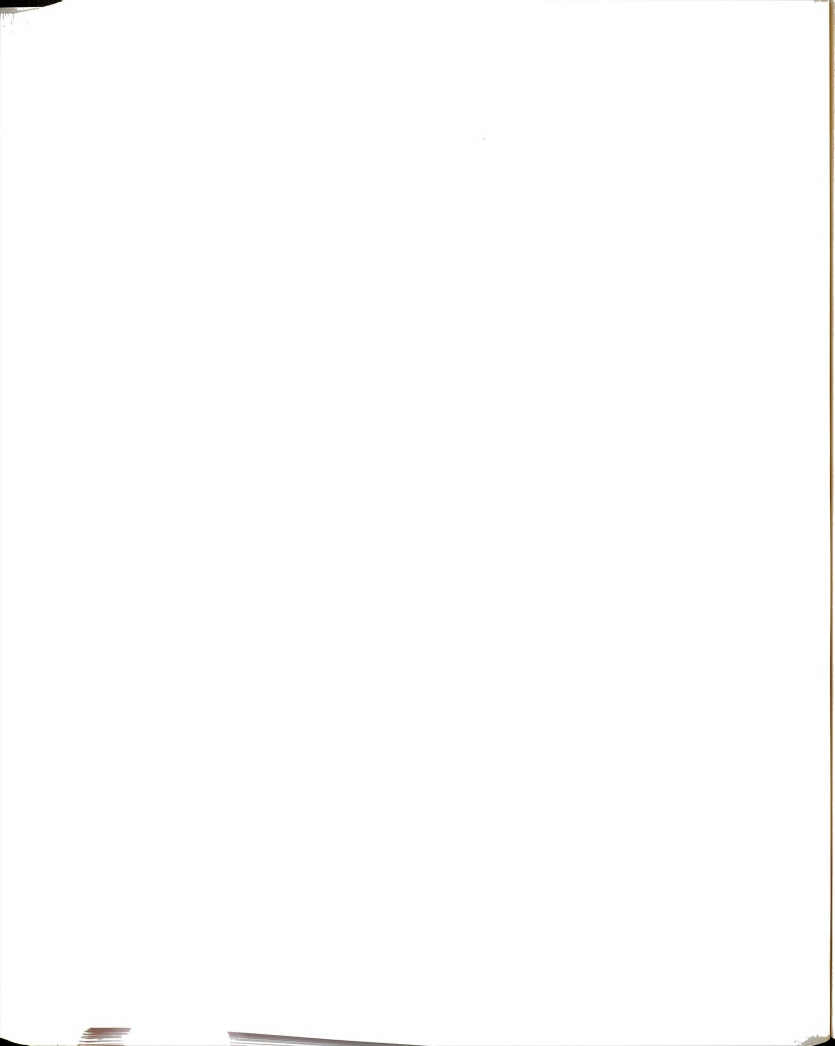
A "demographic juggernaut" is approaching American colleges and universities at breakneck speed (Kuh, 1990). Over the next twenty years, most colleges and universities will reflect what is happening to our population in general; they will undergo a demographic metamorphosis (Levine, 1989). This dramatic change will result in the most diverse student population ever seen on American campuses, including increasing numbers of academically underprepared students (Levine, 1989; Hodgkinson, 1989; Kuh, 1990; Hanson, 1990). Learning to manage this diversity in ways that are beneficial to students and institutions presents significant challenges to all college officials (Siegel, 1989).

These challenges will be exacerbated if college officials develop, implement, and evaluate student support services for the academically underprepared that are based on false assumptions about the aptitudes, attitudes, and demographic characteristics of the students arriving at their institutions. College administrators and faculty need to clearly understand the nature of their new students, especially the increasing numbers of academically underprepared students, in order to help them attain a reasonable chance of success within the collegiate world.

SUMMARY

Purpose

The purpose of this study was to examine the nature of the academically underprepared students enrolled in the Collegiate Skills Program (CSP), at Ferris State

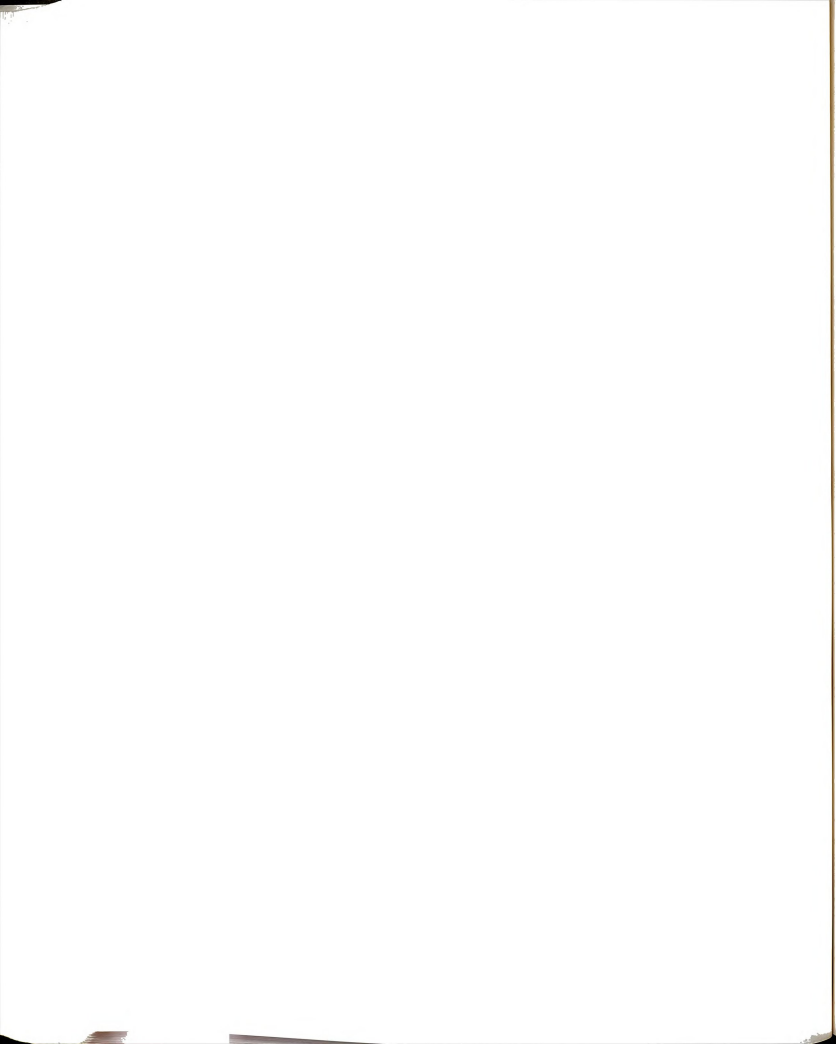


University, during the fall quarter of 1991. This was done in order to develop an accurate profile of these students which, in turn, may be used to improve policies and programs designed to help these students become successful college students.

Literature

The professional literature is rich with student development theoretical frameworks that serve to focus and guide inquiry into how students learn, and how colleges influence the intellectual, personal, emotional, and social growth of students. While there is no single unified theory of student development at the present time, Thomas and Chickering (1984) point out elements common to most student development theories:

1. Development is a continuous process.
2. The developmental process is irreversible. (While not fully accepted today, the key point here is the notion that once a person has arrived at a particular stage of development, that person is changed forever. While that person may return to a previously achieved stage, such a return carries with it new capacities. Achievement of each new stage subsumes previously achieved stages of development.
3. Developmental processes can be differentiated into patterns, thus making process and products more predictable and, hence, more manipulable.
4. Where development is proceeding normally, maturity is a natural outcome.
5. Normal, healthy development is characterized by increasing differentiation, and then integration of new elements.
6. The pace of development is rapid at the onset and slower as time passes.
7. Normal, healthy development proceeds from dependence to increasing independence.
8. Normal, healthy development proceeds from egocentric to social behavior.
9. Normal, healthy development results from the inter-action of several variables operating simultaneously, or in succession (Thomas and Chickering, 1984, p. 102-103).

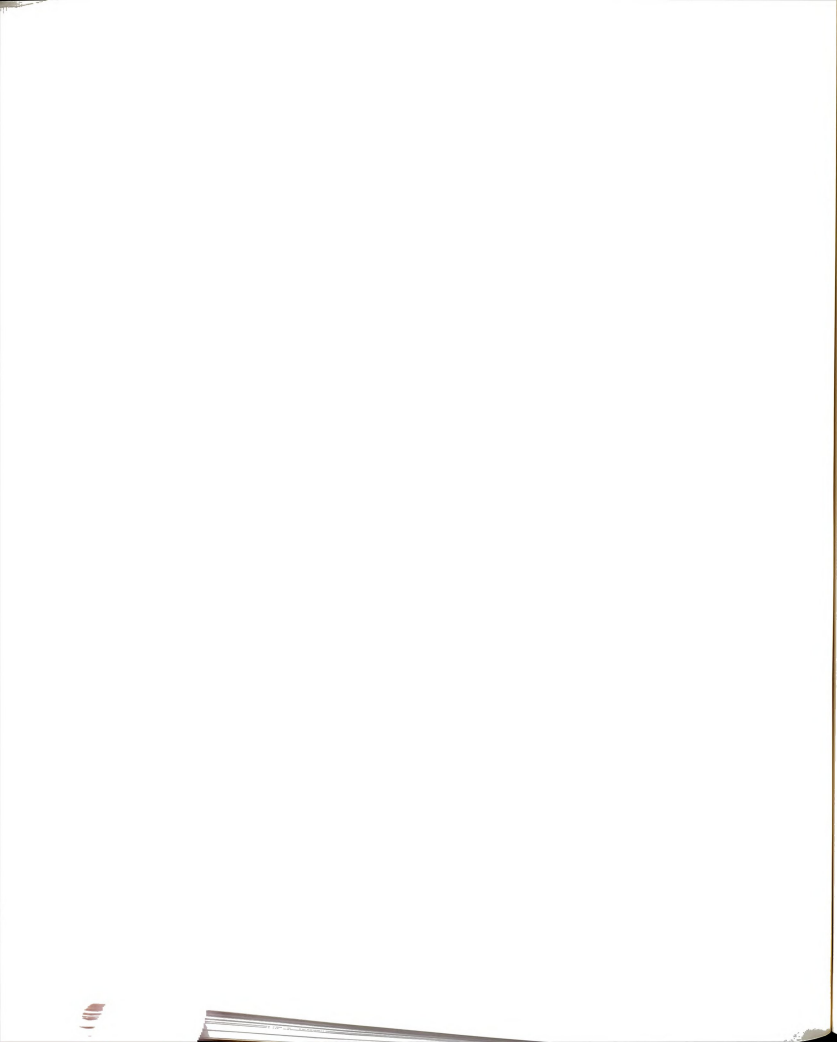


The original theory of student development was in *loco parentis* (Upcraft and Moore, 1990). "The early colonial colleges believed they had a responsibility to act on behalf of parents for the good of their students. Students were considered children, and the institution their 'parents' (Upcraft and Moore, 1990).

In the 1950's and 60's, theories began to emerge that studied student growth within the social context of the collegiate environment. For example, Erickson (1950, 1968) wrote of the "identity crisis" that many college students experience in their early attempts to define themselves. Sanford (1968) wrote of the need for colleges to provide "support and challenge" in order to encourage student growth. Chickering (1969) developed his "vectors of development" that helped college officials understand more clearly the nature of their students. Perry, Kohlberg, Astin, and others have made significant contributions to the growing body of knowledge regarding the growth and development of college students.

There are limitations to all student development theories. For example, Gilligan (1982) believes that theories based only on research of men does not adequately explain the development of women. Cross (1971) and others believe that black student development is not adequately addressed through research involving only white students.

The literature concerning the characteristics of academically underprepared students indicates that these students tend not to have clear career and educational goals and they tend to have inadequate conceptions of what is involved in achieving success in college (Maxwell, 1979). Academically underprepared students tend to be externally controlled and tend to rely on parent or teacher admonitions to direct their behavior (Knefelkamp, 1978). Many students exhibit some degree of underpreparedness. "In fact, it can be argued that all entering freshmen are, to some degree, underprepared for the academic



and personal rigors of post-secondary education" (Saunders and Ervin, 1984, p. 256).

As provided in the literature, there is evidence that over ninety percent of all public colleges and universities provide developmental courses and/or programs (Millard, 1991). Numerous successful solutions are available for institutions concerned with helping their academically underprepared students. A national survey of successful developmental education programs suggested many effective strategies for working with underprepared students (Roueche, 1983). These included mandatory assessment and course placement, structured courses, multiple learning strategies, and intrusive advising to intervene early into the failure process. The professional literature also indicates a need on the part of colleges to provide for an "early warning system" to identify and help students who are experiencing difficulty before they drop out (Schreiner, 1991). While many studies have researched the correlates of retention and the processes involved in student persistence, it appears that institutions that develop systems to maintain a high degree of responsiveness to student needs tend to experience the most positive results (Schreiner, 1991).

Method

The population in this study consisted of 193 of the 213 students (91%) admitted to Ferris State University, fall quarter 1991, with less than a 2.00 high school grade point average (on a 4.00 scale). Of the 193 students, 63 (32.6%) were female and 130 (67.4%) were male. Of of 193 students, 138 (71.5%) were white, 52 (26.9%) were black, 2 (1%) were Native American, and 1 (.5%) was Hispanic.

The study was quantitative, descriptive, and cross-sectional in nature. The data was collected using the College Student Inventory (CSI). The College Student Inventory is a 194-item multidimensional inventory of student motivation, using nineteen scales in five general categories. As provided in Figure 5.1, the five general categories are 1)

Academic Motivation, 2) Social Motivation, 3) General Coping Skills, 4) Receptivity To Support Services, and 5) Initial Impression. Test data (ACT and Degrees of Reading Power) was also used, as was demographic data such as age, gender, ethnicity, and high school grade point average.

Figure 5.1 - College Student Inventory main categories and variables

Academic Motivation
Study Habits
Intellectual Interests
Academic Confidence
Desire to Finish College
Attitude Toward Educators

Social Motivation
Self-Reliance
Sociability
Leadership

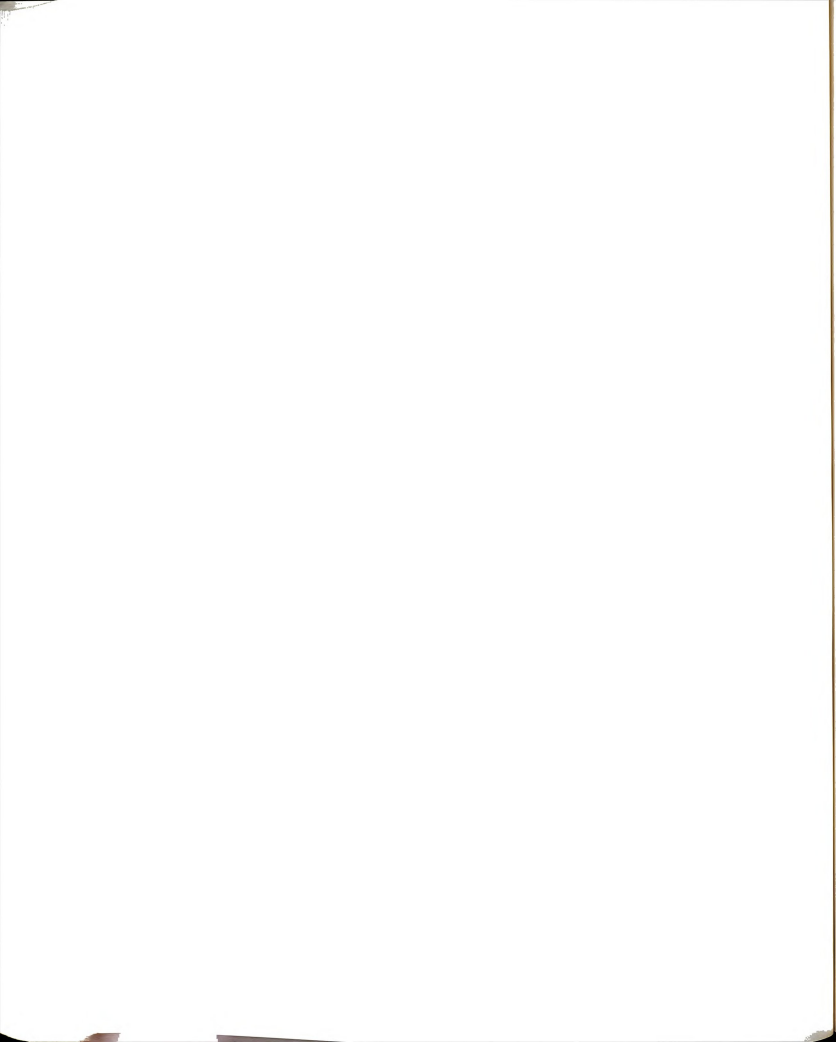
General Coping Skills
Ease of Transition
Family Emotional Support
Openness
Career Planning
Sense of Financial Security

Receptivity to Support Services
Academic Assistance
Personal Counseling
Social Enrichment
Career Counseling

Initial Impression

Research Hypothesis 1 involved using z-tests to compare the ACT scores, attitudes, as measured by the College Student Inventory, Degrees of Reading Power test scores, and demographic characteristics of Ferris Collegiate Skills Program students and those of entering college students in general. Chi-square was performed on the gender and ethnicity variables. The .05 alpha level was used.

Research Hypotheses 2 through 6 involved two-way MANOVAs. MANOVA (multivariate analysis of variance) explores simultaneously the relationship between multiple independent variables and multiple dependent variables. Aptitude was measured by ACT composite score. High and low ACT groups were cross classified with gender, ethnicity, age, DRP, and high school grade point average. The dependent variables measured the following: Academic Motivation, Social Motivation, General Coping Skills, Receptivity To Support Services, and Initial Impression of Ferris State University.



Follow-up ANOVAS (univariate analysis of variance) and Scheffe's post-hoc comparisons were used where statistical significance was found.

Research Hypothesis 7 involved stepwise multiple regression to predict first term success among Collegiate Skills Program students.

Summary of Hypothesis Testing

Hypothesis 1

As revealed by hypothesis testing, the Ferris Collegiate Skills Program (CSP) students are significantly different than other entering college students in many important ways. A profile of CSP students was derived from the data from hypothesis 1.

A Profile of CSP Students

Ferris CSP students have much lower aptitudes, as measured by ACT scores, than entering college students in general. In this study, 87.6% of the sample had an ACT composite score below 20. The national ACT mean composite score for fall of 1991 was 20.6 (ACT, 1991). In the State of Michigan, the mean ACT composite score for students entering state supported, 4-year institutions, excluding Ferris, was 23 in the fall of 1990. In the fall of 1991, 98.4% of the sample had an ACT composite score of less than 23.

The differences between the sample and the population relative to eighteen different College Student Inventory (CSI) variables were examined in hypothesis 1. Significance on thirteen of the eighteen CSI variables was revealed. A summary of the CSI variables that tested for significance and those that did not are listed in Figures 5.2, 5.3 and 5.4.

Figure 5.2: College Student Inventory variable sample means that were lower than population means when tested for statistical significance in Hypothesis 1

Academic Motivation

Study Habits
Intellectual Interests
Attitude Toward Educators

Social Motivation

Leadership

General Coping Skills

Family Emotional Support
Openness
Career Planning

Receptivity to Support Services

Social Enrichment

Initial Impression

Initial Impression

Figure 5.3 - College Student Inventory variable sample means that were higher than population means when tested for statistical significance in Hypothesis 1

Receptivity to Support Services

Receptivity to Academic Assistance
Receptivity to Career Planning

Figure 5.4 - College Student Inventory variable sample means that were not statistically different from population means

Academic Confidence

Desire to Finish College

Social Motivation

Self-Reliance
Sociability

General Coping Skills

Ease of Transition
Sense of Financial Security

Receptivity to Support Services

Personal Counseling

In hypothesis 1, the mean age of the sample and population were compared. No statistically significant difference was revealed. The sample had a mean age of 18.32, a highly traditional age for entering freshmen in general. The gender and ethnicity ratios of the sample and population were also compared. In both cases, significance was

revealed. There were many more males in the sample than in a typical grouping of entering college students. Only 32.6% of the sample was female. Nationwide, females represented 55% of the entering freshmen in the fall of 1991.

Nationwide, minority students represented approximately 19% of the entering freshmen in the fall of 1991. In this study, the sample consisted of 28.5% minority students.

The Degrees of Reading Power (DRP) test scores of the sample and the population were compared in Hypothesis 1.23 and the high school grade point averages (HSGPA) of the sample and the population were compared in Hypothesis 1.24. The mean DRP raw score of the sample was 55.97, which was converted into a DRP score of 77. The population mean DRP score was 75. A statistically significant difference between the HSGPA's of the sample and the population was revealed by hypothesis testing. The sample HSGPA of 1.78 was significantly lower than that of the population at 2.98.

Hypotheses 2 through 6

Each hypothesis in this group involved two-way MANOVAs to simultaneously explore multiple independent and multiple dependent variables. Each hypothesis used ACT scores as a blocking variable. The ACT score distribution was divided into two levels, high and low, which were then cross-classified with gender, ethnicity, age, DRP scores and high school grade point average. The various CSI variables, were the dependent variables.

The two-way MANOVAs used in each hypothesis produced three tests for significance: one for interaction, one for main effect ACT, and one for the other main effects of Age, Ethnicity, Gender, DRP or High School Grade Point Average (HSGPA).

As revealed by hypothesis testing, the interaction effects in all but one hypothesis

(H_0 4.4, ACT by DRP) were not significant. As indicated by the Scheffe's procedure for post-hoc comparison in H_0 4.4, the Low ACT/Low DRP group mean (14.27) on the Openness variable is significantly different from the Low ACT/High DRP group mean (24.06) on the same variable.

ACT

Main effect ACT proved to be the strongest contributor to the explanation of significant difference, followed by DRP and Age. Low ACT students (ACT composite score 16 or below) had fewer intellectual interests and less academic confidence than the high ACT group (17 or above). Low ACT students were less open than high ACT students, but the low ACT cohort was more receptive to academic assistance, social enrichment and career counseling than the high ACT group. The high ACT students had a **lower** initial impression of FSU than the low ACT group.

DRP

Low DRP students (58 raw score or below) had fewer intellectual interests, less academic confidence and less of a desire to finish college than the high DRP students (59 raw score or above). Low DRP students also had less self-reliance and lower sociability scores than high DRP students.

AGE

Low age students (18 years and below) had less regard for educators and fewer intellectual interests than high age students (19 years and above). The high age students has less of a sense of financial security than the low age students. Low age students were more receptive to academic assistance, social enrichment and career counseling than high age students. Although not significant at the .05 level, main effect Age did come very close to significance on the Sociability and Leadership variables.

GENDER

Females had less academic confidence than males. Males had lower sociability

measure than females. Males were also less open than females.

ETHNICITY

Minority students expressed a greater willingness to make sacrifices needed to achieve college success than majority students. As a group however, CSP students were lower than the national population in this category (Studey Habits). Minority students felt greater family emotional support, but less financial security than majority students.

HSGPA

High HSGPA students (1.70 - 1.99) had lower regard for educators than low HSGPA students (1.00 - 1.69).

Hypothesis 7

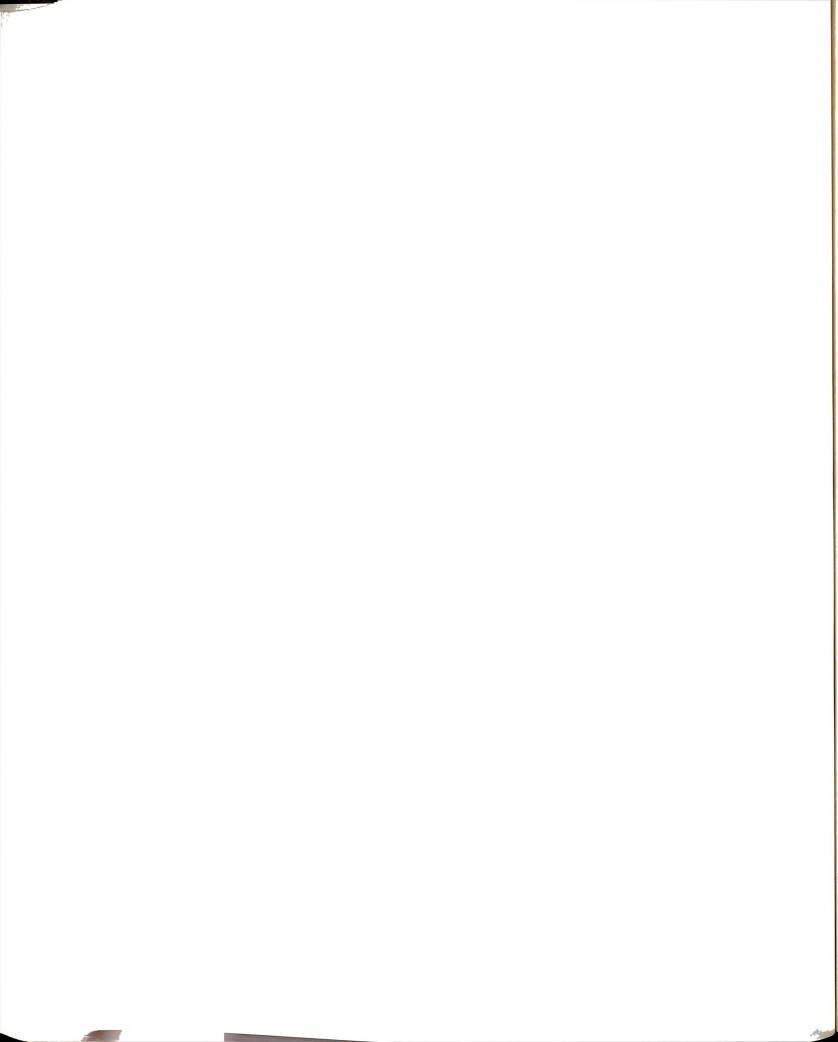
Hypothesis 7 involved stepwise multiple regression to predict first term success among CSP students. CSI variables, HSGPA, DRP scores, demographic characteristics, and a combination of these variables were used to attempt to explain the relationships between these variables and first term grades.

As revealed by the data analysis, the DRP results were most prominent in terms of predictive power, followed by the CSI variable Attitude Toward Educators. Additional CSI variables did not contribute sufficiently to an explanation of variance in the first term grades of the sample. Ethnicity was found to be significant at the .05 level, but no other demographic variables were statistically significant.

CONCLUSIONS

Major Conclusions

The purpose of this study was to examine the nature of the academically underprepared students within the Collegiate Skills Program at Ferris State University. As a result of this study, an accurate profile of CSP students was developed. This profile is presented under the summary of hypothesis testing.



CSP students are significantly different in many ways from entering college students in general. Specifically, it was concluded that the CSP population studied had lower ACT sub-scores and composite scores than entering students in general. In the state of Michigan, the mean ACT composite score was 23 for students entering state-supported 4-year institutions, excluding Ferris, in the fall of 1990. In the fall of 1991, 98.4% of the sample had an ACT composite score below 23.

The relationships between ACT composite scores and other variables in the study were also examined. It was concluded that sample students with low ACT composite scores (16 or below) scored lower than the high ACT group (17 or above) on the following CSI variables: Intellectual Interests, Academic Confidence, and Openness. It was also concluded, however, that students with low ACT composite scores were actually higher in their receptivity to academic assistance, social enrichment, and career counseling than high ACT students. Low ACT students also had a better initial impression of Ferris than high ACT students.

It was already known that the sample had lower HSGPA's than the population. What was not known was that the sample's reading scores were slightly higher than the national average. Nevertheless, the mean sample DRP score was still only at the 55th percentile nationally. It was also concluded that the DRP scores of the sample entered into other relationships among the variables examined in this study. For example, DRP scores accounted for a significant proportion of the variance in first term grades among CSP students. CSP students with low DRP scores (58 raw score or below) also had fewer intellectual interests, less academic confidence, less of a desire to finish college, less of an ability to make their own decisions and carry through with them (Self-Reliance), and they were less likely to join social activities than students with high DRP scores (59 raw score and above).

It was also concluded that the sample's results on the Attitude Toward Educators CSI variable were much lower than the national average, which entered into the prediction equation examining first term grades. In fact, next to low DRP scores, Attitude Toward Educators accounted for the second most significant proportion of the variance in first term grades among CSP students. Clearly this attitude does not serve CSP students well. This is consistent with other research which concludes that "Students with poor academic achievement often express a general hostility toward teachers, and this attitude often interferes with their work" (Schreiner, 1990, p. A-26).

The fact that all of the students in the sample had less than a 2.0 HSGPA is their primary commonality. But a disaggregation of the data revealed another common characteristic: CSP students are similar to entering students in general in their desire to finish college. The sample held this desire even though they also indicated they possess poorer study habits, fewer intellectual interests, lower academic confidence, and as previously mentioned, a lower regard for educators than entering college students in general. These results should not necessarily lead one to conclude, however, that this desire to finish college reflects dogged determination to persist on the part of CSP students. It may reflect an inability on the part of these students to acknowledge the reality of their situation.

The results do allow one to conclude that the population studied exhibits characteristics that are similar to other academically at-risk students. Schreiner (1990) reports that when studying students with low grade point averages, who are also at risk of dropping out, certain patterns emerge.

Thus the picture of a low-GPA student who is at risk is one with poor academic skills, few coping resources, but very high sociability and receptivity to intervention. This appears to confirm the intuitive notion that a high level of socializing often contributes to college dropout among academically weak students. It also means that these students are very open to any help that might be

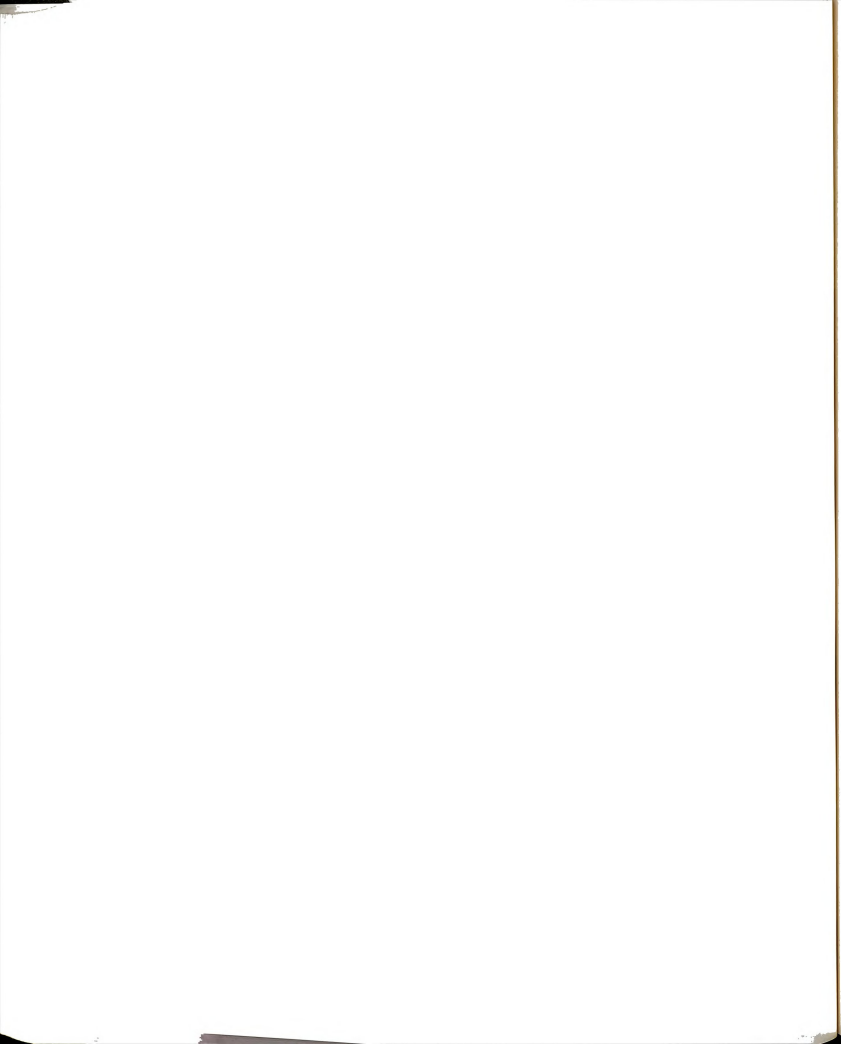
offered by the institution, especially in the areas of personal counseling and academic assistance (Schreiner, 1990, p. A-34).

This is almost an exact description of the CSP students in this study as shown by the results. For example, the CSP students, despite having poor academic skills and few coping resources, did enjoy a normal degree of sociability as measured by the College Skills Inventory. The sample means were higher than the population means on Receptivity to Academic Assistance and Receptivity to Career Counseling. One can conclude that the CSP students in this study, although grossly underprepared for the rigors of college, are interested in being social and very interested in receiving assistance with their academic work and in career planning. It was conjectured that the various interaction effects (ACT by AGE, ACT by Gender, ACT by Ethnicity, ACT by DRP, and ACT by HSGPA) would prove highly significant within a discussion of the nature of these academically underprepared students. This was **not** the case. The interaction effects studied revealed statistical significance in only one hypothesis ($H_{04.4}$, ACT by DRP)

The ten instructors who participated in this study were positive about the insights they obtained about their students as a result of using the College Student Inventory. They all expressed a desire to use the instrument in the future to help them better understand the nature of their academically underprepared students. They expressed an increased awareness of the complexity each student embodies, and they unanimously agreed that this awareness will help them provide better academic advising.

Minor Conclusions

That academically underprepared students tend to exhibit attitudes and behaviors that are counterproductive to achieving college success was revealed in the review of the literature (Cross, 1976; Knefelkamp, 1978; Maxwell, 1979; Riesman, 1980; Noel and



Levitz, 1989; and others). In developing a profile of the sample it was concluded that CSP students were significantly different than entering college students in general in other ways not previously mentioned.

For example, without examining any interaction effects, simply comparing CSI results, it was concluded that CSP students had less of a willingness to meet the demands necessary to achieve success in college (Study Habits) than entering college students in general. CSP students did not enjoy the actual learning process (Intellectual Interests) and did not have as much confidence in their ability to perform as well in college (Academic Confidence) as entering college students in general. CSP students felt less positive about their ability to be socially accepted, especially as a leader (Leadership) than entering college students in general. CSP students were less satisfied with the quality of communication, understanding and respect within their families (Family Emotional Support) and had less of a tendency to be open and sensitive to new ideas and aspects of the world of college (Openness) than entering college students in general. The sample also showed less of an ability to decide on a career path and less of an ability to engage in the mental activities that usually lead to effective career path decision-making (Career Planning) than entering college students in general.

There was no statistically significant difference between the sample and the population on the Ease of Transition variable which measures basic feelings of security amid the changes that accompany entering college. This is very interesting in light of the fact that many of the sample's attitudes on other CSI variables tend to be negative. It was also concluded that the low age group CSP students (18 years or below) had fewer intellectual interests and had lower regard for educators than the high age group CSP students (19 years or above).



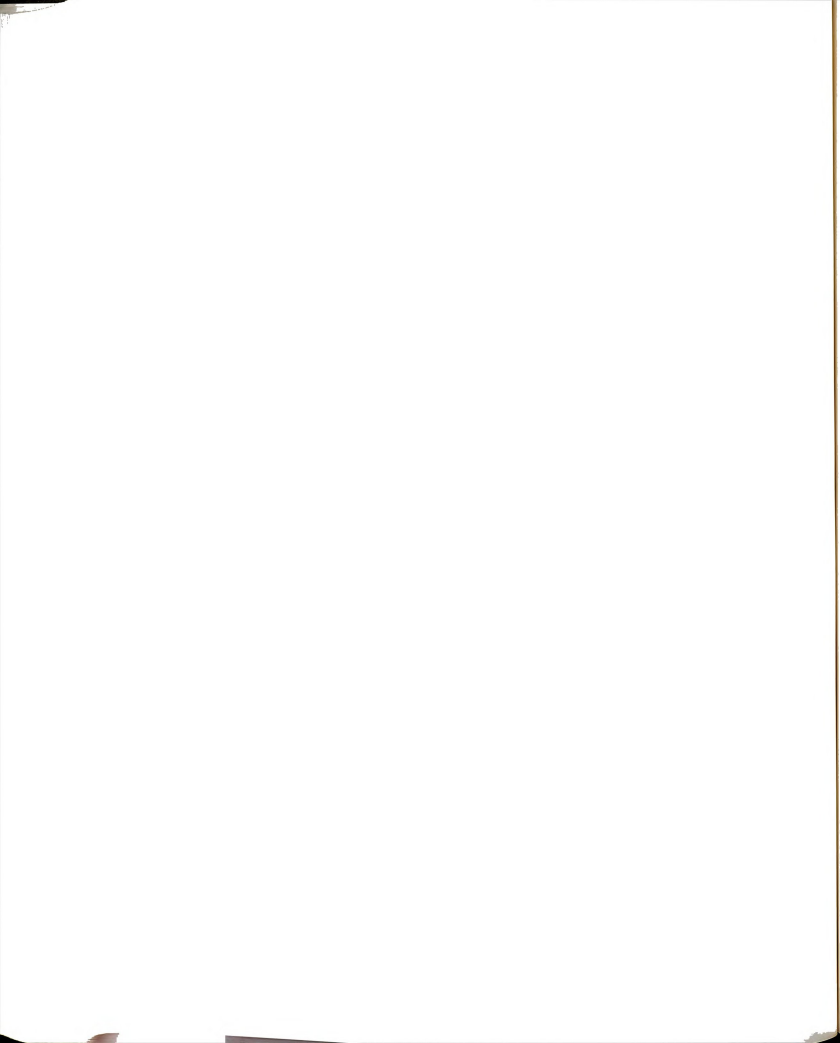
RECOMMENDATIONS

Future Actions

As a result of analyzing the findings, it is strongly recommended that CSP students with low DRP scores and low ACT composite scores be given special treatment relative to expanding their intellectual interests and building their academic confidence. As a group, the CSP students are not significantly different than entering college students in general in terms of their desire to finish college. Low DRP students, however, have a lower desire to finish college than entering college students in general. Helping low ACT/low DRP students improve on selected CSI variables should be attempted in special sections of GE 103-Freshman Orientation, a class required for all CSP students.

If the CSI was administered during summer orientation, the results could be received in time to make appropriate course placement. Therefore, the researcher recommends that the CSP students take the CSI as a normal part of the summer orientation program. This would allow the program director, counselor, and instructors/advisors ample time to receive and analyze the CSI data. Ferris should fund this important academic project with the same enthusiasm and creativity shown in funding the sports programs and convention center. Using the CSI will improve academic advising and has a very real possibility of increasing retention.

Given the importance of the DRP results relative to the prediction of first term grades, and levels of openness, intellectual interests, academic confidence, desire to finish college, self-reliance and sociability, the researcher strongly recommends that the Ferris reading instructors focus part of their instruction with these specific topics in mind. For example, while improving reading skills of CSP students, instructors may also encourage in them greater openness to different and sometimes threatening aspects of



their new social and academic environments.

The reasearcher also recommends a more unified, cooperative approach to the CSP reading, study skills, orientation and career development courses. All of these courses could be taught in a way to help CSP students better understand that what is learned in one course is not completely discrete or unrelated to what is learned in other courses. We cannot assume CSP student understand the interrelatedness of their farious collegiate experiences.

The action agenda of the near future for student affairs will increasingly be driven by basic questions like "How can we describe students in meaningful ways when they first enter college?" (Hanson, 1990, p. 277). Another question one might add would be, "How can we help correct the mismatch that often exists between faculty assumptions and expectations and actual characteristics of students when they first enter college?"

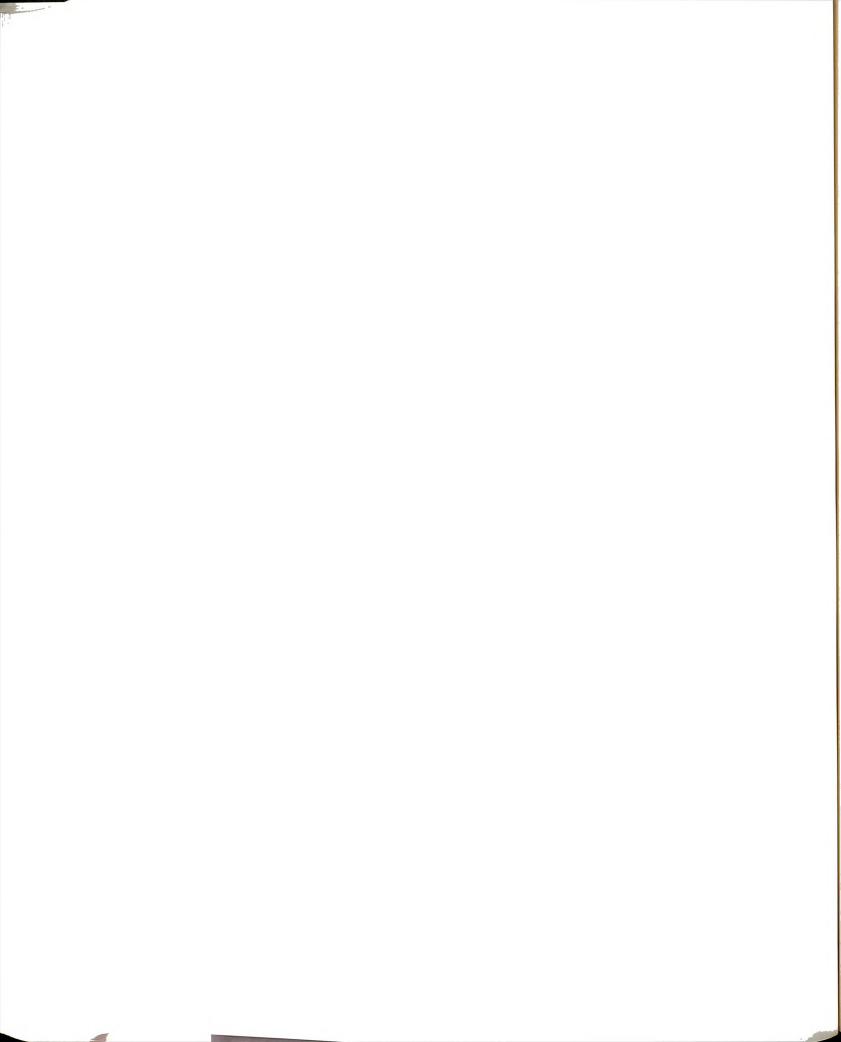
As a result of engaging in this study and as a result of examining the professional literature, which clearly articulates a dramatic change in the nature of entering students in general, the researcher strongly recommends that colleges and universities in general, and Ferris in particular, start, or continue to educate their faculty about the diversity and developmental nature of their entering students. Hopefully, this would reduce the erroneous assumptions and unrealistic expectations some instructors have about their students. All college officials need to better understand their "customers" in order to better meet their needs. Increasingly, in the years to come, educators will be held accountable to "...show our effectiveness in helping students achieve their educational goals, especially when we are asked to justify the funds we spend" (Hanson, 1990, p. 286).

Ferris should continue providing workshops to teach instructors specific ways of matching knowledge of developmental theory to actual classroom practice. Initial efforts

along this line have proven successful. For example, Ferris State University recently contracted the services of a developmental theory expert from Michigan State University. A one-day workshop was presented for selected faculty members to educate them on how to consider the developmental stages of their students when planning for instruction. Many of the faculty members involved said it was one of the most productive in-service sessions they had ever attended.

It is strongly recommended that the results of research, such as this study, be shared with future CSP students within the context of the Freshman Orientation classes. This data should be used to help students better understand themselves. This study could be used as one small "mirror" for students who seem unable to see a reflection of their attitudes and values in their own behavior. It may prove useful to them. "For decades information about students has been collected, stored, analyzed, and used for a wide variety of purposes without the student learning directly from the information. If learning and development are never-ending processes, then we are obligated to teach students how to gather, analyze, and interpret information about themselves. Students must learn how to use information in the decisions that shape their lives" (Hanson, 1990, p. 278-279). The College Student Inventory was used in this study for exactly these reasons.

The researcher recommends that other departments on the Ferris campus use the CSI to deepen their understanding of their students. For example, coaches could use this instrument, as could residence hall directors, or any academic program with a manageable number of students. The data that would result from these efforts should be used to formulate an institutional "early warning system" for department heads, academic counselors and advisors, and faculty to intervene in the failure and dropout processes



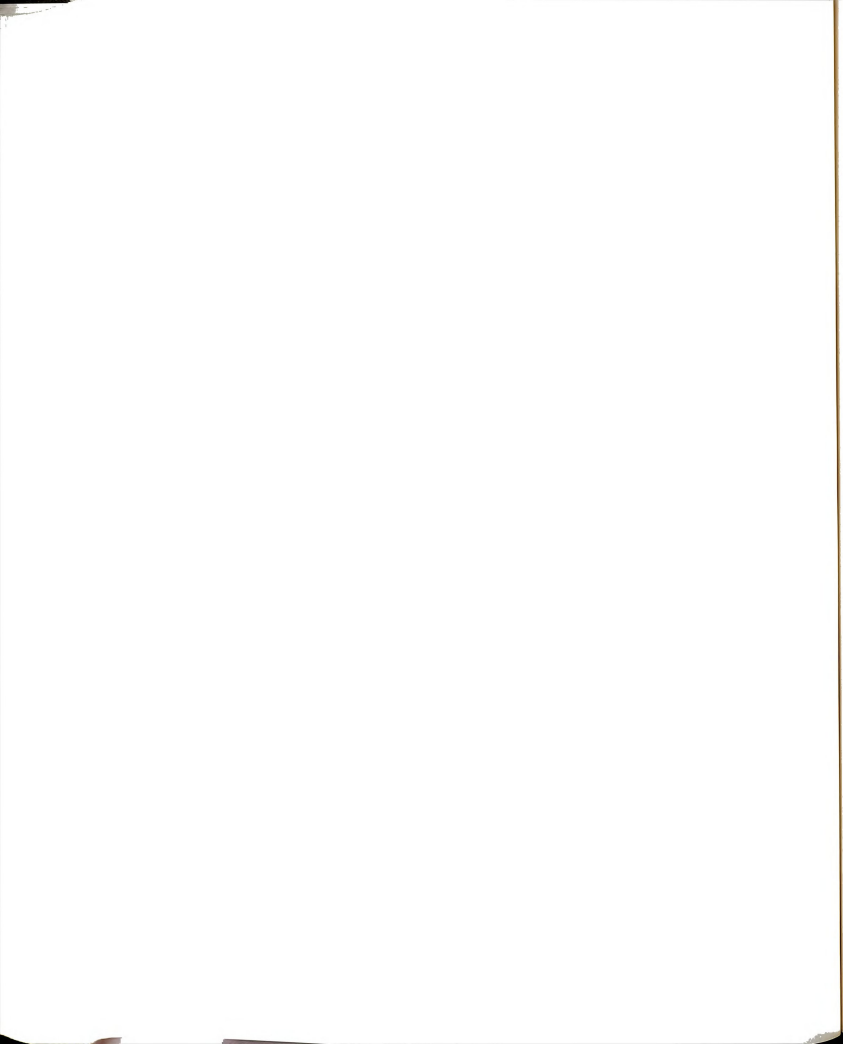
before it is too late. The knowledge and experience gained by the university-at-large through increasing numbers of college officials spending time with students during the required CSI interview sessions could result in establishing Ferris as one of a growing number of "Involving Colleges." These are institutions that go beyond traditional methods to help students become deeply involved in the academic and social systems of the college (Kuh, 1991).

Continued emphasis should be placed on helping academically underprepared students understand how nonacademic variables effect their overall ability to persist in college. Entering CSP students need to be equipped with a clear understanding that their present attitudes, especially their attitudes toward educators, appear to have a greater impact on their college survival than past high school academic performance. At Ferris, a strengthening of efforts to help students understand this concept should take place within the context of the Freshman Orientation course.

It was also concluded that male CSP students in this study indicated a tendency to be less open to new ideas, and less inclined to join social activities than the female CSP students. A discussion of this within the Freshman Orientation course could prove to be useful in encouraging male students to examine these possible counterproductive behaviors.

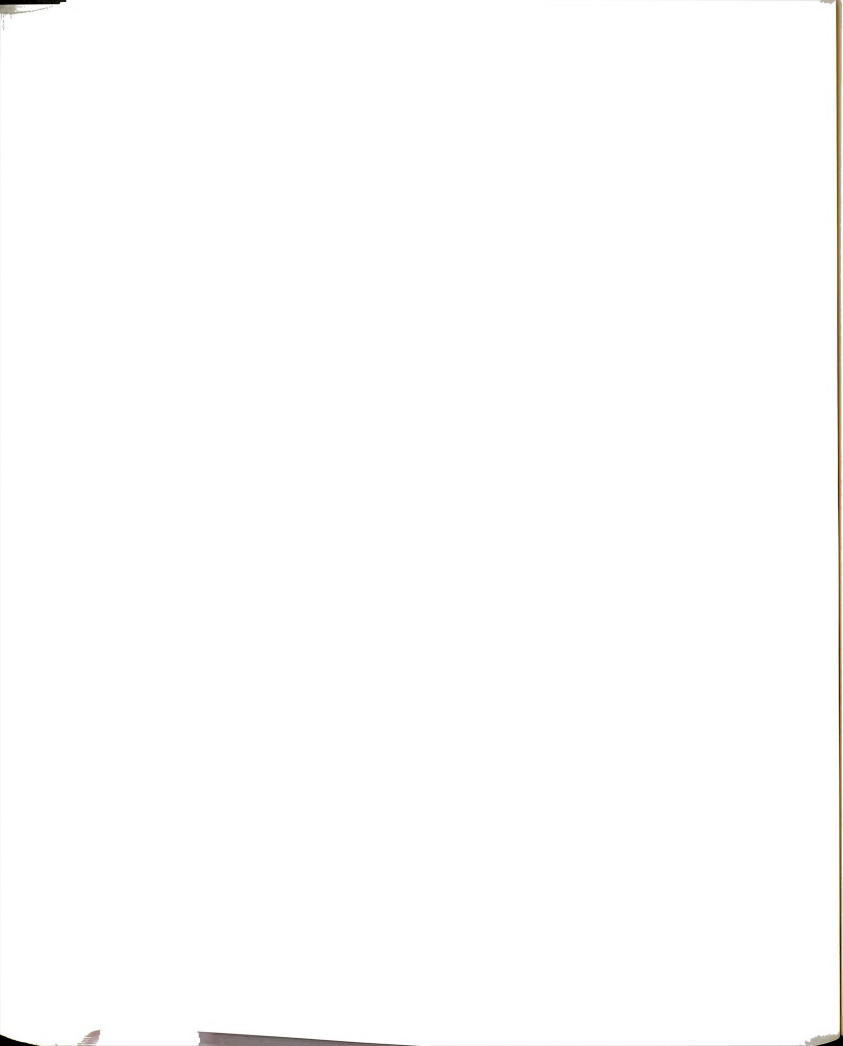
Additional Research

The findings of this study have significant implications for future research. First of all, a follow-up study of this sample should be undertaken in order to examine the relationships, if any, between their aptitudes, attitudes, and demographic characteristics and actual graduation rates. Along these lines, a study should be done on the central characteristics and behavior patterns of the CSP students that do graduate. What can we generalize about CSP students with initially very poor attitudes who go on to graduate?



There is a need for attitude--aptitude--treatment interaction studies to examine the types of specific intervention strategies that are the most effective with academically underprepared students. Research needs to be conducted to determine which academically underprepared student characteristics interact dependably with various treatments, such as different instructional methods. Research also needs to be conducted to determine if effective treatments to improve the academic performance levels of academically underprepared students in general are effective when examined from the perspective of age, gender, and ethnicity. How do older, academically underprepared students respond to specific changes in instructional methods? How do academically underprepared women or minority students respond to various treatments? All possible interactions are too numerous to differentiate and all results are confounded by the possible intrusion of numerous variables, but more research into aptitude--attitude--treatment interactions should be conducted to deepen our understanding of how best to help academically underprepared students succeed in college.

It is also strongly recommended that additional research be conducted to examine faculty attitudes toward academically underprepared students and the implications these attitudes have for actual classroom practices. Without lowering standards, how able and/or willing are instructors to actually change their instructional approaches to meet the needs of students with diverse abilities and learning styles? How should an institution deal with instructors who are as rigid and dualistic in their teaching styles as some academically underprepared students are in their learning styles? If the students are developmentally not able to change and faculty members are not willing to change, what are the implications of this situation for institutions with increasing numbers of students with diverse needs?



At the institutional level, research should also be conducted to determine if the hiring process can be improved to reduce the discrepancy between what new instructors assume the nature of their students will be and the actual nature of their students. How is it that instructors hired by institutions with open-door or liberal admissions policies claim to be confused and agitated by the nature of their students after teaching a term or two? Are candidates mislead or do they not listen when informed? Are people hired who have no prior knowledge of the growing diversity of student preparation levels within the collegiate ranks? Ways are needed to eliminate the hiring of instructors who are unable or unwilling to help meet the needs of an increasingly diverse student body.



Reflections

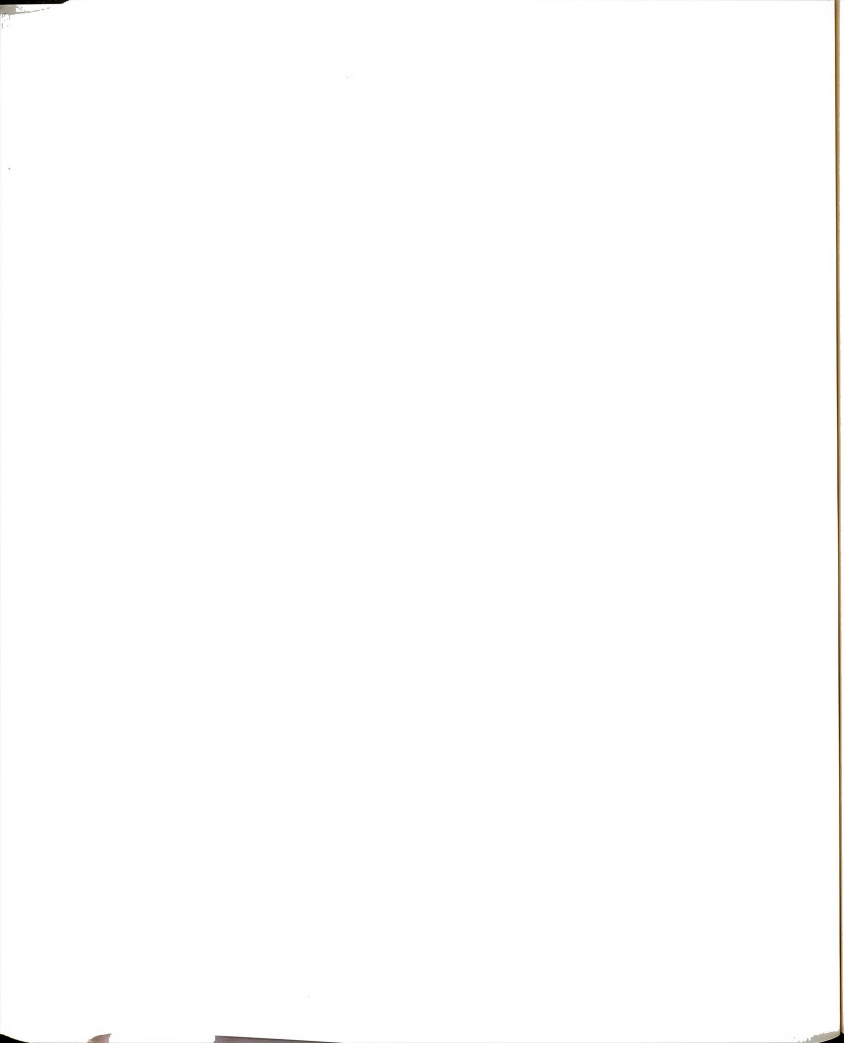
There is a diversity among today's college students unparalleled at any time in American higher education. Therefore, college administrators and faculty need to explore more accurate and efficient ways of understanding the nature of their students in order to improve the complex process of educating them. This appears to be such a basic or perhaps "generic" call for action.

Over thirty years ago, John W. Gardner wrote the following:

If we are to do justice to individual differences, if we are to provide suitable educations for each of the young men and women who crowd into our colleges and universities, then we must cultivate diversity in our higher education system to correspond to the diversity of the clientele. There is no other way to handle within one system the enormously disparate human capacities, levels of preparedness and motivations which flow into our colleges and universities (Gardner, 1961, p. 83).

But this time the situation is different. Significant change is needed in the way we come to know our students because the sheer volume of diversity is so much greater than in 1961. Helping administrators and faculty to understand this need may take another 30 years.

In Total Quality Management in Higher Education (Sherr and Teeter, eds., 1991), Ewell writes that perhaps the most difficult obstacle to overcome in attempting significant, positive change within a university is the ". . . sheer lack of perceived urgency regarding the need to change" (Ewell, 1991, p. 50). Faced with overwhelming evidence that the nature and demographic characteristics of college students is dramatically changing, and that significant numbers of the students arriving at college are academically underprepared, some faculty members simply deny this new reality. Some



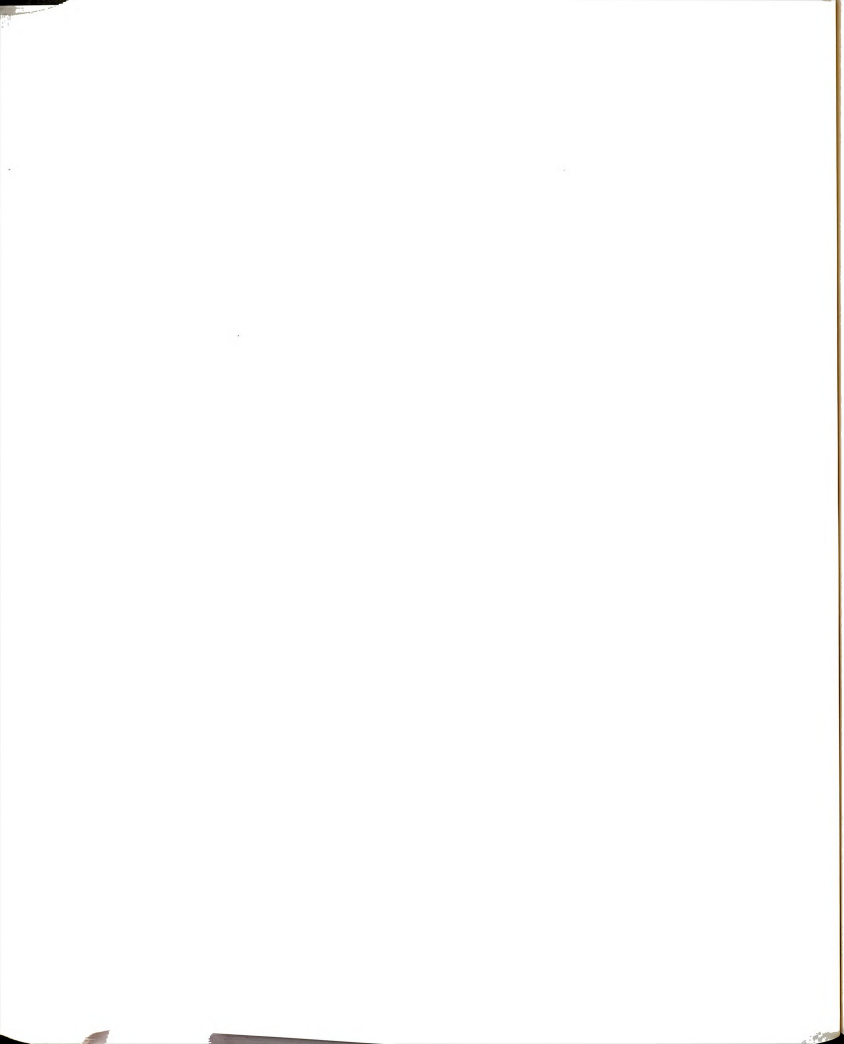
in effect say, "When I was hired I didn't have to teach kids like this." Others say, "Let someone else deal with these students; it's not my job."

As a faculty member, the researcher knows change can be difficult. But the new reality of our changing clientele demands that we make instructional adaptations, not to lower standards, but to give students with backgrounds, attitudes and learning styles that are probably different than our own a more reasonable chance of success.

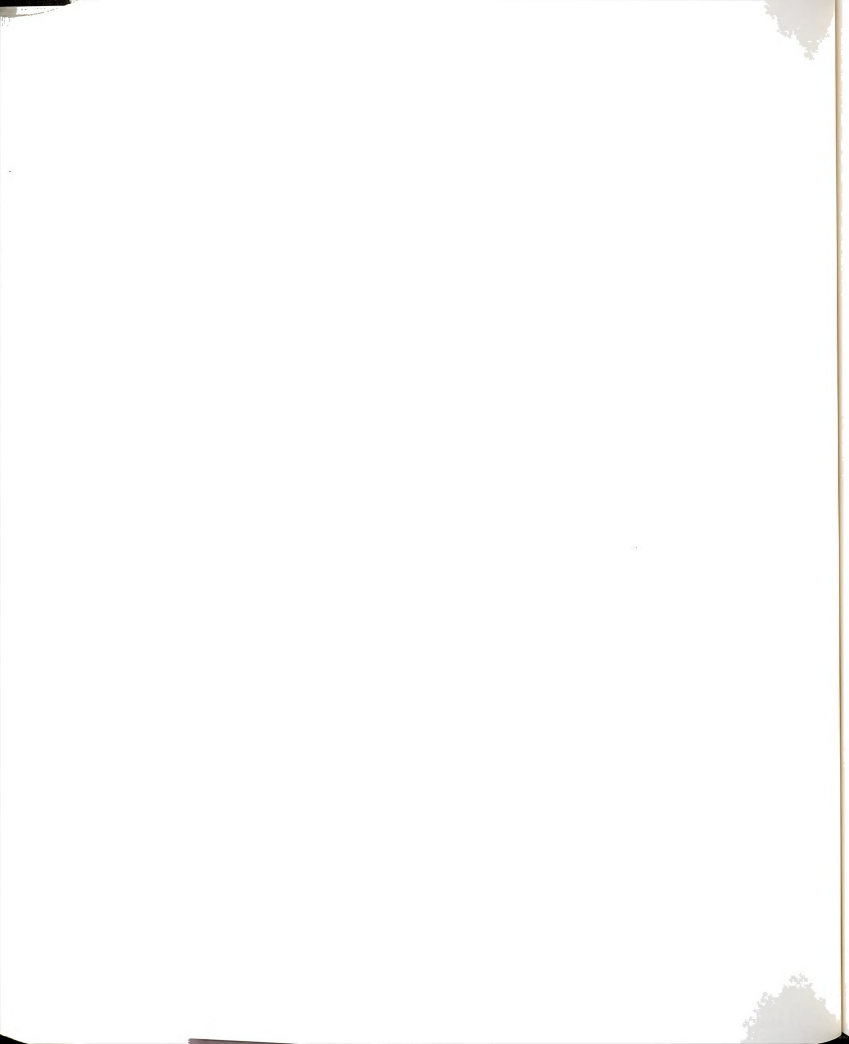
For example, some faculty members only lecture to students. Some of these same faculty members found straight lecturing a boring and ineffective way to learn when they were undergraduates. But now, even with students who have very low intellectual interests, low academic confidence, and poor attitudes toward educators, these instructors insist on lecturing, rejecting other instructional modes which may prove more effective with these students. "Despite considerable rhetoric over the past decade, undergraduate instructional improvement is not a core issue at most colleges and universities . . . The irony is that many --perhaps most--faculty believe in effective teaching and want to do a better job" (Ewell, 1991, p. 50).

At Ferris State University there are some faculty members who still maintain that it is an institutional embarrassment to admit underprepared students. This feeling exists despite the fact that Ferris has a traditional liberal admission policy. This "what will others say" mentality indicates more of a concern for image than for solving problems that are based in reality. Again, to quote John W. Garder:

Though we must make enormous concessions to individual differences in aptitude, we may properly expect that every form of education be such as to stretch the individual to the utmost of his potentialities. And we must expect each student to strive for excellence in terms of the kind of excellence that is within his reach. . . As I said in another connection: 'An excellent plumber is infinitely more admirable



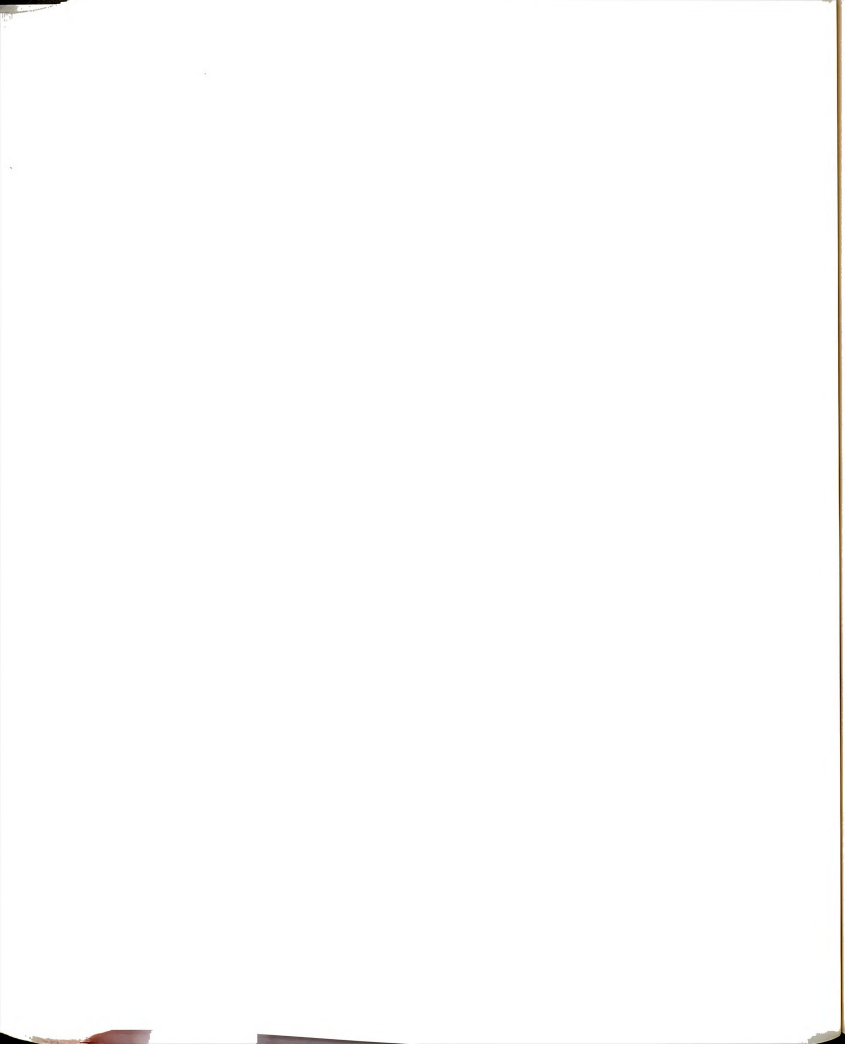
than an incompetent philosopher. The society which scorns excellence in plumbing because plumbing is a humble activity and tolerates shoddiness in philosophy because it is an exalted activity will have neither good plumbing nor good philosophy. Neither its pipes nor its theories will hold water' (Gardner, 1961, p.86).



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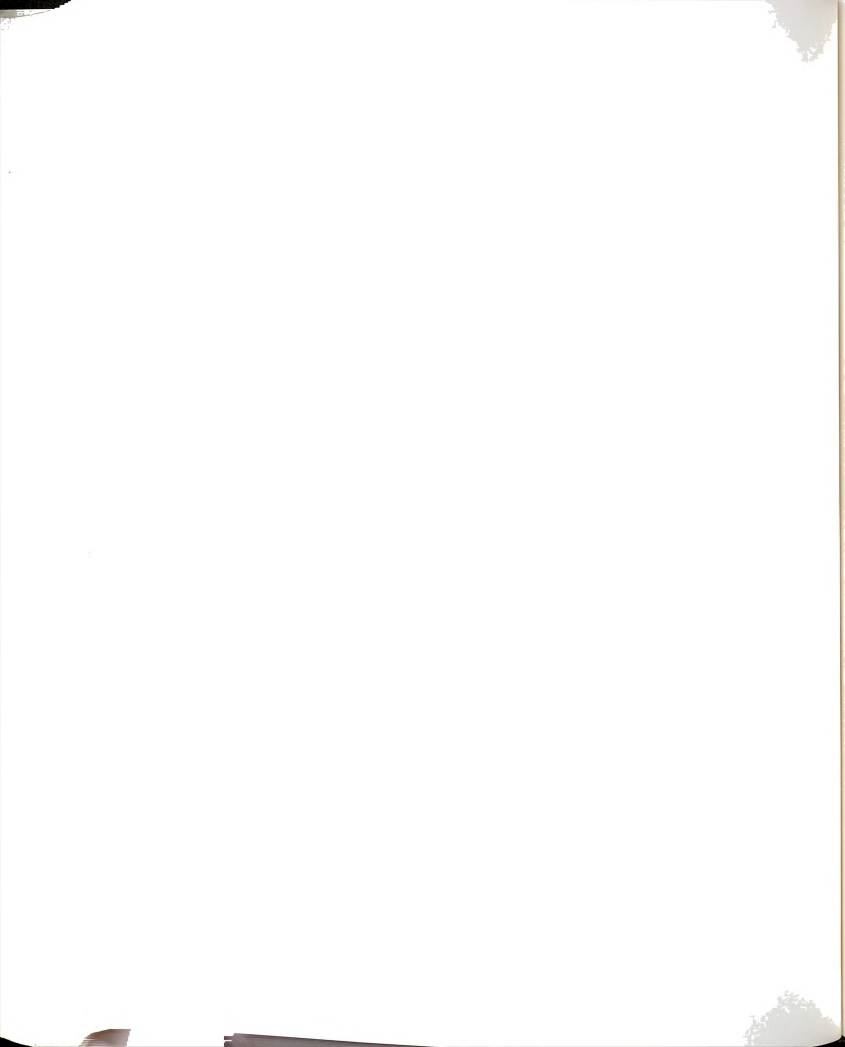
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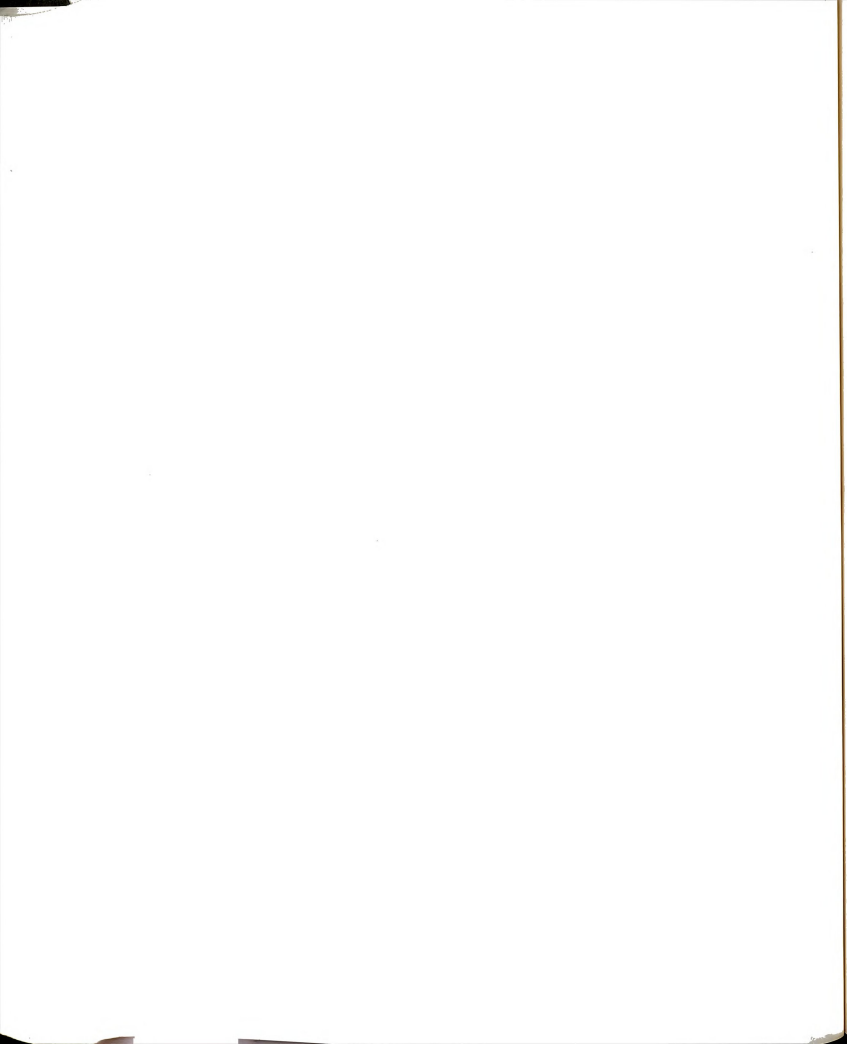
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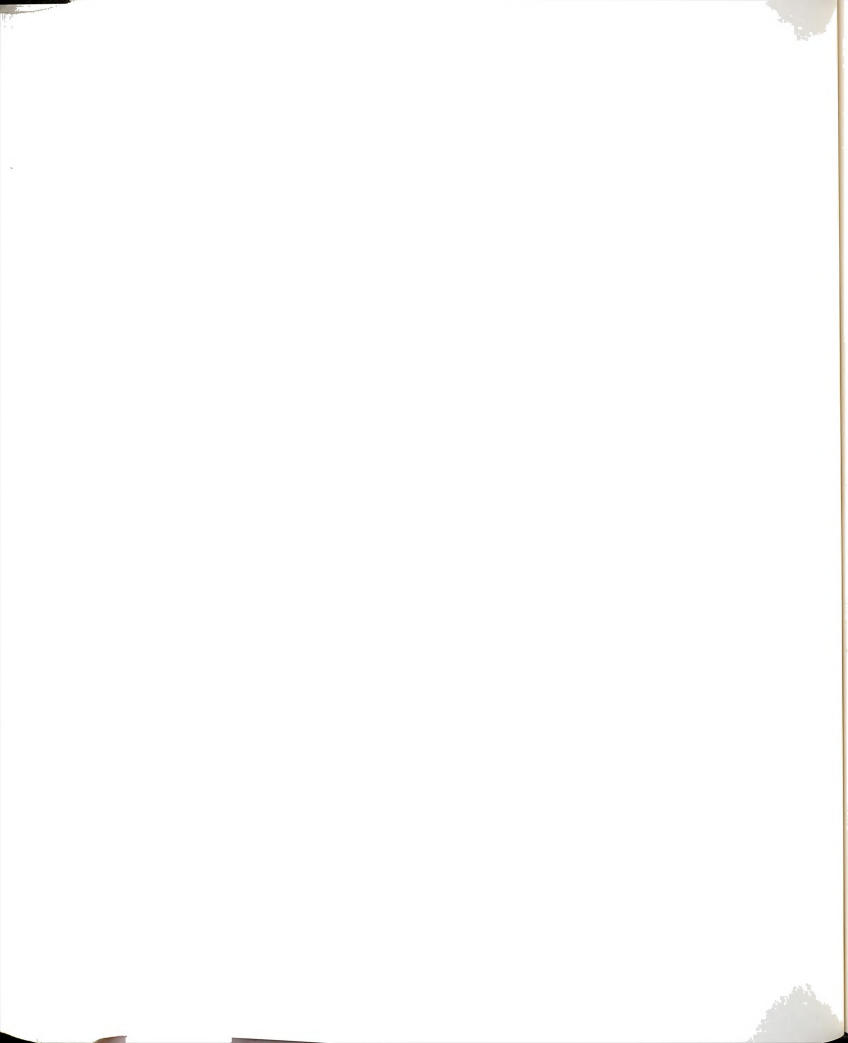
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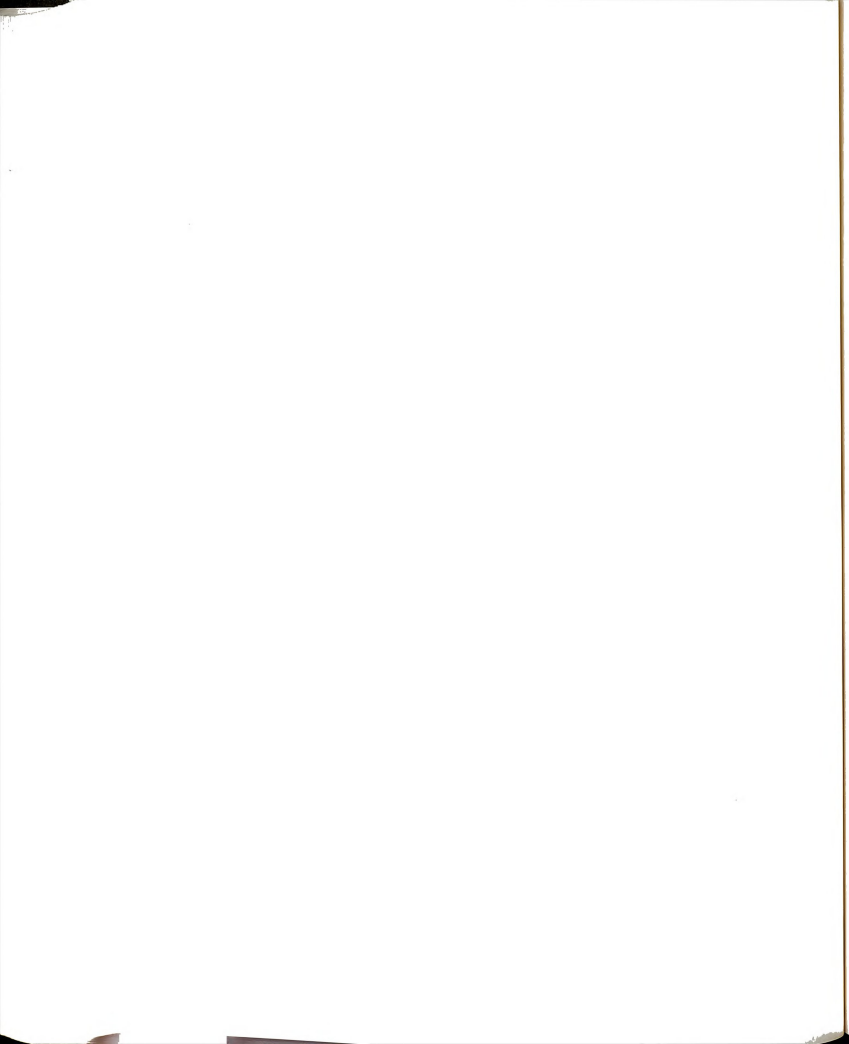
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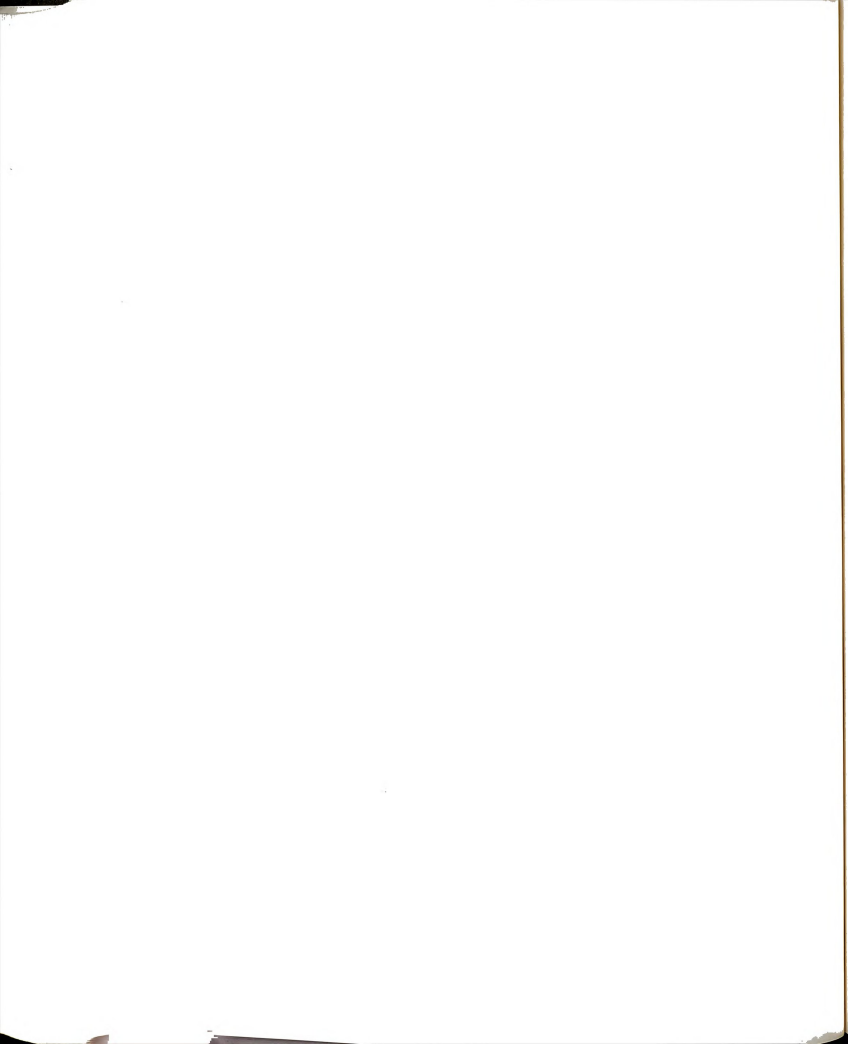
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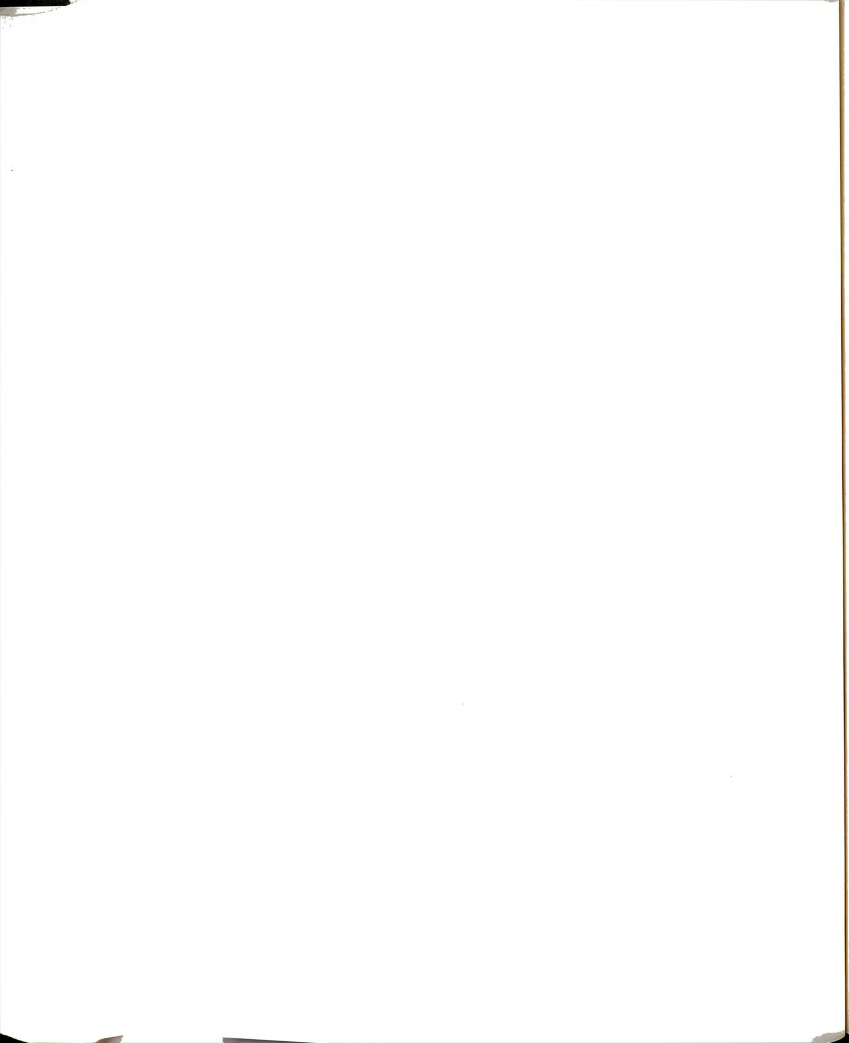
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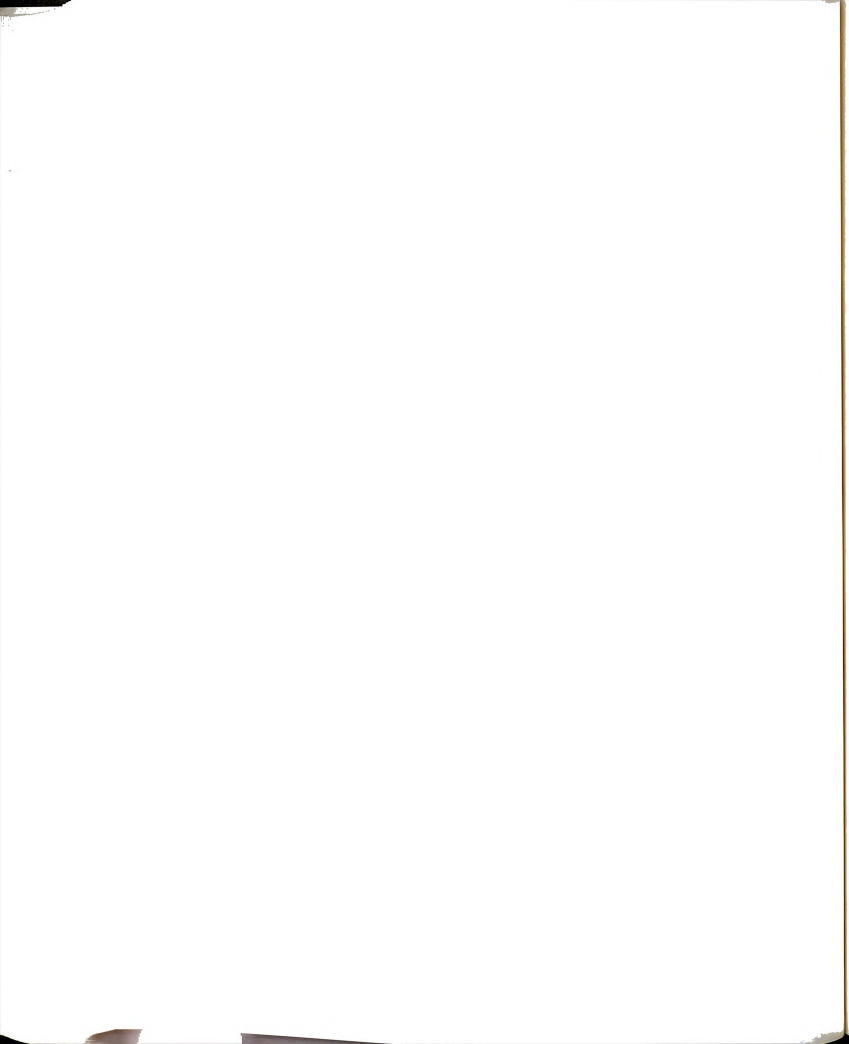
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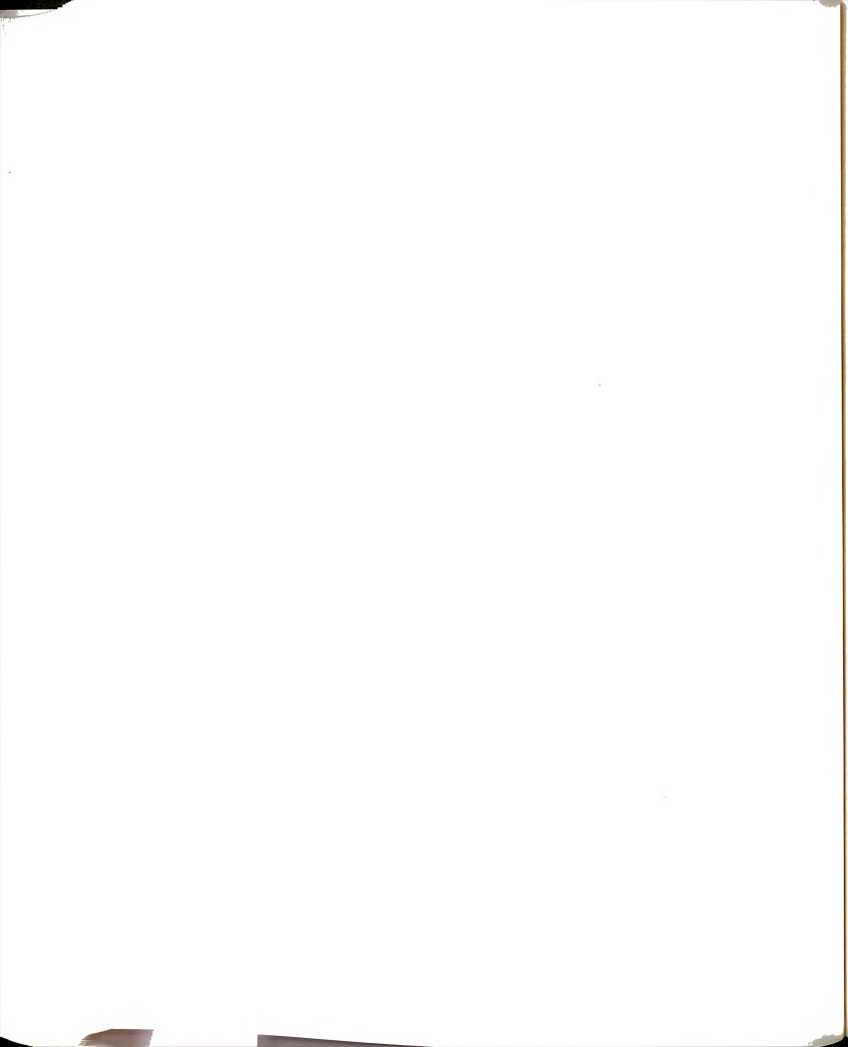
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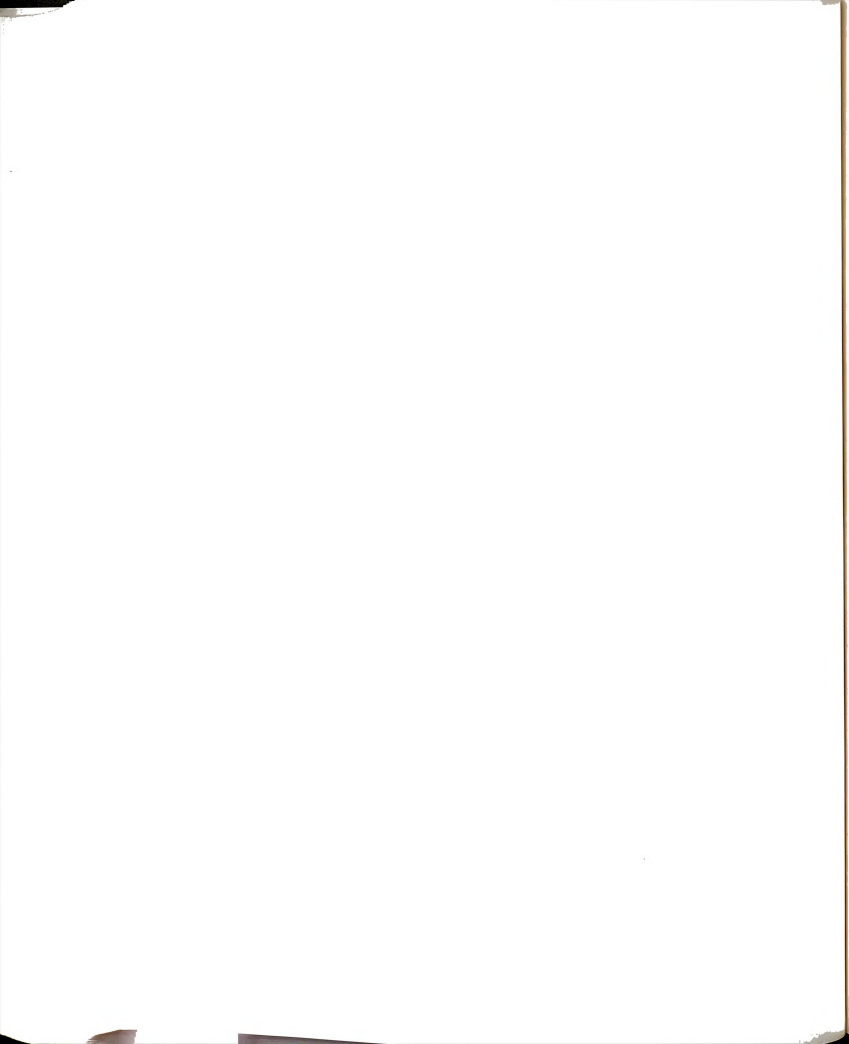
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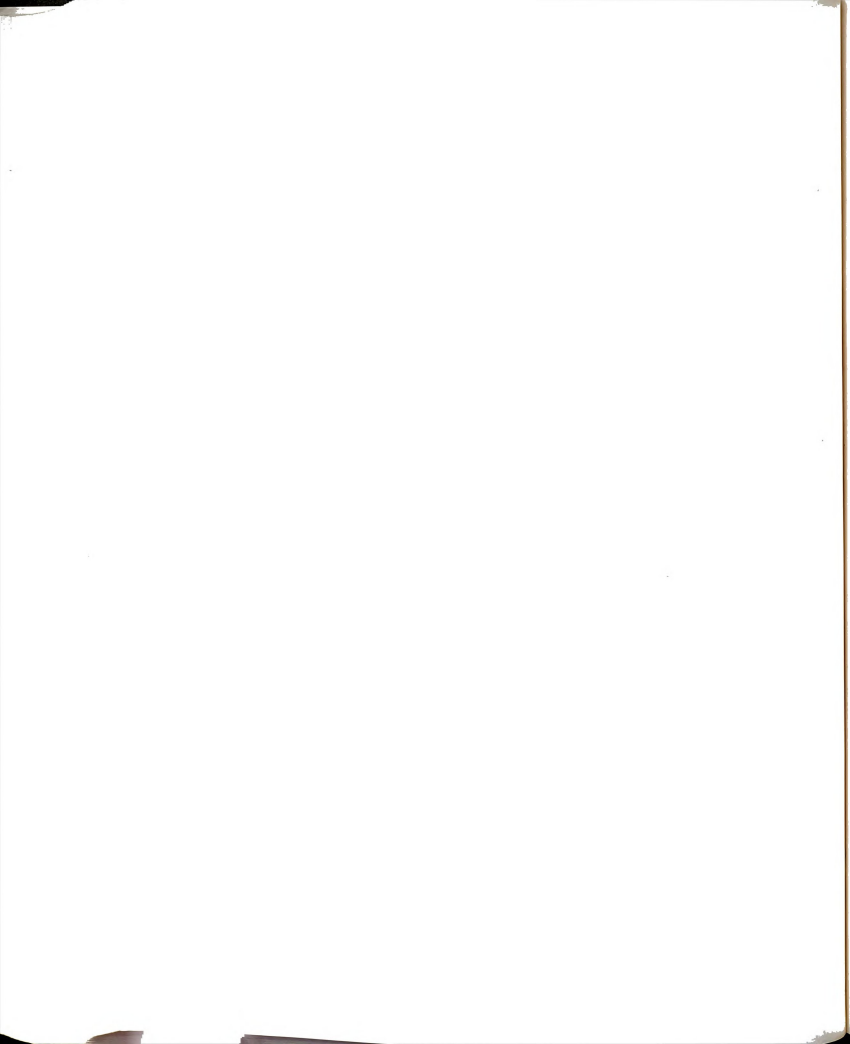
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