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The Effects of Institutional Aid on The College Affordability Index and Student Body Diversity

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Running Head: THE EFFECTS OF INSTITUTIONAL AID

THE EFFECTS OF INSTITUTIONAL AID ON THE COLLEGE AFFORDABILITY INDEX AND STUDENT BODY DIVERSITY

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ABSTRACT

Tuition for higher education continues to increase substantially, causing colleges to be less affordable for many traditional college students and their families. To make higher education more affordable, higher education administrators provide students with institutional aid. Such aid is awarded to students based on merit or need, and the way it is awarded may affect an institution's affordability and student body diversity.

The purpose of this study is to determine the effects of institutional aid on the rate of tuition increase and the diversity of the student body at colleges and universities. This study was further designed to determine if information about the relationships among institutional aid, the rate of tuition increase, and student body diversity could provide administrators with information and guidance when determining and implementing policy, and direct future research. Institutions were classified according to Carnegie Foundation for the Advancement of Teaching (CFAT) Classification, and diversity was determined by using the National Center for Education Statistics (NCES) classifications of race and gender.

Data for this study were obtained from the Integrated Postsecondary Education Data System (IPEDS) of the NCES. Comparisons to determine the relationships among categories of institutional aid, the College Affordability Index (CAI), and student body diversity at different types of institutions were made using a series of one-way analysis of variance (ANOVA) and paired t-tests.

Results revealed that the primary research question was partially answered. Analysis of the data confirmed that as institutional aid increased, the CAI decreased at colleges and universities in the Arts and Sciences (A&S) Carnegie classification. Some colleges and universities in this classification that did not offer graduate programs had a statistically

significant lower CAI for academic year (AY) 2003 and AY 2004; therefore, these institutions increased their tuition at a lower rate. The data further revealed that ethnic and gender diversity did not increase at some colleges and universities in this classification when graduate programs were offered.

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DEDICATION

To JulieAnn, my spouse, who provided unquestionable patience and understanding. Her sacrifices were many, and her encouragement and support were constant.

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THE EFFECTS OF INSTITUTIONAL AID ON THE COLLEGE AFFORDABILITY INDEX

AND STUDENT BODY DIVERSITY

CHAPTER I

INTRODUCTION TO THE STUDY

Background

Tuition for higher education continues to increase substantially, even when inflation is holding steady or decreasing. College is becoming less affordable for many traditional college students and their families. Tuition for public four-year colleges increased an average of 6.3% for academic year (AY) 2006-2007, raising tuition to an average of $5,836.00 (College Board, 2006). From 1990 through 2004, the annual inflation rate for all consumer items experienced a downward trend from 6.5% to slightly over 2.0 %. In several of these years, the rate was less than 2.0% (USDL, 2006). However, tuition consistently increased even during those years; in some years, it increased at more that twice the inflation rate. As tuition in public and private not-for-profit institutions is increasing faster than inflation, a larger portion of overall revenue at colleges and universities is coming from tuition (Cunningham, Wellman, Clinedinst, & Merisotis, 2001).

At the same time, the demographics of the 18- to 24-year-old college student population are also changing. By the year 2010, the number of Black college students is projected to increase by 12%, and the number of Hispanic college students is projected to increase by 21%, whereas the White college student population is projected to increase by only 3%. Many of these students will be from lower-income families and will be first-generation college students (Lapovsky, 2004). If tuition continues to increase at current rates, these students may struggle to

meet the expenses of higher education, and they will make their education decisions based mainly on which institutions offer them the most financial assistance.

Financial aid programs were implemented to provide financial assistance to lower-income students facing the cost of higher education. Financial aid was first recorded in 1643 at Harvard University, with the earliest documentation of a scholarship not required by law. The Higher Education Act of 1965 formed the basis for all current laws authorizing Federal Student Aid Programs and established federal need-based scholarships. Federal student financial aid includes Federal Pell Grants and loans. The Free Application for Financial Student Aid (FAFSA), which requires information about family income, is used to determine the amount of money a family is expected to contribute toward the student's college education. Administrators at colleges and universities use the information provided to set policy and establish practices governing the types and amount of financial aid students may receive.

To amend and extend the Higher Education Act of 1965, the House Committee on Education and the Workforce enacted the College Access and Opportunities Act of 2005. This bill will disburse $360 billion in loans from 2006-2010. The bill was implemented to increase access to colleges and universities for low-income and middle-income students by strengthening Pell Grants for first- and second-year students. Administrators are required to establish policy and practice to award aid to needy students who demonstrate merit. In addition, the bill includes the CAI, which compares the increase of tuition at an institution over a three-year period to the Consumer Price Index (CPI), which is "a measure of the average change over time in the prices paid by urban consumers for goods and services" ((U.S. Department of Labor [USDL], 2006, p.2). Lawmakers believe that providing this index to students and parents will allow them to

make informed decisions about institutional affordability. The requirement to develop policy and implement cost-monitoring practices was firmly set for higher education administrators.

In AY 1980-1981, the average final cost for a student to attend a public four-year institution, after receiving the maximum Pell Grant, was $2,472.00. That cost increased to $5,034.00 for AY 2000-2001 (St. John, 2002). The percentage of family income required to pay for one year of college rose from 13% in 1987 to 25% in 2001 (Price, 2004). As families become less able to afford higher education, their children are less likely to attend a college or university, even though some aid is available.

Tuition increases that greatly exceed the rate of inflation, an increase in final cost for a student to attend college after receiving maximum Pell Grants, and the inability of families to increase family aid to assist students with college costs significantly affect access to higher education and student demographics at colleges and universities. These issues ultimately affect the lifetime opportunities of those who would like to attend college but cannot afford to do so.

Early in the 1970s, higher education administrators implemented institutional aid programs to help students who did not have the financial resources to pay for a college education (Archibald, 2002; Redd, 2000; Davis, 2003). Originally, institutional policy required awarding aid based on need. Aid programs began at private institutions, and their use gradually spread to other types of institutions. As these programs became more popular, administrators altered policy and practice, and began to award aid for multiple reasons. Institutional aid is now used to manage the size, diversity, academic and special qualities, and talents of an institution's student body. It can also be used to maximize institutional revenue and plays a major role in institutional financial planning (Archibald, 2002; Redd, 2000; Davis, 2003). Through a process that allows an institution to raise all tuition, a larger number of students are given a smaller portion of aid and

pay more of the higher tuition. Tuition from these students, as well as from students who can afford the full tuition and receive no aid, maximize the institution's revenue (Redd, 2000). Currently, private not-for-profit institutions provide the most students with institutional aid (Horn & Peter, 2003). For students and their parents, institutional aid programs significantly affect their institutional selection process and financial planning (Allen, 1999a; Archibald, 2002). However, contrary to the original purpose of financial aid, policies have changed, so that institutional aid and other financial aid are currently being awarded more on merit than on need (Horn & Peter, 2003; Lapovsky & Hubbell, 2003).

Educational researchers have investigated financial aid, access, affordability, and student persistence in higher education. In 1992 forty-nine percent of students from lower-income families did not attend a college or university the fall after they graduated from high school, compared to 7% from high-income families (Perna & Titus, 2004). Students from lower-income families are not as likely to attend private colleges, enroll as full-time students, or attend four-year colleges or universities (Paulsen & St. John, 2002). Educational researchers believe that as institutional aid tends to increase the published price of tuition, needy students will be discouraged from applying (Orfield, 1992; Archibald, 2002). Increased tuition at public two-year and four-year institutions result in decreased enrollment (Heller, 1999), whereas adequate financial aid helps students persist and complete the requirements for a degree (Hu & St. John, 2001). Insufficient information and confusing data about institutional aid may restrict college choice and cause students from low-income and minority families not to apply to or attend a private college or university (Orfield, 1992). When institutional policy requires that aid be awarded on merit, students who may not need additional funding for college receive it at the expense of students who do need it. Institutional aid based solely on merit may systematically

and unwittingly result in increased tuition, making college less affordable and creating a student population that lacks the diversity an institution desires.

The National Association of College and University Business Officers (NACUBO) studied the effects of institutional aid at all colleges: small colleges with lower tuition, small colleges with higher tuition, and large colleges and universities. However, NACUBO did not isolate colleges and universities that provided students with the most institutional aid or group institutions by program offerings (Lapovsky & Loomis, 2005). The present study evaluated the effects of institutional aid at colleges and universities in the Carnegie classification of A&S because this classification includes institutions that reported providing students with the most institutional aid, as well as data that were most relevant to the purposes of this study.

Previous researchers have identified the need for a uniform paradigm of institutional classifications in which to conduct research. The Carnegie System of Institutional Classifications provides a data base of all relevant self-reporting institutions (Carnegie Foundation for the Advancement of Teaching [CFAT], 2006). Institutions in the classification are further grouped according to the number of graduate programs offered. The Carnegie Classification System provides the necessary framework for this study and addresses concerns identified by other researchers.

An increase in aid available for distribution by institutions, rising tuition, the awarding of more merit-based aid and less need-based aid, and the inability of families to increase financial support for higher education are topics that are frequently documented in the relevant literature and are common knowledge among higher education administrators and admissions officers. However, it is unclear how these phenomena impact student selection and admission processes, and institutional diversity. Restricted access, which has traditionally affected lower-income and

minority students, will become a significantly greater challenge for higher education administrators and admissions officers. In light of such developments and the projected potential student population that will seek higher education, administrators need to review ways to maximize and distribute all forms of financial aid. An awareness of the growing importance of financial aid on the viability, goals, and future of an institution will require administrators to review carefully all aspects of the total financial aid package available to students. Considerable effort will be necessary to develop policy, implement that policy, and direct future research to serve the projected potential population, institutional goals, and society in general. Institutional aid is just one part of the total financial aid package that needs further study. For colleges to develop policy and change practice for allocating scarce resources and achieve institutional goals in the most effective and efficient manner, an understanding of the relationships among institutional aid, college affordability, and diversity is crucial.

Researchers have included some of these variables in recent studies, but they have not looked at the combination of variables identified by this writer. Furthermore, this writer can find no evidence that other researchers have used a commonly accepted classification of institutions by program offerings in their analysis. The relationships among institutional aid, college affordability, and diversity require broad analysis of data from a variety of widely accepted sources. The data sources and institutional classification system now available make the investigation of this problem appropriate and timely.

Purpose of the Study

The purpose of this study was to determine the effects of institutional aid on the rate of tuition increase and the diversity of the student body. This study was further designed to determine if information about the relationships among institutional aid, the rate of tuition

increase, and diversity could provide administrators with information and guidance when determining and implementing policy, and direct future research.

The amount of institutional aid available to students is increasing, and it plays a significant role in the student admissions decision-making process. Such aid provides a part of the total aid package available to students, and the amount of aid offered affects the total amount of tuition. Using the CAI to standardize tuition increases allows this research study to address the disparity in the way individual institutions report tuition. The types of institutions within the Carnegie Arts and Sciences (A&S) classification, and the availability of institutional aid may have direct bearing on the student body diversity of an institution. These factors make the primary and secondary research questions relevant.

Primary Research Question

How do institutional aid and the rate of tuition increase, as measured by the CAI, affect student body diversity at liberal arts colleges and universities in the A&S Carnegie classification?

Secondary Research Questions

Several secondary research questions were addressed as part of the data analysis for the primary research question. They are:

1. Do differences exist among the AY 2003 CAIs of institutions, based on their A&S Carnegie classification?

2. Do differences exist among the AY 2003 average amounts of institutional grant aid of institutions, based on their A&S Carnegie classification?

3. Do differences exist among the AY 2004 CAIs of institutions, based on their A&S Carnegie classification?

4. Do differences exist among the AY 2004 average amounts of institutional grant aid at institutions, based on their A&S Carnegie classification?

5. Do differences in the ethnic representations of institutions exist between AY 2003 and AY 2004, based on their A&S Carnegie classification?

6. Do significant differences exist in gender representation at institutions between AY 2003 and AY 2004, based on their A&S Carnegie classification?

7. Do differences exist between the AY 2003 and AY 2004 CAIs of institutions in the A&S Carnegie classification?

8. Do differences exist between AY 2003 and AY 2004 average institutional grant aid at colleges and universities included in the A&S Carnegie classification?

Identification of the Variables

The independent variable is institutions categorized in the Carnegie classification of Arts and Sciences. The dependent variables are: (a) the average amount of institutional grant aid per college student, (b) the CAI, (c) gender, as reported by the NCES, and (d) ethnicity, as reported by the NCES.

Operational Definitions

1. Institutional grants:

Scholarships and fellowships granted and funded by the institution and/or individual departments within the institution, (i.e., instruction, research, public service) that may contribute indirectly to the enhancement of these programs. Includes scholarships targeted to certain individuals (e.g., based on state of residence, major field of study, athletic team participation) for which the institution designates the recipient. (NCES, October 2006)

2. Arts and sciences focus, no graduate coexistence (A&S-F/NGC) Carnegie classification: "According to the degree data, at least 80 percent of bachelor's degree majors were in the arts and sciences, and no graduate degrees were awarded in fields corresponding to undergraduate majors" (Carnegie Foundation for the Advancement of Teaching [CFAT], 2006).

3. Arts and sciences focus, some graduate coexistence (A&S-F/SGC) Carnegie classification: "At least 80 percent of bachelor's degree majors were in the arts and sciences, and graduate degrees were observed in some of the fields corresponding to undergraduate majors" (CFAT, 2006).

4. Arts and sciences focus, high graduate coexistence (A&S-F/HGC) Carnegie classification: "At least 80 percent of bachelor's degree majors were in the arts and sciences, and graduate degrees were observed in at least half of the fields corresponding to undergraduate majors" (CFAT, 2006).

Limitations and Delimitations of the Study

1. The study is limited to traditional institutions included in the A&S Carnegie classification. It does not include non-traditional institutions reported as virtual or military, and those not reporting affordability data.

2. The study is limited to full-time, first-time degree-seeking undergraduate students.

3. Only institutions included in the 2004 IPEDS universe of schools were included.

4. This study is limited to data for AY 2003 and AY 2004.

Ethical Considerations

No individual privacy or ethical considerations are involved in this research study. All data were obtained from published material available from the IPEDS of the NCES and the

CFAT. Additionally, the Carnegie Classifications of Institutions are readily available to the

public.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The use of institutional aid is increasing, while costs to operate an institution are rising, and grants and other forms of institutional support are decreasing. A positive correlation exists between institutional aid and tuition increases (Davis, 2003; Cunningham et al., 2001). Competing and sometimes conflicting demands are causing administrators to implement policies that result in channeling funds away from institutional aid for needy students and using it for other purposes (College Board, 2005). Also, educational researchers believe that institutional aid tends to increase the published price of tuition, which discourages needy students from applying (Orfield, 1992; Archibald, 2002; Davis, 2003).

Institutional aid was originally intended to increase access for need-based students. However, the current trend is having the opposite effect: in order to manage enrollment, colleges and universities often grant aid on the basis of merit or unique skills rather than financial need. In such cases, students who may not need additional funding for college are receiving it at the expense of students who do need it.

Insufficient aid may restrict college choice, and students from low-income and minority families may not apply to or attend a private colleges and universities (Orfield 1992). Thus, the current use and awarding of institutional aid may affect diversity at different types of institutions of higher education. Institutional aid predominantly based on merit may systematically and unwittingly create a student population that lacks the diversity an institution desires.

Tuition Increases and College Affordability

Tuition for higher education has increased substantially since 1975 (Appendix A), and this trend is likely to continue as institutional costs rise and state and federal support for higher education declines (Price, 2004). Data from the 2003 and 2004 College Board Annual Survey of Colleges and Universities and surveys conducted by the American Association of State Colleges and Universities (AASCU) and the National Association of State Universities and Land-Grant Colleges (NASULGC) revealed that more than 25 colleges and universities increased their tuition between 10% and 25% for AY 2003–2004 (AASCU & NASULGC, 2004). This report also revealed a tuition increase of 30% to 40% at some universities during the same period. The published price of tuition has increased 35% in the last five years, marking the largest of any five-year increase in the 30-year analysis of tuition by the College Board (2006). Tuition increases mean that college remains unaffordable for many and is becoming less affordable for others.

Studies from 1987 to 2001 refer to education as a service; additionally, they consistently contend that as the price of higher education increases, enrollment decreases (Heller, 1997, 2001). For example, Jackson's study (1988) indicated that a $100 increase in tuition reduced the rate students enroll by 1%. Leslie and Brinkman's (1987) meta-analysis generated similar results, indicating that a $100 increase in tuition reduced by 6% the rate that 18- to 24-year-olds enrolled. It also indicated that tuition increases affected low-income students the most. These findings are similar to Heller's (2001) more recent finding that a $217.00 increase in tuition at four-year colleges and universities decreased enrollment by .52%, and a $120.00 increase in tuition at community colleges decreased enrollment by 1.34%. Students from different ethnic and

income groups respond differently to increases in tuition: low-income, Hispanic, and African American students are traditionally more price-responsive than other groups (Heller, 2001).

An increased published price of tuition prevents qualified lower-income and minority students from applying to and attending four-year degree-granting institutions (Perna & Titus, 2004). Students from lower-income families tend not to attend institutions as full-time students and are not likely to attend four-year institutions or private colleges or universities (Paulsen & St. John, 2002). Many are forced to attend two-year community colleges and are less likely to complete their education (Orfield, 1992; Hanushek, 1989). The College Board (2006) reported that 24% of all college students are enrolled part-time in two-year public colleges. Students who begin at a four-year college or university are more likely to complete the requirements for a degree and take less time to complete the requirements (Hu & St. John, 2001; Orfield, 1992). On the average, students complete the requirements for a four-year degree in 6.2 years at public colleges and 5.3 years at private colleges (College Board, 2006). Therefore, lower-income students are enrolling in colleges and universities where student persistence rates are lower and program completion takes longer. The major concern for the present study is that policy changes resulting in tuition increases directly affect low-income students and indirectly affect the diversity of an institution, since low-income students tend to be minority students.

College Affordability Index (CAI)

The CAI is an index included in the College Access and Opportunity Act of 2005, which is the reauthorization of the Higher Education Act of 1965. The bill requires higher education administrators to provide parents and students with information about the cost and affordability of higher education. The CAI enables students and parents to make accurate comparisons regarding the rate of tuition increase at institutions.

The CAI compares the increase in an institution's tuition from the three most recent years with the CPI, which measures inflation that consumers experience in their daily expenses (USDL, 2006). The CAI is calculated based on price data that is submitted by colleges annually for first-time, full-time, full-year students (College Access & Opportunity Act, H.R.609, 2005). A review of the literature and conversations with several financial aid officers revealed that a CAI of 2.0 for AY 2008 is consistent with the World's Central Bank range of acceptable inflation rates that assist with growth and a healthy economy (Altig, 2003).

<div align="center">Institutional Aid</div>

The effects of tuition increases on college attendance are complicated by the changing use of institutional aid. Institutional aid, which is being used more frequently, is an important component of the total access, admission, and financial aid picture. A number of studies have examined tuition, college access, and enrollment; but none have analyzed the relationship between these variables and institutional aid.

Changes in the way institutional aid is being used and its increased use have resulted in unanticipated problems for institutions (Archibald, 2002; see also Doti, 2000; Lapovsky, 2004). Across the nation, all types of institutions of higher education are experiencing price competition, a decrease in funds for other programs, and an increase in tuition for all students.

Aid programs were initially implemented to provide students with access to higher education and to allow students with limited financial resources to attend private colleges and universities (Archibald, 2002; Orfield, 1992). Federal aid decreased when tax revenues were cut in 1981. As a result, low-income students had to find alternative methods to finance higher education. Many of these students were minorities (Orfield). Aid was traditionally provided to Black and Hispanic students who attended low-cost two-year degree-granting institutions, while

aid granted to White students was generally for attendance at more expensive private institutions (Orfield). As aid policy changes and aid is distributed differently to students on the basis of income and race, the gap between aid and the cost of higher education makes most private and some public universities unaffordable to most low-income students, many of whom are minority students (Orfield). The literature indicates that even though aid increases, it does not close the educational attainment gap among different types of students (Price, 2004).

The benefits of higher education are well-documented. Traditionally, credentials from elite colleges and universities are obtained by students who are from the upper class. Graduates from these elite institutions possess superior academic credentials and thus are awarded the best jobs (Price, 2004). Many minority and low-income students do not receive enough aid to attend these more costly private colleges, creating an environment in which equal educational and career opportunities are nonexistent for them (Orfield, 1992). Many minority students receive loans that are repaid with substantial amounts of loan interest; as a result, these students pay considerably more for a college degree than those who do not have to depend on loans. This increased cost has been identified as a major contributor to the attainment gap (Price). Such a gap eventually results in lower-paying jobs, restricted graduate education, and severely limited employment opportunities for minority and low-income students (Price).

NCES data show that in four-year institutions the percentage of full-time undergraduate students who receive institutional aid has increased between 1990 and 2000 (NCES, 2003). Fifty-eight percent of the students who attended private not-for-profit institutions received institutional aid during AY 1999–2000 (Horn & Peter, 2003). Most of the institutional aid was granted to students from the highest income quartile and was based on academic performance (Horn & Peter). Merit-based aid (i.e., aid based on academic performance) awarded to high-

income families makes less aid available for low-income students; thus, poorer students must

forgo higher education, borrow excessive amounts of money, or seek less costly forms of

training in place of higher education.

Since 1990, the NACUBO has conducted annual studies of institutional aid data. Tuition

discount rates are calculated by higher education administrators to determine the percentage of

students who receive institutional aid, and the percentage of tuition and required fees they will

receive (Lapovsky & Hubbell, 2003)."Tuition discount rates can be calculated in two ways: 1.

institutional financial aid dollars divided by gross tuition and fee revenue. 2. percent of students

receiving institutional financial aid multiplied by the average grant awarded as a percent of

tuition" (Lapovsky & Hubbell, 2003, p. 23). The latest study, conducted in 2004, included data

from 449 institutions. Placed in the "small college with lower tuition" (SCLT) category were 291

institutions that enrolled fewer than 850 full-time freshmen and that charged tuition of less than

$23,600. The "small college with higher tuition" (SCHT) category included 85 institutions that

enrolled fewer than 850 full-time freshmen students and charged a tuition equal to or greater than

$23,600. In the "large college and university" (LCU) category were 73 institutions that enrolled

850 or more full-time freshmen students; tuition was not a qualifier for institutions in this

category (Lapovsky & Hubbell, 2005).

A comparison of data between 1990 and 2004 (Appendix B) reveals that in all sizes of

colleges, the percentage of students receiving institutional aid increased considerably. In the

SCLT category, the student percentage rose from approximately 73% to 93%. At SCHTs, the

percentage rose from approximately 53% to 68%; at LCUs, student aid rose from approximately

48% to 63% (Lapovsky, & Hubbell, 2005) This NACUBO trend data reported in 2004 are

consistent with trend data reported by NCES reported in 2003.

NACUBO and NCES data show that tuition discounting is positively correlated with increases in tuition at public comprehensive and private not-for-profit comprehensive institutions (NCES, 2001). No research has been conducted to confirm this trend at institutions classified by Carnegie to determine if a correlation exists at institutions that have some or no graduate programs. This information could have a bearing on the relationships among tuition increases, institutional aid, and institutional diversity.

Research indicates that most students—especially those from low-income families--do not understand the various forms of available aid. The many problems associated with financial aid, confusion about how it is awarded, and the limited and not readily available information about aid has caused some writers to propose a complete change to the system. For example, Robert Archibald (2002) suggests changing the financial aid system to include four types of aid: Federal Pell Grants, grants given by state governments and private organizations, institutional guaranteed loans, and income-contingent tax credits for loan forgiveness.

The problems resulting from the application of various types of aid forced Congress to form the National Commission on the Cost of Higher Education (NCCHE) in 1997. This commission studied the characteristics of students who received aid and tuition discounting, how institutions used aid to attract students to educational programs and majors, and how financial aid helped offset the increase in tuition. It recommended that institutions provide more information to the public about the cost of higher education, and develop policy and practice to increase their accountability to the public. It suggested that higher education administrators use standard definitions for tuition discounting when providing information to the public (Allen, 1999a.).

In a presentation at an Association for the Study of Higher Education Conference, Venegas (2005) acknowledged that financial aid information and applications for aid are available on the

Internet. However, she expressed concern that many lower-income families do not have access to computers and do not know how to navigate electronic financial aid forms. Such disadvantages exacerbate financial aid inequities. Venegas recommended the creation of peer groups in high schools to help lower-income students learn about financial aid and financial aid applications on the Internet. She also suggested making information available to eleventh graders. Additional information about financial aid programs, definitions, and institutional aid should also be made available to high school counselors.

Diversity in Higher Education

The diversity of a student body is viewed as the presence of variation in gender, race, and income of students. In a stratified system, these elements function together to create opportunity for some individuals and disadvantages for others (Price, 2004).

For minorities, the analytical category of race involves disadvantages that are presented in college and university institutional aid policies, as well as personal prejudices. Those in the non-minority category have benefited from institutional aid policies and other advantages, to the exclusion of minorities (Price, 2004). "In addition, regardless of economic inequality, whites often exhibit attitudinal superiority to ethnic and racial minority groups who, as a whole, are worse off" (Price, p.15). In the absence of heightened awareness, previous policy and attitudinal superiority may indirectly affect current institutional aid policy.

The increased cost of higher education and the increased use of merit-based institutional aid may be preventing minority and lower-income students from participating in higher education. Minority students and their families are affected by the cost of higher education and the increased portion of tuition they are required to pay (Hu & St. John, 2001). Minority students do not have equal access to higher education; they do not have a choice of institution they would

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like to attend; and they do not complete the requirements of a degree at the same rate as non-minority students (Baker & Valez, 1996; Carter, 1999; Hu & St. John, 2001). Higher education administrators are currently using enrollment management techniques to attract the "right" student. These policies may also be creating an environment that excludes minority students from private and select institutions. The result is a student body that lacks diversity.

Attending select colleges and universities helps students achieve social equality (Orfield, 1992; Weisbrod & Karpoff, 1968). Upper-class students, the majority of whom are non-minority, tend to be successful in completing the requirements for advanced degrees, qualifying them for high-level, high-paying careers. This advantage is transferred to siblings and creates class-privileged individuals who generally are not minority students (Price, 2004).

Traditionally, the relationship between males and females has generally been privileged for males and disadvantaged for females (Price, 2004). A review of the data reveals that females have not been granted access to elite colleges and universities, and have not received equal career opportunities after completing the requirements for a degree. Additionally, income differences remain stratified by gender for first full-time jobs (Price).

The literature identifies strong relationships among tuition, diversity, and the resulting composition of an institution's student body. To understand these relationships and to determine the effects on institutional aid and different types of institutions, further review of systems to classify institutions of higher education became necessary.

College Classifications

The lack of standardized data collection categories across institutions has made it difficult for researchers to conduct meaningful studies regarding institutional aid, diversity, published tuition price, and the relationships among these and other variables (CFAT, 2006).

To address this problem, in November 2005, the CFAT published an institutional classification system that includes five major classifications of colleges and universities. This system is based on three criteria: (a) whether an institution awards an associate's or bachelor's degree, (b) the proportion of bachelor's degree majors offered to students in the A&S and the professional fields, (c) the extent to which an institution awards graduate degrees in the same fields that it awards undergraduate degrees (CFAT, 2006). All classifications include groupings of institutions that have no graduate coexistence (NGC), some graduate coexistence (SGC), and high graduate coexistence (HGC). The CFAT believes the new system will allow educational researchers to make more accurate comparisons between institutions and provide more meaningful data, and will assist administrators with the evaluation and creation of educational policy.

The CFAT (2006) reported that 93.7% of institutions in the A&S-F/NGC classification, 80.5% of the institutions in the A&S-F/SGC classification, and 65.4% of the 26 institutions in the A&S-F/HGC classification were private not-for-profit institutions.

The NCES reported in AY 1995 – AY 1996 62% of students enrolled in private not-for-profit institutions and 24% of students in public institutions received institutional grant aid (Horn & Peter, 2003). These data show that the largest percentage of students receiving institutional aid attend private institutions. Based on a review of information available, this writer determined that the major advantage of limiting this study to the A&S classification is the availability of relevant data. Specifically, the data will be collected from institutions that provide the most students with institutional aid. Higher education administrators at institutions in this classification are providing more institutional aid than those in the other classifications. These institutions apparently view institutional aid as a necessary part of their overall financial

operating procedures; therefore, they are more likely to consider and benefit from the results of this study.

Furthermore, it is believed that to produce study results void of confounding variables that can contribute to unreliable results, it is necessary to remove outlier data sources. Excluding institutions in the other Carnegie classifications allows this study to focus on the types of institutions that contribute most of the data and are most likely to benefit from the results. Including all the classifications would cause some sample sizes to be too small and thus generate potentially unreliable results. Study results would therefore be more difficult to generalize across all classifications of institutions and less useful to administrators.

Review of the literature was directed toward tuition, CAI, institutional aid, diversity, and Carnegie classification. Research concerning the development of the theoretical and conceptual frameworks and related topics was identified. This basis, consisting of theoretical and conceptual foundations, afforded the opportunity to make basic a priori decisions concerning the nature of the study undertaken and permitted the viewing of various parts of the framework so that relationships could be drawn. These precepts led to the selection of the research method and variables used in this study. A review of studies related to the research questions set forth in Chapter I served this investigator as a unifying factor between the theoretical and conceptual frameworks.

CHAPTER III

METHODOLOGY

Research Design

This study used as a quasi-experimental, nonequivalent research group design with cross-sectional data in order to investigate institutional aid, the rate of tuition increase or decrease as measured by the CAI, and their relationship to student body diversity at specific classifications of institutions. The data were analyzed using ANOVA. Tukey Post Hoc comparisons were performed if a significant omnibus F was obtained. All possible pairwise comparisons were performed to determine the significance of the difference between the two means. The data were analyzed using a series of paired t-tests utilizing institutional aid data, student demographic data, and CAIs for AY 2003 and AY 2004. The institutions were colleges and universities in the Carnegie classifications A&S/NGC, A&S/SGC, and A&S/HGC. The research design allowed comparison of average institutional aid data, CAIs, and student demographic data for AY 2003 and AY 2004 to determine the effects of institutional aid on student demographics at the selected colleges and universities.

Sample

Private colleges and universities have experienced the greatest increase in the amount of institutional aid provided to students, and the effects of distributing institutional aid should be pronounced at these institutions. Therefore, the sample for this study was designed to maximize the proportion of private institutions, both for-profit and not-for-profit. To do so, the writer examined the Carnegie taxonomy of undergraduate focus, which is categorized as Balanced Arts and Sciences, Professions, and A&S. The A&S classification was selected because it includes the highest proportion of private colleges. Of the 162 institutions in the A&S classification, 15 are

non-traditional: one is military; some are small satellites; and all did not report their CAIs. These 15 institutions (Appendix E) were removed from the sample, resulting in a final study sample of 147 institutions (Appendix F). Of these institutions, over 95.4% of the institutions in the A&S-F/NGC classification, 81% in the A&S-F/SGC classification, and over 72.2% the A&S-F/HGC classification are private institutions. Research conducted by Price (2004) indicates that earning an A&S degree provides additional opportunities for some minorities. The college where a student receives a degree and the degree obtained are important factors in the labor market and for further study in graduate school, and either can effect movement from low-income to upper-income status (Price). Therefore, student population diversity at these institutions is a particularly important issue.

The 147 colleges and universities are further categorized according to the extent of their graduate program offerings. These classifications will allow meaningful comparison in future research studies.

<div align="center">Variables</div>

The variables in the study were the average amount of institutional aid per student, Carnegie classification, gender reported by the NCES, ethnicity reported by the NCES, and the rate of tuition increase or decrease as measured by the CAI. Specific definitions of the variables in this study are included in the definitions section of this manuscript. The variables were selected because they focus on the purpose of this study, and the standardized data allowed for accurate analysis in the academic years identified. All data for this study were obtained from the Integrated Postsecondary Education Data System.

Data from AY 2003 and AY 2004 were used because they were the most recent data available at the time of this study. CAIs were not available prior to 2003. The amount of data

included in each of the categories selected for this study required limiting the analysis to two years. Limiting the study to data from these years should provide a foundation for similar research in the future.

Furthermore, it is believed that to produce study results void of confounding variables that could contribute to unreliable results, it was necessary to remove outlier data sources. Excluding the institutions in the other Carnegie classifications allowed this study to focus on the types of institutions that contribute most of the data and the people who are most likely to benefit from the results. Including all the classifications would cause some sample sizes to be too small and thus generate potentially unreliable results. Study results would therefore be more difficult to generalize across similar classifications of institutions and less useful to administrators.

Institutional Aid

Institutional aid was originally implemented to increase minority access to higher education. A review of the literature reveals that the amount of institutional aid given to students has increased. Specific data about the distribution of institutional aid by gender and ethnicity are proprietary, incomplete, or not reported to the NCES. Also, individual data are subject to the effects of outliers. Therefore, for this study, the average amount of institutional aid given to students at institutions based on Carnegie classification was the most accurate and meaningful information available.

Ethnic and Gender Classifications

To investigate the effects of institutional aid and the CAI on student body diversity, it was necessary to define diversity in terms of ethnicity and gender. The NCES reports data for seven ethnicity and gender classifications. These classifications provided the basis for the

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diversity variables in this study. The groups are White non-Hispanic, Black non-Hispanic,

American Indian or Alaskan Native, Asian or Pacific Islander, Hispanic, Men and women .

College Affordability Index (CAI)

The CAI is included in the College Access and Opportunity Act of 2005, which is a

reauthorization of the Higher Education Act of 1965. The CAI compares the increase in an

institution's tuition from the three most recent years to the CPI. Legislators intended for the CAI

to serve as a means of providing parents and students with understandable information about

tuition so that they could make meaningful comparisons. The College Access and Opportunity

Act requires colleges and universities to have a CAI below 2.0 by AY 2008. A CAI below a 2.0

indicates an institutions tuition has increased less than two times the rate of inflation over a three

year period.

For this study, the CAI was selected as a variable because it is a ratio that provides

accurate information about the increase or decrease in tuition compared to national inflation.

This ratio is not affected by outlier data, the value of the dollar, or the location of the institution.

Additionally, it provides an analysis of tuition over a three-year period, and it is required by

legislation.

Independent and Dependent Variables

The dependent variables were the average amount of institutional grant aid per college

student, the CAI, and the number of students in gender and race groups reported by the NCES

IPEDS. The independent variables were the institutions with an A&S Carnegie classification in

AY 2003 and AY 2004. Theoretical mapping of structural patterns of inequity were used for this

study. The annual parity gap between groups over a two-year period was examined to determine

the effects of institutional aid on race and gender at various institutions.

Institutional classification data were gathered on August 18, 2006 using the CFAT teaching Web site. Institutional financial and ethnicity data were gathered using the NCES IPEDS. Detailed instructions are available in the Appendix D this document.

Hypothesis

It was hypothesized that as institutional aid increases, the CAI decreases. The increase in institutional aid and decrease in the CAI may affect student body diversity at specific classifications of institutions when students are grouped according to race and gender. To test the main hypothesis, the following sub-hypotheses were tested:

Sub-hypotheses

H1: Significant differences exist among the AY 2003 CAIs of institutions based on their A&S Carnegie classification.

H2: Significant differences exist among the AY 2003 average amounts of institutional grant aid of institutions based on their A&S Carnegie classification.

H3: Significant differences exist among the AY 2004 CAIs of institutions based on their A&S Carnegie classification.

H4: Significant differences exist among the AY 2004 average amounts of institutional grant aid at institutions, based on their A&S Carnegie classification.

H5: Significant differences in the ethnic representations of institutions exist between AY 2003 and AY 2004, based on their A&S Carnegie classification.

H6: Significant differences exist in gender representation at institutions between AY 2003 and AY 2004, based on their A&S Carnegie classification.

H7: Significant differences exist between the AY 2003 and AY 2004 CAIs of institutions in the A&S Carnegie classification.

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H8: Significant differences exist between AY 2003 and AY 2004 average institutional grant aid at colleges and universities included in the A&S Carnegie classification.

Data Analysis

This study used SPSS software version 14.0 for Windows to generate information seeking significant differences among the variables through the following runs.

1. An ANOVA for AY 2003 was conducted at the alpha level = .05 to determine if significant differences existed among CAIs of institutions, based on their institutional classification. Using the Tukey Test, all possible pairwise comparisons were performed to determine the significance of the difference between two means.

2. An ANOVA for AY 2003 was conducted at the alpha level = .05 to determine if significant differences existed among average amounts of institutional aid given to students, based on their institutional classification. Using the Tukey Test, all possible pairwise comparisons were performed to determine the significance of the difference between two means.

3. An ANOVA for AY 2004 was conducted at the alpha level = .05 to determine if significant differences existed among the CAIs of institutions, based on their institutional classification. Using the Tukey Test, all possible pairwise comparisons were performed to determine the significance of the difference between two means.

4. ANOVA for AY 2004 was conducted at the alpha level = .05 to determine if significant differences existed among average amounts of institutional aid given to students, based on their institutional classification. Using the Tukey Test, all possible pairwise comparisons were performed to determine the significance of the difference between two means

5. Three sets of paired t-tests by A&S-F/NGC (Category 1), A&S-F/SGC (Category 2), and A&S-F/HGC (Category 3) were conducted at the alpha level = .05 to determine if significant differences in the various ethnic representations of institutions existed between AY 2003 and AY 2004, based on their institutional Carnegie classification.

6. A paired t-test was conducted at the alpha level= .05 for AY 2003 and AY 2004 to determine if significant differences existed in the gender representations of institutions, based on their institutional classification.

7. A paired t-test was conducted at the alpha level = .05 to determine if significant differences existed between CAIs for AY 2003 and those for AY 2004.

8. A paired t-test was conducted at the alpha level = .05 to determine if significant difference existed between average amounts of institutional grant aid for AY 2003 and that for AY 2004.

CHAPTER IV

RESEARCH FINDINGS

Introduction

The data presented in this chapter are organized according to the subproblems and

hypotheses stated earlier in this study. The data are presented in the following order: analysis of

independent variable data, analysis of dependent variable data, and analysis of dependent and

independent variable relationships. A summary of the results is located at the end of this chapter.

Independent Variables

The independent variables were the institutions categorized by the Carnegie

classification, which identified 162 colleges and universities in the A&S classification, with 95

in the A&S-F/NGC classification, 41 in the A&S-F/SGC classification, and 26 in the A&S-

F/HGC classification. All of the colleges and universities included in this study are four-year

degree-granting institutions. A review of the list revealed 15 non-traditional institutions

(Appendix E): seven A&S-F/NGC, four A&S-F/SGC, and four A&S-F/HGC. Exclusion of these

institutions created a final population of 147 colleges and universities—88 A&S-F/NGD, 37

A&S-F/SGC, and 22 A&S-F/HGC (Appendix F). The resulting distribution of the 147

institutions across the three categories is included in Table 1.

Table 1

Final Population for Study by Carnegie Foundation Classification

Arts and Sciences No Graduate Coexistence	Arts and Sciences Some Graduate Coexistence	Arts and Sciences High Graduate Coexistence
88	37	22

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Carnegie Classification (all focuses) - Non-Traditional Institutions = N for study

162 – 15 = 147

Over 95.4% of the institutions in the A&S-F/NGC classification, 81% in the A&S-F/SGC

classification, and over 72.2% in the A&S-F/HGC are private institutions.

As Table 2 indicates, the average tuition increase from AY 2003 to AY 2004 for

institutions in the A&S-F/NGC classification was $1,257.54 for in-state students and $1,306.58

for out-of-state students. For those in the A&S-F/SGC classification, it was $1,089.52 for in-state

students and $1,146.22 for out-of-state students. For those in the A&S-F/HGC classification, it

was $937.09 for in-state students and $1,575.27 for out-of-state students.

Table 2

AY 2003 and AY 2004 Tuition by Carnegie Classification

	2003 In-State Tuition	2004 In-State Tuition	2003 Out-State Tuition	2004 Out-State Tuition
No Graduate Coexistence	$2,1851.67	$2,3109.21	$2,2188.19	$2,3494.77
Some Graduate Coexistence	$1,8991.46	$2,0112.11	$1,8463.92	$2,1199.72
High Graduate Coexistence	$2,3371.53	$2,1450.73	$2,1450.73	$2,3026.00

The average enrollment for first-time, full-time degree-seeking students at institutions in

the A&S-F/NGC classification was 362.42 for AY 2003 and 372.76 for AY 2004—an increase

of 10.34 students. For institutions in the A&S-F/SGC classification, it was 543.75 for AY 2003

and 553.37 for AY 2004--an increase of 9.62 students. For institutions in the A&S-F/HGC

classification, it was 1,686.38 for AY 2003 and 1,554 for AY 2004—a decrease of 132.38

students. The data are included in Table 3.

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Table 3

AY 2003 and AY 2004: Average Number of First-Time, Full-Time Degree-Seeking Undergraduate Students by Carnegie Classification

Carnegie Classification	Average 2003 Undergraduate (first-time, full-time degree-seeking)	Average 2004 Undergraduate (first-time, full-time degree-seeking)	Average Change in Enrollment 2004-2003
No Graduate Coexistence	362.42	372.76	10.34 increase
Some Graduate Coexistence	543.75	553.37	9.62 increase
High Graduate Coexistence	1686	1554	132.38 decrease

Dependent Variables

The dependent variables were the average amount of institutional grant aid per college student, the CAI, and the number of students in gender and race groups taken from the NCES IPEDS. The NCES website defines institutional grants as "scholarships and fellowships granted and funded by the institution and/or individual departments within the institution". The average amount of institutional grant aid per college student is self-reported to the NCES. The descriptive statistics for these variables are included in Table 4.

Table 4

Institutional Aid Descriptive Statistics

		Institutional Aid 2003	Institutional Aid 2004
N	Valid	147	147
	Missing	0	0
Mean		$11,411.29	$12,164.94
Std. Error of Mean		$486.425	$521.431
Median		$12,123.00	$12,772.00
Std. Deviation		$5,897.593	$6,322.014

The institutions self-report their CAIs to the NCES. The CAI is calculated based on the price data submitted annually by the college or university. The NCES website reports index is "calculated by looking at the tuition for the three most recent academic years and comparing the first and last years." The "percentage increase in tuition and fees" is divided by the percentage increase in the urban consumer price index (CPI-U) for July. The CPI is a measure of inflation (USDL, 2006). The CAI has a minimum score of 0, but the maximum score is determined by the increase in college tuition and the CPI. A CAI of an arbitrarily selected 2.0 for AY 2008 means that an institution's tuition and fees increased two times the CPI and is considered unacceptable (College Access & Opportunity Act, 2005). The CAI allows a comparison to determine if the average rate of tuition increase or decrease is greater or less for one group of institutions than for another.

The descriptive statistics for these data are included in Table 5. The CAIs for AY 2003 ranged from .00 to 15.54, and those for AY 2004 ranged from .00 to 9.54.

Table 5

CAI Descriptive Statistics

		Average CAI 2003	Average CAI 2004
N	Valid	147	147
	Missing	0	0
Mean		3.7031	2.6439
Std. Error of Mean		.22544	.16482
Median		3.0900	2.2500
Std. Deviation		2.73332	1.99831

Gender and race data are self-reported by administrators of colleges and universities. These classifications include the total number of first-time, full-time degree-seeking students by

ethnic and gender classifications. Seven classifications were used for this study. The descriptive

statistics for these classifications are included in Tables 6, 7, and 8.

Table 6

Men and Women Classification Descriptive Statistics

		Total men 2003	Total men 2004	Total women 2003	Total women 2004
N	Valid	147	147	147	147
	Missing	0	0	0	0
Mean		255.05	254.78	345.33	344.84
Std. Error of Mean		28.215	26.569	33.476	32.045
Median		172.00	183.00	239.00	239.00
Std. Deviation		342.085	322.130	405.869	388.524

Table 7

Black Non-Hispanic and American Indian / Alaskan Classification Descriptive Statistics

		Black Non-Hispanic 2003	Black Non-Hispanic 2004	American Indian or Alaskan Native 2003	American Indian or Alaskan Native 2004
N	Valid	147	147	147	147
	Missing	0	0	0	0
Mean		44.27	45.74	3.65	3.72
Std. Error of Mean		7.678	8.407	.527	.523
Median		16.00	17.00	2.00	2.00
Std. Deviation		93.088	101.926	6.388	6.341

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Table 8

Asian/Pacific Islander, Hispanic, and White Classification Descriptive Statistics

		Asian or Pacific Islander 2003	Asian or Pacific Islander 2004	Hispanic 2003	Hispanic 2004	White Non-Hispanic 2003	White Non-Hispanic 2004
N	Valid	147	147	147	147	147	147
	Missing	0	0	0	0	0	0
Mean		85.13	82.78	43.90	44.44	352.20	351.70
Std. Error of Mean		22.439	20.370	8.342	8.263	26.724	25.801
Median		19.00	17.00	16.00	16.00	301.00	301.00
Std. Deviation		272.052	246.970	101.142	100.189	324.009	312.821

The average amount of institutional grant aid per college student, CAIs, and the average number of students who received institutional aid by gender and race for these institutions were obtained from the IPEDS website of the NCES. These data are self-reported to the NCES by college and university administrators. Instructions for gathering these data are in Appendix D of this study.

Dependent and Independent Variable Relationships

Subsidiary Research Question #1 and Subsidiary Research Question #3

Hypothesis 1 of this study was concerned with whether significant differences existed among CAIs of institutions for AY 2003, based on institutional classifications. The mean CAI for colleges and universities in the A&S-F/NGC classification was 3.21, with a standard deviation of 2.36; for those in the A&S-F/SGC it was 4.01 with a standard deviation of 2.70; and for those in the A&S-F/HGC it was 5.20, with a standard deviation of 3.60.

An ANOVA was conducted. The between-groups F-ratio was 5.091, and the significance of the analysis was .007 (Table 9).

Table 9

ANOVA: AY 2003 CAI

	Sum of Squares	Df	Mean Square	F	Sig.
ANOVA					
Between Groups	72.031	2	36.016	5.091	.007
Within Groups	1018.744	144	7.075		
Total	1090.775	146			

A Tukey Post Hoc test was conducted for A&S-F/NGC and A&S-F/SGC. The standard error was .51630, and the significance at alpha = .05 was .270. A Tukey Post Hoc test was conducted for A&S-F/NGC and A&S-F/HGC. The standard error was .64597, and the significance at alpha =.05 was .007. This analysis revealed a significant difference between the AY 2003 CAI of the A&S-F/NGC classification and that of the A&S-F/HGC classification. The CAI of institutions in the A&S-F/NGC classification was lower than that of institutions in the A&S-F/SGC, but the difference was not significant. The data are included in Table 10 below.

Table 10

Tukey Post Hoc Test: AY 2003 CAI

(I) Institution classification	(J) Institution classification	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Arts & Science No Graduate Coexistence	Arts & Science Some Graduate Coexistence	-.80108	.51630	.270	-2.0238	.4216
Arts & Science No Graduate Coexistence	Arts & Science High Graduate Coexistence	-1.98961(*)	.64597	.007	-3.5194	-.4598
Arts & Science Some Graduate Coexistence	Arts & Science High Graduate Coexistence	-1.18853	.72323	.231	-2.9013	.5242

Hypothesis 3 of this study was concerned with possible differences among institutions' CAIs for AY 2004, based on Carnegie classifications. The mean CAI for colleges and

universities in the A&S-F/NGC classification was 2.35, with a standard deviation of 1.55; for those in the A&S-F/SGC classification it was 2.48, with a standard deviation of 1.33; and for those in the A&S-F/HGC classification it was 4.152, with a standard deviation of 3.53.

An ANOVA was conducted (Table 13). The between-groups F-ratio was 7.689. The significance of this analysis was .001. The data are included in Table 11.

Table 11

ANOVA: AY 2004 CAI

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	56.255	2	28.128	7.689	.001
Within Groups	526.758	144	3.658		
Total	583.013	146			

A Tukey Post Hoc test revealed a standard error of .37126 and a significance of .926 at alpha = .05 for A&S-F/NGC and A&S-F/SGC; a standard error of .46450 and a significance of .000 at alpha = .05 for A&S-F/NGC and A&S-F/HGC; and a standard error of .52005 and a significance of .005 at alpha = .05 for &S-F/SGC and A&S-F/HGC. This analysis revealed a statistically significant difference between A&S-F/NGC and A&S-F/SGC, and between A&S-F/SGC and A&S-F/HGC. The data are included in Table 12.

Table 12

Tukey Post Hoc Test: AY 2004 CAI

(I) Institution Classification	(J) Institution Classification	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Arts & Science No Graduate Coexistence	Arts & Science Some Graduate Coexistence	-.13842	.37126	.926	-1.0176	.7408
Arts & Science No Graduate Coexistence	Arts & Science High Graduate Coexistence	- 1.80159(*)	.46450	.000	-2.9016	-.7016
Arts & Science Some Graduate Coexistence	Arts & Science High Graduate Coexistence	- 1.66317(*)	.52005	.005	-2.8948	-.4316

The effect size for this analysis was conducted using eta-squared (Cohen, 1988). Cohen (as cited in Stevens, 1996) defined the effect size using the following criteria: (a) eta-squared in the vicinity of .01 indicates a small effect size; (b) eta-squared in the vicinity of .06 indicates a medium effect size; and (c) eta-squared in the vicinity of .14 indicates a large effect size. Hypothesis 1 was statistically significant and had a medium effect size, with eta-squared of .065. Hypothesis 3 was statistically significant and had a medium effect size, with eta-squared of .096 (Table 13).

Table 13

Effect Size: AY 2003 and AY 2004 CAI

Hypothesis	SS/Between	SS/Total	Eta-squared
H_1 = CAI 2003	72.031	1090.775	.065
H_2 = CAI 2004	56.255	583.013	.096

Eta-squared = Sum of Squares Between / Sum of Squares Total (Cohen, 1988; Algina & Olejnik, 2003, p. 435)

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Institutions classified as A&S-F/NGC had the lowest CAI; therefore, the rates of tuition increase remained relatively consistent. Those in the A&S-F/SGC classification had, on the average, a slightly higher CAI; therefore, their rates of tuition increase were slightly higher than those in the A&S-F/NGC classification. Institutions classified as A&S-F/HGC had the highest CAI and therefore increased tuition at a higher rate than institutions in the other classifications.

An increase in the CAI may be due to the presence of graduate programs at colleges and universities. An institution may increase its tuition to cover more expensive graduate programs taught by more senior faculty who generally require higher salaries and associated benefits. Additionally, operating costs at institutions with graduate coexistence may be higher because some departments may be conducting institutionally funded research, as opposed to externally funded research. An analysis of the standard deviation for the A&S classification for AY 2003 and AY 2004 revealed that the CAIs increase with the addition of graduate programs. The greater variation of the CAIs indicates more variation in tuition at colleges and universities with graduate programs. The standard deviation decreased during AY 2004, indicating that the CAIs for the A&S classification were less varied, but the greatest variation in remained at institutions with graduate coexistence.

Subsidiary Research Question #2 and Subsidiary Research Question #4

Hypothesis 2 of this study was concerned with differences among the average amounts of institutional grant aid granted by institutions for AY 2003, based on institutional classifications. Data describing the distribution of institutional grant aid and the amount of grant aid by race and institution were not available. The mean of the average amount of institutional aid for colleges and universities in the A&S-F/NGC classification was $1,1813.23, with a standard deviation of $5,278.41; for those in the A&S-F/SGC classification it was $1,0303.68, with a standard

deviation of $6643.08; for those in the A&S-F/HGC classification it was $1,1731.19, with a standard deviation of $6,921.62.

An ANOVA was conducted. The between-groups F-ratio was .904, and the significance of the analysis was .407. Tukey Post Hoc analyses were not conducted. The analysis of variance revealed no statistically significant differences among average amounts of institutional grant aid of institutions in the A&S Carnegie classification (Table 14). A possible explanation is that colleges and universities were providing students with institutional aid based on a formula that included various student characteristics. Applying such a formula would allow flexibility in an attempt to remain competitive by attracting the "right student." The student characteristics could be the same or similar for this classification of institutions.

Table 14

ANOVA: AY 2003 Average Institutional Grant Aid

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	62983819.097	2	31491909.58	.904	.407
Within Groups	5015130206.904	144	34827293.13		
Total	5078114026.000	146			

Hypothesis 3 of this study was concerned with differences among the average amounts of institutional grant aid for AY 2004, based on institutional classifications. The mean of the average amount of institutional aid was $1,2641.68, with a standard deviation of $5,621.10 for institutions in the A&S-F/NGC; it was $1,0929.74 with a standard deviation of $7,212.14 for those in the A&S-F/SGC classification; it was $1,2402.29 with a standard deviation of $7,357.54 for those in the A&S-F/HGC classification. Analysis of the standard deviation for these data by year indicated more variation in tuition at colleges and universities in the graduate coexistence

classifications. The standard deviation for colleges and universities with graduate coexistence increased in all classifications.

An ANOVA was conducted. The between-groups F-ratio was .990. The significance of the analysis was .374. Tukey Post Hoc analyses were not conducted. The analysis of variance revealed no statistically significant differences in average institutional grant aid amounts among the institutions in the A&S Carnegie classification (Table 15). On the average, institutions in the A&S-F/NGC classification were providing more institutional aid than those in the A&S-F/SGC and A&S-F/HGC classifications, but the difference between the means was not statistically significant. It appears that colleges and universities were providing students with institutional aid based on a formula, or administrators were providing aid to remain competitive and to attract the "right student."

Table 15

ANOVA: *AY 2004 Average Institutional Grant Aid*

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	79161495.704	2	39580747.82	.990	.374
Within Groups	5756146928.76	144	39973242.51		
Total	5835308424.49	146			

Subsidiary Research Question #5

Hypothesis 5 of this study was concerned with the various ethnic representations of first-time, full-time degree-seeking students at institutions between AY 2003 and AY 2004. Table 16 and 17 present the total number of students by ethnic representation and Carnegie classification. Three sets of paired t-tests were conducted to determine significance.

Table 16

AY 2003: Total Ethnic Representation of First-Time, Full-Time Degree-Seeking Students

	Black non-Hispanic	American Indian or Alaska native	Asian or Pacific Islander	Hispanic	White non-Hispanic	Total
No Graduate Coexistence	1,980	225	1,785	1,342	23,586	28,918
Some Graduate Coexistence	2,753	121	1,784	1,323	11,918	17,899
High Graduate Coexistence	1,774	191	8,945	3,789	16,269	30,968
Total						77,785

Table 17

AY 2004: Total Ethnic Representation of First-Time, Full-Time Degree-Seeking Students

	Black non-Hispanic	American Indian or Alaska native	Asian or Pacific Islander	Hispanic	White non-Hispanic	Total
No Graduate Coexistence	2,221	225	1,921	1,474	23,656	29,497
Some Graduate Coexistence	2,839	123	1,827	1,383	11,975	18,147
High Graduate Coexistence	1,664	1,999	8,421	3,676	16,069	31,829
Total						79,473

In the institutions with the A&S-F/NGC classification, for the Black Non-Hispanic group the mean was 22.50 and the standard deviation was 54.59 in AY 2003; the mean was 22.24 and the standard deviation was 64.951 in AY 2004. For the American Indian or Alaskan Native

group, the mean was 2.56 and the standard deviation was 4.25 in AY 2003; the mean was 2.56

and the standard deviation was 4.492 in AY 2004. For Asian or Pacific Islander group, the mean

was 20.28 and the standard deviation was 23.074 in AY 2003; the mean was 21.83 and the

standard deviation was 25.413 in AY 2004. For the Hispanic group, the mean was 15.25 and the

standard deviation was 12.599 in AY 2003; the mean was 16.75 and the standard deviation was

14.56 in AY 2004. For the White Non-Hispanic group, the mean was 268.02 and the standard

deviation was 148.606 in AY 2003; the mean was 268.82 and the standard deviation was

155.629 in AY 2004. The data are included in Table 18.

Table 18

Paired Samples Statistics: AY 2003 and AY 2004

Arts and Science Focus No Graduate Coexistence

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Black non-Hispanic total 2003	22.50	88	54.598	5.820
	Black non-Hispanic total 2004	25.24	88	64.951	6.924
Pair 2	American Indian or Alaska native 2003	2.56	88	4.250	.453
	American Indian or Alaska native 2004	2.56	88	4.492	.479
Pair 3	Asian or Pacific Islander total 2003	20.28	88	23.074	2.460
	Asian or Pacific Islander total 2004	21.83	88	25.413	2.709
Pair 4	Hispanic total 2003	15.25	88	12.599	1.343
	Hispanic total 2004	16.75	88	14.560	1.552
Pair 5	White non-Hispanic total 2003	268.02	88	148.606	15.841
	White Non-Hispanic total 2004	268.82	88	155.629	16.590

A paired samples t-test for the A&S-F/NGC for AY 2003 and AY 2004 was conducted. The t statistic for the Black Non-Hispanic group was -1.952, and the significance (2-tailed) was .054. The t statistic for the American Indian or Alaskan native group was .000, and the significance (2-tailed) was 1.00. The t statistic for the Asian or Pacific Island group was -2.366, and the significance (2-tailed) was .020. The t statistic for the Hispanic group was -2.399 and the significance (2-tailed) was .019. The t statistic for the White Non-Hispanic group was -.187, and the significance (2-tailed) was .852. The data are included in Table 19.

Table 19: Paired Samples Test

Academic year 2003 and Academic year 2004
Arts and Science Focus No Graduate Coexistence

		Paired Differences							
				Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
		Mean	Std. Deviation		Lower	Upper			
Pair 1	Black non-Hispanic total 2003 – Black non-Hispanic total 2004	-2.739	13.164	1.403	-5.528	.051	-1.952	87	.054*
Pair 2	American Indian or Alaska native 2003 – American Indian or Alaska native 2004	.000	2.259	.241	-.479	.479	.000	87	1.000
Pair 3	Asian or Pacific Islander total 2003 – Asian or Pacific Islander total 2004	-1.545	6.127	.653	-2.844	-.247	-2.366	87	.020*
Pair 4	Hispanic total 2003 – Hispanic total 2004	-1.500	5.864	.625	-2.743	-.257	-2.399	87	.019*
Pair 5	White non-Hispanic total 2003 White non-Hispanic total 2004	-.795	40.000	4.264	-9.271	7.680	-.187	87	.852

The size of the treatment effect in this analysis was determined using Cohen's d (1988). The calculation for Cohen's d effect size is indicated in Table 20. Cohen (as cited in Stevens, 1996) defined effect sizes using the following criteria: (a) d in the vicinity of .2 indicates a small effect size; (b) d in the vicinity of .5 indicates a medium effect size; and (c) d in the vicinity of .8 this indicates a large effect size. Cohen's effect size for the Asian or Pacific Islander group and for the Hispanic group was .25, suggesting a small effect size.

Table 20

Effect Size: AY 2003 and AY 2004

Arts and Science Focus No Graduate Coexistence

Pair	Mean Difference	Std. Deviation	Effect Size
Asian or Pacific Islander total 2003 Asian or Pacific Islander total 2004	-1.545	6.125	.25
Hispanic total 2003 Hispanic total 2004	-1.500	5.864	.25

Cohen's d formula = Mean Difference/Std. Deviation (Cohen, 1988, p. 20)

For the Black Non-Hispanic group, the AY 2003 mean was 72.45 and the standard deviation was 149.756; the AY 2004 mean was 74.71 and the standard deviation was 164.289. For the American Indian or Alaskan native group, the AY 2003 mean was 3.18 and the standard deviation was 6.722; the AY 2004 mean was 3.24 and the standard deviation was 6.292. For the Asian or Pacific Islander group, the AY 2003 mean was 46.95 and the standard deviation was 81.499; the AY 2004 mean was 48.08 and the standard deviation was 87.207. For the Hispanic group, the AY 2003 mean was 34.82 and the standard deviation was 59.062; the AY 2004 mean was 36.39 and the standard deviation was 61.691. For the White Non-Hispanic group, the AY

2003 mean was 313.63 and the standard deviation was 263.55; the AY 2004 mean was 315.13

and the standard deviation was 259.219. The data are included in Table 21.

Table 21

Paired Samples Statistics: AY 2003 and AY 2004

Arts and Science Focus Some Graduate Coexistence

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Black non-Hispanic total 2003	72.45	38	149.756	24.294
	Black non-Hispanic total 2004	74.71	38	164.289	26.651
Pair 2	American Indian or Alaska native 2003	3.18	38	6.722	1.090
	American Indian or Alaska Native 2004	3.24	38	6.292	1.021
Pair 3	Asian or Pacific Islander total 2003	46.95	38	81.499	13.221
	Asian or Pacific Islander total 2004	48.08	38	87.207	14.147
Pair 4	Hispanic total 2003	34.82	38	59.062	9.581
	Hispanic total 2004	36.39	38	61.691	10.008
Pair 5	White non-Hispanic total 2003	313.63	38	263.555	42.754
	White non-Hispanic total 2004	315.13	38	259.219	42.051

The t statistic for the Black Non-Hispanic group was -.669, and the significance (2-tailed)

was .508. The t statistic for the American Indian or Alaskan Native group was -.188, and the

significance (2-tailed) was .852. The t statistic for the Asian or Pacific Islander group was -.438,

and the significance (2-tailed) was .664. The t statistic for the Hispanic group was -1.030, and the

significance (2-tailed) was .309. The t statistic for the White Non-Hispanic group was .212, and

the significance (2-tailed) was .833. The data are presented in Table 22.

Table 22

Paired Samples Test: AY 2004 and AY 2004

Arts and Science Focus Some Graduate Coexistence

			Paired Differences				t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Black non-Hispanic total 2003 Black non-Hispanic total 2004	-2.263	20.847	3.382	-9.115	4.589	-.669	37	.508
Pair 2	American Indian or Alaska native 2003 American Indian or Alaska native2004	-.053	1.723	.280	-.619	.514	-.188	37	.852
Pair 3	Asian or Pacific Islander total 2003 Asian or Pacific Islander total 2004	-1.132	15.933	2.585	-6.368	4.105	-.438	37	.664
Pair 4	Hispanic total 2003- Hispanic total 2004	-1.579	9.446	1.532	-4.684	1.526	-1.030	37	.309
Pair 5	White non-Hispanic total 2003 White non-Hispanic total 2004	-1.500	43.640	7.079	-15.844	12.844	-.212	37	.833

For AY 2003 the mean for the Black Non-Hispanic group was 84.48, and the standard deviation was 59.240; for AY 2004 the mean was 79.24, and the standard deviation was 54.149. The AY2003 mean for American Indian or Alaskan native group was 9.10, and the standard deviation was 9.944; the AY 2004 mean was 9.48, and the standard deviation was 9.553. The AY 2003 mean for the Asian or Pacific Islander group was 425.95, and the standard deviation was 618.423; the AY 2004 mean was 401.00, and the standard deviation was 550.833. The AY 2003 mean for the Hispanic group was 180.43, and the standard deviation was 210.220; the AY 2004 mean was 175.05, and the standard deviation was 209.537. The AY 2003 mean for the White Non-Hispanic group was 774.71, and the standard deviation was 565.997; the AY 2004 mean was 765.19, and the standard deviation was 521.917. The data are included in Table 23.

Table 23

Paired Samples Statistics: AY 2003 and AY 2004

Arts and Science Focus High Graduate Coexistence

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Black non-Hispanic total 2003	84.48	21	59.240	12.927
	Black non-Hispanic total 2004	79.24	21	54.149	11.816
Pair 2	American Indian or Alaska native 2003	9.10	21	9.944	2.170
	American Indian or Alaska native2004	9.48	21	9.553	2.085
Pair 3	Asian or Pacific Islander total 2003	425.95	21	618.423	134.951
	Asian or Pacific Islander total 2004	401.00	21	550.833	120.202
Pair 4	Hispanic total 2003	180.43	21	210.220	45.874
	Hispanic total 2004	175.05	21	209.537	45.725
Pair 5	White non-Hispanic total 2003	774.71	21	565.997	123.511
	White non-Hispanic total 2004	765.19	21	521.917	113.892

The t statistic for the Black Non-Hispanic group was 1.221, and the significance (2-tailed) was .236. The t statistic for the American Indian or Alaskan Native group was -.449, and the significance (2-tailed) was .659. The t statistic for the Asian or Pacific Islander group was 1.234, and the significance (2-tailed) was .231. The t statistic for the Hispanic group was .548, and the significance (2-tailed) was .590. The t statistic for the White Non-Hispanic group was .534, and the significance (2-tailed) was .599. The data are presented in Table 24.

Table 24

Paired Samples Test: AY 2003 and AY 2004

Arts and Science High Graduate Coexistence

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Black non-Hispanic total 2003 Black non-Hispanic total 2004	5.238	19.662	4.291	-3.712	14.188	1.221	20	.236
Pair 2	American Indian or Alaska native 2003 American Indian or Alaska native 2004	-.381	3.892	.849	-2.153	1.391	-.449	20	.659
Pair 3	Asian or Pacific Islander total 2003 Asian or Pacific Islander total 2004	24.952	92.636	20.215	-17.215	67.120	1.234	20	.231
Pair 4	Hispanic total 2003 Hispanic total 2004	5.381	44.967	9.813	-15.088	25.850	.548	20	.590
Pair 5	White non-Hispanic total 2003 White non-Hispanic total 2004	9.524	81.776	17.845	-27.700	46.748	.534	20	.599

Analysis identified significant differences in the ethnic representations of students receiving institutional aid between AY 2003 and AY 2004, based on institutional classification. An analysis of data from institutions in the A&S-F/NGC revealed a statistically significant difference between Asian or Pacific Islander and Hispanic students receiving aid in AY 2003 and those receiving aid in AY 2004. This statistically significant increase in the average number of aid recipients from these groups may be due to the fact that higher education administrators at institutions in the A&S-F/NGC classification provided more need-based institutional aid than merit-based institutional aid. Also, students included in these ethnic classifications may have

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applied to these institutions at a statistically significant higher rate because of their significantly lower CAIs, indicating smaller increases in tuition.

An analysis conducted on data from A&F-F/SGC institutions revealed an increase in all of the ethnic representation paired samples, but the increases were not statistically significant. An analysis conducted on data from A&S-F/HGC institutions revealed a decrease in the ethnic representation paired samples from AY 2003 to AY 2004. However, the decreases were not statistically significant and may have been due to the size of the sample. An analysis of standard deviations of these data indicated greater variation in the ethnic classifications at colleges and universities in the A&S-F/NGC and A&S-F/SGC classifications. These data suggest that diversity at these colleges and universities may be increasing.

Subsidiary Research Question #6

Hypothesis 6 of this study was concerned with the gender representations at institutions, based on their Carnegie classifications. Table 25 reveals the total number of students by gender, academic year, and Carnegie classification during AY 2003 and AY 2004. Three sets of paired t-tests were conducted to determine significance.

Table 25

AY 2003 and AY 2004: Total Male and Total Female by Carnegie Classification

	2003 Total Male	2003 Total Female	2004 Total Male	2004 Total Female
A&S-F/NGC	13,240	18,757	13,468	19,405
A&S-F/SGC	7,651	12,769	7,975	12,814
A&S-F/HGC	16,637	19,237	16,009	18,473

.

For A&S-F/NGC, the AY 2003 mean for men was 150.05, with a standard deviation of 96.437; the AY 2004 mean was 153.05 and the standard deviation was 99.214. The AY 2003 mean for women was 213.15, and the standard deviation was 120.56; the AY 2004 mean was 220.51, and the standard deviation was 130.175. The data are presented in Table 26.

Table 26

Paired Samples Statistics: AY 2003 and AY 2004

Arts and Science Focus No Graduate Coexistence

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Total Men 2003	150.05	88	96.437	10.280
	Total Men 2004	153.05	88	99.214	10.576
Pair 2	Total Women 2003	213.15	88	120.564	12.852
	Total Women 2004	220.51	88	130.175	13.877

A paired samples t-test for A&S-F/NGC for AY 2003 and 2004 was conducted. The t statistic for the men was -1.473, and the significance (2-tailed) was .144. The t statistic for women was -2.254, and the significance (2-tailed) was .027. The data are included in Table 29.

Table 27

Paired Samples Test: AY 2003 and AY 2004

Arts and Science Focus No Graduate Coexistence

			Paired Differences				t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Total Men 2003 Total Men 2004	-3.000	19.111	2.037	-7.049	1.049	-1.473	87	.144
Pair 2	Total Women 2003 Total Women 2004	-7.364	30.653	3.268	-13.858	-.869	-2.254	87	*.027

The size of the treatment effect in this analysis was determined using Cohen's d (1988).

The calculation for Cohen's d effect size is presented in Table 28. Cohen's effect size for women

was .24. The data are included in Table 28.

Table 28

Effect Size: AY 2003 and AY 2004

Arts and Science Focus No Graduate Coexistence

Pair	Mean Difference	Std. Deviation	Effect Size
Total Women 2003 Total Women 2004	-7.364	30.653	.24

Cohen's d formula= Mean Difference/Std. Deviation (Cohen, 1988, p. 20)

For A&S-F/SGC, the AY 2003 mean for total men was 201.34, with a standard deviation

of 193.299; for AY 2004 it was 209.87, with a standard deviation of 200.689. The AY 2003

mean for total women was 336.03, with a standard deviation of 250.544; for AY 2004 it was

337.21, with a standard deviation of 274.846. The data are presented in Table 29.

Table 29.

Paired Samples Statistics: AY 2003 and AY 2004

Arts and Science Focus Some Graduate Coexistence

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Total Men 2003	201.34	38	193.299	31.357
	Total Men 2004	209.87	38	200.689	32.556
Pair 2	Total Women 2003	336.03	38	250.544	40.644
	Total Women 2004	337.21	38	274.846	44.586

A paired samples t-test for A&S-F/SGC for AY 2003 and AY 2004 was conducted. The t

statistic for total men was -2.182, and the significance (2-tailed) was .036. The t statistic for total

women was -.114, and the significance (2-tailed) was .910. The data are presented in Table 30.

Table 30

Paired Samples Test: AY 2003 and AY 2004

Arts and Science Focus Some Graduate Coexistence

			Paired Differences				t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Total Men 2003 Total Men 2004	-8.526	24.087	3.907	-16.444	-.609	-2.182	37	*.036
Pair 2	Total Women 2003 Total Women 2004	-1.184	64.180	10.411	-22.280	19.911	-.114	37	.910

The size of the treatment effect in this analysis was determined using Cohen's d (1988). The calculation for Cohen's d effect size is presented in Table 33. Cohen's effect size for total men was .35, indicating a small effect size. The data are presented in Table 31.

Table 31

Effect Size: AY 2003 and AY 2004

Arts and Science Focus Some Coexistence

Pair	Mean Difference	Std. Deviation	Effect Size
Total Men 2003 Total Men 2004	-8.526	24.087	.35

Cohen's d= Mean Difference/Std. Deviation (Cohen, 1988, p. 20)

For A&S-F/HGC, the AY 2003 mean of the total men for AY 2003 was 792.24, with a standard deviation of 622.646; the AY 2004 mean was 762.33, with a standard deviation of 565.960. The AY 2003 mean for total women was 916.05, and the standard deviation was 777.252; the AY 2004 mean was 879.67, and the standard deviation was 721.120. The data are presented in Table 32.

Table 32

Paired Samples Statistics: AY 2003 and AY 2004

Arts and Science Focus High Graduate Coexistence

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Total Men 2003	792.24	21	622.646	135.872
	Total Men 2004	762.33	21	565.960	123.503
Pair 2	Total Women 2003	916.05	21	777.252	169.610
	Total Women 2004	879.67	21	721.120	157.361

A paired samples t-test for A&S-F/HGC for AY 2003 and AY2004 was conducted at the alpha level = .05. The t statistic for total men was 1.661, and the significance (2-tailed) was .112. The t statistic for the total women was 1.655, and the significance (2-tailed) was .114. The data are presented in Table 33.

Table 33

Paired Samples Test: AY 2003 and AY 2004

Arts and Science High Graduate Coexistence

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Total Men 2003 Total Men 2004	29.905	82.507	18.004	-7.652	67.461	1.661	20	.112
Pair 2	Total Women 2003 Total Women 2004	36.381	100.742	21.984	-9.476	82.238	1.655	20	.114

Analysis identified a statistically significant difference in gender representations of students receiving institutional aid between AY 2003 and AY 2004, based on institutional classification. The significant difference occurred at institutions with A&S-F/NGC and A&S-F/SGC classifications.

An analysis of data from institutions in the A&S-F/NGC classification revealed that the mean of the total men decreased between AY 2003 and AY 2004, although the difference was not statistically significant. However, the difference between the mean of the total women for AY 2003 and the mean of the total women for AY 2004 was statistically significant. The statistically significant increase in the mean of the total women may have been due to the fact that higher education administrators at institutions in the A&S-F/NGC classification created policies to provide institutional aid to female students. Women may have applied to these institutions at a statistically significant higher rate because tuition was not increasing as rapidly

as tuitions at institutions in other classifications, as indicated by a statistically significant lower CAI. This increase may also have been due to the number of lower-income applicants who were receiving need-based aid. Additionally, the significant increase in the mean of total women may have been the result of the tendency of women to select higher education programs that do not require graduate study.

An analysis of data from institutions in the A&S-F/NGC classification revealed a small standard deviation. Further review showed that the AY 2003 and AY 2004 standard deviations were comparable. These data indicated that colleges and universities in this classification were enrolling approximately the same number of men and women for each academic year.

An analysis of A&S-F/SGC data revealed a statistically significant difference between total men for AY 2003 and total men for AY 2004. The review also revealed that the mean for total women in AY 2003 increased when compared to that in AY 2004. However, the increase was not statistically significant. A review of data from A&S-F/SGC revealed little variation in the total men for AY 2003 and AY 2004, with more variation for women.

Analysis of the A&S-F/HGC classification revealed no statistically significant differences in gender representation between AY 2003 and AY 2004. A review of the standard deviation of men and women for AY 2003 and AY 2004 indicated that the data were loosely clustered around the mean, indicating inconsistency in the number of men and women enrolled in the institutions.

Subsidiary Research Question #7

Hypothesis 7 of this study was concerned with the CAIs of institutions between AY 2003 and AY 2004. The analysis was conducted to determine if a significant difference existed in

CAIs at the alpha level = .05. A paired t-test was conducted to determine if significant differences existed.

Seventy-nine institutions in the A&S-F/NGC classification reported a decrease and one institution reported an increase in their CAIs between AY 2003 and AY 2004. Thirty-three institutions in the A&S-F/SGC classification reported a decrease and two institutions reported an increase in their CAIs when data from AY 2003 was compared to that from AY 2004. Twenty-one institutions in the A&S-F/NGC classification reported a decrease and one institution reported an increase in their CAIs when data from AY 2003 was compared to that from AY 2004.

The mean CAI for AY 2003 was 3.7031, with a standard deviation of 2.7333. The mean CAI for AY 2004 was 2.6439, with a standard deviation of 1.99831. The data are presented in Table 34.

Table 34

Paired Sample Statistics: AY 2003 and AY 2004 CAI

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	CAI 2003	3.7031	147	2.73332	.22544
	CAI 2004	2.6439	147	1.99831	.16482

A paired samples t-test for the CAI for AY 2003 and AY 2004 was conducted at the alpha level = .05. The t statistic was 8.639. The significance (2-tailed) was .000. The data are presented in Table 35.

Table 35

Paired Samples Test: AY 2003 and AY 2004 CAI

			Paired Differences				t	df	Sig. (2-tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1	College Affordability Index 2003 College Affordability Index 2004	1.0591	1.4865	.12261	.81687	1.30150	8.639	146	*.000

The size of the treatment effect in this analysis was determined using Cohen's d (1988). The calculation for Cohen's d effect size is presented in Table 38. Cohen's effect size for the CAI was .71, indicating a medium effect size, approaching a large effect. The data are presented in Table 36.

Table 36

Effect Size: AY 2003 and AY 2004

Arts and Science Focus

Pair	Mean Difference	Std. Deviation	Effect Size
CAI 2003 CAI 2004	1.05918	1.48655	.71

Cohen's d formula= Mean Difference/Std. Deviation (Cohen, 1988, p. 20)

An analysis of data from the A&S institutions revealed a statistically significant difference between CAIs for AY 2003 and those for AY 2004. The rate of tuition increase for these institutions was lower in AY 2004 than in AY 2003. The statistically significant decrease in CAIs may have been due to the fact that higher education administrators were beginning to comply with the AY 2008 mandates of the College Access and Opportunity Act of 2005.

A review of the data revealed a decrease in the standard deviation of the CAI between AY 2003 and AY 2004. This decrease indicates that the CAIs were similar and close to the average. More colleges and universities were decreasing their CAIs, moving closer to an average CAI of 2.

Subsidiary Research Question #8

Hypothesis 8 was concerned with the average amount of institutional aid at A&S institutions between AY 2003 and AY 2004. Analysis was conducted to determine if significant differences existed in the average amounts of institutional aid.

The average amount of institutional grant aid for AY 2003 was $11,411.29; the standard deviation was $5,897.59. The average amount of institutional aid for AY 2004 was $12,164.94, with a standard deviation of $6,322.01. The data are presented in Table 37.

Table 37

Institutional Aid: AY 2003 and AY 2004

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Institutional Aid 2003	$11,411.29	147	$5,897.59	$486.42
	Institutional Aid 2004	$12,164.94	147	$6,322.01	$521.43

A paired samples t-test for the CAI of AY 2003 and AY 2004 was conducted at the alpha level = .05. The t statistic was -5.418. The significance (2-tailed) was .000. The data are presented in Table 38.

Table 38.

Paired Samples Test: AY 2003 and AY 2004

Average Amount of Institutional Aid

				Std.	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Error					
			Std.						
		Mean	Deviation	Mean					
Paired Differences									
					Lower	Upper			
Pair 1	Inst. Aid 2003 Inst. Aid 2004	-$753.65	$1686.51	$139.10	$1,028.56	$478.74	5.418	146	.000

The size of the treatment effect in this analysis was determined using Cohen's d (1988). The calculation for Cohen's d effect size is presented in Table 41. Cohen's effect size for the average amount of institutional aid was .44, indicating a small effect size, approaching a medium effect size. The data are included in Table 39.

Table 39
Effect Size: AY 2003 and AY 2004

Arts and Science Focus No Graduate Coexistence

Pair	Mean Difference	Std. Deviation	Effect Size
Average Institutional Aid 2003 Average Institutional Aid 2004	-$753.65	$1,686.51	.44

Cohen's d= Mean Difference/Std. Deviation (Cohen, 1988, p. 20)

An analysis of data from institutions in the A&S classification revealed a statistically significant difference between the average amount of institutional aid provided to students for AY 2003 and that for AY 2004, indicating an increase for AY 2004. This increase may have resulted from the attention created by the lack of higher education affordability. Higher education administrators may have lowered expenses to making more aid available, thus increasing the average amount of institutional grant aid provided to students. This fact is confirmed by the sustained drop in CAIs cited previously in this paper. Additionally, the increase in the average amount of institutional aid provided to students may have been the result of a decrease in the total number of students receiving institutional aid: institutions may not have been increasing the amount provided to students, but rather providing more institutional aid to fewer students.

A review of the data indicated that the standard deviation for institutional aid increased between AY 2003 and AY 2004. On the average, the data suggested that institutions were providing institutional aid that was closer to the average amount of aid in that academic year. An increase in the standard deviation for AY 2004 suggested that more colleges and universities in

the A&S Carnegie classification were providing considerably different amounts of institutional

aid.

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CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary of Study

The purpose of this study was to determine the effects of institutional aid on the rate of tuition increase and diversity of the student body at higher education institutions with the A&S Carnegie classification. This study was further designed to determine if information about the relationships among institutional aid, rate of tuition increase, and diversity could provide administrators with information and guidance when determining and implementing policy, and direct future research.

This study used a quasi-experimental, nonequivalent research group design with cross-sectional data. ANOVA was used to analyze data from AY 2003 and AY 2004. Tukey Post Hoc comparisons were performed if a significant omnibus was obtained. Pairwise comparisons were conducted, and Cohen's d was used to determine the effect size. The independent variable was institutions classified by A&S Carnegie classification. The dependent variables were the average amount of institutional grant aid per college student, CAI, gender, and ethnicity, as reported by the NCES IPEDS website.

This research study involved 147 traditional colleges and universities with the A&S Carnegie classification, categorized according to extent of graduate program offerings. Dependent variable data were obtained from the NCES IPEDS website. The study focused on AY 2003 and AY 2004. These limitations were placed on the study to increase internal and external validity.

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Strengths of the Study

The strengths of this study are based on the internal and external validity issues identified by this researcher. External validity--the need to generalize research findings to the population-- was addressed by using a recognized and recommended institutional classification system, NCES, and a quasi-experimental non-equivalent research group design with cross-sectional data analysis. Internal validity--the need to eliminate or reduce the effects of confounding variables-- was addressed by delimitations of the study, years, and types of institutions selected for analysis.

Weakness of the Study

The major weakness of this study is related to issues of privacy regarding aid awarded to students. The actual amount of aid, the race and gender of aid recipients, and whether the aid was awarded on need or merit are considered proprietary information and are not divulged by institutions. Therefore, this study--like other financial aid studies--must rely on only data made available by institutions and not on data specifically requested for research purposes.

Summary of the Findings

The AY 2003 CAI means from institutions in the three A&S Carnegie classifications were compared. An ANOVA revealed a significant omnibus f (f = 5.091, sig. = .007). The effect size was medium (eta-squared = .066). Tukey Post Hoc Analysis revealed a significant (sig.=.007) difference between institutions with the A&S-F/NGC classification and those with the A&S-F/HGC classification. In AY 2003, colleges and universities with the A&S-F/NGC classification had a statistically significant lower CAI than those in the A&S-F/HGC classification. This finding indicates that, on the average, in AY 2003, colleges and universities with the A&S-F/NGC classification kept tuition relatively constant, compared to those with the A&S-F/HGC classification.

The 2004 CAI means from institutions in the three A&S Carnegie classifications were compared. An ANOVA revealed a significant omnibus f (f=7.689, sig. =.001). The effect size was medium (eta-squared = .096). Tukey Post Hoc Analysis revealed a significant (.000) difference between institutions with the A&S-F/NGC classification and those with the A&S-F/HGC classification. The data revealed that in AY 2004, colleges and universities with the A&S-F/NGC classification had statistically significant lower CAIs than those with the A&S-F/HGC classification. Analysis also revealed a significant (.005) difference between institutions with the A&S-F/SGC classification and those with the A&S-F/HGC classification. The findings indicate on average in AY 2004, colleges and universities in the A&S-F/SGC classification had a lower rate of tuition increase, compared with those of institutions with the A&S-F/HGC classification. The findings also indicate that tuition increased at a slower rate for colleges and universities with the A&S-F/NGC classification than for colleges and universities with the A&S-F/HGC classification.

The means of the average amount of institutional aid for the three categories of institutions in the A&S classification for AY 2003 were compared. The researcher sought to determine if a difference existed among the average amounts of institutional aid given to students at institutions with different levels of graduate coexistence. The data were tested using an ANOVA. Analysis of AY 2003 data revealed no statistically significant difference between the average amount of institutional aid given to college students of institutions with the A&S Carnegie classification (f.=.904, sig. = .407). Likewise, analysis of AY 2004 data revealed no statistically significant difference (f = .990, sig. = .374)

Means of ethnic representations of first-time, full-time degree-seeking students between AY 2003 and AY 2004 were compared at institutions with A&S Carnegie classifications. The

data were tested using three sets of paired t-tests. Analysis revealed a significant increase (t = -2.366, sig. = .020) in the average number of students in the Asian or Pacific Islander group in the A&S-F/NGC classification. Cohen's d effect size for this analysis was .25, indicating a small effect size. A statistically significant (t = -2.399, sig. = .019) increase in the average number of Hispanic students attending colleges and universities was apparent in the A&S-F/NGC classification. Cohen's d effect size for this analysis was .25, indicating a small effect size. The data further revealed that ethnic and gender diversity did not increase at some colleges and universities when graduate programs were offered. This finding was consistent with research conducted by Perna & Titus (2004) and Leslie and Brinkman (1987), both reporting that higher tuition and lower institutional affordability tended to result in lower subgroup representation.

Gender representation means from colleges and universities based on Carnegie classifications were compared, in an effort to determine if differences existed. Three sets of paired t-tests were conducted to determine significance. Analysis of data from the A&S-F/NGC institutions revealed a statistically significant (t = -2.254, sig. = .027) difference between the total women in AY 2003 and that in AY 2004. Cohen's d effect size for this analysis was .24, indicating a small effect size. Analysis of data from the A&S-F/SGC classification revealed a statistically significant (t = -2.182, sig. = .036) difference between the total men in AY 2003 and that in AY 2004. Cohen's d effect size for this analysis was .35, indicating a small effect size. An analysis of the data from colleges and universities in the A&S-F/HGC classification revealed no statistically significant difference based on gender.

CAI means for AY 2003 and AY 2004 were compared. The researcher sought to determine if a significant difference in the CAI existed between the two academic years. A paired t-test was conducted. Analysis revealed a statistically (t = 8.693, sig. = .000) significant

difference between the CAI in AY 2003 and that in AY2004. Cohen's d effect size for this analysis was .71, indicating a medium effect, approaching a large effect. Analysis revealed that colleges and universities increased tuition at a lower rate during the three academic years included in the CAI for AY 2004 than in the three years included in the CAI for AY 2003.

The average amount of institutional aid given to students for AY 2003 was compared to the average amount of institutional aid given to students for AY 2004 to determine if a significant difference existed in aid provided to students in the A&S Carnegie classification. A paired t-test was conducted. Analysis of the data revealed a statistically significant (t = 5.418, sig. = .000) difference in the average amount of institutional aid provided to students at institutions with the A&S Carnegie classification. Cohen's d treatment effect for this analysis was .44, indicating a small effect size, approaching medium effect size. Analysis indicated that administrators provided more institutional grant aid to applicants in AY 2004 than in AY 2003.

The total number of students across all A&S Carnegie classifications in AY 2003 was 77,785. The total number of students across all categories in AY 2004 was 79,473--an increase of 1,688 students. However, further analysis showed a decrease in the average number of students in the A&S-F/HGC classification. On the average, institutions in this category saw a decrease of 132.88 students. Institutional aid in this classification increased from $11,411.00 in AY 2003 to $12,164.00 in AY 2004. At these colleges and universities, more aid was distributed to fewer students. Data to determine the number of students who received institutional aid by gender and race in this classification were not available.

Conclusions

The results of this study revealed that the primary research question was partially answered. Analysis of the data confirmed that as institutional aid increased, the CAI decreased at

colleges and universities in the A&S Carnegie classification. Some colleges and universities that did not offer graduate programs had statistically significant lower CAIs for AY 2003 and AY 2004, indicating they increased their tuition at a lower rate. Analysis of data in the A&S-F/NGC classification revealed a significant increase between AY 2003 and AY 2004 in the Asian Pacific Island and Hispanic classifications. Data analysis revealed increases in ethnic representation at the A&S-F/SGC institutions, but not at a statistically significant level. Analysis of the data from colleges and universities included in the A&S-F/HGC classification did not indicate statistical significance, possibly due to the small sample size.

In general, institutions that reported low increases in tuition and low CAIs experienced an increase in the average number of students in some ethnic classifications. Institutions that offered more graduate programs significantly increased tuition and indicated an increase in their CAIs appeared to be less diverse. For institutions classified as A&S-F/NGC, diversity representation was higher than for other classifications. These institutions also had lower CAIs.

This study used only institutional aid as a variable, whereas other similar studies have used total financial aid. As of this writing, no other studies have used the combination of institutional aid, Carnegie classification, gender, and ethnicity that was employed in this study. Detailed institutional aid data are considered proprietary, and the lack of data has limited the number and type of studies that researchers have conducted. However, availability of the CFAT's recently released college classifications, and the U.S. Government's new CAI will allow for more research and more accurate comparisons in the future.

Implications for Higher Education and Future Research

Policy Recommendations

A review of the findings and conclusions of this study indicates that the following policy recommendations are in order. It is recommended that admissions officers who have responsibility for administering institutional aid become more cognizant of the specific relationships among affordability, diversity, and need at their institutions. A conscientious effort should be expended to develop policy and procedures to increase need-based aid for all qualified students who meet other significant requirements of an institution, as downward trends in an institution's CAI are experienced. This policy decision is likely to have a positive effect on the diversity of an institution's student body.

When a decrease in the CAIs for all institutions was observed, the results of this study demonstrated that institutions offering graduate education programs in at least half of the fields corresponding to undergraduate majors tend to increase tuition at a faster rate than other institutions. It is unclear why a decrease in affordability was experienced between AY 2003 and AY 2004; further study is merited. Therefore, while increasing gender and ethnic representation is desired, it is recommended that until additional data are available, administrators in all categories of institutions develop procedures to monitor all expenses carefully, in an attempt to lower the CAI for all students. This recommendation is consistent with the results of other studies (Jackson, 1988; Leslie and Brinkman, 1988; Paulsen & St. John, 1982), which revealed that institutional affordability increases gender and ethnic diversity.

Recommendations for Future Research

It is recommended that this study be replicated annually at colleges and universities in the A&S Carnegie classification until AY 2008. Such research would determine the trends and effects of lower CAIs on the average amounts on institutional aid given to students, ethnic diversity, and gender diversity. The provision of the College Access and Opportunity Act that

holds colleges and universities accountable for CAIs exceeding 2.0 may affect all variables identified for this study. Unanticipated problems identified by Lapovsky (2004), Archibald (2002) and Doti (2000) revealed that as the use of institutional aid changes, additional studies are required to determine their effects on institutions and their student populations.

Therefore, it is recommended that future studies include colleges and universities that award different proportions of bachelor's degree majors in the A&S and Professional Fields, analyzing the relationships among institutional aid, ethnicity, gender, and the same types of undergraduate degrees. Studies should also include institutions with different proportions of graduate degrees in the same fields as undergraduate degrees. Studies should be conducted to include institutions in the four additional Carnegie undergraduate instructional program classifications. Future researchers should modify the methodology of research that involves these institutions, in order to address confounding variables that did not exist in this study.

The lack of relationships among institutional aid, ethnicity, and gender at some institutions included in the A&S category could change significantly with the inclusion of institutions that award different proportions of bachelor's degrees by program major.

It is recommended that future studies identify the effects of institutional aid on tuition, ethnic diversity, and gender diversity, with a sample of public and private degree-granting Title IV-eligible two-year colleges drawn from the IPEDS. The lack of data from non-traditional college students in the A&S classification suggests an apparent need to include institutions that serve a different sample of college students.

It is recommended that future studies include analysis of the average number of students receiving institutional grant aid. The lack of variation in ethnic and gender diversity at some

institutions included in the A&S classification suggests a need for future studies to include such analysis.

It is recommended that future studies be conducted at colleges and universities that award a different proportion of bachelor's degree majors in the A&S focus and include an analysis of the average number of students receiving institutional grant aid. The lack of variation in institutional aid, ethnic diversity, and gender diversity at some institutions included in the A&S classification suggests that focusing on the number of students who receive institutional grant aid and evaluating the effects at other colleges and universities might yield different results.

It is recommended that sample selection and size for similar future studies be considered carefully. Specific areas of investigation appeared to reveal trends in certain directions that could become significant if a larger sample becomes available for examination.

It is recommended that higher education administrators create institutional aid outreach programs that extend into secondary schools. These programs should provide high school students and parents with information about institutional aid. The programs should also provide students of low-income and minority families with access to electronic application and assistance with the application process. This recommendation is consistent with a recommendation made by Venegas (2005). It is recommended that future studies be designed to evaluate the effects of providing prospective students with need-based institutional aid information, including an institution's tuition, ethnic diversity, and gender diversity.

Implications for Practice

Administrators should review administrative institutional aid procedures at their intuitions and, if necessary, consider revisions based upon the major findings of this study. Review of an institution's CAI should become standard practice. If the CAI increases above the

recommended government-established 2.0, administrators should implement procedures to slow the rate of tuition increase in order to stay competitive with similar institutions.

Results of this study could prove helpful if higher education administrators determine that it is necessary to address a decrease in institutional diversity and to increase the population of low-income and minority students. National and institutional data can be used to guide, establish, and implement practice and change. Through careful monitoring of how and to whom institutional aid is awarded, the resulting effect on institutional diversity could be detected and altered, if necessary. Using the information gained from this study, administrators of institutions in the A&S-F/SGC and A&S-F/HGC classifications could monitor their CAIs and student body diversity to determine if the relationship is consistent over time and is appropriate for the institution. Administrators of institutions in other classifications could monitor the same variables and make informed decisions that could affect the race, gender diversity, and financial need of their student body. It is in this context that a small but significant step has been taken by this writer to advance administrators' understanding in an area that is likely to become even more complicated by legislation, population changes, and limited resources.

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APPENDIX A
AVERAGE PUBLISHED TUITION
AND FEE CHARGES CONSTANT 2005 DOLLARS

Appendix A
Average Published Tuition and Fee Charges
Constant 2005 Dollars

Legend: ☐ 1975-1976 ☒ 1980-1981 ◪ 1985-1986 ☰ 1990-1992 ☐ 1995-1996 ▨ 2000-2001 ◼ 2005-2006
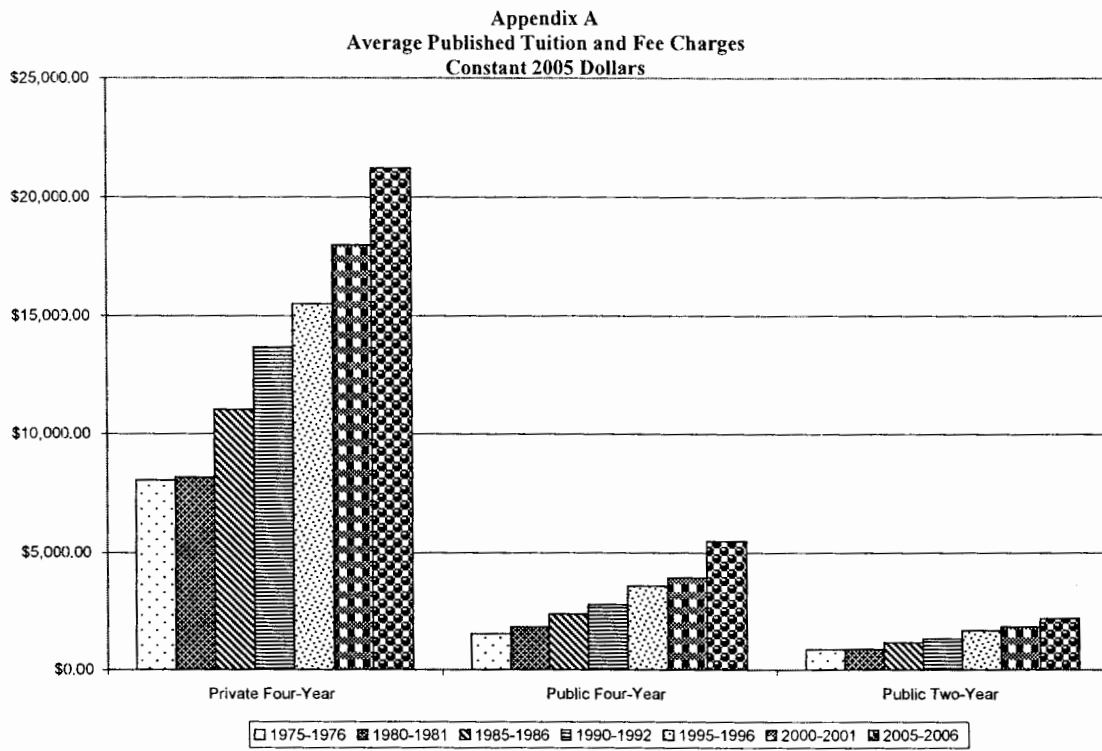
Note. Data from College Board. (2005). *Trends in college pricing 2005*. Washington, D.C. Author, p. 10.

APPENDIX B
PERCENTAGE OF FRESHMEN RECEIVING INSTITUTIONAL AID
(Tuition Discounts)

Appendix B
Percentage of Freshmen Receiving Institutional Aid
(Tuition Discounts)
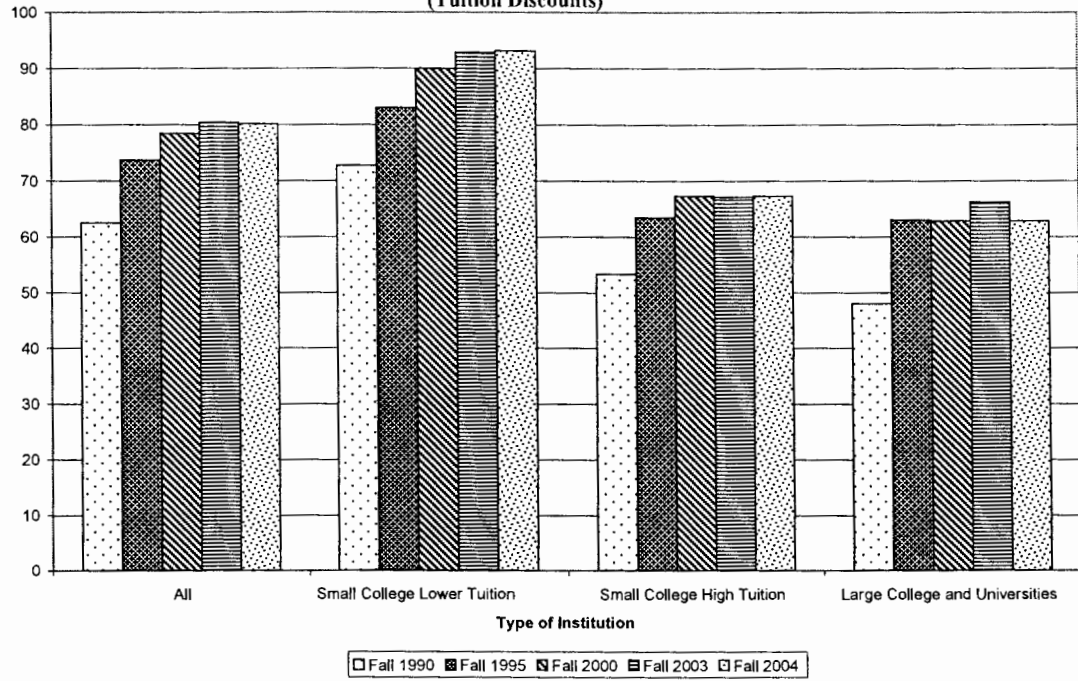
Note. Data from Lapovsky, L., and Loomis, L. (2005). 2004 NACUBO tuition discounting survey preliminary results." *NACUBO Business Officer*, 10-11.

APPENDIX C
COLLEGE DATA SET
ARTS AND SCIENCE CARNEGIE CLASSIFICATION

A&S-F/NGC N=95

138600,142294,168546,210669,164465,201007,245838,245847,245883,366748,439321,189097,
160977,238333,230816,161004,230825,110316,173258,156408,128780,112260,161086,420352,
166124,206589,126678,128902,153162,198385,202523,150400,212009,150455,235167,212577,
153384,191515,232256,166018,150756,212911,207157,191630,443128,170532,203535,146427,
213385,146481,239017,209056,213668,106342,173902,182917,230940,192864,166939,262129,
120254,121257,121345,148016,233295,233301,209922,221351,239628,195216,163912,174844,
199607,123165,221519,148849,228343,141060,216287,233718,124292,183275,176406,196866,
174251,236328,216524,197133,152673,168218,197230,125727,168281,237057,210401

A&S-F/HGC N=26

436438,165015,217156,160959,430087,190150,139658,212771,166027,119058,119678,119711,
148593,163976,195304,243744,196060,110635,110653,110662,110705,110714,144050,195030,
221999,130794

A&S-F/SGC N=41

222983,189088,211273,165167,262086,165334,190099,193645,231624,190594,182670,184348,
196680,220181,218070,162654,107080,232308,116712,153861,232672,2,230959,118888,12765
3,204501,441186,195526,167835,196219,187046,130590,224323,116846,232681,163268,19911
1,199865,164216,130697,168342,160904

APPENDIX D
STEPS TO CREATE INSTITUTIONAL POPULATION AND DATA SETS

Methodology Steps To Create Institution Population and Data Sets

STEP 1: Identify colleges and universities for the study:
- Enter the Carnegie Foundation website to create a list of colleges and universities.
    - http://www.carnegiefoundation.org/classifications/
        - Select the Lookup and Listings link.
            - Select the Custom Listings link
            - Proceed to the Undergraduate Instructional Program menu and select the following:
                - A and S – F/NGC – Arts and Sciences focus, No Graduate Coexistence
                - A and S – F/SGC – Arts and Sciences focus, Some Graduate Coexistence
                - A and S – F/HGC – Arts and Sciences focus, high graduate coexistence.

STEP 2: Create a word document with the six-digit identification numbers (UNITIDS) for the college and university selected for the study. Each identification number should be separated by a comma. Colleges and universities have been selected and are contained in Appendix C.

STEP 3: Gather institutional aid data, student demographic data, and the CAI for 2003 and 2004. These data will be gathered in two files using the following procedures:
- Enter the Integrated Postsecondary Education Data System (IPEDS):
    - http://nces.ed.gov/ipeds/
        - Enter the IPEDS Peer Analysis System
        - Select Guest Level and agree to the usage agreement terms
        - Select the Dataset Cutting Tool (DCT)
        - Select year 2004 to select a universe of schools
        - Select institutions by pasting a comma separated list of (UNITDS)
        - View data by data year - Select Continue
        - Paste UNITID in the appropriate box.
            - UNITID are contained in the following Word File:
                - College Data Set for Dissertation – select continue
        - Check institution names and, if correct, select Continue
        - Select year from which to gather data (Data will be run for 2003 and 2004)
        - Select Frequently used/Derived Variable and Enrollments Variables – select Continue.
        - Select College Affordability Index, Student financial aid of full-time first-time degree- or certificate-seeking undergraduate students, race ethnicity, gender, attendance status, and level of student – Select Continue
        - Select College Affordability Index (CAI), Percentage Receiving Institutional Grant Aid (IGRNT_P), Average Amount of Institutional Grant Aid Received (IGRNT_A).
        - Select the following variable. Level of student – All students, undergraduate, Degree/Certificate – Seeking.

- Select the following Ethnicity Variables:
    - Non-resident alien men
    - Non-resident alien women
    - Black non-Hispanic men
    - Black non-Hispanic women
    - American Indian or Alaska Native men
    - American Indian or Alaska Native women
    - Asian or Pacific Islander men
    - Asian or Pacific Islander women
    - Hispanic men
    - Hispanic women
    - White non-Hispanic men
    - White non-Hispanic women
    - Race / ethnicity unknown men
    - Race / ethnicity unknown women
    - Grand total men
    - Grand total women
    - Non-resident alien total
    - Black non-Hispanic total
    - American Indian or Alaska Native total
    - Asian or Pacific Islander Total
    - Hispanic Total
    - White non-Hispanic total
    - Race / ethnicity unknown
    - Total – Select Continue
- Select Continue, and zipped link for the data sets will be created. The data will be in an Excel Spreadsheet

STEP 4: Import the data to SPSS and conduct analysis

APPENDIX E
NON-TRADITIONAL INSTITUTIONS

Non-Traditional Institutions Not Included In this Study

NGC	Name	City	State	Control	Reason
245838	Antioch University-Los Angeles Branch	Culver City	CA	Private not-for-profit	Satellite No CAI Data
245847	Antioch University-Santa Barbara Branch	Santa Barbara	CA	Private not-for-profit	Satellite No CAI Data
245883	Antioch-Seattle Branch	Seattle	WA	Private not-for-profit	Satellite No CAI Data
366748	Argosy University	Honolulu	HI	Private not-for-profit	Small No CAI Data
110316	California Institute of Integral Studies	San Francisco	CA	Private not-for-profit	Small No CAI Index
128780	Charter Oak State College	New Britain	CT	Private not-for-profit	Small No CAI Data
443128	International Technological University	Santa Clara	CA	Private not-for-profit	Small No CAI Data

SGC	Name	City	State	Control	Reason
262086	Chapman University	Orange	CA	Private not-for-profit	Non Resident No CAI Data
196680	Excelsior	Albany	NY	Private not-for-profit	Virtual Univ. No CAI Data
116712	John F. Kennedy University	Pleasant Hill	CA	Private not-for-profit	Small No CAI Data
187046	Thomas Edison State College	Trenton	NJ	Public	Distance Ed. No CAI Data

HGC	Name	City	State	Control	Reason
436438	Argosy University-Orange Campus	Santa Ana	CA	Private not-for-profit	Small No CAI Data
119058	Monterey Institute of International Studies	Monterey	CA	Private not-for-profit	Small No CAI Data
119678	Naval Postgraduate School	Monterey	CA	Public	Military No CAI Data
148593	St. John's College	Annapolis	MD	Private not-for-profit	Health Curr. No CAI Data

.

APPENDIX F
INSTITUTIONS INCLUDED IN THIS STUDY

A&S-F/NGC	Name	City	State	Control
138600	Agnes Scott College	Decatur	GA	Private not-for-profit
142294	Albertson College of Idaho	Caldwell	ID	Private not-for-profit
168546	Albion College	Albion	MI	Private not-for-profit
210669	Allegheny College	Meadville	PA	Private not-for-profit
164465	Amherst College	Amherst	MA	Private not-for-profit
201007	Antioch College	Yellow Springs	OH	Private not-for-profit
439321	Ave Maria College	Ypsilanti	MI	Private not-for-profit
189097	Barnard College	New York	NY	Private not-for-profit
160977	Bates College	Lewiston	ME	Private not-for-profit
238333	Beloit College	Beloit	WI	Private not-for-profit
230816	Bennington College	Bennington	VT	Private not-for-profit
161004	Bowdoin College	Brunswick	ME	Private not-for-profit
230825	Burlington College	Burlington	VT	Private not-for-profit
173258	Carleton College	Northfield	MN	Private not-for-profit
156408	Centre College	Danville	KY	Private not-for-profit
112260	Claremont McKenna College	Claremont	CA	Private not-for-profit
161086	Colby College	Waterville	ME	Private not-for-profit
420352	College of Saint Thomas More, The	Fort Worth	TX	Private not-for-profit
166124	College of the Holy Cross	Worcester	MA	Private not-for-profit
206589	College of Wooster	Wooster	OH	Private not-for-profit
126678	Colorado College	Colorado Springs	CO	Private not-for-profit
128902	Connecticut College	New London	CT	Private not-for-profit
153162	Cornell College	Mount Vernon	IA	Private not-for-profit
198385	Davidson College	Davidson	NC	Private not-for-profit
202523	Denison University	Granville	OH	Private not-for-profit
150400	DePauw University	Greencastle	IN	Private not-for-profit
212009	Dickinson College	Carlisle	PA	Private not-for-profit
150455	Earlham College	Richmond	IN	Private not-for-profit
235167	Evergreen State College	Olympia	WA	Public
212577	Franklin and Marshall College	Lancaster	PA	Private not-for-profit
153384	Grinnell College	Grinnell	IA	Private not-for-profit
191515	Hamilton College	Clinton	NY	Private not-for-profit
232256	Hampden-Sydney College	Hampden-Sydney	VA	Private not-for-profit
166018	Hampshire College	Amherst	MA	Private not-for-profit
150756	Hanover College	Hanover	IN	Private not-for-profit
212911	Haverford College	Haverford	PA	Private not-for-profit
170286	Hillsdale College	Hillsdale	MI	Private not-for-profit
191630	Hobart William Smith Colleges	Geneva	NY	Private not-for-profit
170532	Kalamazoo College	Kalamazoo	MI	Private not-for-profit
203535	Kenyon College	Gambier	OH	Private not-for-profit

146427	Knox College	Galesburg	IL	Private not-for-profit
213385	Lafayette College	Easton	PA	Private not-for-profit
146481	Lake Forest College	Lake Forest	IL	Private not-for-profit
239017	Lawrence University	Appleton	WI	Private not-for-profit
209056	Lewis & Clark College	Portland	OR	Private not-for-profit
213668	Lycoming College	Williamsport	PA	Private not-for-profit
106342	Lyon College	Batesville	AR	Private not-for-profit
173902	Macalester College	St Paul	MN	Private not-for-profit
182917	Magdalen College	Warner	NH	Private not-for-profit
230940	Marlboro College	Marlboro	VT	Private not-for-profit
192864	Marymount Manhattan College	New York	NY	Private not-for-profit
166939	Mount Holyoke College	South Hadley	MA	Private not-for-profit
262129	New College of Florida	Sarasota	FL	Public
120254	Occidental College	Los Angeles	CA	Private not-for-profit
121257	Pitzer College	Claremont	CA	Private not-for-profit
121345	Pomona College	Claremont	CA	Private not-for-profit
148016	Principia College	Elsah	IL	Private not-for-profit
233295	Randolph-Macon College	Ashland	VA	Private not-for-profit
233301	Randolph-Macon Woman's College	Lynchburg	VA	Private not-for-profit
209922	Reed College	Portland	OR	Private not-for-profit
221351	Rhodes College	Memphis	TN	Private not-for-profit
239628	Ripon College	Ripon	WI	Private not-for-profit
195216	St. Lawrence University	Canton	NY	Private not-for-profit
163912	St. Mary's College of Maryland	St Mary's City	MD	Public
174844	Saint Olaf College	Northfield	MN	Private not-for-profit
199607	Salem College	Winston Salem	NC	Private not-for-profit
123165	Scripps College	Claremont	CA	Private not-for-profit
221519	Sewanee: the University of the South	Sewanee	TN	Private not-for-profit
148849	Shimer College	Waukegan	IL	Private not-for-profit
228343	Southwestern University	Georgetown	TX	Private not-for-profit
141060	Spelman College	Atlanta	GA	Private not-for-profit
216287	Swarthmore College	Swarthmore	PA	Private not-for-profit
233718	Sweet Briar College	Sweet Briar	VA	Private not-for-profit
124292	Thomas Aquinas College	Santa Paula	CA	Private not-for-profit
183275	Thomas More College of Liberal Arts	Merrimack	NH	Private not-for-profit
176406	Tougaloo College	Tougaloo	MS	Private not-for-profit
196866	Union College	Schenectady	NY	Private not-for-profit
174251	University of Minnesota-Morris	Morris	MN	Public
236328	University of Puget Sound	Tacoma	WA	Private not-for-profit
216524	Ursinus College	Collegeville	PA	Private not-for-profit

197133	Vassar College	Poughkeepsie	NY	Private not-for-profit
152673	Wabash College	Crawfordsville	IN	Private not-for-profit
168218	Wellesley College	Wellesley	MA	Private not-for-profit
197230	Wells College	Aurora	NY	Private not-for-profit
125727	Westmont College	Santa Barbara	CA	Private not-for-profit
168281	Wheaton College	Norton	MA	Private not-for-profit
237057	Whitman College	Walla Walla	WA	Private not-for-profit
210401	Willamette University	Salem	OR	Private not-for-profit

A&S-F/SGC	Name	City	State	Control
222983	Austin College	Sherman	TX	Private not-for-profit
189088	Bard College	Annandale-on-Hudson	NY	Private not-for-profit
211273	Bryn Mawr College	Bryn Mawr	PA	Private not-for-profit
165167	Cambridge College	Cambridge	MA	Private not-for-profit
165334	Clark University	Worcester	MA	Private not-for-profit
190099	Colgate University	Hamilton	NY	Private not-for-profit
193645	College of New Rochelle, The	New Rochelle	NY	Private not-for-profit
160959	College of the Atlantic	Bar Harbor	ME	Private not-for-profit
231624	College of William and Mary	Williamsburg	VA	Public
190594	CUNY Hunter College	New York	NY	Public
182670	Dartmouth College	Hanover	NH	Private not-for-profit
184348	Drew University	Madison	NJ	Private not-for-profit
220181	Fisk University	Nashville	TN	Private not-for-profit
218070	Furman University	Greenville	SC	Private not-for-profit
162654	Goucher College	Baltimore	MD	Private not-for-profit
107080	Hendrix College	Conway	AR	Private not-for-profit
232308	Hollins University	Roanoke	VA	Private not-for-profit
153861	Maharishi University of Management	Fairfield	IA	Private not-for-profit
232672	Mary Baldwin College	Staunton	VA	Private not-for-profit
230959	Middlebury College	Middlebury	VT	Private not-for-profit
118888	Mills College	Oakland	CA	Private not-for-profit
127653	Naropa University	Boulder	CO	Private not-for-profit
119711	New College of California	San Francisco	CA	Private not-for-profit
204501	Oberlin College	Oberlin	OH	Private not-for-profit
163976	St. John's College	Annapolis	MD	Private not-for-profit
245652	St. John's College	Santa Fe	NM	Private not-for-profit
441186	San Diego State University-Imperial Valley Campus	Calexico	CA	Public
195304	Sarah Lawrence College	Bronxville	NY	Private not-for-profit
195526	Skidmore College	Saratoga Springs	NY	Private not-for-profit
167835	Smith College	Northampton	MA	Private not-for-profit
196219	SUNY College at Purchase	Purchase	NY	Public
130590	Trinity College	Hartford	CT	Private not-for-profit
224323	University of Dallas	Irving	TX	Private not-for-profit
116846	University of Judaism	Los Angeles	CA	Private not-for-profit
232681	University of Mary Washington	Fredericksburg	VA	Public
163268	University of Maryland-Baltimore County	Baltimore	MD	Public

199111	University of North Carolina at Asheville	Asheville	NC	Public
199865	Warren Wilson College	Swannanoa	NC	Private not-for-profit
164216	Washington College	Chestertown	MD	Private not-for-profit
130697	Wesleyan University	Middletown	CT	Private not-for-profit
168342	Williams College	Williamstown	MA	Private not-for-profit
160904	Xavier University of Louisiana	New Orleans	LA	Private not-for-profit

A&S-F/HGC	Name	City	State	Control
165015	Brandeis University	Waltham	MA	Private not-for-profit
217156	Brown University	Providence	RI	Private not-for-profit
160959	College of the Atlantic	Bar Harbor	ME	Private not-for-profit
430087	Colorado Technical University	Greenwood Village	CO	Private for-profit
190150	Columbia University in the City of New York	New York	NY	Private not-for-profit
139658	Emory University	Atlanta	GA	Private not-for-profit
212771	Gratz College	Melrose Park	PA	Private not-for-profit
166027	Harvard University	Cambridge	MA	Private not-for-profit
119711	New College of California	San Francisco	CA	Private not-for-profit
163976	St. John's College	Santa Fe	NM	Private not-for-profit
195304	Sarah Lawrence College	Bronxville	NY	Private not-for-profit
243744	Stanford University	Stanford	CA	Private not-for-profit
196060	SUNY at Albany	Albany	NY	Public
110635	University of California-Berkeley	Berkeley	CA	Public
110653	University of California-Irvine	Irvine	CA	Public
110662	University of California-Los Angeles	Los Angeles	CA	Public
110705	University of California-Santa Barbara	Santa Barbara	CA	Public
110714	University of California-Santa Cruz	Santa Cruz	CA	Public
144050	University of Chicago	Chicago	IL	Private not-for-profit
195030	University of Rochester	Rochester	NY	Private not-for-profit
221999	Vanderbilt University	Nashville	TN	Private not-for-profit
130794	Yale University	New Haven	CT	Private not-for-profit