PARTICIPATION IN STUDENT FINANCIAL AID PROGRAMS DURING THE FRESHMAN YEAR AND PERSISTENCE IN A PRIVATE UNIVERSITY

DISSERTATION

Presented to the Graduate Council of the

University of North Texas in Partial

Fulfillment of the Requirements

For the Degree of

DOCTOR OF PHILOSOPHY

By

Leo W. Munson, B.S., M.S.

Denton, Texas

August, 1997

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The study determined the overall persistence rate of first-time full-time entrants into a mid-sized private university during the fall semesters 1989 to 1991 to the 2nd year (1990 to 1992). The study compared the retention rate of recipients and nonrecipients of a variety of financial aid programs. Included is a comparison of groups receiving various types of financial assistance and whether or not there are differences between the groups with respect to types of assistance, gender, ethnicity (African American, Hispanic, Anglo), high school grade point average, and national test scores (SAT, ACT). The types of assistance studied were categorized by academic scholarships, university-operated student employment, need-based grants, activity awards, entitlements, and loans. The question of whether renewal, elimination, or reduction in assistance relates to retention was also studied.

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CHAPTER 1

INTRODUCTION

A few years ago, colleges and universities spent little time or money exploring reasons why students matriculated or why some withdrew short of degree completion. There was no need to do so because potential students were plentiful. Demitroff (1974) wrote,

> The period between 1950-1970 was a time of unparalleled growth at every college and university in the country. Few institutions had concerns for maintaining enrollment . . . administrators--including admissions officers and registrars--knew that next year's enrollment was certain to surpass this years enrollment substantially. (p. 553)

Existing institutions were building new facilities and enlarging their student bodies. New campuses were springing up as states authorized funds to make college education attainable to local populations. College admission offices collected letters from individuals who asked for information about the college, and this information was sent out in the return mail with little or no follow up. Little money was necessary for a recruiting budget because schools did not need to recruit. Rather, many institutions simply answered the requests for information and waited for an over-subscribed freshman class to arrive each September.

To finance public institutions, state legislatures provided a growing abundance of dollars to take care of expenses. Although private institutions did not have governmental bodies enhancing the flow of money, they too expanded. This expansion was often financed by tuition increases that appeared minimal in relationship to a growing national economy. These tuition increases were coupled with an infusion of funds from the federal and state governments. According to Jensen (1983), prior to the late 1950s financial assistance to college students came primarily from private and institutional sources. In the 1960s the primary goal of the financial assistance policy was to increase the access to higher education.

Times have changed. Post-secondary institutions in both the private and public sectors are vying to matriculate students at a time when funding in the form of student financial assistance is either static or diminishing. Large student recruiting and financial aid budgets have become the norm in most institutions, public and private. The College Entrance Examination Board (1993) indicated that the total available aid in 1992-93 (federal, state, institutional) was $34.6 billion. This is 41% higher than a decade ago and 5% higher than 1991-92. In 1992-93 the federal government provided 74% of the awarded aid. Ten years ago it was more than 80%.

A number of research projects have been undertaken to determine what attracted or did not attract a student, why students remained or withdrew from an institution, and what were the critical components that define the match between students and the colleges they selected. This study examined one important aspect of retention as it was reflected in a mid-sized private university.

Statement of the Problem

This study concerned the receipt of funding through a variety of financial aid programs and the retention rate of freshmen to 2nd-year students in a private university.

Purposes of the Study

The purposes of this study were (a) to determine the overall persistence rate of freshman entrants to Texas Christian University (TCU) during the fall semesters 1989-1991 to the 2nd or sophomore year 1990-1992, (b) to determine the overall persistence rate from the freshman to sophomore year of those students receiving any form of financial aid during the same period by demographic (gender, ethnicity), performance (TCU GPA), and preparation (SAT/ACT), (c) to determine whether there is a difference in retention between those students who received renewed or reduced financial aid in the sophomore year, (d) to determine if there is a difference in retention between demographic (gender, ethnicity), performance (TCU GPA), preparation (SAT/ACT), variables, and financial aid programs.

Research Questions

There is a large body of knowledge related to persistence variables. While there are a number of variables associated with persistence, only those associated with various student financial aid programs were studied. The following questions were be answered relating to TCU students:

1. Is there a significant difference among students returning for their sophomore year between those receiving assistance (financial aid) and those who did not?

2. Does renewal or reduction of academic, merit scholarships relate to retention?

3. Does renewal or reduction of participation in university operated student employment programs relate to retention?

4. Does renewal or reduction of grants based on the families' economics relate to retention?

5. Does renewal or reduction of activity awards relate to retention?

6. Does renewal or reduction of entitlement awards relate to retention?

7. Does renewal or reduction of student loans relate to retention?

8. Does renewal or reduction of any combination of financial assistance (scholarship, student employment, grant, activity award, entitlement award, loan) relate to retention?

9. Do characteristics such as gender, ethnicity (demographic), GPA (performance), or SAT/ACT scores (preparation), alter the relationship between retention and financial aid?

Background and Basis of the Study

According to the National Center for Postsecondary Governance and Finance (1990), "Since 1970 more than $200 billion, mostly from federal funds, has been invested in student financial aid. Initially, student financial aid was created by Congress to remove financial barriers for low income students to attend college" (p. 1). As recently as 1963-64, when federal student aid consisted primarily of the National Defense Student Loan (now known as the Federal Perkins Student Loan), institutions supplied

approximately 55% of student aid and the federal government only 25% of the $546 million. During 1988-89, the $26.7 billion available in financial assistance was funded at the rate of 75% by the federal government and 19% from institutions. (Lewis, 1989).

A tremendous amount of money is directed toward students in post-secondary education each year. Individual colleges and universities, through the use of institutionally derived dollars coupled with allocations from federal and state sources, provide an economic boost to the institution as well as the city where the postsecondary school is located. A report published by the Alliance for Higher Education (1992) documented the financial impact of the 23 public, private, and community colleges in North Central Texas. According to the report, institutions with enrollment of approximately 222,000 students employed 22,000 faculty and staff, with an annual payroll of exceeding $900 million. Spending on the part of students, faculty, and staff had a ripple effect of $8.8 billion in economic activity for fiscal year 1991. Additionally, there is a milieu of philanthropic organizations that each year awards substantial dollars. This is accomplished by either sending funds to the institution for disbursement to qualified students or by forwarding funds directly to the individual recipient to help underwrite educational costs.

Texas Christian University is an institution that is involved in a multi-million dollar aid program designed to assist students in defraying the costs of higher education. According to records of the TCU financial aid office, nearly $12.3 million was awarded to its undergraduate students during the 1988-89 academic year. This equates to approximately $4.68 million in federally derived dollars, $1.54 million from the State of

Texas, $4.58 million from the institution's budgeting process, and, finally, $1.5 million from externally derived sources. A variety of loans, grants, activity awards, entitlement awards scholarships, and work programs is included in the above dollars (TCU, 1989).

As evidenced above, student financial aid has become a large expenditure in a short period of time. Congress, state legislatures, philanthropic organizations, and college officials are increasingly demanding accountability in the distribution of these dollars. One of the methods of measurement is in the area of student persistence. According to Terkla (1985), financial aid persistence is defined as the relationship between the receipt of aid and whether a student will remain in college or drop out.

The study of financial aid as it relates to persistence is a relatively new topic. The vast majority of studies are from the mid-1970s forward. This is not surprising inasmuch as student financial aid as a major federal expenditure did not begin until the mid-1960s. Murdock (1989) identified over 60 studies that concentrated particularly on the relationship between student aid and persistence. It was Murdock's conclusion that there was not a lack of research on the relationship, but rather a lack of systematic integration of the existing studies.

Exhaustive research has identified numerous reasons why students choose to discontinue their attendance in higher education. Financial difficulty is one of the reasons most frequently cited. Pantages and Creedon (1978) discovered that the second most frequently given reason for withdrawing was financial (academic reasons were most frequent). Additional studies by Bayer (1968) and by Panos and Astin (1968) found that financial reasons ranked high in importance for both male and female dropouts.

Research on the types of assistance that increase the likelihood of persistence has also been undertaken. Astin (1975) stated that nonrepayable grants and on-campus work have favorable impacts on persistence, whereas loans have a negative impact. Voorhees (1985a) surmised that the federally funded College Work/Study Program had a positive total effect on new freshman persistence. Leslie and Brinkman (1988) suggest that, while loans as well as grants have a positive influence on persistence, grants have a more positive effect on persistence than do loans. Finally, St. John (1989) concluded his research by stating that "the overall inescapable conclusion is that all forms of student aid have a positive influence on persistence" (p. 66). Terkla (1985) reached a similar conclusion.

Significance of the Study

The study focused on the return of TCU first-time full-time freshmen to the 2nd year. The nonreturnees were significant for the period of time to be studied. According to institutional information, 810 of the 3,392 students in the study who started in the fall of 1989 through 1991 did not persist into their sophomore year (TCU, 1993). At a time when universities are finding it increasingly difficult to attract new starts (freshman and transfer students), it is imperative that potential returning students be retained at the highest level possible. This study provided information important to the review of current financial aid policies as they relate to retention issues. Additionally, the study may reflect a need to direct more funding toward subpopulations (male/female, minority/majority).

Definition of Terms

Activity awards: Monetary funding provided by or through Texas Christian University that is based upon a student's talent or involvements. Funding is provided in the areas of band, choir, orchestra, theater, athletics, church involvement, journalism, and dance. These awards do not need to be repaid.

Entitlement awards: Monetary assistance provided by or through Texas Christian University that is based upon the student's membership in a specific group. Included are the dependent children of university employees and certain members of the Christian Church, Disciples of Christ (DOC). These awards do not need to be repaid.

Ethnicity: Students are categorized as African American, Anglo, Hispanic, Asian American, and Native American. The category is self-reported by the student. Not included are nonresident aliens. Students who have not identified their ethnicity are listed as "Other."

Financial Aid: Monetary assistance provided by or through Texas Christian University. This includes scholarships, grants, activity awards, entitlement awards, loans, and student employment.

First-time attendance: The initial entry for the first semester of an undergraduate program.

Full-time students: Term applied to any 1st-year student who enrolled for at least 12 semester hours of classes during the fall semester at Texas Christian University.

Grant: Money provided by or through Texas Christian University that is based upon the family's economics. These do not need to be repaid.

High GPA: The TCU grade point average (GPA) achieved by the individual prior to the beginning of the 2nd academic year. High is a GPA of 2.50-4.00 on a scale that ranges from 0.00-4.00.

High SAT: The Scholastic Aptitude Test (SAT) is a product of the College Entrance Examination Board. The test contains a verbal and math subtest, each with a range of scores between 200-800, with 800 being the highest possible on each subtest. The composite score (totaling both subtests together) is used. The High SAT group is made up of individuals with test scores between 1010 to 1500.

Loan: Money provided by or through Texas Christian University that requires repayment.

Low GPA: The TCU grade point average (GPA) achieved by the individual prior to the beginning of the 2nd academic year. Low is a GPA of 0.00-2.49 on a scale that ranges from 0.00-4.00.

Low SAT: The Scholastic Aptitude Test (SAT) is a product of the College Entrance Examination Board. The test contains a verbal and math subject, each with a range of scores between 200-800, with 800 being the highest possible on each subtest. The composite score (totaling both subtests together) is used. The Low SAT group is made up of individuals with test scores between 600-1000.

Scholarship: Monetary funding provided by or through Texas Christian University based upon the student's academic history. These awards do not need to be repaid.

Student employment: Work that is done by the student and overseen by the university. Earnings are determined by the hours worked multiplied by the hourly wage.

Limitations

A number of factors that could influence the analysis of freshmen who leave before or do not return for the 2nd year were not utilized, although each could influence the result. Information regarding courses taken, majors, on- or off-campus living, and membership in groups such as intercollegiate athletics and Greek lettered societies were not reviewed.

The sample of this study was restricted by the population. Only first-time 1st-year entering students at TCU from the fall semesters of 1989-90, 1990-91, and 1991-92 who were enrolled in at least 12 credit hours were included. Excluded were part-time students (less than 12 semester hours) and nonresident or foreign students. These individuals are not eligible for federal or state financial assistance and are further limited by restricted eligibility for institutional aid participation. Finally, the part-time students who were first-time students were excluded from the study because their eligibility to participate in federal, state, and university programs is greatly restricted. Additional students were removed from the population because of incorrect coding, other system errors, and student death.

The data analyzed came from one mid-size, selective university where the vast majority of the student body is Anglo. However, other universities may find the results

relevant to their environments and may seek to replicate the methodology on their student population.

Basic Assumptions

Texas Christian University enrolls academically comparable students based upon its selective undergraduate admission policies. During the period of this study, it was assumed that the first-time full-time class will be comparable from year to year with respect to academic characteristics.

Summary

A great deal of money from governmental and institutional sources is available for students to attend programs in higher education. Since the 1960s this funding has grown dramatically. Both governmental and institutional sources view this funding as an investment in the students attending colleges and universities.

Many studies have been commissioned to learn the relationship between funding in the form of financial assistance and persistence in higher education. This study looked at one institution, TCU, and asked a number of questions relative to academics, ethnicity, and gender in student financial aid and the retention rate of freshman to 2nd-year students. The study was that of the first-time full-time entering freshman at TCU in the 1989-90, 1990-91, and 1991-92 school years. This involved a total of 3,392 students.

CHAPTER 2

REVIEW OF THE LITERATURE

Introduction

Harvard College, the first institution of higher education in America, opened in 1636 (Collins, 1956, p. 52). Today there are more than 3,600 public and private 2- and 4-year colleges and universities ("Almanac Issue," 1994, p. 7). The standards for admission of undergraduate students, the various considerations that influence a student's decision to attend a specific institution of higher education, the independent and related factors that serve as predictors of academic success, the explanations of why students drop out or fail to remain in school, changes in the socioeconomic condition of the student population, and the sources and evolution of funding have been the subjects of extensive research over the past 50 years. This massive body of information has influenced the entire gamut of higher education, including the population being served, the use of economic resources, the development of admission standards, and the search for innovative methods of financing.

An understanding of the historical perspective and social environment which has helped to shape and determine the path of higher education in the 20th century is essential to fully comprehend why the research emphasis would focus on one area or topic for a time period and then, because of changes in student populations, societal concerns,

legislative mandates or availability of funding, would shift to the pressing concerns of higher education at that time in history.

This review addressed the history of and studies related to financial aid programs, the data and conclusions regarding access to higher education, and the development of minority enrollment in higher education and research focused upon attrition in minority populations. The review also analyzed the societal models that researchers have created to explain the role of financial assistance as assistance pertains to persistence in higher education and college attrition, research that does not link financial aid with attrition, and research that does link financial aid to attrition. The review concludes with projections relevant to the future of higher education.

An examination of this data, research, and literature indicated that, although the data and conclusions for an individual study may be valid for a specific time or student population, the information may not necessarily extrapolate to a different historical period, student population, or method of funding. The review of literature therefore sought to identify the studies which are relevant for comparison with the student population and funding at Texas Christian University so that valid comparisons, conclusions, and recommendations could be made regarding the importance of financial assistance at TCU and predictions and recommendations for the use and application of available funding in the future.

A Historical Perspective of Financial Aid

The first financial aid for higher education was provided by Lady Ann Mowlson in 1613 to Harvard College (Woodward, 1988, p. 162). However, it was not until 1939, when McNeely conducted the seminal study on college attrition, that the reasons for college student mortality were studied. The absence of research on this subject for the first 3 centuries of higher education in the United States was due primarily to the student population, which at the time was white, masculine, elitist, and financially independent and therefore not a topic requiring scholarly research.

McNeely (1939) reviewed 25 universities and explained how to conduct a college student mortality study. He discovered various factors that exercise an influence on student withdrawal. These included age of entry of the student, location of the student's home, participation of the student in extracurricular activities, engagement of the student in part-time work, and other factors. McNeely's research identified one specific factor that has been supported by subsequent mortality studies: The largest proportion of these students drop out in the 1st and 2nd year.

The various sources of student financial aid were not the subject of extensive research until recently. Historians as well as educators recognized that the GI Bill, which allowed veterans of World War II and the Korean War to attend college, increased the opportunity for a higher standard of living to a large portion of the U.S. population. This change was brought about by the increased opportunity for a college education. While prior to World War II financial assistance was obtained primarily from institutional sources in limited amounts based upon scholarship, by 1963-1964 the federal student aid

programs, which consisted primarily of the National Defense Student Loan (now the Perkins Loan), supplied approximately 25% of the nearly one-half billion dollars available. Twenty-five years later, in 1989, nearly $27 billion was available in assistance, with approximately 75% funded by the federal government (Lewis, 1989). The College Board (1993) reported that during the 1992-93 academic year, more than $34 billion was available, with the federal government supplying 74% of the funding. This tremendous influx of monies from the federal government has made higher education much more accessible to the public.

Funding continues to expand at both the state and federal levels. The American Council on Education (1996b) reported that in excess of three fourths of the financial aid awarded by states in 1994-95 was need based, whereas 13% was non-need based. The Chronicle of Higher Education reported that the states were more generous in fiscal year 1996-97; they collectively allocated nearly 5% more to student aid than the previous year and 9% more than 2 years before ("State Support," 1996).

The Chronicle of Higher Education also reported that the federal government has increased the amount of loans over the last 2 years to $26 billion while keeping Pell Grants flat at $5.7 billion ("State Support," 1996). Loans appear to dominate the increase in funding. As a share of all student aid dollars, loans have grown from 17% in 1975-76 to 53% in 1993-94 ("Institutional Graduation Rates," 1995, p. 9). Not only do loans dominate, but a growing number of loans are unsubsidized which means adding the in-school interest charges to the borrowers cost. In 1995-96, more than 33% of total federal student loan dollar volume was unsubsidized (The College Board, 1996, p. 24).

Peterson's annual survey from 1983-91 showed that there had been an average annual growth of 10% above inflation for need based funding (The College Board, 1995, p. 18), but that the federal government, which provided 80% of the available student aid in 10 years, had actually reduced their contribution to 75% in 1994-95 (The College Board, 1995).

Blakemore and Low (1985) noted that the increase in college enrollment experienced from the 1950s through the early 1980s could be expected to decline if government-provided scholastic aid was reduced and basic student charges increased. The authors noted that the affirmative action programs of the 1960s sought to increase minorities in higher education. He concluded that the predicted federal budget cuts would reverse the improvement in educational distribution among minorities.

This conclusion supported the earlier findings of Thomas, Alexander, and Eckland (1979) who recognized that the 30 years following World War II represented a period of unprecedented growth in higher education in the U.S. Total enrollment climbed from 1,364,000 in 1939, to 8,560,000 in 1974. The study of Thomas et al. concluded that academic credentials were the major determinants of college access for all groups (gender, race, socioeconomic status). This growth was true for both the public and private sector.

Hopkins (1974) described in his review of studies that higher tuition would lead to lower enrollment. His study identified certain factors that would increase the likelihood of students enrolling in private instead of public institutions. Students were more likely to enroll in a private institution if (a) private institutions of higher education were more

geographically accessible, (b) the students' parents did not go to college, (c) the parents earned over $10,000 per year, and (d) the tuition was higher at the public institution.

By the 1980s, both educators and social scientists recognized the need for attrition studies. Gardener and Nazari-Robati (1983) stated, "As enrollments begin to decline, college administrators need to redirect their attention from studying attrition rates to enacting retention strategies" (p. 25). They cited Mingle and Norris as identifying four techniques that institutions can use to resist decline: retention, improving student life and campus climate, tightening standards to attract bright students, and attracting new sources of revenue for financial aid and to reduce costs.

Studies conducted in 1993 confirmed the predictions of decreased governmental funding. The federal government provided 74% of available financial aid during the 1992-93 academic year. In 1982-83 the federal share was more than 80%. Institutional and other grants grew from 13% to 20% of the total over the same period, with state grants remaining stable at 6% (The College Board, 1993). In the early 1990s the share of direct state government expenditures that were spent on state colleges and universities declined in fiscal year 1992 to 17.3% from 17.8% in fiscal 1991 and 18.3% in fiscal 1990. The report concluded that the burden of this retrenchment is experienced disproportionately by vulnerable populations such as students from low-income, minority, and first-generation family backgrounds who have had past troubles surviving in higher education (U.S. Bureau of the Census, 1993).

The College Board (1994) noted that, for the first time in more than 12 years, average total student enrollment in U.S. colleges and universities declined in 1992. The study found that most of the decrease in average freshman enrollment occurred in the 4-year college and university sector. The earlier studies that predicted a decrease in enrollment and federal funding have been proven correct. The need to focus on retention is confirmed by this data.

Access to Higher Education

The ability to pay for or finance a college education is necessary to obtain higher education. While this appears to be obvious, prior to World War II there was little research on the subject since private colleges were often elitists and the general population attended public institutions. As noted earlier, even with the GI Bill and federal funding, in the 1960s there was minimal research on what appeared obvious: Financial assistance increased the access to higher education.

In the 1970s the question of financial assistance became a topic of research to determine if there were categories or strata of the population whose access to higher education was not influenced by increased funding. Fife and Leslie (1976) reported a study of scholarship and grant programs in California, New Jersey, New York, and Pennsylvania during 1972-1973. They found that state aid programs (a) induced a substantial number of students from low-income families to attend college, although they failed to have much impact on the very lowest income students; (b) are particularly

helpful to women; and (c) overall are responsible for the postsecondary attendance of nearly one half of the aid recipients.

Fenske, Boyd, and Maxey (1979) reported the result of a series of surveys concluded over a 9-year period between the 1967-68 school year and the 1976-77 school year for the Illinois State School Commission (ISSC). They concluded that, for more of the grant (vs. scholarship) respondents, the monetary award does assure access to a college education. Availability of ISSC tuition subsidies, combined with other factors such as location and program attractiveness, have enabled the nonpublic sector to hold its own in competition for enrollment with public universities. The data indicate that the availability of the state awards fosters access to Illinois colleges and universities.

> This study reinforced the finding of Jackson and Weathersby (1975)
>
> (a) Evidence suggests that both low tuition and student grants do stimulate increases in enrollment. (b) Individuals from low income families are more affected by price changes than individuals from high income families. (c) Increasing studies find aid statistically does improve access to higher education. (p. 647)

As the availability of higher education opportunities expanded in the 1980s, admission offices focused more upon the attraction and recruitment of students. Smith and Matthews (1990) reviewed the factors important in choosing a college among 566 freshman admitted to a large southwestern public university. They found availability of financial aid to be one of the best predictors of whether a student attended a particular university. Personal cost was one of the most important factors in choosing a particular

college. Summarizing the most current research on students' enrollment decisions based upon price response, St. John (1990a) noted that there was little research on student price response using more recent data. The author concluded that most research on student price response was conducted on students who entered college before the Pell Grant program was implement in 1973. He was critical of Swartz's 1985 study, which used estimated tuition charges and loan eligibility rather than actual amounts.

St. John (1990a), in the same article, also reviewed Jackson and Weathersby's 1975 research, which originally developed standardized price response coefficients and methodology. Using that standard, St. John found that 35.2% of college applicants in 1982 received financial aid offers. He further noted that tuition changes and aid amounts had an effect on the enrollment decisions by the college applicants in the high school class of 1982.

St. John (1990a) reached four important conclusions in his research: All forms of aid-grants, work, loans were effective in promoting enrollment; $100 of aid (any type) had a stronger influences on enrollment than a $100 reduction in tuition; low-income students were more responsive to increases in grant aid than to increases in loans or work; and high-income students were not responsive to changes in aid amounts .

In a 1993 study, Somers and St. John concluded that combined grant and scholarship awards were positively associated with persistence by traditional college-age students in private 4-year institutions, but not public 4-year institutions. The impact of the amount of aid for first-time attendance compared with the total amount of aid is significantly associated with an increase in first time attendance.

While these research data pertain to the initial decision to matriculate at a particular institution, the research findings as to the importance of financial assistance are also critical when a university seeks to avoid attrition with the student body that has enrolled.

Financial Aid and Minority Participation

Although studies of financial aid and persistence were not a primary focus in the 1960s, researchers began studying the impact of financial aid on minorities with a series of studies during the 1970s. Selby (1973) studied University of Missouri single, black, and white students from low-income areas of St. Louis and Kansas City, Missouri, who graduated from high school in 1968 and entered the university the following fall. Selby reported that the "data suggests that no significant relationships exist between persistence and the amount of federal aid received for any racial subgroup or the total group of students" (p. 39).

Kohen, Nestel, and Karnas (1978) published the results of a National Longitudinal Survey of young men attending college in the late 1960s. Their findings indicated that race and parental socioeconomic status bore no net relationship to dropping out. "While working inhibits persistence in college this impediment appears to be greatest for those who work between one-half to full time" (p. 233). The authors reached the conclusion that receipt of a scholarship bears a consistently positive relationship to the probability of successful persistence in college.

Rumberger (1982) reported on a 1979 National Longitudinal Study of 12,700 youth from ages 14 to 21. He found that at the collegiate level attitudes toward school and college participation vary little among groups with varying race, sex, and socioeconomic backgrounds.

Haro (1983) reviewed and reported on studies and surveys pertaining to Chicanos. Haro found that during the 1950s and 1960s Chicano students were rarely found in 4-year college and universities. As late as 1968 most campuses had no Chicanos enrolled. The author concluded that the rate of attrition for Chicanos at all levels of education was higher than for any other group aside from Native Americans. He observed that perhaps the critical factor in whether Chicanos will be successful or not in achieving adequate and equitable representation in higher education is funding.

Adams and Smith (1987) reported on a study of 354 undergraduates at Prairie View A & M, a historically black Texas institution, who were eligible to return but did not. Of the sample, 56% were freshman from the previous year; 53% were male. The researcher had personal phone contact with 114 students. The most frequent reason for their leaving college was lack of financial support (31%). The next most cited reason was academic problems, which were less than 10% (9%).

After a decade-long study, Arbeiter (1987) found that black enrollments for college were falling. From a high in 1979-80, there has been a steady decline. Arbeiter found this statistic baffling because this is the same time period during which there had been an increase in the number of black high school graduates and the number of blacks taking the SATs. He concluded that financial considerations were one of the problems.

"An increase in loans to over 50% of the aid package and a reduction of grants from two-thirds to one-half of the aid package would undoubtedly prove discouraging to minority and black young people" (p. 19).

Bateman and Hossler (1996) surmised from their research that enrollment managers need to develop interventive strategies different from those they use for white students if they want to influence postsecondary participation votes of African Americans. Earlier, Somers (1995) reported findings from a large urban public university indicating that, as applicants, African Americans are less likely to attend and, as students, they are less likely to persist. Hispanics are consistently more likely to persist.

Wittstruck (1988) analyzed issues and studies related to participation and retention of minorities in higher education in Missouri and the nation. In one section of his analysis he extrapolated the rapid growth of the minority population between 1990 and 2050 in the United States, especially within the traditional college-age group. He also examined national and statewide enrollment and retention of minorities in higher education, which he found had eroded at a precipitous rate. Wittstruck suggested intervention strategies that include development in several areas, including financial aid.

Anliot and Oncley (1989) expressed concern over declining African American enrollment and a disproportionately high attrition rate. In their study of the status of African American college students in Pennsylvania, they were able to draw no statistical comparison between financial aid and attrition, although they suggested that there may be a relationship.

Nora and Howath (1989) examined the recent studies on the effects of student aid on persistence of minorities. They identified Astin's (1964) as the first study on this subject. Hispanic community college students who received higher levels of noncampus- and campus-based financial aid awards were enrolled in more semesters, earned more semester hours, and received some form of credentials. Hispanic students who received higher levels of campus-based resources earned higher grades than average. Students who received SEOGs, CWS, and NDSL (Perkins) did considerably better in their academic performance and consequently had higher levels of retention. Persistence in completing college related positively to the use of federal assistance.

That same year St. John and Noell (1989) reported their analysis of enrollment decisions. Included were college applicants in 1972, 1980, 1982, as well as the effect of types of aid on minorities including blacks and Hispanics during 1980-82. This report, written 1 year before St. John's (1990a, 1990b) studies, concluded the following:

> (a) All aid packages had a positive impact on all three classes, (b) all types of aid had a positive influences on enrollment by minority students, (c) grants had a stronger influence on Blacks than loans in 1980 and 1982, and (d) grants were the only type of package significant to Hispanics in 1980. (p. 563)

The following year Robinson (1990) conducted a comparative analysis of persistence and nonpersistence among 386 black freshman at Johnson C. Smith University, a small, predominately black, independent liberal arts institution in Charlotte, North Carolina, in 1981. Robinson found that the 4-year graduation rate was 26%. He

found that the 1st-year college GPA was the best predictor of graduation and that graduates are more likely to come from a two-parent household. Unfortunately, Robinson provided no financial aid information in this study.

A national review of minority success programs in community colleges were conducted by Brewer (1990). The key elements of effective programs were identified in 11 items. These included increased access through focused recruitment, admissions, and financial aid practices.

The Western Interstate Commission (1991) in The Road to College concluded the following:

> Asian/Pacific Islander enrollments in the nations public elementary/ secondary schools are increasing more rapidly that any other group (more than 70% between 1985/86-1994/95). Latino enrollments are also increasing rapidly (more than 54%) during this period. The South/South Central region has more high school graduates than any other region and is expected to remain the largest region through 1994-95. While the graduation rate (high school) for African-Americans is increasing the college going rate of African-Americans appears to be declining. (pp. 3, 6, 15).

Ottinger (1991) reported that the pool of traditional college-age students (18-24) was changing; the total number will hold steady between 1990-2025, but there will be a significant change in the composition of racial and ethnic groups with this population. She reported that for the 1984 freshman at Tennessee, the bachelor's degree attainment

for African Americans was less than that of whites (23 vs. 40%). Additionally, she found that Mt. Saint Mary's College-Doheny campus had been successful in enrolling and graduating minority women and that financial aid was an important factor in recruiting students. On the topic of persistence she concluded, "African American and Hispanic students who started on the traditional paths were less likely (44%) to graduate than whites (42%) (p. 6).

St. John (1991) published his conclusions as to what really influences minority attendance. He noted that "college attendance behavior of high school Blacks and Hispanics differs from other high school students. Enrollment decisions by low income students are price responsive to grants but not to loans" (p. 154).

Sanchez, Marder, Berry, and Ross (1992) , in a telephone survey of Kean College students, found that 34% of Hispanics dropped out due to "unexpected financial problems." They concluded that Hispanics in the United States have attrition rates far in excess of the population at large. Increasing numbers of college-age Hispanics can be expected, whereas the population of whites in this group will decline. They found that family and related financial obligations, as well as the need to take on adult roles, were key variables in the decision to drop out.

In addition to the above studies, there have been a series of recent examinations that review minorities, their impact on higher education, and the anticipated increase in the minority population. Tan (1994) reported that Asian-American students participate in higher education in a greater proportion than any other ethnic group. The attrition of Asia-American college students is also lower than that of other ethnic minorities, at 10%.

Graduation was highest among ethnic minorities for Asians at 41.5% compared to 20.4% Hispanics, and 23.9% African-American based upon the 6-year rate reported by Porter 1989. Cornelia Blanchette in testimony before the U.S. Senate Subcommittee on Education, Arts, and Humanity, presented evidence that indicated additional grants increase minority persistence, while loans have no effect (Government Accounting Office [GAO], 1994).

According to two Chronicle of Higher Education articles, there was a trend of increased minority participation in higher education over an 18-year period. In 1976 approximately 15% of the college population was classified as minority ("Trends Affecting Affirmative Action," 1995), whereas in 1994, the minority population was 24% ("Minority Students," 1996).

The NCAA (1994) reported that, overall, student athletes who entered college in 1987 graduated at a slightly higher rate than the general student body, with 57% of student athletes graduating compared to 56% of all students. Black student athletes graduated at a significantly higher rate than black students in general (45% to 37%). Blacks account for 8.7% of all students who entered NCAA Division I colleges in 1987. Males graduated at 53% and females at 67%. In a later Chronicle analysis, the NCAA reported 1989-90 freshman athletes graduated at a 58% rate compared to all students, at 57% ("Lagging Rates," 1996). Black students athletes were now graduating at a 45% rate, whereas black students had increased to 40%.

> The Texas Higher Education Coordinating Board (1992) reported, During the 1980s, the population of Texas increased by more than 2.76 million--exceeded only by Connecticut and Florida--an increase of 19.4% compared to a National increase of 9.8%. The rate of population growth was highest among Hispanics, moderate among African-Americans, and declined among Anglos--a trend expected to continue into the 21st Century. In 1986, 22% of high school graduates nationally were members of a minority. By 1996 that figure will grow to 28%. In the South and Central U.S. the minority percentage will grow from 30% to 34%. (p. 3)

Persistence Theory

Although there was little research in the 1970s and 1980s on access to higher education, during that period there was considerable study concerning why students left school. The seminal study was developed by social theorist Tinto (1975). He developed the theoretical model that is probably the most widely tested theoretical model in higher education. Tinto's model had its roots in Durkheim's theoretical model of suicide. It is a descriptive model of behavior. Durkheim's primary conclusion was that voluntary withdrawal is due to a lack of congruency between the individual and both the intellectual climate and the social system of his peers.

This study was a refinement of an earlier study by Spady (1970), a sociologist who used and adopted the social integration theory of Durkheim to explain attrition. In his 1970 study, Spady concluded that academic potential and normative congruence lead

to grade performance, intellectual development, and friendship support. If one is successful in all three components, there will be social integration followed by satisfaction and institutional commitment or persistence. If not, the student will drop out.

This theory was subsequently modified and tested by other researchers. Pascarella and Terenzini (1980) wanted to identify freshman who subsequently persisted or dropped out voluntarily. Their study followed Tinto's model of social /academic integration. Examining the 1976 Syracuse University freshman class, they found that the quality of peer-group interaction may have been a more important factor for female decisions to persist or withdraw than it was for males. They concluded that the quality and impact of student-faculty contacts are important to a student's institutional integration and thereby increases the likelihood of persistence.

Pascarella and Chapman (1983) investigated the validity of Tinto's (1975) model of college withdrawal at different types of colleges and universities. Included were 2,326 freshman at various postsecondary institutions. They concluded that desegregated data suggest that there are differences per institutional type. In 4-year, primarily residential colleges, social integration had a stronger direct and indirect effect than academic integration.

Voorhees (1985b) concluded that Tinto's (1975) research had a shortcoming because it did not include consideration of student financial aid. He noted that this same weakness was present in the reports and conclusion of Spady (1970) and Pascarella and Terenzini (1980). Voorhees concluded that financial aid appears to be a critical factor in

determining whether a student matriculates and by logical extension whether they are able to persist.

Cabrera, Nora, and Castaneda (1992) studied 466 college students attending a large urban commuter institution in the spring of 1989. They concluded that financial aid is important because it equalizes opportunities between affluent and low-income students and because it facilitates the integration of student into the academic and social component of the institution.

Their findings addressed Voorhees's (1985b) concern with the shortcoming of Tinto's model and Tinto's (1975) conclusions. They found that financial aid has a significant total effect on persistence. Their findings indicate that receiving financial aid facilitates students' social interaction with other undergraduates at the institution.

Studies That Do Not Link Financial Aid With Attrition

Although the vast majority of the literature and research has found a relationship between financial aid and attrition, a limited number of studies have found no statistical relationship between these two factors. Although this may often be accounted for by the population studied, the lack of control over extraneous variables, and oversimplification of results, it is essential to recognize that the effect of financial aid on retention has not been universally accepted over the past 25 years.

Panos and Astin (1968) reported the results of a study initiated in 1961 and followed up in 1965. In 1961, 248 colleges and universities identified 127,212 scholarship students. In 1965 questionnaires were sent to 60,078 of the original cohort.

The researchers found that, at the time of the study, 65% of the students had completed 4 or more years of college. The researchers determined that the students most likely not to complete 4 years of college within 4 years were those with a racial background or those who were ethnic American Indian. The researchers concluded that scholarship termination is one of the variables, but it was determined to be insignificant.

Baber and Caple (1970) reported a study of the University of Missouri's 1st-semester students who received Federal Educational Opportunity Grants, which comprised 96.3% of the 251 students in the sample. Baber and Caple concluded that family factors and the types and amounts of financial aid provided did not yield a sufficient basis for differentiating between persistence and nonpersistance.

Fields and LeMay (1973) studied the importance of financial aid on 2,801 prospective freshman at Oregon State University in the 1969-70 and 1970-71 school years. This study also showed that neither gender nor aid nor amount of aid differed significantly between those students who matriculated at Oregon State and those who did not. Fields and LeMay also concluded that there was no difference between the aid recipient and the nonrecipient on the rate of voluntary withdrawal from the university, the number of credit hours completed, or the proportion of students who returned to Oregon State for their sophomore year.

Peng and Fetters (1978) examined withdrawal from 4-year and 2-year institutions based upon the National Instructional Study of the High School Class of 1971. They found that (a) women were more likely to withdraw only in 2-year colleges, (b) white students were more likely to withdraw where other variables were controlled, and (c)

receipt of financial aid is not significantly related to college persistence. The Chronicle of Higher Education indicated that a large percentage of students do not return for their sophomore year and that the percentage is on the increase ("More Students Quitting," 1996). It was found that 24.5% of all students and 22.8% of those in private higher education in 1983 did not return for their sophomore year. In 1996 this increased to 26.9% and 25.9%, respectively.

Jensen (1981) provided an in-depth summary of the literature in his report of a study of Washington State University students in the 1970/71 school year who received aid in their freshman year. According to Jensen, the literature indicated that the effects of receipt of student financial aid on persistence have been shown to be positive for students who received aid in their freshman year of college and make a small contribution to the persistence of recipients of financial aid in their freshman year. Jensen suggested that it is possible that, as the absolute amount of loan increases in larger aid, perhaps persistence is hampered by the amount of the loan. He concluded that student financial aid has a small positive effect on the persistence of the recipients, but that increasing amounts of aid per semester have nonsignificant negative impact on the number of semesters attended in a 4-year period.

An intensive study by DeBoer (1985) concluded that, if you suspect that you will succeed, you will. If an individual scores higher on an exam than a classmate, it is because of intelligence. If the individual scores lower it is because he or she is noncompetitive. DeBoer did not give credence to financial aid factors as a variable in success.

Moline (1987) reported on a study of 227 full-time freshman enrolled in the fall of 1982 in a liberal arts college at a large commuter institution, using a model of number of credits earned over a 2-year period. Moline concluded that financial aid variables showed no significant effect on persistence. According to the author, the significant variables that showed the largest total effects of persistence were college GPA and high school class work.

Noel, Levitz, and Saluri (1987) found in a study of 375 colleges that there was a linear relationship between selectivity and attrition rates. A study of 1,473 colleges and universities indicated that those institutions with higher selectivity standards as measured by the ACT or SAT had the lowest attrition rates from the freshman and sophomore year compared to institutions that admitted all students restricted only by seating capacity. According to a study out of Iowa City reported in the Postsecondary Education Opportunity magazine institutional graduation rates are closely associated with academic selectivity ("Institutional Graduation Rates," 1996). The 1995 graduation rates for 244 institutions indicated that highly selective schools graduated 72.4% from the public sector and 82.8% from the private sector, while 65.6% of the private students and 51.0% of the public students graduated from selective institutions. An earlier study by Tinto and Wallace (1986) found that the most effective retention programs began with the Admissions Office. There appeared to be two ways this was accomplished--first, by helping the individual develop responsible expectations about their undergraduate education regardless of the institution selected and secondly, by helping individuals select the institition that is likely to serve them the best. The authors concluded, "It is clear that

those institutions which are successful in educating students--that is enhancing their social, intellectual, and moral development--are also those that are successful in retaining students" (p. 293).

Finally, one other early study often cited to support the argument that persistence cannot be predicted was the report of Bayer (1968) on 8,567 Project Talent students identified in 1960. Bayer reported that the results of the study illustrate the inability to predict with any great degree of accuracy which students will drop out of college and which will not. Bayer concluded that socioeconomic variables tended to contribute surprisingly little weight in predictor equation.

Although these studies have suggested that financial aid has no significant impact on persistence, this researcher has been unable to find any studies which have indicated that increased financial aid will negatively impact persistence.

Financial Aid as a Factor in Attrition

Early studies on financial aid focused upon the influence of this funding on college enrollment. While these studies did not gain prominence until the late 1960s, researchers began to show interest in the financial factors that were related to attrition in the late 1950s.

Summerskill (1962) reviewed 21 articles and studies. He discovered that, of the 16 general factors identified, financial difficulty was among the top three most important factors associated with attrition. Summerskill noted that student attrition in higher

education had held relatively constant at about 50% through the first half of the 20th century.

Astin (1964) reported the results of a 4-year longitudinal study of 6,660 high-aptitude students as defined by the National Merit Scholarship Corporation. He found that dropouts come from lower socioeconomic levels and apply for fewer scholarships than those who do not drop out. In reviewing the reasons for dropping out of college, he found that termination of scholarship was the seventh most cited reason for men and ranked ninth for women out of 12 possible structured items.

Sexton (1965) provided a history of withdrawal studies. She found that in most withdrawal studies the time of dropping out had been found to be significant. For the majority, the most difficult year is the 1st year. Sexton found that college employment had no adverse effects on a student's academic career.

Grosset (1989), in his research on a conceptual model of retention at the Community College of Philadelphia, used Tinto's (1975) model as an appropriate guideline for institutional assessment efforts. Grosset found that, while students receiving financial aid were more likely to graduate than students receiving no aid, they were also more likely to be dismissed for academic reasons.

Astin (1975) found that persistence increased 9-10% when a student received a grant, regardless of the amount. If the grant represented a significant portion of the support, the increase was 15%. Astin found work study to be a positive type of aid, especially for women and blacks. He concluded that scholarships or grants tend to increase persistence by a small percentage. A reliance on loans is associated with

decreased persistence. In general, any form of aid appears to be most effective if combined with other forms of aid. This is particularly true of work study.

Noel (1976), in his study of a midstate university, found that retention begins with the admission process: It is important to achieve a good student / institution match. Noel found a positive relationship between a part-time job and continuance. Financial aid and scholarships were almost neutral.

Pantages and Creedon (1978) stated that the second most frequently reason cited for students withdrawing was financial, behind academic problems. The authors stressed the importance of identifying high-probability dropouts so that interaction with counselors or other institutionally developed programs could be undertaken before the withdrawal decision is made.

Jackson (1978) reviewed data compiled by the National Longitudinal Study of the High School of 1972 and concluded that the award of aid is more important than the amount. The study indicated that low socioeconomic status students responded more favorably to aid than other students. Jackson stated, as follows:

> If the central question is effectiveness of financial aid as a persuader--my overall impression from analyzing these data is somewhat pessimistic. I think major changes in enrollment have been due more to major changes in the distribution of students across these groups than to the particular effect of one or another variable. (p. 572)

Tierney (1980) concluded that financial aid is a powerful mechanism for increasing the competition between public and private institutes:

> It may be that getting potential students to apply to private colleges and to prefer private colleges in the first place would be more effective and efficient approaches than trying to induce a few more additional students to matriculation in a private rather than a public institution. (p. 24)

McKenzie (1981) reported that participation in college work study has a positive impact on retention. That same year, Lonabocker (1982) stated that financial aid and personal problems were the most common reasons given for dropping out.

The following year, Roark (1983) found that part-time campus employment benefits the student, not only financially, but by helping to clarify career goals and providing an opportunity to apply classroom learning to work settings. She concluded that work promotes developmental growth by creating a sense of community and uniformity of mission that is increased by using student workers, thus increasing the student retention rate. Gleason (1993) found that the overall mean grades of employed and nonemployed students show that work has little or no impact on grades.

Brewton and Hurst (1984) examined students at the University of Alabama/ Birmingham. They found that financial aid was a prominent factor in persistence and concluded that students in well-defined study programs--e.g., engineering--tended to have higher GPAs and higher persistence rates, whereas those unsure of their goals usually dropped out and had lower GPAs.

Hockstein and Butler (1983) examined 3,036 financial aid recipients enrolled at The University of Nebraska at Omaha for the 1981-82 fall semester. In a sample of 131, or 5% of the students who were randomly selected, the researchers found that 51.9% of

nonpersisters had been awarded a loan as the only type of aid, which was almost entirely Guaranteed Student Loans (GSL) and not NDSL. Of the nonpersisters, 16.5% had received aid in conjunction with a grant. They did not find any significant increase in persistence for students who received a grant.

Iwai and Churchill (1982) found that persisters relied on more sources of support than did withdrawals. Among freshman, high persisters reported more federal aid resources than all withdrawals. They found women to be more reliant on a multiple of financial resources, including not only formal aid but assistance from parents and spouses.

McCreight and LeMay (1982) published a study involving Oregon State University students. They did not find any differences in persistence where the Basic Grant (BEOG) levels were compared. They found that BEOG awards enable financially needy students to persist and achieve in college as long as their need was met. McCreight and LeMay also surmised that men persisted at a higher rate than women with BEOGs.

Odutola (1983) identified factors related to the retention of 615 federal financial aid recipients at Florida State University in 1974-75. The author found that (a) the undergraduate GPA was the most important academic variable in predicting student retention, (b) recipients between 16-22 persisted to graduate at a higher rate than older students, (c) females persisted more than males, (d) ethnicity did not significantly affect persisters, and (e) higher income students (families) persisted to a greater extent than low-income families. The author concluded that the amount of aid awarded was related to retention in the following order: Grants were the most important form of financial aid

in explaining retention, followed by loans and grants. Recipients of only loans and a combination of loan and work study exhibited higher attrition.

Jensen (1983) reported the following:

> Prior to the late 1950s financial assistance to college students was primarily from people and institutional sources. One of the primary goals of student financial aid policy since the 1960s has been increasing access to higher education especially for students from low income backgrounds. There is a positive impact of financial aid on institutional choice. The majority of studies reviewed find that student aid has a small positive effect on persistence. Scholarship and grant aid are generally found to enhance persistence and loans are often related to an increased probability of withdrawal from college. Financial aid has positive impacts on access to higher education, institutional choice and persistence in college. (p. 300).

In 1984 Jensen reported on a sample of the 1970-71 entering freshmen class at Washington State University. He found that whether or not students had graduated by 1975, student aid was found to have a very small positive association with degree attainment when other independent variables were statistically controlled. He concluded, "A grant, loan and work study package is bound to be the most effective for degree attainment. A loan /grant package positively related to degree attainment but the grant/loan package is detrimental to the completion of a degree" (p. 17).

Terkla (1985) concluded that financial aid is linked to degree completion. In the same year Herndon (1984) published his longitudinal study of California State College at Bakersfield. Included were first-time freshman who received aid during the fall of 1975 through 1978. He found receiving college work study to be a good predictor of persistence. His finding suggests that the financial aid recipients most likely to persist at California State at Bakersfield are those with good high school grades and standardized test scores, who receive college work study, and reside in the college residence halls. Hall (1986) reported on a study of 520 freshman and sophomore students in the fall of 1985 at an urban U.S. university. Hall found that the retention of minority women was related to grades and financial factors. For white men, the use of financial aid was a retention factor, while living with their parents was a factor for white women. He found retention related to grades.

Schwartz (1985) reported the following,

> Publicly provided grants are seen to have a significant and positive effect on the decision and tend to increase the college enrollment of individuals from lower income households. Other types of student aid including privately funded scholarships and the interest subsidy from public and private source student loans, are found to have no measure or effect on the enrollment decision. (p.129)

C. D. Carroll (1987) suggested that there may be a threshold effect. He found that overall grants are effective in promoting persistence. Larger amounts may be effective but smaller grants are not. In his study of full-time students at public and private four

year institutions, C. D. Carroll (1987) reported that, in seven out of eight comparisons, the zero dollar grant group dropped out during the year at higher rates than the big grant groups.

Schwartz (1986) reviewed data on 28,000 high school seniors sponsored by the National Center for Education Statistics taken from the spring of 1980. He found that "student graduates are seen to encourage a movement toward wealth neutrality, but do not completely remove the positive effect of income or the probability of college attendance" (p. 107). Schwartz continued:

> For over two decades the government has subsidized college attendance by providing student grants to individuals from lower-income families who historically have had lower college attendance rates than higher income families. In 1980 student grants tended to equalize college attendance probabilities across household income and thereby are seen to promote wealth neutrality. (pp. 116-117)

Voorhees's (1985a) study, which examined 343 campus-based awardees who first enrolled in the fall of 1980 at a large urban university, found that each of the campus-based programs (CWS, SEOG, NDSL) had a statistically positive effect on persistence. He further concluded:

> Non campus based loans appear to have a statistically significant positive direct effect on persistence. Non campus based grants have a positive effect. Need had the largest effect; as need increased, persistence decreased. College work study had a positive effect on new freshman

persistence. The cumulative GPA had the largest direct effect on persistence. (p. 26)

Stampen and Cabrera (1986) studied attrition. They found that the overall effects of financial aid on basic behaviors such as attrition are unclear and subject to controversy. They stated that attrition of college students is one of the most researched topics in higher education and that, in the 1st year, males are significantly less likely to drop out than females. Gender differences disappear after the 1st year. Caucasians and Asians are more likely to persist during the 1st and 3rd years of college than African-Americans, Hispanics, and American Indians. They also found that younger students (17-19) are more likely to persist than 20- to 22-year olds and those 23 years of age and older. They concluded that the overall effect of financial aid seems to eliminate the financial reasons for dropping out of college. African-Americans, Hispanics, and American Indians were significantly more likely to drop out after both the 1st and 3rd years of college than were Caucasians and Asians.

Weidman (1985) studied the retention of nontraditional students at Youngstown State University. Four variables explained 25% of the variance of the study population. Financial aid was determined to be a significant factor in attrition.

A study reported by the University of Maryland (1988) that involved 772 students entering the university in 1982 showed that 40% of the random sample were employed in the freshman year. The researchers found that, in all employment categories, blacks had the most GPAs of less than 2.0 in their freshman year. The study found that each year a

greater proportion of students working part-time on campus (rather than off-campus or unemployed) returned the following year.

Rajaskhara (1986) studied a sample of 35,950 students who attended Maryland Community Colleges. He found that the nonreturning students gave job conflict, educational goal achievement, and insufficient funds as the main reason for not returning to college.

Woodward (1988) presented a historical review of financial aid literature. The author found that the first scholarship fund may have occurred in 1613, when Lady Anne Mowlson presented Harvard College with an endowment of 100 pounds, the income to be used to help a needy student. The author provides a well-reasoned, lengthy discussion of financial concerns being a socially acceptable reason for withdrawal. Woodward cited a study of Brewton and Hurst, who concluded from a 5-year study at the University of Alabama that receipt of financial aid did increase persistence. The author also referred to a 2- and 4-year study at Boise State University. In that study, the researcher found that a relationship does exist between student persistence and the type of scholarship and concluded that a renewable scholarship does encourage persistence more than a single year scholarship.

In a 1988 lecture, Delco noted that Harry Truman had envisioned community colleges as institutions which reached into every community. Delco felt that improving retention involves financial aid. That same year Clewell and Joy (1988) reported a study of the National Hispanic Scholar Awards Program applicants for the 1983-84 school year and found that the best single predictor of 1st-year grades was the high school grade point

average. Other variables having an impact on 1st-year students were SAT scores. Finally, Leslie and Brinkman (1988) concluded that loans in conjunction with grants have a more positive effect on persistence than do loans alone.

Earl (1989) provided a historical review of the studies between 1970 and 1981 on why a student chooses either to go or not to go to college. He concluded that most studies using a national or statewide data base find that financial aid significantly affects enrollment in American colleges and universities. He stated that financial aid has been found to be a significant factor in the recruitment and retention process.

A report on the distillation of research conducted by the National Center for Postsecondary Governance and Finance (1990) between 1986-89, indicated that grants and work study awards produce higher persistence rates than loans. This is especially true with low-income minority students.

Cabrera, Stampen, and Hansen (1990) reviewed data obtained from the National Longitudinal High School and Beyond 1980 Senior Cohort. Reviewing data on 1,375 students, they found that students who were dissatisfied are more prone to withdraw. They also determined that, the higher the socioeconomic status of the student, the less likelihood there is of withdrawal. They concluded, "Ability to pay is best understood as an external factor that directly affects decisions to persist" (p. 330).

Beil and Shope (1990) reported their findings of a longitudinal study examining factors influencing college student persistence. They identified six variables that affected the odds of persistence: (a) gender, (b) financial aid, (c) advising, (d) the institution's

attitude toward students, (e) satisfaction with the institution, and (f) membership in a fraternity or sorority.

In 1991 Fredericksen reported the results of a 7-year longitudinal study at Rancho Santiago College related to the persistence of entering new students in the fall of 1983 and each subsequent fall until 1990. Beginning in 1986, financial aid students were tracked separately. The financial aid students showed the highest persistence of any group (87-98%).

Murdock (1989) also reviewed articles that investigated the relationship between financial aid and student persistence. She concluded that financial aid may be assisting recipients to persist longer than nonrecipients. Financial aid appears to exert a stronger effect on a student's decision to remain in college during the latter years of education than during the freshman year. It appears that financial aid shows a greater effect on persistence at private institutions than at public institutions. Women are more likely to drop out of college during the freshman year, but more women are likely to persist to a degree and financial aid helps the persistence. Murdock found that there is a lower persistence for minority than for nonminority students. The research data suggested to Murdock that a combination of aid was more successful than a single form. Loans may not alone increase persistence; they do not appear to influence attrition heavily. Murdock concluded that work study does not seem to have a large positive effect on persistence.

Porter (1989) also commented on The High School and Beyond Data Base, in which 28,000 high school seniors in 1980 were followed. Porter found that (a) only 41% of the samples completed their education within 6 years; (b) the completion rate of

25-30% for blacks and Hispanics compared to 50% for whites and Asians; (c) almost 20% of the students dropped out by the 3rd semester; (d) 9 out of 10 students who received grants during the 1st year were still enrolled in the second semester, and the rate for students without grants was 75%; (e) individual private college and university students receive all sources of aid in larger percentages than do their public peers; (f) students in independent colleges and universities have a higher completion rate than those at public institutions; (g) the individual private colleges and universities have a higher completion rate for every ethnic group, but the difference is less than 2% for Hispanics and 5.5% among blacks; and (h) more students left college in the 1st year than at any other single point. Porter concluded that, as socioeconomic status and ability rose, completion rates increased.

Somers (1993) reviewed data from the fall semester 1989 at an urban public institution. The school awarded 100 scholarships at $12,000 each. Somers found that applicants were 37.4% more likely to attend per $1,000 of scholarship offered. Once enrolled, however, scholarship recipients were 26.0% less likely to persist between the 1st and the 2nd years. Somers noted that large scholarships are effective in attracting but that "fit" appears more important than money in persistence decisions.

According to St. John (1989), the overall inescapable conclusion is that all forms of student aid have a positive influence on persistence. In 1990, when reviewing the previously identified High School Class of 1982 findings, he went on to state, "All forms of financial aid (grants, loans and work study) were effective in promoting enrollment and one hundred dollars of any type had a strong influence on enrollment" (1990a,

p. 161). He also concluded that further increases in federal aid should increase enrollment. St. John (1990a) reiterated early findings that high school grades are a better predictor of enrollment than test scores.

In an article that same year, St. John (1990b) observed that the literature established the positive influence of financial aid on year-to-year persistence. Persistence decisions of college students in the early 1980s were more responsive to increases in student aid than to tuition increases. Persistence rates can be improved if institutions increase need based aid for currently enrolled students when tuition is increased each year or if government student aid increases over the levels provided in the 1980s.

In a 1991 study, St. John, Kirshstein, and Noell stated, "Financial Aid is positively associated with persistence and college grades and attending full-time have a positive effect on each year of the persistence process. Loans as well as grants work well for promoting persisters" (p. 401).

St. John, Olscher, and Andrieu (1992) published an article based on the 1987 National Postsecondary Student Aid Study of 16,221 undergraduates. They found that "within one year persistence was influenced by the amount of tuition charged and grant aid was positively associated with persistence in private colleges and negatively associated with persistence in public colleges" (p. 27).

Stampen and Cabrera (1988), reporting on a 4-year institution, found the effects of aid on attrition at the University of Wisconsin System freshman 1979-82 to be that (a) the

longer a student remains in college the less likely the dropout and (b) financial aid recipients do not have higher attrition rates than more affluent students.

Gaither (1992), in studying all Texas public institutions (35) and all students entering Texas public education for the fall of 1986-90, reported that females had consistently higher persistence rates than males for each year and that black women had a significantly higher rate of persistence. He concluded that a mass infusion of financial aid appears to offer the potential to positively change an institution's attrition rate. Ogletree (1992) in a sample of 61 students at a Chicago urban university found the following reasons for leaving school: (a) disappointment with grades (41%), (b) high tuition and fees (36%), (c) family responsibilities (31%), (d) insufficient financial aid (29%), and (e) personal problems (27%).

That same year, Keller and Rollins (1992), in a study of 62 nonreturning freshman at a Maryland 4-year public campus, found that (a) the reasons for black students leaving were academic dismissal and an inability to obtain sufficient financial aid, and (b)the lack of sufficient financial aid contributed to the departure of substantially more blacks than whites.

Wilcox (1991) had earlier stated that financial aid had a positive effect on student retention in a variety of college settings. "In our exit interviews of students who choose to withdraw insufficient finances rank second behind academic matters as the stated cause" (p. 57).

King (1996) reported that low-income students who anticipated receiving some type of grant assistance were more likely than average to attend a 4-year college or university.

Finally, the Institute for Higher Education Policy (1995) reported that three primary conclusions have arisen from the body of research:

> Aid in general has a net positive impact on persistence;
>
> Some types of aid are move effective than others in terms of persistence;
>
> The relationship between aid and persistence is complex and often indirect, especially where minority and low income students are concerned. (p. 20)

Projections in the 1990s and Beyond

A number of recent studies and publications have attempted to predict the changes relevant to higher education in the 1990s and the 21st century. According to The National Center for Educational Statistics (1993b), higher education is in a state of change. The number of institutions of higher education in the United States has increased from 3,231 in 1980-81 to 3,559 in 1990-91. At the the same time, the number of male students attending college has increased from 5.9 million to 6.2 million and females from 6.2 million to 7.5 million. Minority students are also on the increase. Comprising 16.5% of the college population in 1980-81, blacks, Hispanics, Asian Americans, and Native Americans totaled 19.8% in 1990-91. At the same time that the number of students was increasing, so were college costs. Public tuition rose from an average of $635 to $1,454

per year, while private tuition and fees rose from an average of $5,470 to $12,910. During 1970, of the enrolled students, 69% were between the ages of 18 and 24, while in 1991 the enrolled population numbered nearly 90%

The Chronicle of Higher Education reported on a variety of demographic information ("Almanac Issue," 1994). According to information produced by the United States Bureau of the Census, in 1993, the ethnic distribution of the United States was made up of 0.08% American Indian, 2.9% Asian, 12.1% black, 9.0% Hispanic, 80.3% white, and 9.0% Other. At the same time, women made up 55% of the students in higher education, whereas minorities comprised 20.3% of public 4-year college enrollment and 18.7% of the enrollment in private higher education. Enrollment rose 16.6% over a 10-year period.

This information is significant when combined with projections of the National Center for Education Statistics (1993b), which foresees the following changes over the next 10 years (estimates): Enrollments in grades 9-12 will rise 23% from 1991-92 to 2002-03 (p. 1); the enrollment in undergraduate higher education programs will rise 13% over the same period (p. 4); and current fund expenditures will rise from $150.6 billion to $208.1 billion (p. 5).

In 1991 the Western Interstate Commission for Higher Education (WICHE) published projections for minority high school graduates. According to their methodology, the actual number of high school graduates in 1985-86 was much different from projected graduates in 1994-95. WICHE projected that the number of white, non-Latino graduates would decrease by nearly 11%, while Latinos, Asians, and American

Indians would increase by 52%, 51%, and 11%, respectively. African Americans would decrease by 3%, according to WICHE projections.

WICHE (1993) also projected high school graduations. According to WICHE data, the number of graduates in the United States should increase by 31% from 1991-92 to 2008-09. During the same period, the number of Texas graduates was projected to increase by 39%.

The Chronicle of Higher Education projected, based on information released by the U.S. Department of Education, that college enrollment would increase by 7% during the period 1994-95 to 2002-03 ("Fact File," 1995). The 4-year private colleges would see a 6% increase over the same period.

Finally, the American Council on Education (1996a) projected that the number of public high school graduates in every region of the country would increase over the next decade, from approximately 2.5 million in 1993-94 to 3.0 million in 2005-06.

These projections give important evidence of collegiate change as institutions prepare for the future. Minority high school graduates are increasing, as are female college attendees. There are more postsecondary institutions to choose from and, at the same time, there is a steep rise in the cost of higher education in the form of tuition and fees. All of these shifts pose questions as institutions look at financial aid policies.

Summary

There is a large body of knowledge relating to financial aid and retention. Just as funding has dramatically risen since the 1960s, so has research relating to financial aid and persistence.

This chapter contained a review of the historical perspective of aid programs, information regarding access to higher education, the impact of aid on minority populations, and studies that both linked and did not link financial aid with attrition. The chapter also reviewed theories associated with persistence and concluded with a series of relevant educational projections for the 1990s and beyond.

CHAPTER 3

PROCEDURES OF THE STUDY

Introduction

To fulfill the purpose of this study, methods and procedures were utilized to collect data from first-time full-time freshmen over a 3-year period. This chapter discusses the methodology used to collect and analyze the data. The information is presented in eight parts: Description of the Institution (TCU), the Population, Collection Procedures, Statistical Analysis, Model Specifications, Variables, First-Time, Full-Time Attendance and Persistence.

Institution

Founded in 1869, Texas Christian University is located in Fort Worth, Texas. TCU is classified as a teaching and research university and is listed as a Doctoral Granting University II according to the Carnegie Foundation for the Advancement of Teaching ("Almanac Issue," 1994). T.U.'s campus consists of more than 60 buildings on a 237-acre campus. For administrative purposes the university consists of five undergraduate schools and colleges: AddRan College of Arts and Sciences, M. J. Neeley School of Business, School of Education, College of Fine Arts and Communication, and the Harris College of Nursing. More than 90 undergraduate majors are available through these five schools and colleges.

TCU is defined as a very competitive institution by Barron's Profiles of American Colleges. According to Barron's (1991), TCU is listed as "Very Competitive" for admissions purposes. This category is defined as admitting students whose high school grade point averages are no less than B- on a scale with A as the highest grade and who rank in the top 35% to 50% of their graduating class. These colleges report median freshman test scores in the 525-575 range on each of the math and verbal portions of the SAT and from 23 to 25 on the ACT. The schools in this category accept between one half and three quarters of their applicants. Barron's has utilized seven categories for the nearly 1,550 four-year colleges and universities. Forty-four institutions are listed as Most Competitive; 87 as Highly Competitive; 236 as Very Competitive, with the remainder of institutions found in the Competitive, Less Competitive, Non-Competitive, and Special Categories.

Data used for purposes of this study are located in a number of different offices on the TCU campus. The following is a list of offices where the data are housed. A listing of the data sources for this study can be found in Appendix A.

Admission Records

According to information provided by the Office of Institutional Research, over the 3 years of this study, 79.3% of the students who applied for admissions were accepted. This amounted to 2,820 acceptances out of 3,520 applicants for fall 1989; 2,995 out of 3,730 in 1990; and 2,883 out of 3,712 for fall 1991. TCU does not externally report average national test scores. Instead, the university reports test ranges

from the 25th to the 75th percentile. The SAT combined score ranges for 50% of the entering freshman in 1989, 1990, and 1991 were 880-1,120, 880-1,110, and 870-1,120, respectively (TCU, 1993).

Financial Aid Records

The TCU Office of Scholarships and Student Financial Aid provided information on the types and amount of assistance offered to first-time full-time freshmen for the fall semesters of 1989, 1990, and 1991. These records were researched for the subsequent fall of each entering class to determine whether or not assistance was offered to the same cohort for their 2nd year. The records were also researched to determine whether or not the entering classes had made application for the assistance during the 2nd year.

The amount of aid offered in the 1st year was determined by the amount received and committed for the full year at the conclusion of the fall semester. The amount of the full year and the last amount offered was the amount utilized for nonreturning 2nd-year students, and the amount received and/or committed at the conclusion of the fall semester was used for the returning 2nd-year cohort.

Student Records

The university's automated student records system provided information related to several variables. Included are enrollment of first-time full-time freshmen for the fall semester 1989, 1990, and 1991; persistence of this cohort to the fall semester 1990, 1991, and 1992; grade point average (GPA) for the freshman year; ethnicity; and gender. The

student record system also provided a record of those first-time full-time freshmen who were not enrolled in the fall following their initial enrollment.

Subjects of the Study

The subjects of this study were the fall semester first-time full-time freshman classes of 1989 through 1991. According to university records the freshman class of 1989 consisted of 1,152 students; the class of 1990 included 1,140 students; and the 1991 freshman totaled 1,217. Of these classes, students who were deleted from the retention study reduced the population to the sample studied. Reasons for certain students being removed from the original population included miscoding and other system errors and student death. Additionally, students who were enrolled part-time (less than 12 semester hours) and students who were defined as nonresident aliens were not included in the study. The subjects studied for the 3-year period were 1,107 for 1989, 1,113 for 1990, and 1,172 for 1991. Of this number, 810 students did not return the subsequent or sophomore year of the 3,392 students in the study. This amounts to 23.88% of the original population (TCU, 1993). The official enrollment at TCU is determined on the 12th class day.

Gender and ethnicity were also reviewed as a part of the methodology. Of the first-time full-time fall-start freshman classes of 1989-91, there were 119 African Americans, 3,009 Anglos, 60 Asian Americans, 169 Hispanics, 9 Native Americans, and 26 students of unknown ethnicity. Females totaled 2,023, and males totaled 1,369.

It should be recognized that a high percentage of African American males are

athletes receiving athletic-grant-in-aid awards. This information, while recognized, is not controlled for or reviewed separately as a part of the study.

Further, the nonresident or foreign student population were not a part of this study. These individuals are not eligible for federal or state financial assistance and are further limited by restricted eligibility for institutional aid participation. Finally, the part-time students who were first-time students were excluded from the study because their eligibility to participate in federal, state, and university programs is greatly restricted.

Collection Procedures

The data for this study were found in both the electronic and manual files of TCU. The manual files of both the Registrar and Financial Aid Offices were used only to verify the automated file when the need arose. Information regarding class registration, TCU GPA, and enrollment was found in the Student Record System (SRS) of the Registrar's Office. Information regarding application for assistance, eligibility for aid programs, and participation in aid programs was found in the Financial Aid Management System (FAMS) of the Financial Aid Office. Each module (SRS, FAMS) is a piece of proprietary software purchased from Information Associates (now know as Systems and Computer Technology Corporation [SCT]) The data are housed in an IBM 4341 Mainframe located on TCU's campus. The data were merged through the use of social security number identification for the 3-year study period (1989-90, 1990-91, 1991-92).

Statistical Analysis

Introduction

All statistical analysis of the studied data was performed using the Statistical Analysis System (SAS) software. Statistical analysis of the research questions and their importance was conducted using chi-square (statistical significance at the .05 level). Gamma was used as a measure of association with a Proportional Reduction in Error (PRE) interpretation to examine the strength of relationship. Gamma is an appropriate measure when analyzing ordinal-level variables.

Chi-square was used to determine whether the distributions of data differ significantly from what would be expected from chance. Chi-square is used for the analysis of categorical data; i.e., frequency counts on nominally scaled data such as species membership. Chi-square requires no assumptions about the distribution of the data and is limited in use only by small samples that create expected cell frequencies less that five (5). Calculation of chi-square was done using the formula:

$$X^2 = \sum \frac{(O-E)^2}{E}$$

Where O = observed frequency of each cell

E = the expected frequency for each cell

Expected frequencies for each cell are found by dividing the product of the cell marginal values by the total number of cases in the table.

For example, in the table below the expected frequency for the first cell would be E=(45*50)/100 = 22.5

35 a	10 b	45
15 c	40 d	55
50	50	100

The calculation of chi-square would be:

Cell	O	E	O-E	(O-E)	(O)
a	35	22.5	12.5	156.25	6.94
b	10	22.5	-12.5	156.25	6.94
c	15	27.5	12.5	156.25	6.94
d	40	27.5	-12.5	156.25	6.94
					=27.76

Degrees of freedom using chi-square are found by (r-1) (c-1) where r and c equal number of rows and columns, respectively. Thus, a chi-square value of 27.76 would be compared with a value from the chi-square table of .00393, resulting in the rejection of the null hypothesis.

Gamma allows examination of the strength of association in the table after having tested for significance. Gamma is a symmetric measure of association appropriate for ordinal data. It measures the degree to which one may predict one variable with

knowledge of another variable (the proportional reduction in error (PRE) obtained when predicting a variable using another variable, compared with prediction without using another variable).

Gamma is calculated by

$$\gamma = \frac{\Sigma fa - \Sigma fi}{\Sigma fa + \Sigma fi}$$

Where:

fa = the frequencies of agreement
fi = the frequencies of inversions (Champion, 1970, p. 220)

1.00 = perfect association
.20 means for example, that 20% of the error was reduced through mutual productivity.

In those cases where the cell distribution was five or less, the Yates correction for continuity was used. This correction for continuity was developed to help modify the overestimate of chi-square when expected cell frequencies are small. To make the correction, the distance between the observed and expected frequencies is reduced by .5. The corrected procedure yields a more conservative result (Champion, 1970, p. 145). When continuity is used instead of chi-square, this procedure is stated in the narration of the table.

Model Specifications

A primary purpose of this study was to develop a model to test student retention from the freshman to sophomore years as it relates to variety of independent variables. The complete list of variables for the model is contained in Table 1. The first-time, full-time attendees for the fall semesters 1989-91 totaled 3,392. According to institutional

records 59.6% were female and 40.4% male, 5% Hispanic, 3.5% African American, 1.8% Asian American, 0.3% Native American, 0.7% other, and 89.7% Anglo. Sixty-two per cent of this group received aid in their freshman year.

The cohort that persisted to the sophomore year (1990-1992) was composed of 2,582 students. This group consisted of 60% female and 40% male, 4.4% Hispanic, 3.5% African American, 1.5% Asian American, 0.2% Native American, 0.7% other, and 89.6% Anglo students. Seventy percent of the individuals who persisted received financial aid in both their freshman and sophomore years.

Variables

The independent variables used in the model are presented in Table 1.

Table 1

Independent Variables

Financial aid (federal, state, university)
Scholarships
Student employment (federal, state, university)
Grants
Entitlements
Loans
Activity awards
Male
Female
Anglo
Hispanic
African American
Asian
Native American
Ethnicity-other
Grade point average (TCU)
ACT/SAT scores

The following section describes the independent variables presented in Table 1.

Demographic

Gender and ethnicity are the demographic variables of this study. Both are self-reported by the student. The categories include male, female, African American, Anglo, and Hispanic. Initially, the intent of this study was to include Asian American, Native American, and Other as additional ethnic categories. However, the number of Asian American, Native American and Other students who received aid over the 3-year period numbered 60, 9, and 26, respectively and were not included in this study. When each of these ethnic categories was broken down by the various aid programs, the number represented in the analysis was too small. No conclusions could be drawn from the results of the analysis. Ethnicity and gender were used to allow comparison between groups.

Academic

Achievement was viewed from two perspectives: the background of the incoming student (preparation) as measured by the SAT or ACT and the grade experience of the freshman college student (performance) as measured by the TCU grade point average. Each of these preparation and performance variables is defined as high and low.

TCU utilizes both the SAT and ACT for the purpose of admission. The preferred test is the SAT. ACT scores were converted to SAT scores by utilizing the conversion chart as found in Table 2, produced by Marco and Abdel-Fattah (1991).

Table 2

ACT-SAT Concordance Tables

ACT to SAT	
ACT composite score	SAT V+M score
36	1560
35	1510
34	1450
33	1400
32	1350
31	1300
30	1260
29	1210
28	1170
27	1130
26	1090
25	1050
24	1010
23	970
22	920
21	880
20	840
19	790
18	740
17	700
16	650
15	600
14	560
13	520
12	480
11	440
10	420
9	400

SAT high scores ranged from 1010 to 1500, while SAT low scores ranged from 600 to 1000. The ranges were established by calculating the average of scores over the 3-year period (1989-91) of matriculated freshman as described by TCU's Institutional Research Office. The median was 1000. Thus each grouping (high/low) had approximately one half of the scores in each group.

The TCU GPA high-GPA ranged from 2.50 in 4.00 on a 4.00 scale for the purposes of this study. The GPA low had a range of 0.00-2.49. These categories were used because a TCU Financial Aid policy as found in the TCU Undergraduate Studies Bulletin lists a 2.5 GPA as the point at which a student becomes eligible for TCU funded grants. Federal, state, and all other university programs employ different GPA requirements, however. The TCU GPA was determined at the conclusion of the summer session prior to the beginning of the 2nd year.

Student Financial Aid

In order to compare the impact of financial assistance, a number of financial aid variables were created. The variables established are described below by the type of analysis.

The initial review was whether or not the student received any aid. A second analysis was conducted with regard to the amount of aid received. If the student did obtain assistance, the total was rounded to the nearest $1.00. A third analysis included the type of aid. This included all aid received, including scholarships, student

employment, grants, activity awards, entitlements, and loans. The amount was rounded to the nearest $1.00.

Finally, an analysis was completed of those individuals who received a combination of awards. A number of variables were established to create this category. These variables included combining the categories of financial aid.

First-Time, Full-Time Attendance

To analyze the First-Time, Full-Time model, demographic, academic, and student financial aid factors were used. Independent variables for this model were female, male, African American, Hispanic, Anglo, High SAT, Low SAT, financial aid, scholarship only, employment only, grant only, activity award only, entitlement only, and loan only.

Persistence

An analysis of persistence was conducted. Independent variables for this model were female, male, African American, Hispanic, Anglo, TCU GPA High, TCU GPA Low, financial aid, scholarship only, employment only, grant only, activity award only, entitlement only, and loan only. The dependent variable was persistence.

Summary

This chapter presents the statistical methodology employed during this study. The subjects of the study are described along with the various independent variables and combinations. The results of this study are presented in chapter 5.

CHAPTER 4

ANALYSIS OF THE DATA

Introduction

This chapter contains an analysis of 3,392 students who began as first-time full-time freshmen at Texas Christian University (TCU) in the fall of 1989, 1990, and 1991. There were certain members of each entering class who were excluded from the study. Students who entered as nonresident of the United States were excluded, as were students who were defined as part-time (registered for less than 12 semester hours). Both of these groups either are not eligible or have restricted eligibility for participation in a number of federal, state, and institutional financial assistance programs. The subjects of the study for the three entering classes consisted of 1,107 students in 1989, 1,113 students in 1990, and 1,172 students in 1991, totaling 3,392. The 3,392 students were then tracked into their 2nd or sophomore year to determine retention from the freshman to sophomore years.

The purposes of this study were (a) to determine the overall persistence rate of freshman entrants to TCU during the fall semesters 1989-91 to the 2nd or sophomore year 1990-92, (b) to determine the overall persistence rate from the freshman to sophomore years of those students receiving any form of financial aid during the same period by demographic (gender, ethnicity), performance (TCU GPA), and preparation (SAT/ACT),

(c) to determine whether there is a difference in retention between those students who received renewed or reduced financial aid in the sophomore year, and (d) to determine if there is a difference in retention between demographic (gender, ethnicity), performance (TCU GPA), preparation (SAT/ACT) variables and financial aid programs.

Nine research questions were investigated. Although a number of variables may relate to persistence, only those associated with various student financial aid programs were studied. The following questions were investigated:

1. Is there a significant difference among students returning for their sophomore year between those receiving assistance (financial aid) and those who did not?

2. Does renewal or reduction of academic merit scholarships relate to retention?

3. Does renewal or reduction of participation in university-operated student employment programs relate to retention?

4. Does renewal or reduction of grants based on the families' economics relate to retention?

5. Does renewal or reduction of activity awards relate to retention?

6. Does renewal or reduction of entitlement awards relate to retention?

7. Does renewal or reduction of student loans relate to retention?

8. Does renewal or reduction of any combination of financial assistance (scholarship, student employment, grants, activity awards, entitlement awards, loan) relate to retention?

9. Do characteristics such as gender, ethnicity (demographic), GPA (performance), or SAT/ACT scores (preparation) alter the relationship between retention and financial aid?

The analysis of the data in this chapter is presented by each of the research questions. The differences among the various demographic, performance, and preparation variables are described in response to the first eight research questions.

This chapter is divided into five major sections. The first section offers a description of the independent variables that are utilized in the study. The second section discusses the methodology of both categorizing aid programs and testing the data for accuracy. The third section consists of demographic data that describe the population of the study with respect to various student groups. The fourth section describes the analysis of the nine research questions. A detailed analysis is presented for each of the groupings. The fifth section summarizes the study.

Description of the Independent Variables

For purposes of this study, 17 independent variables were utilized. These variables are outlined in Table 1. The independent variables were segmented into three groups.

Demographic Variables

Gender and ethnicity formed the first grouping of demographic variables. Ethnicity was self-reported by the student. Initially, six categories of ethnicity were

utilized (African American, Hispanic, Asian American, Native American, and Anglo. Individuals who did not report their ethnicity or indicated they were different from the above categories were shown as Other). However, the number of Asian Americans, Native Americans, and Other students who received aid over the 3-year period numbered 60, 9, and 26, respectively, and thus were not included in this study. When studied, the analysis of these three groups by financial aid program was inconclusive because the numbers were so small. Consequently, these three groups were not reported.

Academic Variables

Academic variables were shown as four mutually exclusive categories. TCU accepted both SAT and ACT scores. The preferred score was the SAT. ACT scores for purposes of this study were converted to SAT scores by utilizing the conversion chart shown in Table 2 (Marco & Abdel-Fattah, 1991). The high SAT group had composite scores ranging from 1010 to 1500, while the low SAT group ranged from 600 to 1000. The TCU grade point average (GPA) was used in indicate the academic performance during the 1st year of college. The GPA was measured on a 4-point scale. The high GPA population ranged from 2.50 to 4.00, while the low GPA population ranged from 0.00 to 2.49.

Financial Aid Variables

The third demographic group included several financial aid variables used to compare the impact of aid on the subjects of the study. Four tests were utilized to

determine the impact on persistence. The first test reviewed whether aid was or was not offered. The second analyzed the amount of aid; the third included the types of aid offered; and, finally, the fourth examined various combinations of programs.

Categorizing and Testing the Data

The financial aid programs administered by TCU are numerous. There are various scholarship, grant, entitlement awards, loans, student employment, and activity award programs that students are eligible to receive.

The individual financial aid programs were reviewed for four years (1989, 1990, 1991, 1992) and grouped together based upon the definition of the award. More than 80 programs were placed into the six categories of scholarship, grant, entitlement awards, loans, student employment, jobs, and activity awards. The programs by funding sources (federal, state, institutional) are outlined in Appendixes B through G. The individual recipient may have received funding from a number of programs both from within each category as well as in multiple categories. Therefore, it was necessary to create a computer analysis that added the programs within a category and then the categories for each individual.

In addition to the first-time full-time category, the sophomore or returning student category included four possibilities: the returning student who was offered assistance and the monetary difference between the 2 years; the student who returned and was not offered aid and the difference between the 2 years; the student who did not return and was

not offered or did not apply for aid; and the nonreturning student who was offered aid but declined the offer.

A review of the financial aid office records found that 2,116 first-time full-time students received aid during the years 1989, 1990, and 1991. A random sample of financial aid data of 100 of these students was collected by social security number. The random sample was manually reviewed, and it was determined that the computer model, which included four tests on the first-time full-time freshman and the four tests on the returning sophomores, had been successful. Both the freshman and sophomore tests were described earlier in this chapter. The manual review of financial aid files was completed, and no errors were detected. Additionally, all students who received athletic aid and who were first-time full-time students in 1989, 1990, and 1991 were individually reviewed through the use of automated financial aid records and athletic squad lists, which were prepared by athletic personnel. It was found that neither the random sample nor the record of athletic grant-in-aids for the studied period contained any errors.

Description of the Subjects

The study consisted of the 3,392 matriculated students who were identified as first-time full-time students at TCU. There were 2,116 individuals who received financial assistance during the 3-year period of the study. Table 3 provides a demographic breakdown of the population, which is discussed below.

Table 3

Description of 3,392 Students Who Did and Did Not Receive Financial Aid at TCU by Independent Variable

Independent Variables	Description	Statistics
	Demographic	
Gender	1,369 Males	40.40%
	2,023 Females	59.60%
Ethnicity	119 African Americans	3.50%
	3,009 Anglo	88.70%
	60 Asian American	1.80%
	169 Hispanic	5.00%
	9 Native American	0.30%
	26 Other	0.80%
	Achievement	
Preparation		
Low SAT	1,711 Students	50.40%
High SAT	1,681 Students	49.60%
Performance		
Low GPA	1,521 Students	44.80%
High GPA	1,871 Students	55.20%
	Financial Aid	
Did not receive aid	1,276 Students	37.60%
Received aid	2,116 Students	62.40%
Activity awards	390 Students	$5,824 Median
Entitlement awards	138 Students	$5,459 Median
Grants	1,164 Students	$2,740 Median
Loans	983 Students	$4,000 Median
Scholarships	1,045 Students	$1,400 Median
Student Employment	627 Students	$1,690 Median

Demographic The first-time, full-time population consisted of 2,023 (59.6%) female; 1,369 (40.4%) male; 119 (3.5%) African American; 3,009 (89.1%) Anglo; 60 (1.8%) Asian American; 169 (5%) Hispanic; 9 (.3 %) Native American; and 26 (.6 %) Other. Their ages ranged from 15 to 27.

Academic The SAT combined test scores of the subjects of the study ranged from 600 to 1500. The low SAT population numbered 1,711, with a range of 600 to 1000. The high SAT population numbered 1,681, with a range of 1010 to 1500. SAT scores or ACT scores converted to SAT scores were used in the analysis of matriculated students.

The GPA for the freshman year at TCU ranged from 0.00 to 4.00 The highest possible GPA was 4.0. The low GPA population numbered 1,521, with a GPA range of 0.00 to 2.49. The high GPA population numbered 1,871, with a range of 2.50 to 4.00.

Student Financial Aid

Activity awards. A total of 390 students received activity awards through a variety of departments, including the areas of band, choir, orchestra, dance, athletics, and Reserved Officers Training Corp (ROTC), when they were first-time full-time freshmen. The annual awards ranged from $100 to $13,133. The median award was $5,822. A listing of the financial aid programs that comprise this category of aid can be found in Appendix B.

Grants. A total of 1,164 students received grants based on the families' economics when they were first-time full-time freshmen. The annual grants ranged from $160 to $9,660. The median grant was $2,740. A listing of the financial aid programs that comprise this category of aid can be found in Appendix C.

Loans. A total of 983 students received loans when they were first-time full-time freshmen. The annual loans ranged from $185 to $13,035. The median loan was $4,000. A listing of the financial aid programs that comprise this category of aid can be found in Appendix D.

Scholarships. A total of 1,045 students received scholarships when they were first-time full-time freshmen. The annual scholarships ranged from $50 to $11,570. The median scholarship was $1,400. A listing of the financial aid programs that comprise this category of aid can be found in Appendix E.

Entitlements. A total of 138 students received entitlements when they were first-time full-time freshmen. The entitlement ranged from $860 to $7,820. The median entitlement was $5,459. A listing of the financial aid programs that comprise this category of aid can be found in Appendix F.

Student employment. A total of 627 students were employed when they were first-time full-time freshmen. Their annual earnings ranged from $14 to $3,940. The median earnings were $1,690. A listing of the financial aid programs that comprise this category of aid can be found in Appendix G.

Analysis of Research Questions

As was presented in chapter 3, all statistical analyses of the studied data were preformed using the Statistical Analysis System (SAS) software. Chi-square was used to determine if the distribution of data differed significantly from what would be expected by chance. A level of significance of .05 was utilized to determine the strength of the

relationship. Gamma was used as a measure of association. Gamma has a range of -1.00 to 1.00. For purposes of this study a negative (-) gamma indicates that retention is more likely to occur and a positive gamma indicates that retention is less likely to occur.

First Research Question. The first research question to be investigated asked was whether there is a significant difference among students returning for their sophomore year between those receiving assistance (financial aid) and those who did not. The narration of Tables 4-73 reviews the results of this question.

Data for 3,392 students who did and did not receive financial aid in their freshman year at TCU are presented in Table 4. The relationship between students who received and did not receive financial aid and those returning and not returning for the sophomore year is illustrated.

Table 4

Sophomore Retention for Those Students Who Received and Did Not Receive Financial Aid in 1st Year

	Received aid	Did not receive aid
Did not return	24.29%	23.20%
Did return	75.71%	76.80%
Total students	2,116	1,276

Of the 2,116 students who received financial aid in their freshman year, 75.71% returned for their sophomore year. Of the 1,76 students who did not receive financial aid as freshmen, 76.80% returned for their sophomore year.

The difference in retention between students who received aid as freshmen and those who did not is insignificant at the established threshold of .05. For Table 4, chi-square has a value of .52 with one degree of freedom. The value of gamma, or the strength of relationship, is .030.

Data for 1,369 male students who did and did not receive financial aid in their freshman year at TCU are presented in Table 5. The relationship between male students who received and did not receive financial aid and those returning and not returning for the sophomore year is illustrated.

Table 5

Sophomore Retention for Male Students Who Received and Did Not Receive Financial Aid in 1st Year

	Received Aid	Did not receive aid
Did not return	23.22%	25.39%
Did return	76.78%	74.61%
Total students	857	512

Of the 857 male students who received financial aid in their freshman year, 76.78% returned for their sophomore year. Of the 512 male students who did not receive financial aid as freshmen, 74.61% returned for their sophomore year.

The difference in retention between male students who received aid as freshmen and those who did not is insignificant at the established threshold of .05. For Table 5, chi-square has a value of .83 with one degree of freedom. The value of gamma, or the strength of relationship, is -.06.

Data for 2,023 female students who did and did not receive financial aid in their freshman year at TCU are presented in Table 6. The relationship between female students who received and did not receive financial aid and those returning and not returning for the sophomore year is illustrated.

Table 6

Sophomore Retention for Female Students Who Received and Did Not Receive Financial Aid in 1st Year

	Received aid	Did not receive aid
Did not return	25.02%	21.73%
Did return	74.98%	78.27%
Total students	1,259	764

Of the 1,259 female students who received financial aid in their freshman year, 74.98% returned for their sophomore year. Of the 764 female students who did not receive financial aid as freshmen, 78.27% returned for their sophomore year.

The difference in retention between female students who received aid as freshmen and those who did not is insignificant at the established threshold of .05. For Table 6, chi-square has a value of 2.84 with one degree of freedom. The value of gamma, or the strength of relationship, is -.092.

Data for 119 African American students who did and did not receive financial aid in their freshman year at TCU are presented in Table 7. The relationship between African American students who received and did not receive financial aid and those returning and not returning for the sophomore year is illustrated.

Table 7

Sophomore Retention for African American Students Who Received and Did Not Receive Financial Aid in 1st Year

	Received aid	Did not receive aid
Did not return	23.89%	33.33%
Did return	76.11%	66.67%
Total students	113	6

Of the 113 African American students who received financial aid in their freshman year, 76.11% returned for their sophomore year. Of the 6 African American students who did not receive aid as freshmen, 66.67% returned for their sophomore year.

The difference in retention between African American students who received aid as freshmen and those who did not is insignificant at the established threshold of .05. For Table 7, the continuity adjusted chi-square has a value of .00 with one degree of freedom. The value of gamma, or the strength of relationship, is -.23.

Data for 169 Hispanic students who did and did not receive financial aid in their freshman year at TCU are presented in Table 8. The relationship between Hispanic students who received and did not receive financial aid and those returning and not returning for the sophomore year is illustrated.

Table 8

Sophomore Retention for Hispanic Students Who Received and Did Not Receive Financial Aid in 1st Year

	Received aid	Did not receive aid
Did not return	34.27%	30.77%
Did return	65.73%	69.23%
Total students	143	26

Of the 143 Hispanic students who received financial aid in their freshman year, 65.73% returned for their sophomore year. Of the 26 Hispanic students who did not receive financial aid as freshmen, 69.23% returned for their sophomore year.

The difference in retention between Hispanic students who received aid as freshmen and those who did not is insignificant at the established threshold of .05. For Table 8, chi-square has a value of .12 with one degree of freedom. The value of gamma, or the strength of relationship, is .08.

Data for 3,009 Anglo students who did and did not receive financial aid in their freshman year at TCU are presented in Table 9. The relationship between Anglo students who received and did not receive financial aid and those returning and not returning for the sophomore year is illustrated.

Table 9

Sophomore Retention for Anglo Students Who Received and Did Not Receive Financial Aid in 1st Year

	Received aid	Did not receive aid
Did not return	23.18%	22.57%
Did return	76.82%	77.43%
Total students	1,786	1,223

Of the 1,786 Anglo students who received financial aid in their freshman year, 76.82% returned for their sophomore year. Of the 1,223 Anglo students who did not receive financial aid as freshmen, 77.43% returned for their sophomore year.

The difference in retention between Anglo students who received aid as freshmen and those who did not is insignificant at the established threshold of .05. For Table 9, chi-square has a value of .15 with one degree of freedom. The value of gamma, or the strength of relationship, is .02.

Data for 1,871 high GPA students who did and did not receive financial aid in their freshman year at TCU are presented in Table 10. The relationship between high GPA students who received and did not receive financial aid and those returning and not returning for the sophomore year is illustrated.

Table 10

Sophomore Retention For High GPA Students Who Received and Did Not Receive Financial Aid in 1st Year

	Received aid	Did not receive aid
Did not return	13.46%	14.26%
Did return	86.54%	85.74%
Total students	1,233	638

Of the 1,233 high GPA students who received financial aid in their freshman year, 86.54% returned for their sophomore year. Of the 638 high GPA students who did not receive financial aid as freshmen, 85.74% returned for their sophomore year.

The difference in retention between high GPA students who received aid as freshmen and those who did not is insignificant at the established threshold of .05. For Table 10, chi-square has a value of .23 with one degree of freedom. The value of gamma, or the strength of relationship, is -.03.

Data for 1,521 low GPA students who did and did not receive financial aid in their freshman year at TCU are presented in Table 11. The relationship between low GPA students who received and did not receive financial aid and those returning and not returning for the sophomore year is illustrated.

Table 11

Sophomore Retention For Low GPA Students Who Received and Did Not Receive Financial Aid in 1st Year

	Received aid	Did not receive aid
Did not return	39.41%	32.13%
Did return	60.59%	67.87%
Total students	883	638

Note: Significant at .05

Of the 883 low GPA students who received financial aid in their freshman year, 60.59% returned for their sophomore year. Of the 638 low GPA students who did not receive financial aid as freshmen, 67.87% returned for their sophomore year.

The difference in retention between low GPA students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 11, chi-square has a value of 8.48 with one degree of freedom. The value of gamma, or the strength of relationship, is .15.

Data for 1,681 high SAT students who did and did not receive financial aid in their freshman year at TCU are presented in Table 12. The relationship between high SAT students who received and did not receive financial aid and those returning and not returning for the sophomore year is illustrated.

Table 12

Sophomore Retention For High SAT Students Who Received and Did Not Receive Financial Aid in 1st Year

	Received aid	Did not receive aid
Did not return	21.76%	22.86%
Did return	78.24%	77.14%
Total students	1,213	468

Of the 1,213 high SAT students who received financial aid in their freshman year, 78.24% returned for their sophomore year. Of the 468 high SAT students who did not receive financial aid as freshmen, 77.14% returned for their sophomore year.

The difference in retention between high SAT students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 12, chi-square has a value of .24 with one degree of freedom. The value of gamma, or the strength of relationship, is -.03.

Data for 1,711 low SAT students who did and did not receive financial aid in their freshman year at TCU are presented in Table 13. The relationship between low SAT students who received and did not receive financial aid and those returning and not returning for the sophomore year is illustrated.

Table 13

Sophomore Retention For Low SAT Students Who Received and Did Not Receive Financial Aid in 1st Year

	Received aid	Did not receive aid
Did not return	27.69%	23.39%
Did return	72.31%	76.61%
Total students	903	808

Note: Significant at .05

Of the 903 low SAT students who received financial aid in their freshman year, 72.31 % returned for their sophomore year. Of the 808 low SAT students who did not receive financial aid as freshmen, 76.61% returned for their sophomore year.

The difference in retention between low SAT students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 13, chi-square has a value of 4.12 with one degree of freedom. The value of gamma, or the strength of relationship, is .11.

Data for 3,392 students who did and did not receive academic merit scholarships in their freshman year at TCU are presented in Table 14. The relationship between students who received and did not receive academic merit scholarships and those returning and not returning for the sophomore year is illustrated.

Table 14

Sophomore Retention For Students Who Received and Did Not Receive Academic Merit Scholarships in 1st year

	Received aid	Did not receive aid
Did not return	21.53%	24.93%
Did return	78.47%	75.07%
Total students	1,045	2,347

Note: Significant at .05

Of the 1,045 students who received academic merit scholarships in their freshman year, 78.47% returned for their sophomore year. Of the 2,347 students who did not receive academic merit scholarships as freshmen, 75.07% returned for their sophomore year.

The difference in retention between students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 14, chi-square has a value of 4.58 with one degree of freedom. The value of gamma, or the strength of relationship, is -.095.

Data for 1,369 male students who did and did not receive academic merit scholarships in their freshman year at TCU are presented in Table 15. The relationship between male students who did and did not receive academic merit scholarships and those returning and not returning for the sophomore year is illustrated.

Table 15

Sophomore Retention for Male Students Who Received and Did Not Receive Academic Merit Scholarships

	Received aid	Did not receive aid
Did not return	20.05%	25.76%
Did return	79.95%	74.24%
Total students	414	955

Note: Significant at .05

Of the 414 male students who received academic merit scholarships in their freshman year, 79.95% returned for their sophomore year. Of the 955 male students who did not receive academic merit scholarships as freshmen, 74.24% returned for their sophomore year.

The difference in retention between male students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 15, chi-square has a value of 5.16 with one degree of freedom. The value of gamma, or the strength of relationship, is -.16.

Data for 2,023 female students who did and did not receive academic merit scholarships in their freshman year at TCU are presented in Table 16. The relationship between female students who received and did not receive academic merit scholarships and those returning and not returning for the sophomore year.

Table 16

Sophomore Retention For Female Students Who Received and Did Not Receive Academic Merit Scholarships in 1st Year

	Received aid	Did not receive aid
Did not return	22.50%	24.35%
Did return	77.50%	75.65%
Total students	631	1,392

Of the 631 female students who received academic merit scholarships in their freshman year, 77.50% returned for their sophomore year. Of the 1,392 female students who did not receive academic merit scholarships as freshmen, 75.65% returned for their sophomore year.

The difference in retention between female students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 16, chi-square has a value of .82 with one degree of freedom. The value of gamma, or the strength of relationship, is -.05.

Data for 119 African American students who did and did not receive academic merit scholarships in their freshman year at TCU are presented in Table 17. The relationship between African American students who received and did not receive scholarships and those returning and not returning for the sophomore year is illustrated.

Table 17

Sophomore Retention For African American Students Who Received and Did Not Receive Scholarships in 1st Year

	Received aid	Did not receive aid
Did not return	19.39%	26.14%
Did return	80.65%	73.86%
Total students	31	88

Of the 31 African American students who received financial aid in their freshman year, 80.65% returned for their sophomore year. Of the 88 African American students who did not receive scholarships as freshmen, 73.86% returned for their sophomore year.

The difference in retention between African American students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 17, chi-square has a value .57 of with one degree of freedom. The value of gamma, or the strength of relationship, is -.19.

Data for 169 Hispanic students who did and did not receive scholarships in their freshman year at TCU are presented in Table 18. The relationship between Hispanic students who received and did not receive scholarships and those returning and not returning for the sophomore year is illustrated.

Table 18

Sophomore Retention For Hispanic Students Who Received and Did Not Receive Scholarships in 1st Year

	Received aid	Did not receive aid
Did not return	32.20%	34.55%
Did return	67.80%	65.45%
Total students	59	110

Of the 59 Hispanic students who received scholarships in their freshman year, 67.80% returned for their sophomore year. Of the 110 Hispanic students who did not receive scholarships as freshmen, 65.45% returned for their sophomore year.

The difference in retention between Hispanic students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 18, chi-square has a value of .09 with one degree of freedom. The value of gamma, or the strength of relationship, is -.05.

Data for 3,009 Anglo students who did and did not receive scholarships in their freshman year at TCU are presented in Table 19 The relationship between Anglo students who received and did not receive scholarships and those returning and not returning for the sophomore year is illustrated.

Table 19

Sophomore Retention For Anglo Students Who Received and Did Not Receive Scholarships in 1st Year

	Received aid	Did not receive aid
Did not return	20.52%	23.98%
Did return	79.48%	76.02%
Total students	916	2,093

Note: Significant at .05

Of the 916 Anglo students who received scholarships in their freshman year, 79.48% returned for their sophomore year. Of the 2,093 Anglo students who did not receive scholarships as freshmen, 76.02% returned for their sophomore year.

The difference in retention between Anglo students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 19, chi-square has a value of 4.32 with one degree of freedom. The value of gamma, or the strength of relationship, is -.10.

Data for 1,871 high GPA students who did and did not receive academic merit scholarships in their freshman year at TCU are presented in Table 20. The relationship between high GPA students who received and did not receive scholarships and those returning and not returning for the sophomore year is illustrated.

Table 20

Sophomore Retention For High GPA Students Who Received and Did Not Receive Scholarships in 1st Year

	Received aid	Did not receive aid
Did not return	14.30%	13.34%
Did return	85.70%	86.66%
Total students	769	1,102

Of the 769 high GPA students who received scholarships in their freshman year, 85.70% returned for their sophomore year. Of the 1,102 high GPA students who did not receive scholarships as freshmen, 86.66% returned for their sophomore year.

The difference in retention between high GPA students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 20, chi-square has a value of .36 with one degree of freedom. The value of gamma, or the strength of relationship, is .04.

Data for 1,521 low GPA students who did and did not receive academic merit scholarships in their freshman year at TCU are presented in Table 21. The relationship between low GPA students who received and did not receive academic merit scholarships and those returning and not returning for the sophomore year is illustrated.

Table 21

Sophomore Retention For Low GPA Students Who Received and Did Not Receive Scholarships in 1st Year

	Received aid	Did not receive aid
Did not return	41.67%	35.18%
Did return	58.33%	64.82%
Total students	276	1,245

Note: Significant at .05

Of the 276 low GPA students who received scholarships in their freshman year, 58.33% returned for their sophomore year. Of the 1,245 low GPA students who did not receive scholarships as freshmen, 64.82% returned for their sophomore year.

The difference in retention between low GPA students who received scholarships as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 21, chi-square has a value of 4.11 with one degree of freedom. The value of gamma, or the strength of relationship, is .14.

Data for 1,681 high SAT students who did and did not receive academic merit scholarships in their freshman year at TCU are presented in Table 22. The relationship between high SAT students who received and did not receive academic scholarships and those returning and not returning for the sophomore year is illustrated.

Table 22

Sophomore Retention For High SAT Students Who Received and Did Not Receive Academic Merit Scholarships in 1st Year

	Received aid	Did not receive aid
Did not return	20.52%	23.78%
Did return	79.48%	76.22%
Total students	882	799

Of the 882 high SAT students who received academic merit scholarships in their freshman year, 79.48% returned for their sophomore year. Of the 799 high SAT students who did not receive academic merit scholarships as freshmen, 76.22% returned for their sophomore year.

The difference in retention between high SAT students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 22, chi-square has a value of 2.59 with one degree of freedom. The value of gamma, or the strength of relationship, is -.09.

Data for 1,711 low SAT students who did and did not receive academic merit scholarships in their freshman year at TCU are presented in Table 23. The relationship between low SAT students who received and did not receive academic scholarships and those returning and not returning for the sophomore year is illustrated.

Table 23

Sophomore Retention For Low SAT Students Who Received and Did Not Receive Academic Merit Scholarships in 1st Year

	Received aid	Did not receive aid
Did not return	26.99%	25.52%
Did return	73.01%	74.48%
Total students	163	1,548

Of the 163 low SAT students who received academic merit scholarships in their freshman year, 73.01% returned for their sophomore year. Of the 1,548 low SAT students who did not receive academic merit scholarships as freshmen, 74.48% returned for their sophomore year.

The difference in retention between low SAT students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 23, chi-square has a value of .17 with one degree of freedom. The value of gamma, or the strength of relationship, is .04.

Data for 3,392 students who did and did not receive grants in their freshman year at TCU are presented in Table 24. The relationship between students who received and did not receive grants and those returning and not returning for the sophomore year is illustrated.

Table 24

Sophomore Retention For Students Who Received and Did Not Receive Grants in 1st Year

	Received aid	Did not receive aid
Did not return	29.21%	21.10%
Did return	70.79%	78.90%
Total students	1,164	2,228

Note: Significant at .05

Of the 1,164 students who received grants in their freshman year, 70.79% returned for their sophomore year. Of the 2,228 students who did not receive grants as freshmen, 78.90% returned for their sophomore year.

The difference in retention between students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 24, chi-square has a value of 27.70 with one degree of freedom. The value of gamma, or the strength of relationship, is 0.21.

Data for 1,369 male students who did and did not receive grants in their freshman year at TCU are presented in Table 25. The relationship between male students who received and did not receive grants and those returning and not returning for the sophomore year is illustrated.

Table 25

Sophomore Retention For Male Students Who Received and Did Not Receive Grants in 1st Year

	Received aid	Did not receive aid
Did not return	27.90%	22.04%
Did return	72.10%	77.96%
Total students	466	903

Note: Significant at .05

Of the 466 male students who received grants in their freshman year, 72.10 % returned for their sophomore year. Of the 903 male students who did not receive grants as freshmen, 77.96 % returned for their sophomore year.

The difference in retention between male students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 25, chi-square has a value of 5.78 with one degree of freedom. The value of gamma, or the strength of relationship, is .16.

Data for 2,023 female students who did and did not receive grants in their freshman year at TCU are presented in Table 26. The relationship between female students who received and did not receive grants and those returning and not returning for the sophomore year is illustrated.

Table 26

Sophomore Retention For Female Students Who Received and Did Not Receive Grants in 1st Year

	Received aid	Did not receive aid
Did not return	30.09%	20.45%
Did return	69.91%	79.55%
Total students	698	1,325

Note: Significant at .05

Of the 698 female students who received grants in their freshman year, 69.91% returned for their sophomore year. Of the 1,325 female students who did not receive grants as freshmen, 79.55% returned for their sophomore year.

The difference in retention between female students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 26, chi-square has a value of 23.41 with one degree of freedom. The value of gamma, or the strength of relationship, is .25.

Data for 119 African American students who did and did not receive grants in their freshman year at TCU are presented in Table 27. The relationship between African American students who received and did not receive grants and those returning and not returning for the sophomore year is illustrated.

Table 27

Sophomore Retention For African American Students Who Received and Did Not Receive Grants in 1st Year

	Received aid	Did not receive aid
Did not return	25.00%	22.86%
Did return	75.00%	77.14%
Total students	84	35

Of the 84 African American students who received grants in their freshman year, 75.00% returned for their sophomore year. Of the 35 African American students who did not receive grants as freshmen, 77.14% returned for their sophomore year.

The difference in retention between African American students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 27, chi-square has a value .06 of with one degree of freedom. The value of gamma, or the strength of relationship, is .06.

Data for 169 Hispanic students who did and did not receive grants in their freshman year at TCU are presented in Table 28. The relationship between Hispanic students who received and did not receive grants and those returning and not returning for the sophomore year is illustrated.

Table 28

Sophomore Retention For Hispanic Students Who Received and Did Not Receive Grants in 1st Year

	Received aid	Did not receive aid
Did not return	37.61%	26.67%
Did return	62.39%	73.33%
Total students	109	60

Of the 109 Hispanic students who received grants in their freshman year, 62.39% returned for their sophomore year. Of the 60 Hispanic students who did not receive grants as freshmen, 73.33% returned for their sophomore year.

The difference in retention between Hispanic students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 28, chi-square has a value of 2.08 with one degree of freedom. The value of gamma, or the strength of relationship, is .25.

Data for 3,009 Anglo students who did and did not receive grants in their freshman year at TCU are presented in Table 29. This table illustrates the relationship between Anglo students who received and did not receive grants and those returning and not returning for the sophomore year is illustrated.

Table 29

Sophomore Retention For Anglo Students Who Received and Did Not Receive Grants in 1st Year

	Received aid	Did not receive aid
Did not return	28.29%	20.55%
Did return	71.71%	79.45%
Total students	926	2,083

Note: Significant at .05

Of the 926 Anglo students who received grants in their freshman year, 71.71% returned for their sophomore year. Of the 2,083 Anglo students who did not receive grants as freshmen, 79.45% returned for their sophomore year.

The difference in retention between Anglo students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 29, chi-square has a value of 21.77 with one degree of freedom. The value of gamma, or the strength of relationship, is .21.

Data for 1,871 high GPA students who did and did not receive grants in their freshman year at TCU are presented in Table 30. The relationship between high GPA students who received and did not receive grants and those returning and not returning for the sophomore year.

Table 30

Sophomore Retention For High GPA Students Who Received and Did Not Receive Grants in 1st Year

	Received aid	Did not receive aid
Did not return	15.45%	12.87%
Did return	84.55%	87.13%
Total students	628	1,243

Of the 628 high GPA students who received grants in their freshman year, 84.55% returned for their sophomore year. Of the 1,243 high GPA students who did not receive grants freshmen, 87.13% returned for their sophomore year.

The difference in retention between high GPA students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 30, chi-square has a value of 2.33 with one degree of freedom. The value of gamma, or the strength of relationship, is .11.

Data for 1,521 low GPA students who did and did not receive grants in their freshman year at TCU are presented in Table 31. This table illustrates the relationship between low GPA students who received and did not receive grants and those returning and not returning for the sophomore year is illustrated.

Table 31

Sophomore Retention For Low GPA Students Who Received and Did Not Receive Grants in 1st Year

	Received aid	Did not receive aid
Did not return	45.34%	31.47%
Did return	54.66%	68.53%
Total students	536	985

Note: Significant at .05

Of the 536 low GPA students who received grants in their freshman year, 54.66% returned for their sophomore year. Of the 985 low GPA students who did not receive grants as freshmen, 64.53% returned for their sophomore year.

The difference in retention between low GPA students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 31, chi-square has a value of 28.83 with one degree of freedom. The value of gamma, or the strength of relationship, is .29.

Data for 1,681 high SAT students who did and did not receive grants in their freshman year at TCU are presented in Table 32. The relationship between high SAT students who received and did not receive grants and those returning and not returning for the sophomore year is illustrated.

Table 32

Sophomore Retention For High SAT Students Who Received and Did Not Receive Grants in 1st Year

	Received aid	Did not receive aid
Did not return	25.38%	20.24%
Did return	74.62%	79.76%
Total students	599	1,082

Note: Significant at .05

Of the 599 high SAT students who received grants in their freshman year, 74.62% returned for their sophomore year. Of the 1,082 high SAT students who did not receive grants as freshmen, 79.76% returned for their sophomore year.

The difference in retention between high SAT students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 32, chi-square has a value of 5.91 with one degree of freedom. The value of gamma, or the strength of relationship, is .15.

Data for 1,711 low SAT students who did and did not receive grants in their freshman year at TCU are presented in Table 33. The relationship between low SAT students who received and did not receive grants and those returning and not returning for the sophomore year is illustrated.

Table 33

Sophomore Retention For Low SAT Students Who Received and Did Not Receive Grants in 1st Year

	Received aid	Did not receive aid
Did not return	33.27%	21.90%
Did return	66.73%	78.10%
Total students	565	1,146

Note: Significant at .05

Of the 565 low SAT students who received grants in their freshman year, 66.73% returned for their sophomore year. Of the 1,146 low SAT students who did not receive grants as freshmen, 78.10% returned for their sophomore year.

The difference in retention between low SAT students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 33, chi-square has a value of 25.66 with one degree of freedom. The value of gamma, or the strength of relationship, is .28.

Data for 3,392 students who did and did not receive activity awards in their freshman year at TCU are presented in Table 34. The relationship between students who received and did not receive activity awards and those returning and not returning for the sophomore year is illustrated.

Table 34

Sophomore Retention For Students Who Received and Did Not Receive Activity Awards in 1st Year

	Received aid	Did not receive aid
Did not return	21.28%	24.22%
Did return	78.72%	75.78%
Total students	390	3,002

Of the 390 students who received activity awards in their freshman year, 78.72% returned for their sophomore year. Of the 3,002 students who did not receive activity awards as freshmen, 75.78% returned for their sophomore year.

The difference in retention between students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 34, chi-square has a value of 1.64 with one degree of freedom. The value of gamma, or the strength of relationship, is -.083.

Data for 1,369 male students who did and did not receive activity awards in their freshman year at TCU are presented in Table 35. The relationship between male students who received and did not receive activity awards and those returning and not returning for the sophomore year is illustrated.

Table 35

Sophomore Retention For Male Students Who Received and Did Not Receive Activity Awards in 1st Year

	Received aid	Did not receive aid
Did not return	21.67%	24.44%
Did return	78.33%	75.56%
Total students	203	1,166

Of the 203 male students who received activity awards in their freshman year, 78.33% returned for their sophomore year. Of the 1,166 male students who did not receive activity awards as freshmen, 75.56% returned for their sophomore year.

The difference in retention between male students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 35, chi-square has a value of .72 with one degree of freedom. The value of gamma, or the strength of relationship, is -.08.

Data for 2,023 female students who did and did not receive activity awards in their freshman year at TCU are presented in Table 36. This table illustrates the relationship between female students who received and did not receive activity awards and those returning and not returning for the sophomore year is illustrated.

Table 36

Sophomore Retention For Female Students Who Received and Did Not Receive Activity Awards in 1st Year

	Received aid	Did not receive aid
Did not return	20.86%	24.07%
Did return	79.14%	75.93%
Total students	187	1,836

Of the 187 female students who received activity awards in their freshman year, 79.14% returned for their sophomore year. Of the 1,836 female students who did not receive activity awards as freshmen, 75.93% returned for their sophomore year.

The difference in retention between female students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 36, chi-square has a value of .97 with one degree of freedom. The value of gamma, or the strength of relationship, is -.09.

Data for 119 African American students who did and did not receive activity awards in their freshman year at TCU are presented in Table 37. The relationship between African American students who received and did not receive activity awards and those returning and not returning for the sophomore year is illustrated.

Table 37

Sophomore Retention For African American Students Who Received and Did Not Receive Activity Awards in 1st Year

	Received aid	Did not receive aid
Did not return	18.37%	28.57%
Did return	81.63%	71.43%
Total students	49	70

Of the 49 African American students who received activity awards in their freshman year, 81.63% returned for their sophomore year. Of the 70 African American students who did not receive activity awards as freshmen, 71.43% returned for their sophomore year.

The difference in retention between African American students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 37, chi-square has a value 1.63 of with one degree of freedom. The value of gamma, or the strength of relationship, is -.28.

Data for 169 Hispanic students who did and did not receive activity awards in their freshman year at TCU are presented in Table 38. This table illustrates the relationship between Hispanic students who received and did not receive activity awards and those returning and not returning for the sophomore year is illustrated.

Table 38

Sophomore Retention For Hispanic Students Who Received and Did Not Receive Activity Awards in 1st Year

	Received aid	Did not receive aid
Did not return	15.00%	36.24%
Did return	85.00%	63.76%
Total students	20	149

Of the 20 Hispanic students who received activity awards in their freshman year, 85.00% returned for their sophomore year. Of the 149 Hispanic students who did not receive activity awards as freshmen, 63.76% returned for their sophomore year.

The difference in retention between Hispanic students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 38, chi-square has a value of 3.56 with one degree of freedom. The value of gamma, or the strength of relationship, is -.53.

Data for 3,009 Anglo students who did and did not receive activity awards in their freshman year at TCU are presented in Table 39. The relationship between Anglo students who received and did not receive activity awards and those returning and not returning for the sophomore year is illustrated.

Table 39

Sophomore Retention For Anglo Students Who Received and Did Not Receive Activity Awards in 1st Year

	Received aid	Did not receive aid
Did not return	21.17%	23.13%
Did return	78.83%	76.87%
Total students	307	2,702

Of the 307 Anglo students who received activity awards in their freshman year, 78.83% returned for their sophomore year. Of the 2,702 Anglo students who did not receive activity awards as freshmen, 76.87% returned for their sophomore year.

The difference in retention between Anglo students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 39, chi-square has a value of .60 with one degree of freedom. The value of gamma, or the strength of relationship, is -.06.

Data for 1,871 high GPA students who did and did not receive activity awards in their freshman year at TCU are presented in Table 40. The relationship between high GPA students who received and did not receive activity awards and those returning and not returning for the sophomore year is illustrated.

Table 40

Sophomore Retention For High GPA Students Who Received and Did Not Receive Activity Awards in 1st Year

	Received aid	Did not receive aid
Did not return	11.30%	13.99%
Did return	88.70%	86.01%
Total students	177	1,694

Of the 177 high GPA students who received activity awards in their freshman year, 88.70% returned for their sophomore year. Of the 1,694 high GPA students who did not receive activity awards as freshmen, 86.01% returned for their sophomore year.

The difference in retention between high GPA students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 40, chi-square has a value of .98 with one degree of freedom. The value of gamma, or the strength of relationship, is -.12.

Data for 1,521 low GPA students who did and did not receive activity awards in their freshman year at TCU are presented in Table 41. The relationship between low GPA students who received and did not receive activity awards and those returning and not returning for the sophomore year is illustrated.

Table 41

Sophomore Retention For Low GPA Students Who Received and Did Not Receive Activity Awards in 1st Year

	Received aid	Did not receive aid
Did not return	29.58%	37.46%
Did return	70.42%	62.54%
Total students	213	1,308

Note: Significant at .05

Of the 213 low GPA students who received activity awards in their freshman year, 70.42% returned for their sophomore year. Of the 1,308 low GPA students who did not receive activity awards as freshmen, 62.54% returned for their sophomore year.

The difference in retention between low GPA students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 41, chi-square has a value of 4.92 with one degree of freedom. The value of gamma, or the strength of relationship, is -.18.

Data for 1,681 high SAT students who did and did not receive activity awards in their freshman year at TCU are presented in Table 42. The relationship between high SAT students who received and did not receive activity awards and those returning and not returning for the sophomore year is illustrated.

Table 42

Sophomore Retention For High SAT Students Who Received and Did Not Receive Activity Awards in 1st Year

	Received aid	Did not receive aid
Did not return	23.75%	21.89%
Did return	76.25%	78.11%
Total students	160	1,521

Of the 160 high SAT students who received activity awards in their freshman year, 76.25% returned for their sophomore year. Of the 1,521 high SAT students who did not receive activity awards as freshmen, 78.11% returned for their sophomore year.

The difference in retention between high SAT students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 42, chi-square has a value of .29 with one degree of freedom. The value of gamma, or the strength of relationship, is .05.

Data for 1,711 low SAT students who did and did not receive activity awards in their freshman year at TCU are presented in Table 43. The relationship between low SAT students who received and did not receive activity awards and those returning and not returning for the sophomore year is illustrated.

Table 43

Sophomore Retention For Low SAT Students Who Received and Did Not Receive Activity Awards in 1st Year

	Received aid	Did not receive aid
Did not return	19.57%	26.60%
Did return	80.43%	73.40%
Total students	230	1,481

Note: Significant at .05

Of the 230 low SAT students who received activity awards in their freshman year, 80.43% returned for their sophomore year. Of the 1,481 low SAT students who did not receive activity awards as freshmen, 73.40% returned for their sophomore year.

The difference in retention between low SAT students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 43, chi-square has a value of 5.17 with one degree of freedom. The value of gamma, or the strength of relationship, is -.20.

Data for 3,392 students who did and did not receive entitlement awards in their freshman year at TCU are presented in Table 44. The relationship between students who received and did not receive entitlements and those returning and not returning for the sophomore year is illustrated.

Table 44

Sophomore Retention For Students Who Received and Did Not Receive Entitlements in 1st Year

	Received aid	Did not receive aid
Did not return	16.67%	24.19%
Did return	83.33%	75.81%
Total students	138	3,254

Note: Significant at .05

Of the 138 students who received entitlements in their freshman year, 83.33% returned for their sophomore year. Of the 3,254 students who did not receive entitlements as freshmen, 75.81% returned for their sophomore year.

The difference in retention between students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 44, chi-square has a value of 4.12 with one degree of freedom. The value of gamma, or the strength of relationship, is -.23.

Data for 1,369 male students who did and did not receive entitlement awards in their freshman year at TCU are presented in Table 45. The relationship between male students who received and did not receive entitlements and those returning and not returning for the sophomore year is illustrated.

Table 45

Sophomore Retention For Male Students Who Received and Did Not Receive Entitlements in 1st Year

	Received aid	Did not receive aid
Did not return	14.81%	24.41%
Did return	85.19%	75.59%
Total students	54	1,315

Of the 54 male students who received entitlements in their freshman year, 85.19 % returned for their sophomore year. Of the 1,315 male students who did not receive entitlements as freshmen, 75.59 % returned for their sophomore year.

The difference in retention between male students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 45, chi-square has a value of 2.61 with one degree of freedom. The value of gamma, or the strength of relationship, is -.30.

Data for 2,023 female students who did and did not receive entitlement awards in their freshman year at TCU are presented in Table 46. The relationship between female students who received and did not receive entitlements and those returning and not returning for the sophomore year is illustrated.

Table 46

Sophomore Retention For Female Students Who Received and Did Not Receive Entitlements in 1st Year

	Received aid	Did not receive aid
Did not return	17.86%	24.03%
Did return	82.14%	75.97%
Total students	84	1,939

Of the 84 female students who received entitlements in their freshman year, 82.14% returned for their sophomore year. Of the 1,939 female students who did not receive entitlements as freshmen, 75.97% returned for their sophomore year.

The difference in retention between female students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 46, chi-square has a value of 1.69 with one degree of freedom. The value of gamma, or the strength of relationship, is -.19.

Data for 119 African American students who did and did not receive entitlement awards in their freshman year at TCU are presented in Table 47. The relationship between African American students who received and did not receive entitlements and those returning and not returning for the sophomore year is illustrated.

Table 47

Sophomore Retention For African American Students Who Received and Did Not Receive Entitlements in 1st Year

	Received aid	Did not receive aid
Did not return	50.00%	23.93%
Did return	50.00%	76.07%
Total students	2	117

Of the 2 African American students who received entitlements in their freshman year, 50.00% returned for their sophomore year. Of the 117 African American students who did not receive entitlements as freshmen, 76.07% returned for their sophomore year.

The difference in retention between African American students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 47, the continuity adjusted chi-square has a value of .00 with one degree of freedom. The value of gamma, or the strength of relationship, is .52.

Data for 169 Hispanic students who did and did not receive entitlement awards in their freshman year at TCU are presented in Table 48. The relationship between Hispanic students who received and did not receive entitlements and those returning and not returning for the sophomore year is illustrated.

Table 48

Sophomore Retention For Hispanic Students Who Received and Did Not Receive Entitlements in 1st Year

	Received aid	Did not receive aid
Did not return	40.00%	33.54%
Did return	60.00%	66.46%
Total students	5	164

Of the 5 Hispanic students who received entitlements in their freshman year, 40.00% returned for their sophomore year. Of the 164 Hispanic students who did not receive entitlements as freshmen, 66.46% returned for their sophomore year.

The difference in retention between Hispanic students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 48, the continuity adjusted chi-square has a value of .00 with one degree of freedom. The value of gamma, or the strength of relationship, is .14.

Data for 3,009 Anglo students who did and did not receive entitlement awards in their freshman year at TCU are presented in Table 49. The relationship between Anglo students who received and did not receive entitlements and those returning and not returning for the sophomore year is illustrated.

Table 49

Sophomore Retention For Anglo Students Who Received and Did Not Receive Entitlements in 1st Year

	Received aid	Did not receive aid
Did not return	14.96%	23.28%
Did return	85.04%	76.72%
Total students	127	2,822

Note: Significant at .05

Of the 127 Anglo students who received entitlements in their freshman year, 85.04% returned for their sophomore year. Of the 2,822 Anglo students who did not receive entitlements as freshmen, 76.72% returned for their sophomore year.

The difference in retention between Anglo students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 49, chi-square has a value of 4.77 with one degree of freedom. The value of gamma, or the strength of relationship, is -.27.

Data for 1,871 high GPA students who did and did not receive entitlement awards in their freshman year at TCU are presented in Table 50. The relationship between high GPA students who received and did not receive entitlements and those returning and not returning for the sophomore year is illustrated.

Table 50

Sophomore Retention For High GPA Students Who Received and Did Not Receive Entitlements in 1st Year

	Received aid	Did not receive aid
Did not return	2.90%	14.15%
Did return	97.10%	85.85%
Total students	69	1,802

Note: Significant at .05

Of the 69 high GPA students who received entitlements in their freshman year, 97.10% returned for their sophomore year. Of the 1,802 high GPA students who did not receive entitlements as freshmen, 85.85% returned for their sophomore year.

The difference in retention between high GPA students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 50, chi-square has a value of 7.10 with one degree of freedom. The value of gamma, or the strength of relationship, is -.69.

Data for 1,521 low GPA students who did and did not receive entitlement awards in their freshman year at TCU are presented in Table 51. The relationship between low GPA students who received and did not receive entitlements and those returning and not returning for the sophomore year is illustrated.

Table 51

Sophomore Retention For Low GPA Students Who Received and Did Not Receive Entitlements in 1st Year

	Received aid	Did not receive aid
Did not return	30.43%	36.64%
Did return	69.57%	63.36%
Total students	69	1,452

Of the 69 low GPA students who received entitlements in their freshman year, 69.57% returned for their sophomore year. Of the 1,452 low GPA students who did not receive entitlements as freshmen, 63.36% returned for their sophomore year.

The difference in retention between low GPA students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 51, chi-square has a value of 1.10 with one degree of freedom. The value of gamma, or the strength of relationship, is -.14.

Data for 1,681 high SAT students who did and did not receive entitlement awards in their freshman year at TCU are presented in Table 52. The relationship between high SAT students who received and did not receive entitlements awards and those returning and not returning for the sophomore year is illustrated.

Table 52

Sophomore Retention For High SAT Students Who Received and Did Not Receive Entitlement Awards in 1st Year

	Received aid	Did not receive aid
Did not return	13.56%	22.38%
Did return	86.44%	77.62%
Total students	59	1,622

Of the 59 high SAT students who received entitlement awards in their freshman year, 86.44% returned for their sophomore year. Of the 1,622 high SAT students who did not receive entitlement awards as freshmen, 77.62% returned for their sophomore year.

The difference in retention between high SAT students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 52, chi-square has a value of 2.57 with one degree of freedom. The value of gamma, or the strength of relationship, is -.30.

Data for 1,711 low SAT students who did and did not receive entitlement awards in their freshman year at TCU are presented in Table 53. The relationship between low SAT students who received and did not receive entitlement awards and those returning and not returning for the sophomore year is illustrated.

Table 53

Sophomore Retention For Low SAT Students Who Received and Did Not Receive Entitlement Awards in 1st Year

	Received aid	Did not receive aid
Did not return	18.99%	25.98%
Did return	81.01%	74.02%
Total students	79	1,632

Of the 79 low SAT students who received entitlement awards in their freshman year, 81.01% returned for their sophomore year. Of the 1,632 low SAT students who did not receive entitlement awards as freshmen, 74.02% returned for their sophomore year.

The difference in retention between low SAT students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 53, chi-square has a value of 1.93 with one degree of freedom. The value of gamma, or the strength of relationship, is -.20.

Data for 3,392 students who did and did not receive university-operated student employment in their freshman year at TCU are presented in Table 54. The relationship between students who received and did not receive university student employment and those returning and not returning for the sophomore year is illustrated.

Table 54

Sophomore Retention For Students Who Received and Did Not Receive University Student Employment in 1st Year

	Received aid	Did not receive aid
Did not return	29.51%	22.60%
Did return	70.49%	77.40%
Total students	627	2,765

Note: Significant at .05

Of the 627 students who received university student employment in their freshman year, 70.49% returned for their sophomore year. Of the 2,765 students who did not receive university student employment as freshmen, 77.40% returned for their sophomore year.

The difference in retention between students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 54, chi-square has a value of 13.39 with one degree of freedom. The value of gamma, or the strength of relationship, is .18.

Data for 1,369 male students who did and did not receive university-operated student employment in their freshman year at TCU are presented in Table 55. The relationship between male students who received and did not receive university student employment and those returning and not returning for the sophomore year is illustrated.

Table 55

Sophomore Retention For Male Students Who Received and Did Not Receive University Student Employment in 1st Year

	Received aid	Did not receive aid
Did not return	28.69%	23.02%
Did return	71.31%	76.98%
Total students	244	1,125

Of the 244 male students who received university student employment in their freshman year, 71.31% returned for their sophomore year. Of the 1,125 male students who did not receive university student employment as freshmen, 76.98% returned for their sophomore year.

The difference in retention between male students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 55, chi-square has a value of 3.52 with one degree of freedom. The value of gamma, or the strength of relationship, is .15.

Data for 2,023 female students who did and did not receive university-operated student employment in their freshman year at TCU are presented in Table 56. The relationship between female students who received and did not receive university student employment and those returning and not returning for the sophomore year is illustrated.

Table 56

Sophomore Retention For Female Students Who Received and Did Not Receive University Student Employment in 1st Year

	Received aid	Did not receive aid
Did not return	30.03%	22.32%
Did return	69.97%	77.68%
Total students	383	1,640

Note: Significant at .05

Of the 383 female students who received university student employment in their freshman year, 69.97% returned for their sophomore year. Of the 1,640 female students who did not receive university employment as freshmen, 77.68% returned for their sophomore year.

The difference in retention between female students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 56, chi-square has a value of 10.18 with one degree of freedom. The value of gamma, or the strength of relationship, is .19.

Data for 119 African American students who did and did not receive university-operated student employment in their freshman year at TCU are presented in Table 57. The relationship between African American students who received and did not receive university-operated student employment and those returning and not returning for the sophomore year is illustrated.

Table 57

Sophomore Retention For African American Students Who Received and Did Not Receive Student Employment in 1st Year

	Received aid	Did not receive aid
Did not return	29.41%	20.59%
Did return	70.59%	79.41%
Total students	51	68

Of the 51 African American students who received student employment in their freshman year, 70.59% returned for their sophomore year. Of the 68 African American students who did not receive student employment as freshmen, 79.41% returned for their sophomore year.

The difference in retention between African American students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 57, chi-square has a value 1.23 of with one degree of freedom. The value of gamma, or the strength of relationship, is .23.

Data for 169 Hispanic students who did and did not receive university-operated student employment in their freshman year at TCU are presented in Table 58. The relationship between Hispanic students who received and did not receive student employment and those returning and not returning for the sophomore year is illustrated.

Table 58

Sophomore Retention For Hispanic Students Who Received and Did Not Receive Student Employment in 1st Year

	Received aid	Did not receive aid
Did not return	38.67%	29.79%
Did return	61.33%	70.21%
Total students	75	94

Of the 75 Hispanic students who received student employment in their freshman year, 61.33% returned for their sophomore year. Of the 94 Hispanic students who did not receive student employment as freshmen, 70.21% returned for their sophomore year.

The difference in retention between Hispanic students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 58, chi-square has a value of 1.47 with one degree of freedom. The value of gamma, or the strength of relationship, is .20.

Data for 3,009 Anglo students who did and did not receive university-operated student employment in their freshman year at TCU are presented in Table 59. The relationship between Anglo students who received and did not receive student employment and those returning and not returning for the sophomore year is illustrated.

Table 59

Sophomore Retention For Anglo Students Who Received and Did Not Receive Student Employment in 1st Year

	Received aid	Did not receive aid
Did not return	28.75%	21.85%
Did return	71.25%	78.15%
Total students	473	2,536

Note: Significant at .05

Of the 473 Anglo students who received student employment in their freshman year, 71.25% returned for their sophomore year. Of the 2,536 Anglo students who did not receive student employment as freshmen, 78.15% returned for their sophomore year.

The difference in retention between Anglo students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 59, chi-square has a value of 10.76 with one degree of freedom. The value of gamma, or the strength of relationship, is .18.

Data for 1,871 high GPA students who did and did not receive university-operated student employment in their freshman year at TCU are presented in Table 60. The relationship between high GPA students who received and did not receive student employment and those returning and not returning for the sophomore year is illustrated.

Table 60

Sophomore Retention For High GPA Students Who Received and Did Not Receive Student Employment in 1st Year

	Received aid	Did not receive aid
Did not return	16.72%	13.10%
Did return	83.28%	86.90%
Total students	329	1,542

Of the 329 high GPA students who received student employment in their freshman year, 83.28% returned for their sophomore year. Of the 1,542 high GPA students who did not receive student employment as freshmen, 86.90% returned for their sophomore year.

The difference in retention between high GPA students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 60, chi-square has a value of 2.99 with one degree of freedom. The value of gamma, or the strength of relationship, is .14.

Data for 1,521 low GPA students who did and did not receive university-operated student employment in their freshman year are presented in Table 61. The relationship between low GPA students who received and did not receive student employment and those returning and not returning for the sophomore year is illustrated.

Table 61

Sophomore Retention For Low GPA Students Who Received and Did Not Receive University-operated Student Employment in 1st Year

	Received aid	Did not receive aid
Did not return	43.62%	34.59%
Did return	56.38%	65.41%
Total students	298	1,223

Note: Significant at .05

Of the 298 low GPA students who received student employment in their freshman year, 56.38% returned for their sophomore year. Of the 1,223 low GPA students who did not receive student employment as freshmen, 65.41% returned for their sophomore year.

The difference in retention between low GPA students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 61, chi-square has a value of 8.46 with one degree of freedom. The value of gamma, or the strength of relationship, is .19.

Data for 1,681 high SAT students who did and did not receive university operated student employment in their freshman year at TCU are presented in Table 62. The relationship between high SAT students who received and did not receive student employment and those returning and not returning for the sophomore year is illustrated.

Table 62

Sophomore Retention For High SAT Students Who Received and Did Not Receive University-operated Student Employment in 1st Year

	Received aid	Did not receive aid
Did not return	24.38%	21.53%
Did return	75.63%	78.47%
Total students	320	1,361

Of the 320 high SAT students who received university-operated student employment in their freshman year, 75.63% returned for their sophomore year. Of the 1,361 high SAT students who did not receive university-operated student employment as freshmen, 78.47% returned for their sophomore year.

The difference in retention between high SAT students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 62, chi-square has a value of 1.22 with one degree of freedom. The value of gamma, or the strength of relationship, is .08.

Data for 1,711 low SAT students who did and did not receive university-operated student employment in their freshman year at TCU are presented in Table 63. The relationship between low SAT students who received and did not receive student employment and those returning and not returning for the sophomore year is illustrated.

Table 63

Sophomore Retention For Low SAT Students Who Received and Did Not Receive University-operated Student Employment in 1st Year

	Received aid	Did not receive aid
Did not return	34.85%	23.65%
Did return	65.15%	76.35%
Total students	307	1,404

Note: Significant at .05

Of the 307 low SAT students who received university-operated student employment in their freshman year, 65.15% returned for their sophomore year. Of the 1,404 low SAT students who did not receive university-operated student employment as freshmen, 76.35% returned for their sophomore year.

The difference in retention between low SAT students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 63, chi-square has a value of 16.59 with one degree of freedom. The value of gamma, or the strength of relationship, is .27.

Data for 3,392 students who did and did not receive loans in their freshman year at TCU are presented in Table 64. The relationship between students who received and did not receive loans and those returning and not returning for the sophomore year is illustrated.

Table 64

Sophomore Retention For Students Who Received and Did Not Receive Loans in 1st Year

	Received aid	Did not receive aid
Did not return	30.42%	21.21%
Did return	69.58%	78.79%
Total students	983	2,409

Note: Significant at .05

Of the 983 students who received loans in their freshman year, 69.58% returned for their sophomore year. Of the 2,409 students who did not receive loans as freshmen, 78.79% returned for their sophomore year.

The difference in retention between students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 64, chi-square has a value of 32.54 with one degree of freedom. The value of gamma, or the strength of relationship, is .24.

Data for 1,369 male students who did and did not receive loans in their freshman year at TCU are presented in Table 65. The relationship between male students who received and did not receive loans and those returning and not returning for the sophomore year is illustrated.

Table 65

Sophomore Retention For Male Students Who Received and Did Not Receive Loans in 1st Year

	Received aid	Did not receive aid
Did not return	30.73%	21.30%
Did return	69.27%	78.70%
Total students	397	972

Note: Significant at .05

Of the 397 male students who received loans in their freshman year, 69.27% returned for their sophomore year. Of the 972 male students who did not receive loans as freshmen, 78.70% returned for their sophomore year.

The difference in retention between male students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 65, chi-square has a value of 13.74 with one degree of freedom. The value of gamma, or the strength of relationship, is .24.

Data for 2,023 female students who did and did not receive loans in their freshman year at TCU are presented in Table 66. The relationship between female students who received and did not receive loans and those returning and not returning for the sophomore year is illustrated.

Table 66

Sophomore Retention For Female Students Who Received and Did Not Receive Loans in 1st Year

	Received aid	Did not receive aid
Did not return	30.20%	21.16%
Did return	69.80%	78.84%
Total students	586	1,437

Note: Significant at .05

Of the 586 female students who received loans in their freshman year, 69.80% returned for their sophomore year. Of the 1,437 female students who did not receive loans as freshmen, 78.84% returned for their sophomore year.

The difference in retention between female students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 66, chi-square has a value of 18.81 with one degree of freedom. The value of gamma, or the strength of relationship, is .24.

Data for 119 African American students who did and did not receive loans in their freshman year at TCU are presented in Table 67. The relationship between African American students who received and did not receive loans and those returning and not returning for the sophomore year is illustrated.

Table 67

Sophomore Retention For African American Students Who Received and Did Not Receive Loans in 1st Year

	Received aid	Did not receive aid
Did not return	33.85%	12.96%
Did return	66.15%	87.04%
Total students	65	54

Note: Significant at .05

Of the 65 African American students who received loans in their freshman year, 66.15% returned for their sophomore year. Of the 54 African American students who did not receive loans as freshmen, 87.04% returned for their sophomore year.

The difference in retention between African American students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 67, chi-square has a value of 6.98 with one degree of freedom. The value of gamma, or the strength of relationship, is .55.

Data for 169 Hispanic students who did and did not receive loans in their freshman year at TCU are presented in Table 68. The relationship between Hispanic students who received and did not receive loans and those returning and not returning for the sophomore year is illustrated.

Table 68

Sophomore Retention For Hispanic Students Who Received and Did Not Receive Loans in 1st Year

	Received aid	Did not receive aid
Did not return	41.11%	25.32%
Did return	58.89%	74.68%
Total students	90	79

Note: Significant at .05

Of the 90 Hispanic students who received loans in their freshman year, 58.89% returned for their sophomore year. Of the 79 Hispanic students who did not receive loans as freshmen, 74.68% returned for their sophomore year.

The difference in retention between Hispanic students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 68, chi-square has a value of 4.70 with one degree of freedom. The value of gamma, or the strength of relationship, is .35.

Data for 3,009 Anglo students who did and did not receive loans in their freshman year at TCU are presented in Table 69. The relationship between Anglo students who received and did not receive loans and those returning and not returning for the sophomore year is illustrated.

Table 69

Sophomore Retention For Anglo Students Who Received and Did Not Receive Loans in 1st Year

	Received aid	Did not receive aid
Did not return	29.32%	20.62%
Did return	70.68%	79.38%
Total students	798	2,211

Note: Significant at .05

Of the 798 Anglo students who received loans in their freshman year, 70.68% returned for their sophomore year. Of the 2,211 Anglo students who did not receive loans as freshmen, 79.38% returned for their sophomore year.

The difference in retention between Anglo students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 69, chi-square has a value of 25.11 with one degree of freedom. The value of gamma, or the strength of relationship, is .23.

Data for 1,871 high GPA students who did and did not receive loans in their freshman year at TCU are presented in Table 70. The relationship between high GPA students who received and did not receive loans and those returning and not returning for the sophomore year is illustrated.

Table 70

Sophomore Retention For High GPA Students Who Received and Did Not Receive Loans in 1st Year

	Received aid	Did not receive aid
Did not return	15.89%	12.92%
Did return	84.11%	87.08%
Total students	516	1,355

Of the 516 high GPA students who received loans in their freshman year, 84.11% returned for their sophomore year. Of the 1,355 high GPA students who did not receive loans as freshmen, 87.08% returned for their sophomore year.

The difference in retention between high GPA students who received aid as freshmen and those who did not is statistically insignificant at the established threshold of .05. For Table 70, chi-square has a value of 2.79 with one degree of freedom. The value of gamma, or the strength of relationship, is .12.

Data for 1,521 low GPA students who did and did not receive loans in their freshman year are presented in Table 71. The relationship between low GPA students who received and did not receive loans and those returning and not returning for the sophomore year is illustrated.

Table 71

Sophomore Retention For Low GPA Students Who Received and Did Not Receive Loans in 1st Year

	Received aid	Did not receive aid
Did not return	46.47%	31.88%
Did return	53.53%	68.12%
Total students	467	1,054

Note: Significant at .05

Of the 467 low GPA students who received loans in their freshman year, 53.53% returned for their sophomore year. Of the 1,054 low GPA students who did not receive loans as freshmen, 68.12% returned for their sophomore year.

The difference in retention between low GPA students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 71, chi-square has a value of 29.76 with one degree of freedom. The value of gamma, or the strength of relationship, is .30.

Data for 1,681 high SAT students who did and did not receive loans in their freshman year at TCU are presented in Table 72. The relationship between high SAT students who received and did not receive loans and those returning and not returning for the sophomore year is illustrated.

Table 72

Sophomore Retention For High SAT Students Who Received and Did Not Receive Loans in 1st Year

	Received aid	Did not receive aid
Did not return	26.80%	20.07%
Did return	73.20%	79.93%
Total students	500	1,181

Note: Significant at .05

Of the 500 high SAT students who received loans in their freshman year, 73.20% returned for their sophomore year. Of the 1,181 high SAT students who did not receive loans as freshmen, 79.93% returned for their sophomore year.

The difference in retention between high SAT students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 72, chi-square has a value of 9.26 with one degree of freedom. The value of gamma, or the strength of relationship, is .19.

Data for 1,711 low SAT students who did and did not receive loans in their freshman year at TCU are presented in Table 73. The relationship between low SAT students who received and did not receive loans and those returning and not returning for the sophomore year is illustrated.

Table 73

Sophomore Retention For Low SAT Students Who Received and Did Not Receive Loans in 1st Year

	Received aid	Did not receive aid
Did not return	34.16%	22.31%
Did return	65.84%	77.69%
Total students	483	1,228

Note: Significant at .05

Of the 483 low SAT students who received loans in their freshman year, 65.84% returned for their sophomore year. Of the 1,228 low SAT students who did not receive loans as freshmen, 77.69% returned for their sophomore year.

The difference in retention between low SAT students who received aid as freshmen and those who did not is statistically significant at the established threshold of .05. For Table 73, chi-square has a value of 25.51 with one degree of freedom. The value of gamma, the strength of relationship, is .29.

Research Question 2. The second research question asked whether renewal or reduction of academic merit scholarships relate to retention? The narration of Tables 74-83 reviews the results of this question.

Data for 1,045 students who received academic merit scholarships in their 1st year at TCU are presented in Table 74. The relationship between students who received renewed or reduced academic merit scholarships and those returning and not returning for the sophomore year is illustrated.

Table 74

Sophomore Retention For Students Who Received Academic Merit Scholarships in 1st Year, Showing Relationship Between Reduction in Academic Merit Scholarships and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	12%	24.53%
Did return	88%	75.47%
Total students	250	795

Note: Significant at .05

In Table 74, the students who renewed aid, received scholarships equal to or greater than the amount they received as freshmen. If the scholarship was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 74 shows that, of the 250 students who renewed their academic merit scholarship, 88% returned for their sophomore year. Of the 795 students whose academic merit scholarship was eliminated or reduced, 75.47% returned for their sophomore year.

The difference in retention between students whose scholarship was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 74, chi-square has a value of 17.67 with one degree of freedom. The value of gamma, or the strength of relationship, is -.41.

Data for 414 male students who received academic merit scholarships in their 1st year at TCU are presented in Table 75. The relationship between students who received renewed or reduced academic merit scholarships and those returning and not returning for the sophomore year is illustrated.

Table 75

Sophomore Retention For Male Students Who Received Academic Scholarships in 1st Year, Showing Relationship Between Reduction in Scholarships and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	9.62%	23.55%
Did return	90.38%	76.45%
Total students	104	310

Note: Significant at .05

In Table 75, the students who renewed aid received scholarships equal to or greater than the amount they received as freshmen. If the scholarship was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 75 shows that, of the 104 male students who renewed their scholarship, 90.38% returned for their sophomore year. Of the 310 male students whose scholarship was eliminated or reduced, 76.45 % returned for their sophomore year

The difference in retention between students whose academic merit scholarship was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 75, chi-square has a value of 9.43 with one degree of freedom. The value of gamma, or the strength of relationship, is -.49.

Data for 631 female students who received academic merit scholarships in their 1st year at TCU are presented in Table 76. The relationship between students who received renewed or reduced academic merit scholarships and those returning and not returning for the sophomore year is illustrated.

Table 76

Sophomore Retention For Female Students Who Received Academic Merit Scholarships in 1st Year, Showing Relationship Between Reduction in Academic Merit Scholarships and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	13.70%	25.15%
Did return	86.30%	74.85%
Total students	146	485

Note: Significant at .05

In Table 76, the students who renewed aid received scholarships equal to or greater than the amount they received as freshmen. If the scholarship was reduced, the amount student received as a sophomore was less than the amount student received as a

freshman. The amount received could be zero. Table 76 shows that, of the 146 female students who renewed their academic merit scholarship, 86.30% returned for their sophomore year. Of the 485 female students whose academic merit scholarship was eliminated or reduced, 74.85% returned for their sophomore year

The difference in retention between students whose scholarship was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 76, chi-square has a value of 8.445 with one degree of freedom. The value of gamma, or the strength of relationship, is -.36.

Data for 31 African American students who received scholarships in their 1st year at TCU are presented in Table 77. The relationship between students who received renewed or reduced scholarships and those returning and not returning for the sophomore year is illustrated.

Table 77

Sophomore Retention For African American Students Who Received Scholarships in 1st Year, Showing Relationship Between Reduction in Scholarships and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	00.00%	22.22%
Did return	100.00%	77.78%
Total students	4	27

In Table 77, the students who renewed aid received scholarships equal to or greater than the amount they received as freshmen. If the scholarship was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 77 shows that, of the 4 students who renewed their scholarship, 100.00% returned for their sophomore year. Of the 27 students whose scholarship was eliminated or reduced, 77.78% returned for their sophomore year

The difference in retention between students whose scholarship was eliminated or reduced and those who renewed is statistically insignificant at the established threshold of .05. For Table 77, the continuity adjusted chi-square has a value of .14 with one degree of freedom. The value of gamma, or the strength of relationship, is -1.00.

Data for 59 Hispanic students who received scholarships in their 1st year at TCU are presented in Table 78. The relationship between students who received renewed or reduced scholarships and those returning and not returning for the sophomore year is illustrated.

Table 78

Sophomore Retention for Hispanic Students Who Received Scholarships in 1st Year, Showing Relationship Between Reduction in Scholarships and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	0.00%	40.43%
Did return	100.00%	59.57%
Total students	12	47

Note: Significant at .05

In Table 78, the Hispanic students who renewed aid received scholarships equal to or greater than the amount they received as freshmen. If the scholarship was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 78 shows that, of the 12 students who renewed their financial aid, 100.00% returned for their sophomore year. Of the 47 Hispanic students whose scholarship was eliminated or reduced, 59.57% returned for their sophomore year

The difference in retention between students whose scholarship was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 78, the continuity adjusted chi-square has a value of 5.42 with one degree of freedom. The value of gamma, or the strength of relationship, is -1.00.

Data for 916 Anglo students who received scholarships in their 1st year at TCU are presented in Table 79. The relationship between students who received renewed or reduced scholarships and those returning and not returning for the sophomore year is illustrated.

Table 79

Sophomore Retention For Anglo Students Who Received Scholarships in 1st Year, Showing Relationship Between Reduction in Scholarships and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	12.50%	23.12%
Did return	87.50%	76.88%
Total students	224	692

Note: Significant at .05

In Table 79, the Anglo students who renewed aid received scholarships equal to or greater than the amount they received as freshmen. If the scholarship was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 79 shows that, of the 224 students who renewed their scholarships, 87.50% returned for their sophomore year. Of the 692 Anglo students whose scholarship was eliminated or reduced, 76.88% returned for their sophomore year

The difference in retention between students whose scholarship was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 79, chi-square has a value of 11.70 with one degree of freedom. The value of gamma, or the strength of relationship, is -.36.

Data for 769 high GPA students who received academic merit scholarships in their 1st year at TCU are presented in Table 80. The relationship between students who received renewed or reduced academic merit scholarships and those returning and not returning for the sophomore year is illustrated.

Table 80

Sophomore Retention For High GPA Students Who Received Academic Merit Scholarships in 1st Year, Showing Relationship Between Reduction in Scholarships and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	12.82%	14.95%
Did return	87.18%	85.05%
Total students	234	535

In Table 80, the high GPA students who renewed aid received scholarships equal to or greater than the amount they received as freshmen. If the scholarship was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 80 shows that, of the 234

students who renewed their scholarship, 87.18% returned for their sophomore year. Of the 535 high GPA students whose scholarship was eliminated or reduced, 85.05% returned for their sophomore year

The difference in retention between students whose academic merit scholarship was eliminated or reduced and those who renewed is statistically insignificant at the established threshold of .05. For Table 80, chi-square has a value of .60 with one degree of freedom. The value of gamma, or the strength of relationship, is -.09.

Data for 276 low GPA students who received academic merit scholarships in their 1st year at TCU are presented in Table 81. The relationship between students who received renewed or reduced academic merit scholarships and those returning and not returning for the sophomore year is illustrated.

Table 81

Sophomore Retention For Low GPA Students Who Received Academic Merit Scholarships in 1st Year, Showing Relationship Between Reduction in Scholarship

	Renewed aid	Reduced aid
Did not return	0.00%	44.23%
Did return	100.00%	55.77%
Total students	16	260

Note: Significant at .05

In Table 81, the 16 low GPA students who renewed aid received scholarships equal to or greater than the amount they received as freshmen. If the scholarship was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 81 shows that, of the 16 students who renewed their scholarship, 100.00% returned for their sophomore year. Of the 260 low GPA students whose scholarship was eliminated or reduced, 55.77% returned for their sophomore year

The difference in retention between students whose scholarship was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 81, chi-square has a value of 12.13 with one degree of freedom. The value of gamma, or the strength of relationship, is -1.00.

Data for 882 high SAT students who received academic merit scholarships in their 1st year at TCU are presented in Table 82. The relationship between students who received renewed or reduced academic scholarships and those returning and not returning for the sophomore year is illustrated.

Table 82

Sophomore Retention For High SAT Students Who Received Academic Merit Scholarships in 1st Year, Showing Relationship Between Reduction in Academic Merit Scholarships and Retention

	Renewed aid	Reduced aid
Did not return	12.71%	23.37%
Did return	87.29%	76.63%
Total students	236	646

Note: Significant at .05

In Table 82, the high SAT students who renewed aid received academic merit scholarships equal to or greater than the amount they received as freshmen. If the academic merit scholarship was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 82 shows that, of the 236 students who renewed their academic scholarship, 87.29% returned for their sophomore year. Of the 646 students whose academic scholarship was eliminated or reduced, 76.63% returned for their sophomore year

The difference in retention between students whose academic scholarship was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 82, chi-square has a value of 12.05 with one degree of freedom. The value of gamma, or the strength of relationship, is -.35.

Data for 163 low SAT students who received academic merit scholarships in their 1st year at TCU are presented in Table 83. The relationship between students who received renewed or reduced academic scholarships and those returning and not returning for the sophomore year is illustrated.

Table 83

Sophomore Retention For Low SAT Students Who Received Academic Merit Scholarships in 1st Year, Showing Relationship Between Reduction in Academic Scholarships and Retention

	Renewed aid	Reduced aid
Did not return	0.00%	29.53%
Did return	100.00%	70.47%
Total students	14	149

Note: Significant at .05

In Table 83, the low SAT students who renewed aid received academic merit scholarships equal to or greater than the amount they received as freshmen. If the academic scholarship was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 83 shows that, of the 14 students who renewed their academic scholarship, 100.00% returned for their sophomore year. Of the 149 students whose academic scholarship was eliminated or reduced, 70.47% returned for their sophomore year

The difference in retention between students whose academic merit scholarship was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 83, the continuity adjusted chi-square has a value of 4.26 with one degree of freedom. The value of gamma, or the strength of relationship, is -1.00.

Research Question 3. The third research question asked whether renewal or reduction of participation in university-operated student employment programs relate to retention. The narration for Tables 84-93 reviews the results of this question.

Data for 627 students who received university-operated student employment in their 1st year at TCU are presented in Table 84. The relationship between students who received renewed or reduced university student employment and those returning and not returning for the sophomore year is illustrated.

Table 84

Sophomore Retention For Students Who Received University Student Employment in 1st Year, Showing Relationship Between Reduction in University Student Employment and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	6.16%	47.86%
Did return	93.84%	52.14%
Total students	276	351

Note: Significant at .05

In Table 84, the students who renewed aid received university student employment equal to or greater than the amount they received as freshmen. If the university student employment was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 84 shows that, of the 276 students who renewed their university student employment, 93.84% returned for their sophomore year. Of the 351 students whose university student employment was eliminated or reduced, 52.14% returned for their sophomore year

The difference in retention between students whose university student employment was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 84, chi-square has a value of 129.19 with one degree of freedom. The value of gamma, or the strength of relationship, is -.87.

Data for 244 male students who received university-operated student employment in their 1st year at TCU are presented in Table 85. The relationship between male students who received renewed or reduced university student employment and those returning and not returning for the sophomore year is illustrated.

Table 85

Sophomore Retention For Male Students Who Received University Student Employment in 1st Year, Showing Relationship Between Reduction in University Student Employment and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	6.00%	44.44%
Did return	94.00%	55.56%
Total students	100	144

Note: Significant at .05

In Table 85, the students who renewed aid received university student employment equal to or greater than the amount they received as freshmen. If the university student employment was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 85 shows that, of the 100 male students who renewed their university student employment, 94.00% returned for their sophomore year. Of the 144 male students whose university student employment was eliminated or reduced, 55.56% returned for their sophomore year

The difference in retention between students whose university student employment was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 85, chi-square has a value of 42.64 with one degree of freedom. The value of gamma, or the strength of relationship, is -.85.

Data for 383 female students who received university-operated student employment in their 1st year at TCU are presented in Table 86. The relationship between students who received renewed or reduced university student employment and those returning and not returning for the sophomore year is illustrated.

Table 86

Sophomore Retention For Female Students Who Received University Student Employment in 1st Year, Showing Relationship Between Reduction in University Student Employment and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	6.25%	50.24%
Did return	93.75%	49.76%
Total students	176	207

Note: Significant at .05

In Table 86, the female students who renewed aid received university student employment equal to or greater than the amount they received as freshmen. If the university student employment was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 86 shows that, of the 176 female students who renewed their university student employment, 93.75% returned for their sophomore year. Of the 207 female students whose was eliminated or reduced, 49.76% returned for their sophomore year

The difference in retention between students whose university student employment was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 86, chi-square has a value of 87.62 with one degree of freedom. The value of gamma, or the strength of relationship, is -.88.

Data for 51 African American students who received university-operated student employment in their 1st year at TCU are presented in Table 87. The relationship between students who received renewed or reduced student employment and those returning and not returning for the sophomore year is illustrated.

Table 87

Sophomore Retention For African American Students Who Received Student Employment in 1st Year, Showing Relationship Between Reduction in Student Employment and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	4.35%	50.00%
Did return	95.65%	50.00%
Total students	23	28

Note: Significant at .05

In Table 87, the students who renewed aid received student employment equal to or greater than the amount they received as freshmen. If the student employment was reduced, the amount student received as a sophomore was less than the amount student

received as a freshman. The amount received could be zero. Table 87 shows that, of the 23 students who renewed their student employment, 95.65% returned for their sophomore year. Of the 28 students whose student employment was eliminated or reduced, 50.00% returned for their sophomore year

The difference in retention between students whose student employment was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 87, chi-square has a value of 12.68 with one degree of freedom. The value of gamma, or the strength of relationship, is -.91.

Data for 75 Hispanic students who received university-operated student employment in their 1st year at TCU are presented in Table 88. The relationship between students who received renewed or reduced student employment and those returning and not returning for the sophomore year is illustrated.

Table 88

Sophomore Retention For Hispanic Students Who Received Student Employment in 1st Year Showing Relationship Between Reduction in Student Employment and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	10.34%	56.52%
Did return	89.66%	43.48%
Total students	29	46

Note: Significant at .05

In Table 88, the Hispanic students who renewed aid received student employment equal to or greater than the amount they received as freshmen. If the student employment was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 88 shows that, of the 29 students who renewed their student employment, 89.66% returned for their sophomore year. Of the 46 Hispanic students whose student employment was eliminated or reduced, 43.48% returned for their sophomore year

The difference in retention between students whose student employment was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 88, chi-square has a value of 15.99 with one degree of freedom. The value of gamma, or the strength of relationship, is -.84.

Data for 473 Anglo students who received university-operated student employment in their 1st year at TCU are presented in Table 89. The relationship between students who received renewed or reduced student employment and those returning and not returning for the sophomore year is illustrated.

Table 89

Sophomore Retention For Anglo Students Who Received Student Employment in 1st Year Showing Relationship Between Reduction in Student Employment and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	5.29%	47.17%
Did return	94.71%	52.83%
Total students	208	265

Note: Significant at .05

In Table 89, the Anglo students who renewed aid received student employment equal to or greater than the amount they received as freshmen. If the student employment was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 89 shows that, of the 208 students who renewed their student employment, 94.71% returned for their sophomore year. Of the 265 Anglo students whose student employment was eliminated or reduced, 52.83% returned for their sophomore year

The difference in retention between students whose student employment was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 89, chi-square has a value of 99.78 with one degree of freedom. The value of gamma, or the strength of relationship, is -.88.

Data for 329 high GPA students who received university-operated student employment in their 1st year at TCU are presented in Table 90. The relationship between students who received renewed or reduced university-operated student employment and those returning and not returning for the sophomore year is illustrated.

Table 90

Sophomore Retention For High GPA Students Who Received Student Employment in 1st Year Showing Relationship Between Reduction in Student Employment and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	4.40%	31.97%
Did return	95.60%	68.03%
Total students	182	147

Note: Significant at .05

In Table 90, the high GPA students who renewed aid received university-operated student employment equal to or greater than the amount they received as freshmen. If the student employment was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 90 shows that, of the 182 students who renewed their student employment, 95.60% returned for their sophomore year. Of the 147 high GPA students whose student employment was eliminated or reduced, 68.03% returned for their sophomore year

The difference in retention between students whose student employment was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 90, chi-square has a value of 44.42 with one degree of freedom. The value of gamma, or the strength of relationship, is -.82.

Data for 298 low GPA students who received university-operated student employment at TCU are presented in Table 91. The relationship between students who received renewed or reduced student employment and those returning and not returning for the sophomore year is illustrated.

Table 91

Sophomore Retention For Low GPA Students Who Received Student Employment in 1st Year Showing Relationship Between Reduction in Student Employment and Retention

	Renewed aid	Reduced aid
Did not return	9.57%	59.31%
Did return	90.43%	40.69%
Total students	94	204

Note: Significant at .05

In Table 91, the low GPA students who renewed aid received student employment equal to or greater than the amount they received as freshmen. If the student employment was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 91 shows

that, of the 94 students who renewed their student employment, 90.43% returned for their sophomore year. Of the 204 low GPA students whose student employment was eliminated or reduced, 40.69% returned for their sophomore year

The difference in retention between students whose employment was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 91, chi-square has a value of 64.73 with one degree of freedom. The value of gamma, or the strength of relationship, is -.87.

Data for 320 high SAT students who received university-operated student employment in their 1st year at TCU are presented in Table 92. The relationship between students who received renewed or reduced student employment and those returning and not returning for the sophomore year is illustrated.

Table 92

Sophomore Retention For High SAT Students Who Received University-operated Student Employment in 1st Year, Showing Relationship Between Reduction in Student Employment and Retention

	Renewed aid	Reduced aid
Did not return	3.73%	45.28%
Did return	96.27%	54.72%
Total students	161	159

Note: Significant at .05

In Table 92, the high SAT students who renewed aid received university-operated student employment equal to or greater than the amount they received as freshmen. If the student employment was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 92 shows that, of the 161 students who renewed their student employment, 96.27% returned for their sophomore year. Of the 23 students whose student employment was eliminated or reduced, 54.72% returned for their sophomore year

The difference in retention between students whose university-operated student employment was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 92, chi-square has a value of 74.94 with one degree of freedom. The value of gamma, or the strength of relationship, is -.91.

Data for 307 low SAT students who received university-operated student employment in their 1st year at TCU are presented in Table 93. The relationship between students who received renewed or reduced student employment and those returning and not returning for the sophomore year is illustrated.

Table 93

Sophomore Retention For Low SAT Students Who Received University-operated Student Employment in 1st Year, Showing Relationship Between Reduction in Student Employment and Retention

	Renewed aid	Reduced aid
Did not return	9.57%	50.00%
Did return	90.43%	50.00%
Total students	115	192

Note: Significant at .05

In Table 93, the low SAT students who renewed aid received university-operated student employment equal to or greater than the amount they received as freshmen. If the student employment was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 93 shows that, of the 115 students who renewed their student employment, 90.43% returned for their sophomore year. Of the 192 students whose student employment was eliminated or reduced, 50.00% returned for their sophomore year

The difference in retention between students whose university-operated student employment was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 93, chi-square has a value of 51.79 with one degree of freedom. The value of gamma, or the strength of relationship, is -.81.

Research Question 4. The fourth research question asked whether renewal or reduction of grants based on the families' economics relate to retention. The narration of Tables 94-103 reviews the results of this question.

Data for 1,164 students who received grants in their 1st year at TCU are presented in Table 94. The relationship between students who received renewed or reduced grants and those returning and not returning for the sophomore year is illustrated.

Table 94

Sophomore Retention For Students Who Received Grants in 1st Year, Showing Relationship Between Reduction in Grants and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	9.30%	39.56%
Did return	90.70%	60.44%
Total students	398	766

Note: Significant at .05

In Table 94, the students who renewed aid received grants equal to or greater than the amount they received as freshmen. If the grant was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 94 shows that, of the 398 students who renewed their grants, 90.70% returned for their sophomore year. Of the 766 students whose grant was eliminated or reduced, 60.44% returned for their sophomore year

The difference in retention between students whose grant was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 94, chi-square has a value of 115.98 with one degree of freedom. The value of gamma, or the strength of relationship, is -.73.

Data for 466 male students who received grants in their 1st year at TCU are presented in Table 95. The relationship between students who received renewed or reduced grants and those returning and not returning for the sophomore year is illustrated.

Table 95

Sophomore Retention For Male Students Who Received Grants in 1st Year, Showing Relationship Between Reduction in Grants and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	10.43%	37.29%
Did return	89.57%	62.71%
Total students	163	303

Note: Significant at .05

In Table 95, the students who renewed aid received grants equal to or greater than the amount they received as freshmen. If the grant was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 95 shows that, of the 163 male students who

renewed their grant, 89.57% returned for their sophomore year. Of the 303 male students whose grant was eliminated or reduced, 62.71 % returned for their sophomore year

The difference in retention between students whose grant was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 95, chi-square has a value of 38.03 with one degree of freedom. The value of gamma, or the strength of relationship, is -.67.

Data for 698 female students who received grants in their 1st year at TCU are presented in Table 96. The relationship between female students who received renewed or reduced grants and those returning and not returning for the sophomore year is illustrated.

Table 96

Sophomore Retention For Female Students Who Received Grants in 1st Year, Showing Relationship Between Reduction in Grants and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	8.51%	41.04%
Did return	91.49%	58.96%
Total students	235	463

Note: Significant at .05

In Table 96, the students who renewed aid received grants equal to or greater than the amount they received as freshmen. If the grant was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The

amount received could be zero. Table 96 shows that, of the 235 female students who renewed their grants, 91.49% returned for their sophomore year. Of the 463 female students whose grant was eliminated or reduced, 58.96% returned for their sophomore year

The difference in retention between students whose grant was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 96, chi-square has a value of 78.40 with one degree of freedom. The value of gamma, or the strength of relationship, is -.76.

Data for 84 African American students who received grants in their 1st year at TCU are presented in Table 97. The relationship between students who received renewed or reduced grants and those returning and not returning for the sophomore year is illustrated.

Table 97

Sophomore Retention For African American Students Who Received Grants in 1st Year Showing Relationship Between Reduction in Grants and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	00.00%	35.00%
Did return	100.00%	65.00%
Total students	24	60

Note: Significant at .05

In Table 97, the students who renewed aid received grants equal to or greater than the amount they received as freshmen. If the grant was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 97 shows that, of the 24 students who renewed their grant, 100.00% returned for their sophomore year. Of the 60 students whose grant was eliminated or reduced, 65.00% returned for their sophomore year

The difference in retention between students whose grant was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 97, chi-square has a value of 11.20 with one degree of freedom. The value of gamma, or the strength of relationship, is -1.00.

Data for 109 Hispanic students who received grants in their 1st year at TCU are presented in Table 98. The relationship between students who received renewed or reduced grants and those returning and not returning for the sophomore year is illustrated.

Table 98

Sophomore Retention For Hispanic Students Who Received Grants in 1st Year, Showing Relationship Between Reduction in Grants and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	6.06%	51.32%
Did return	93.94%	48.68%
Total students	33	76

Note: Significant at .05

In Table 98, the Hispanic students who renewed aid received grants equal to or greater than the amount they received as freshmen. If the grant was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 98 shows that, of the 33 students who renewed their grant, 93.94% returned for their sophomore year. Of the 76 Hispanic students whose grant was eliminated or reduced, 48.68% returned for their sophomore year

The difference in retention between students whose grant was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 98, chi-square has a value of 20.08 with one degree of freedom. The value of gamma, or the strength of relationship, is -.89.

Data for 926 Anglo students who received grants in their 1st year at TCU are presented in Table 99. The relationship between students who received renewed or reduced grants and those returning and not returning for the sophomore year is illustrated.

Table 99

Sophomore Retention For Anglo Students Who Received Grants in 1st Year, Showing Relationship Between Reduction in Grants and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	9.63%	38.25%
Did return	90.37%	61.75%
Total students	322	604

Note: Significant at .05

In Table 99, the Anglo students who renewed aid received grants equal to or greater than the amount they received as freshmen. If the grant was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 99 shows that, of the 322 students who renewed their grants, 90.37% returned for their sophomore year. Of the 604 Anglo students whose grant was eliminated or reduced, 61.75% returned for their sophomore year

The difference in retention between students whose grant was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 99, chi-square has a value of 84.78 with one degree of freedom. The value of gamma, or the strength of relationship, is -.71

Data for 628 high GPA students who received grants in their 1st year at TCU are presented in Table 100. The relationship between students who received renewed or reduced grants and those returning and not returning for the sophomore year is illustrated.

Table 100

Sophomore Retention For High GPA Students Who Received Grants in 1st Year Showing Relationship Between Reduction in Grants and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	7.59%	22.77%
Did return	92.41%	77.23%
Total students	303	325

Note: Significant at .05

In Table 100, the high GPA students who renewed aid received grants equal to or greater than the amount they received as freshmen. If the grant was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 100 shows that, of the 303 students who renewed their scholarship, 92.41% returned for their sophomore year. Of the 325 high GPA students whose scholarship was eliminated or reduced, 77.23% returned for their sophomore year

The difference in retention between students whose grant was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 100, chi-square has a value of 27.66 with one degree of freedom. The value of gamma, or the strength of relationship, is -.56.

Data for 536 low GPA students who received grants in their 1st year at TCU are presented in Table 101. The relationship between students who received renewed or

reduced grants and those returning and not returning for the sophomore year is illustrated.

Table 101

Sophomore Retention For Low GPA Students Who Received Grants in 1st Year, Showing Relationship Between Reduction in Grants and Retention

	Renewed aid	Reduced aid
Did not return	14.74%	51.93%
Did return	85.26%	48.07%
Total students	95	441

Note: Significant at .05

In Table 101, the low GPA students who renewed aid received grants equal to or greater than the amount they received as freshmen. If the grant was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 101 shows that, of the 95 students who renewed their grant, 85.26 % returned for their sophomore year. Of the 441 low GPA students whose grant was eliminated or reduced, 48.07% returned for their sophomore year

The difference in retention between students whose grant was eliminated or reduced and those who renewed is statistically significant at the established threshold of

.05. For Table 101, chi-square has a value of 43.62 with one degree of freedom. The value of gamma, or the strength of relationship, is -.72.

Data for 599 high SAT students who received grants in their 1st year at TCU are presented in Table 102. The relationship between students who received renewed or reduced grants and those returning and not returning for the sophomore year is illustrated.

Table 102

Sophomore Retention For High SAT Students Who Received Grants in 1st Year, Showing Relationship Between Reduction in Grants and Retention

	Renewed aid	Reduced aid
Did not return	8.60%	35.19%
Did return	91.40%	64.81%
Total students	221	378

Note: Significant at .05

In Table 102, the high SAT students who renewed aid received grants equal to or greater than the amount they received as freshmen. If the grant was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 102 shows that, of the 221 students who renewed their grants, 91.40% returned for their sophomore year. Of the 378 students whose grant was eliminated or reduced, 64.81% returned for their sophomore year

The difference in retention between students whose grant was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 102, chi-square has a value of 52.06 with one degree of freedom. The value of gamma, or the strength of relationship, is -.71.

Data for 565 low SAT students who received grants in their 1st year at TCU are presented in Table 103. The relationship between students who received renewed or reduced grants and those returning and not returning for the sophomore year is illustrated.

Table 103

Sophomore Retention For Low SAT Students Who Received Grants in 1st Year, Showing Relationship Between Reduction in Grants and Retention

	Renewed aid	Reduced aid
Did not return	10.17%	43.81%
Did return	89.83%	56.19%
Total students	177	388

Note: Significant at .05

In Table 103, the low SAT students who renewed aid received grants equal to or greater than the amount they received as freshmen. If the grant was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 103 shows that, of the 177 students who

renewed their grants, 89.83 % returned for their sophomore year. Of the 388 students whose grant was eliminated or reduced, 56.19% returned for their sophomore year

The difference in retention between students whose grant was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 103, chi-square has a value of 61.97 with one degree of freedom. The value of gamma, or the strength of relationship, is -.75.

Research Question 5. The fifth research question asked whether renewal or reduction of activity awards relate to retention. The narration for Tables 104-113 reviews the results of this question.

Data for 390 students who received activity awards in their 1st year at TCU are presented in Table 104. The relationship between students who received renewed or reduced activity awards and those returning and not returning for the sophomore year is illustrated.

Table 104

Sophomore Retention For Students Who Received Activity Awards in 1st Year, Showing Relationship Between Reduction in Activity Awards and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	8.98%	42.07%
Did return	91.02%	57.93%
Total students	245	145

Note: Significant at .05

In Table 104, the students who renewed aid received activity awards equal to or greater than the amount they received as freshmen. If the activity award was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 104 shows that, of the 245 students who renewed their activity award, 91.02 % returned for their sophomore year. Of the 145 students whose activity award was eliminated or reduced, 57.93% returned for their sophomore year

The difference in retention between students whose activity award was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 104, chi-square has a value of 59.53 with one degree of freedom. The value of gamma, or the strength of relationship, is -.76.

Data for 203 male students who received activity awards in their 1st year at TCU are presented in Table 105. The relationship between students who received renewed or reduced activity awards and those returning and not returning for the sophomore year is illustrated.

Table 105

Sophomore Retention For Students Who Received Activity Awards in 1st Year, Showing Relationship Between Reduction in Activity Awards and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	8.47%	40.00%
Did return	91.53%	60.00%
Total students	118	85

Note: Significant at .05

In Table 105, the students who renewed aid received activity awards equal to or greater than the amount they received as freshmen. If the activity award was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 105 shows that, of the 118 male students who renewed their activity award, 91.53% returned for their sophomore year. Of the 85 male students whose activity award was eliminated or reduced, 60.00% returned for their sophomore year

The difference in retention between students whose activity award was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 105, chi-square has a value of 28.93 with one degree of freedom. The value of gamma, or the strength of relationship, is -.76.

Data for 187 female students who received activity awards in their 1st year at TCU are presented in Table 106. The relationship between students who received

renewed or reduced activity awards and those returning and not returning for the sophomore year is illustrated.

Table 106

Sophomore Retention For Female Students Who Received Activity Awards in 1st Year Showing Relationship Between Reduction in Activity Awards and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	9.45%	45.00%
Did return	90.55%	55.00%
Total students	127	60

Note: Significant at .05

In Table 106, the students who renewed aid received activity awards equal to or greater than the amount they received as freshmen. If the activity award was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 106 shows that, of the 127 female students who renewed their activity award, 90.55% returned for their sophomore year. Of the 60 female students whose activity award was eliminated or reduced, 55.00% returned for their sophomore year

The difference in retention between students whose activity award was eliminated or reduced and those who renewed is statistically significant at the established threshold

of .05. For Table 106, chi-square has a value of 31.20 with one degree of freedom. The value of gamma, or the strength of relationship, is -.77.

Data for 49 African American students who received activity awards in their 1st year at TCU are presented in Table 107. The relationship between students who received renewed or reduced activity awards and those returning and not returning for the sophomore year is illustrated.

Table 107

Sophomore Retention For African American Students Who Received Activity Awards in 1st Year, Showing Relationship Between Reduction in Activity Awards and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	3.45%	40.00%
Did return	96.55%	60.00%
Total students	29	20

Note: Significant at .05

In Table 107, the students who renewed aid received activity awards equal to or greater than the amount they received as freshmen. If the activity award was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 107 shows that, of the 29 students who renewed their activity award, 96.55% returned for their sophomore year. Of the 20

students whose activity award was eliminated or reduced, 60.00% returned for their sophomore year

The difference in retention between students whose activity award was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 107, the continuity adjusted chi-square has a value of 8.25 with one degree of freedom. The value of gamma, or the strength of relationship, is -.90.

Data for 20 Hispanic students who received activity awards in their 1st year at TCU are presented in Table 108. The relationship between students who received renewed or reduced activity awards and those returning and not returning for the sophomore year is illustrated.

Table 108

Sophomore Retention For Hispanic Students Who Received Activity Awards in 1st Year Showing Relationship Between Reduction in Activity Awards and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	0.00%	37.50%
Did return	100.00%	62.50%
Total students	12	8

In Table 108, the Hispanic students who renewed aid received activity awards equal to or greater than the amount they received as freshmen. If the activity award was

reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 108 shows that, of the 12 students who renewed their activity award, 100.00% returned for their sophomore year. Of the 8 Hispanic students whose activity award was eliminated or reduced, 62.50% returned for their sophomore year

The difference in retention between students whose activity award was eliminated or reduced and those who renewed is statistically insignificant at the established threshold of .05. For Table 108, the continuity adjusted chi-square has a value of 2.76 with one degree of freedom. The value of gamma, or the strength of relationship, is -1.00.

Data for 307 Anglo students who received activity awards in their 1st year at TCU are presented in Table 109. The relationship between students who received renewed or reduced activity awards and those returning and not returning for the sophomore year is illustrated.

Table 109

Sophomore Retention For Anglo Students Who Received Activity Awards in 1st Year Showing Relationship Between Reduction in Activity Awards and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	9.64%	41.82%
Did return	90.36%	58.18%
Total students	197	110

Note: Significant at .05

In Table 109, the Anglo students who renewed aid received activity awards equal to or greater than the amount they received as freshmen. If the activity award was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 109 shows that, of the 197 students who renewed their activity awards, 90.36% returned for their sophomore year. Of the 110 Anglo students whose activity award was eliminated or reduced, 58.18% returned for their sophomore year

The difference in retention between students whose activity award was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 109, chi-square has a value of 43.78 with one degree of freedom. The value of gamma, or the strength of relationship, is -.74.

Data for 177 high GPA students who received activity awards in their 1st year at TCU are presented in Table 110. The relationship between students who received renewed or reduced activity awards and those returning and not returning for the sophomore year is illustrated.

Table 110

Sophomore Retention For High GPA Students Who Received Activity Awards in 1st Year Showing Relationship Between Reduction in Activity Awards and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	6.67%	26.19%
Did return	93.33%	73.81%
Total students	135	42

Note: Significant at .05

In Table 110, the high GPA students who renewed aid received activity awards equal to or greater than the amount they received as freshmen. If the activity award was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 110 shows that, of the 135 students who renewed their activity award, 93.33% returned for their sophomore year. Of the 42 high GPA students whose activity award was eliminated or reduced, 73.81% returned for their sophomore year

The difference in retention between students whose activity award was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 110, the continuity adjusted chi-square has a value of 10.31 with one degree of freedom. The value of gamma, or the strength of relationship, is -.67.

Data for 213 low GPA students who received activity awards in their 1st year at TCU are presented in Table 111. The relationship between students who received renewed or reduced activity awards and those returning and not returning for the sophomore year is illustrated.

Table 111

Sophomore Retention For Low GPA Students Who Received Activity Awards in 1st Year Showing Relationship Between Reduction in Activity Awards and Retention

	Renewed aid	Reduced aid
Did not return	11.82%	48.54%
Did return	88.18%	51.46%
Total students	110	103

Note: Significant at .05

In Table 111, the low GPA students who renewed aid received activity awards equal to or greater than the amount they received as freshmen. If the activity award was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 111 shows that, of the 110 students who renewed their activity award, 88.18 % returned for their sophomore year. Of the 103 low GPA students whose activity award was eliminated or reduced, 51.46% returned for their sophomore year

The difference in retention between students whose activity award was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 111, chi-square has a value of 34.44 with one degree of freedom. The value of gamma, or the strength of relationship, is -.75.

Data for 160 high SAT students who received activity awards in their 1st year at TCU are presented in Table 112. The relationship between students who received renewed or reduced activity awards and those returning and not returning for the sophomore year is illustrated.

Table 112

Sophomore Retention For High SAT Students Who Received Activity Awards in 1st Year Showing Relationship Between Reduction in Activity Awards and Retention

	Renewed aid	Reduced aid
Did not return	13.00%	41.67%
Did return	87.00%	58.33%
Total students	100	60

Note: Significant at .05

In Table 112, the high SAT students who renewed aid received activity awards equal to or greater than the amount they received as freshmen. If the activity award was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 112 shows that, of the

100 students who renewed their activity awards, 87.00% returned for their sophomore year. Of the 60 students whose activity award was eliminated or reduced, 58.33% returned for their sophomore year

The difference in retention between students whose activity award was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 112, chi-square has a value of 17.01 with one degree of freedom. The value of gamma, or the strength of relationship, is -.65.

Data for 230 low SAT students who received activity awards in their 1st year at TCU are presented in Table 113. The relationship between students who received renewed or reduced activity awards and those returning and not returning for the sophomore year is illustrated.

Table 113

Sophomore Retention For Low SAT Students Who Received Activity Awards in 1st Year Showing Relationship Between Reduction in Activity Awards and Retention

	Renewed aid	Reduced aid
Did not return	6.21%	42.35%
Did return	93.79%	57.65%
Total students	145	85

Note: Significant at .05

In Table 113, the low SAT students who renewed aid received activity awards equal to or greater than the amount they received as freshmen. If the activity award was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 113 shows that, of the 145 students who renewed their activity award, 93.79% returned for their sophomore year. Of the 85 students whose activity award was eliminated or reduced, 57.65% returned for their sophomore year

The difference in retention between students whose activity award was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 113, chi-square has a value of 44.49 with one degree of freedom. The value of gamma, or the strength of relationship, is -.84.

Research Question 6. The sixth research question asked whether renewal or reduction of entitlement awards relates to retention. The narration for Tables 114-123 reviews the results of this question.

Data for 138 students who received entitlements in their 1st year at TCU are presented in Table 114. The relationship between students who received renewed or reduced entitlements and those returning and not returning for the sophomore year is illustrated.

Table 114

Sophomore Retention For Students Who Received Entitlements in 1st Year, Showing Relationship Between Reduction in Entitlements and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	3.80%	33.90%
Did return	96.20%	66.10%
Total students	79	59

Note: Significant at .05

In Table 114, the students who renewed aid received entitlements equal to or greater than the amount they received as freshmen. If the entitlement was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 114 shows that, of the 79 students who renewed their entitlement, 96.20% returned for their sophomore year. Of the 59 students whose entitlement was eliminated or reduced, 66.10% returned for their sophomore year

The difference in retention between students whose entitlement was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 114, chi-square has a value of 22.03 with one degree of freedom. The value of gamma, or the strength of relationship, is -.86.

Data for 54 male students who received entitlements in their 1st year at TCU are presented in Table 115. The relationship between students who received renewed or

reduced entitlements and those returning and not returning for the sophomore year is illustrated.

Table 115

Sophomore Retention For Students Who Received Entitlements in 1st Year, Showing Relationship Between Reduction in Entitlements and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	3.13%	31.82%
Did return	96.88%	68.18%
Total students	32	22

Note: Significant at .05

In Table 115, the students who renewed aid received entitlements equal to or greater than the amount they received as freshmen. If the entitlement was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 115 shows that, of the 32 male students who renewed their entitlement, 96.88% returned for their sophomore year. Of the 22 male students whose entitlement was eliminated or reduced, 68.18% returned for their sophomore year

The difference in retention between students whose entitlement was eliminated or reduced and those who renewed is statistically significant at the established threshold of

.05. For Table 115, the continuity-adjusted chi-square has a value of 6.38 with one degree of freedom. The value of gamma, or the strength of relationship, is -.87.

Data for 84 female students who received entitlements in their 1st year at TCU are presented in Table 116. The relationship between female students who received renewed or reduced entitlements and those returning and not returning for the sophomore year is illustrated.

Table 116

Sophomore Retention For Female Students Who Received Entitlements in 1st Year Showing Relationship Between Reduction in Entitlements and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	4.26%	35.14%
Did return	95.74%	64.86%
Total students	47	37

Note: Significant at .05

In Table 116, the students who renewed aid received entitlements equal to or greater than the amount they received as freshmen. If the entitlement was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 116 shows that, of the 47 female students who renewed their entitlements, 95.74% returned for their sophomore year. Of the 37 female students whose entitlement was eliminated or reduced, 64.86% returned for their sophomore year

The difference in retention between students whose entitlement was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 116, chi-square has a value of 13.46 with one degree of freedom. The value of gamma, or the strength of relationship, is -.85.

Data for 2 African American students who received entitlements in their 1st year at TCU are presented in Table 117. The relationship between students who received renewed or reduced entitlements and those returning and not returning for the sophomore year is illustrated.

Table 117

Sophomore Retention For African American Students Who Received Entitlements in 1st Year Showing Relationship Between Reduction in Entitlements and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	0.00%	100.00%
Did return	100.00%	00.00%
Total students	1	one

In Table 117, only 2 students were represented. This number is simply too small to measure. Therefore, no assumption of significance or insignificance can be determined.

Data for 5 Hispanic students who received entitlements in their 1st year at TCU are presented in Table 118. The relationship between students who received renewed or reduced entitlements and those returning and not returning for the sophomore year is illustrated.

Table 118

Sophomore Retention For Hispanic Students Who Received Entitlements in 1st Year, Showing Relationship Between Reduction in Entitlements and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	0.00%	66.67%
Did return	100.00%	33.33%
Total students	2	three

In Table 118, only 5 students were represented. This number is too small to measure. Therefore, no assumption of significance or insignificance can be determined.

Data for 127 Anglo students who received entitlements in their 1st year at TCU are presented in Table 119. The relationship between students who received renewed or

reduced entitlements and those returning and not returning for the sophomore year is illustrated.

Table 119

Sophomore Retention For Anglo Students Who Received Entitlements in 1st Year Showing Relationship Between Reduction in Entitlements and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	4.00%	30.77%
Did return	96.00%	69.23%
Total students	75	52

Note: Significant at .05

In Table 119, the Anglo students who renewed aid received entitlements equal to or greater than the amount they received as freshmen. If the entitlement was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 119 shows that, of the 75 students who renewed their entitlements, 96.00% returned for their sophomore year. Of the 52 Anglo students whose entitlement was eliminated or reduced, 69.23% returned for their sophomore year

The difference in retention between students whose entitlement was eliminated or reduced and those who renewed is statistically significant at the established threshold of

.05. For Table 119, chi-square has a value of 17.30 with one degree of freedom. The value of gamma, or the strength of relationship, is -.83.

Data for 69 high GPA students who received entitlements in their 1st year at TCU are presented in Table 120. The relationship between students who received renewed or reduced entitlements and those returning and not returning for the sophomore year is illustrated.

Table 120

Sophomore Retention For High GPA Students Who Received Entitlements in 1st Year Showing Relationship Between Reduction in Entitlements and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	0.00%	10.00%
Did return	100.00%	90.00%
Total students	49	20

In Table 120, the high GPA students who renewed aid received entitlements equal to or greater than the amount they received as freshmen. If the entitlement was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 120 shows that, of the 49 students who renewed their entitlement, 100% returned for their sophomore year. Of the

20 high GPA students whose entitlement was eliminated or reduced, 90.00% returned for their sophomore year

The difference in retention between students whose entitlement was eliminated or reduced and those who renewed is statistically insignificant at the established threshold of .05. For Table 120, the continuity-adjusted chi-square has a value of 2.19 with one degree of freedom. The value of gamma, or the strength of relationship, is -1.00.

Data for 69 low GPA students who received entitlements in their 1st year at TCU are presented in Table 121. The relationship between students who received renewed or reduced entitlements and those returning and not returning for the sophomore year is illustrated.

Table 121

Sophomore Retention For Low GPA Students Who Received Entitlements in 1st Year Showing Relationship Between Reduction in Entitlements and Retention

	Renewed aid	Reduced aid
Did not return	10.00%	46.15%
Did return	90.00%	53.85%
Total students	30	39

Note: Significant at .05

In Table 121, the low GPA students who renewed aid received entitlements equal to or greater than the amount they received as freshmen. If the entitlement was reduced,

the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 121 shows that, of the 30 students who renewed their entitlement, 90.00 % returned for their sophomore year. Of the 39 low GPA students whose entitlement was eliminated or reduced, 53.85% returned for their sophomore year

The difference in retention between students whose entitlement was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 121, chi-square has a value of 10.47 with one degree of freedom. The value of gamma, or the strength of relationship, is -.77.

Data for 59 high SAT students who received entitlement awards in their 1st year at TCU are presented in Table 122. The relationship between students who received renewed or reduced entitlement awards and those returning and not returning for the sophomore year is illustrated.

Table 122

Sophomore Retention For High SAT Students Who Received Entitlement Awards in 1st Year Showing Relationship Between Reduction in Entitlement Awards and Retention

	Renewed aid	Reduced aid
Did not return	2.78%	30.43%
Did return	97.22%	69.57%
Total students	36	23

Note: Significant at .05

In Table 122, the high SAT students who renewed aid received entitlement awards equal to or greater than the amount they received as freshmen. If the entitlement award was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 122 shows that, of the 36 students who renewed their entitlement awards, 97.22% returned for their sophomore year. Of the 23 students whose entitlement award was eliminated or reduced, 69.57% returned for their sophomore year

The difference in retention between students whose entitlement award was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 122, chi-square has a value of 9.16 with one degree of freedom. The value of gamma, or the strength of relationship, is -.88.

Data for 79 low SAT students who received entitlement awards in their 1st year at TCU are presented in Table 123. The relationship between students who received renewed or reduced entitlement awards and those returning and not returning for the sophomore year is illustrated.

Table 123

Sophomore Retention For Low SAT Students Who Received Entitlement Awards in 1st Year Showing Relationship Between Reduction in Entitlement Awards and Retention

	Renewed aid	Reduced aid
Did not return	4.65%	36.11%
Did return	95.35%	63.89%
Total students	43	36

Note: Significant at .05

In Table 123, the low SAT students who renewed aid received entitlement awards equal to or greater than the amount they received as freshmen. If the entitlement was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 123 shows that, of the 43 students who renewed their entitlement award, 95.35% returned for their sophomore year. Of the 36 students whose entitlement award was eliminated or reduced, 63.89% returned for their sophomore year

The difference in retention between students whose entitlement award was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 123, chi-square has a value of 12.61 with one degree of freedom. The value of gamma, or the strength of relationship, is -.84.

Research Question 7. The seventh research question asked whether renewal or reduction of loans relate to retention. The narration for Tables 124-133 reviews the results of this question.

Data for 983 students who received loans in their 1st year at TCU are presented in Table 124. The relationship between students who received renewed or reduced loans and those returning and not returning for the sophomore year is illustrated.

Table 124

Sophomore Retention For Students Who Received Loans in 1st Year, Showing Relationship Between Reduction in Loans and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	1.90%	47.48%
Did return	98.10%	52.52%
Total students	368	615

Note: Significant at .05

In Table 124, the students who renewed aid received loans equal to or greater than the amount they received as freshmen. If the loan was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 124 shows that, of the 368 students who renewed their loans, 98.10% returned for their sophomore year. Of the 615 students whose loan was eliminated or reduced, 52.52% returned for their sophomore year

The difference in retention between students whose loan was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 124, chi-square has a value of 225.97 with one degree of freedom. The value of gamma, or the strength of relationship, is -.96.

Data for 397 male students who received loans in their 1st year at TCU are presented in Table 125. The relationship between male students who received renewed or reduced loans and those returning and not returning for the sophomore year is illustrated.

Table 125

Sophomore Retention For Male Students Who Received Loans in 1st Year, Showing Relationship Between Reduction in Loans and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	.71%	47.08%
Did return	99.29%	52.92%
Total students	140	257

Note: Significant at .05

In Table 125, the students who renewed aid received loans equal to or greater than the amount they received as freshmen. If the loan was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 125 shows that, of the 140 male students who

renewed their loans, 99.29% returned for their sophomore year. Of the 257 students whose loan was eliminated or reduced, 52.92% returned for their sophomore year

The difference in retention between male students whose loan was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 125, chi-square has a value of 91.54 with one degree of freedom. The value of gamma, or the strength of relationship, is -.98.

Data for 586 female students who received loans in their 1st year at TCU are presented in Table 126. The relationship between female students who received renewed or reduced loans and those returning and not returning for the sophomore year is illustrated.

Table 126

Sophomore Retention For Female Students Who Received Loans in 1st Year, Showing Relationship Between Reduction in Loans and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	2.63%	47.77%
Did return	97.37%	52.23%
Total students	228	358

Note: Significant at .05

In Table 126, the students who renewed aid received loans equal to or greater than the amount they received as freshmen. If the loan was reduced, the amount student

received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 126 shows that, of the 228 female students who renewed their loans , 97.37% returned for their sophomore year. Of the 358 female students whose loan was eliminated or reduced, 52.23% returned for their sophomore year

The difference in retention between students whose loan was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 126, chi-square has a value of 134.59 with one degree of freedom. The value of gamma, or the strength of relationship, is -.94.

Data for 65 African American students who received loans in their 1st year at TCU are presented in Table 127. The relationship between students who received renewed or reduced loans and those returning and not returning for the sophomore year is illustrated.

Table 127

Sophomore Retention For African American Students Who Received Loans in 1st Year Showing Relationship Between Reduction in Loans and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	0.00%	51.16%
Did return	100.00%	48.84%
Total students	22	43

Note: Significant at .05

In Table 127, the students who renewed aid received loans equal to or greater than the amount they received as freshmen. If the loan was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 127 shows that, of the 22 students who renewed their loan, 100.00% returned for their sophomore year. Of the 43 students whose loan was eliminated or reduced, 48.84% returned for their sophomore year

The difference in retention between students whose loan was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 127, chi-square has a value of 17.02 with one degree of freedom. The value of gamma, or the strength of relationship, is -1.00.

Data for 90 Hispanic students who received loans in their 1st year at TCU are presented in Table 128. The relationship between students who received renewed or reduced loans and those returning and not returning for the sophomore year is illustrated.

Table 128

Sophomore Retention For Hispanic Students Who Received Loans in 1st Year, Showing Relationship Between Reduction in Loans and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	0.00%	58.73%
Did return	100.00%	41.27%
Total students	27	63

Note: Significant at .05

In Table 128, the Hispanic students who renewed aid received loans equal to or greater than the amount they received as freshmen. If the loan was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 128 shows that, of the 27 students who renewed their loans, 100.00% returned for their sophomore year. Of the 63 Hispanic students whose loan was eliminated or reduced, 41.27% returned for their sophomore year

The difference in retention between students whose loan was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 128, chi-square has a value of 26.93 with one degree of freedom. The value of gamma, or the strength of relationship, is -1.00.

Data for 798 Anglo students who received loans in their 1st year at TCU are presented in Table 129. The relationship between students who received renewed or reduced loans and those returning and not returning for the sophomore year is illustrated.

Table 129

Sophomore Retention For Anglo Students Who Received Loans in 1st Year, Showing Relationship Between Reduction in Loans and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	2.29%	46.14%
Did return	97.71%	53.86%
Total students	306	492

Note: Significant at .05

In Table 129, the Anglo students who renewed aid received loans equal to or greater than the amount they received as freshmen. If the loan was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 129 shows that, of the 306 students who renewed their loan, 97.71% returned for their sophomore year. Of the 492 Anglo students whose loan was eliminated or reduced, 53.86% returned for their sophomore year

The difference in retention between students whose loan was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 129, chi-square has a value of 175.04 with one degree of freedom. The value of gamma, or the strength of relationship, is -.95.

Data for 516 high GPA students who received loans in their 1st year at TCU are presented in Table 130. The relationship between students who received renewed or reduced loans and those returning and not returning for the sophomore year is illustrated.

Table 130

Sophomore Retention For High GPA Students Who Received Loans in 1st Year, Showing Relationship Between Reduction in Loans and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	1.23%	29.04%
Did return	98.77%	70.96%
Total students	244	272

Note: Significant at .05

In Table 130, the high GPA students who renewed aid received loans equal to or greater than the amount they received as freshmen. If the loan was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 130 shows that, of the 244 students who renewed their loan, 98.77% returned for their sophomore year. Of the 272 high GPA students whose loan was eliminated or reduced, 70.96% returned for their sophomore year

The difference in retention between students whose loan was eliminated or reduced and those who renewed is statistically significant at the established threshold of

.05. For Table 130, chi-square has a value of 74.45 with one degree of freedom. The value of gamma, or the strength of relationship, is -.94.

Data for 467 low GPA students who received loans in their 1st year at TCU are presented in Table 131. The relationship between students who received renewed or reduced loans and those returning and not returning for the sophomore year is illustrated.

Table 131

Sophomore Retention For Low GPA Students Who Received Loans in 1st Year, Showing Relationship Between Reduction in Loans and Retention

	Renewed aid	Reduced aid
Did not return	3.23%	62.10%
Did return	96.77%	37.90%
Total students	124	343

Note: Significant at .05

In Table 131, the low GPA students who renewed aid received loans equal to or greater than the amount they received as freshmen. If the loan was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 131 shows that, of the 124 students who renewed their loan, 96.77% returned for their sophomore year. Of the 343 low GPA students whose loan was eliminated or reduced, 37.90% returned for their sophomore year

The difference in retention between students whose loan was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 131, chi-square has a value of 126.90 with one degree of freedom. The value of gamma, or the strength of relationship, is -.96.

Data for 500 high SAT students who received loans in their 1st year at TCU are presented in Table 132. The relationship between students who received renewed or reduced loans and those returning and not returning for the sophomore year is illustrated.

Table 132

Sophomore Retention For High SAT Students Who Received Loans in 1st Year, Showing Relationship Between Reduction in Loans and Retention

	Renewed aid	Reduced aid
Did not return	0.99%	44.30%
Did return	99.01%	55.70%
Total students	202	298

Note: Significant at .05

In Table 132, the high SAT students who renewed aid received loans equal to or greater than the amount they received as freshmen. If the loan was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 132 shows that, of the 202 students who

renewed their loans 99.01% returned for their sophomore year. Of the 298 students whose loan was eliminated or reduced, 55.70% returned for their sophomore year

The difference in retention between students whose loan was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 132, chi-square has a value of 115.09 with one degree of freedom. The value of gamma, or the strength of relationship, is -.98.

Data for 483 low SAT students who received loans in their 1st year at TCU are presented in Table 133. The relationship between students who received renewed or reduced loans and those returning and not returning for the sophomore year is illustrated.

Table 133

Sophomore Retention For Low SAT Students Who Received Loans in 1st Year, Showing Relationship Between Reduction in Loans and Retention

	Renewed aid	Reduced aid
Did not return	3.01%	50.47%
Did return	96.99%	49.53%
Total students	166	317

Note: Significant at .05

In Table 133, the low SAT students who renewed aid received loans equal to or greater than the amount they received s freshmen. If the loan was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 133 shows that, of the 166 students who

renewed their loans, 96.99% returned for their sophomore year. Of the 317 students whose loan was eliminated or reduced, 49.53% returned for their sophomore year

The difference in retention between students whose loan was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 133, chi-square has a value of 109.12 with one degree of freedom. The value of gamma, or the strength of relationship, is -.94.

Research Question 8. The eighth research question asks whether renewal or reduction of any combination of financial assistance (scholarship, grants, activity awards, entitlement awards, student employment, loans) relates to retention. The narration for Tables 134-143 reviews the results of this question.

Data for 2,116 students who received financial aid in their 1st year at TCU are presented in Table 134. The relationship between students who received renewed or reduced financial aid and those returning and not returning for the sophomore year is illustrated.

Table 134

Sophomore Retention For Students Who Received Financial Aid in 1st Year, Showing Relationship Between Reduction in Financial Aid and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	6.22%	37.26%
Did return	93.78%	62.74%
Total students	884	1,232

Note: Significant at .05

In Table 134, the students who renewed aid received financial aid equal to or greater than the amount they received as freshmen. If the financial aid was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 134 shows that, of the 884 students who renewed their financial aid, 93.78 % returned for their sophomore year. Of the 1,232 students whose financial aid was eliminated or reduced, 62.74% returned for their sophomore year

The difference in retention between students whose financial aid was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 134, chi-square has a value of 269.56 with one degree of freedom. The value of gamma, or the strength of relationship, is -.80.

Data for 857 male students who received financial aid in their 1st year at TCU are presented in Table 135. The relationship between students who received renewed or

reduced financial aid and those returning and not returning for the sophomore year is illustrated.

Table 135

Sophomore Retention For Male Students Who Received Financial Aid in 1st Year Showing Relationship Between Reduction in Financial Aid and Retention in the 2nd Year

	Renewed aid	Reduced aid
Did not return	6.74%	34.93%
Did return	93.26%	65.07%
Total students	356	501

Note: Significant at .05

In Table 135, the students who renewed aid received financial aid equal to or greater than the amount they received as freshmen. If the financial aid was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 135 shows that, of the 356 male students who renewed their financial aid, 93.26% returned for their sophomore year. Of the 501 male students whose financial aid was eliminated or reduced, 65.07% returned for their sophomore year

The difference in retention between students whose financial aid was eliminated or reduced and those who renewed is statistically significant at the established threshold

of .05. For Table 135, chi-square has a value of 92.76 with one degree of freedom. The value of gamma, or the strength of relationship, is -.76.

Data for 1,259 female students who received financial aid in their 1st year at TCU are presented in Table 136. The relationship between female students who received renewed or reduced financial aid and those returning and not returning for the sophomore year is illustrated.

Table 136

Sophomore Retention For Female Students Who Received Financial Aid in 1st Year Showing Relationship Between Reduction in Financial Aid and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	5.87%	38.85%
Did return	94.13%	61.15%
Total students	528	731

Note: Significant at .05

In Table 136, the students who renewed aid received financial aid equal to or greater than the amount they received as freshmen. If the financial aid was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 136 shows that, of the 528 female students who renewed their financial aid, 94.13% returned for their sophomore year. Of

the 731 female students whose financial aid was eliminated or reduced, 61.15% returned for their sophomore year

The difference in retention between students whose financial aid was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 136, chi-square has a value of 177.74 with one degree of freedom. The value of gamma, or the strength of relationship, is -.82.

Data for 113 African American students who received financial aid in their 1st year at TCU are presented in Table 137. The relationship between students who received renewed or reduced financial aid and those returning and not returning for the sophomore year is illustrated.

Table 137

Sophomore Retention For African American Students Who Received Financial Aid in 1st Year Showing Relationship Between Reduction in Financial Aid and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	00.00%	39.71%
Did return	100.00%	60.29%
Total students	45	68

Note: Significant at .05

In Table 137, the students who renewed aid received financial aid equal to or greater than the amount they received as freshmen. If the financial aid was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 137 shows that, of the 45 students who renewed their financial aid, 100.00% returned for their sophomore year. Of the 68 students whose financial aid was eliminated or reduced, 60.29% returned for their sophomore year

The difference in retention between students whose financial aid was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 137, chi-square has a value of 23.48 with one degree of freedom. The value of gamma, or the strength of relationship, is -1.00.

Data for 143 Hispanic students who received financial aid in their 1st year at TCU are presented in Table 138. The relationship between students who received renewed or reduced financial aid and those returning and not returning for the sophomore year is illustrated.

Table 138

Sophomore Retention For Hispanic Students Who Received Financial Aid in 1st Year Showing Relationship Between Reduction in Financial Aid and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	3.77%	52.22%
Did return	96.23%	47.78%
Total students	53	90

Note: Significant at .05

In Table 138, the Hispanic students who renewed aid received financial aid equal to or greater than the amount they received as freshmen. If the financial aid was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 138 shows that, of the 53 students who renewed their financial aid, 96.23% returned for their sophomore year. Of the 90 Hispanic students whose financial aid was eliminated or reduced, 47.78% returned for their sophomore year

The difference in retention between students whose financial aid was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 138, chi-square has a value 34.76 of with one degree of freedom. The value of gamma, or the strength of relationship, is -.93.

Data for 1786 Anglo students who received financial aid in their 1st year at TCU are presented in Table 139. The relationship between students who received renewed or

reduced financial aid and those returning and not returning for the sophomore year is illustrated.

Table 139

Sophomore Retention For Anglo Students Who Received Financial Aid in 1st Year Showing Relationship Between Reduction in Financial Aid and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	6.57%	35.51%
Did return	93.43%	64.49%
Total students	761	1025

Note: Significant at .05

In Table 139, the Anglo students who renewed aid received financial aid equal to or greater than the amount they received as freshmen. If the financial aid was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 139 shows that, of the 761 students who renewed their financial aid, 93.43% returned for their sophomore year. Of the 1025 Anglo students whose financial aid was eliminated or reduced, 64.49% returned for their sophomore year

The difference in retention between students whose financial aid was eliminated or reduced and those who renewed is statistically significant at the established threshold

of .05. For Table 139, chi-square has a value of 205.44 with one degree of freedom. The value of gamma, or the strength of relationship, is -.77

Data for 1,233 high GPA students whom financial aid received in their 1st year at TCU are presented in Table 140. The relationship between students who received renewed or reduced financial aid and those returning and not returning for the sophomore year.

Table 140

Sophomore Retention For High GPA Students Who Received Financial Aid in 1st Year Showing Relationship Between Reduction in Financial Aid and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	5.82%	21.61%
Did return	94.18%	78.39%
Total students	636	597

Note: Significant at .05

In Table 140, the high GPA students who renewed aid received financial aid equal to or greater than the amount they received as freshmen. If the financial aid was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 140 shows that, of the 636 students who renewed their financial aid, 94.18 % returned for their sophomore year. Of

the 597 high GPA students whose financial aid was eliminated or reduced, 78.39% returned for their sophomore year

The difference in retention between students whose financial aid was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 140, chi-square has a value of 65.90 with one degree of freedom. The value of gamma, or the strength of relationship, is -.63.

Data for 883 low GPA students who received financial aid in their 1st year at TCU are presented in Table 1. The relationship between students who received renewed or reduced financial aid and those returning and not returning for the sophomore year is illustrated.

Table 141

Sophomore Retention For Low GPA Students Who Received Financial Aid in 1st Year Showing Relationship Between Reduction in Financial Aid and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	7.26%	51.97%
Did return	92.74%	48.03%
Total students	248	635

Note: Significant at .05

In Table 141, the low GPA students who renewed aid received financial aid equal to or greater than the amount they received as freshmen. If the financial aid was reduced,

the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 141 shows that, of the 248 students who renewed their financial aid, 92.74% returned for their sophomore year. Of the 635 low GPA students whose financial aid was eliminated or reduced, 48.03% returned for their sophomore year

The difference in retention between students whose financial aid was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 141, chi-square has a value of 149.3 with one degree of freedom. The value of gamma, or the strength of relationship, is -.87.

Data for 1,213 high SAT students who received financial aid in their 1st year at TCU are presented in Table 142. The relationship between students who received renewed or reduced financial aid and those returning and not returning for the sophomore year is illustrated.

Table 142

Sophomore Retention For High SAT Students Who Received Financial Aid in 1st Year Showing Relationship Between Reduction in Financial Aid and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	7.24%	32.85%
Did return	92.76%	67.15%
Total students	525	688

Note: Significant at .05

In Table 142, the high SAT students who renewed aid received financial aid equal to or greater than the amount they received as freshmen. If the financial aid was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 142 shows that, of the 525 students who renewed their financial aid, 92.76% returned for their sophomore year. Of the 688 students whose financial aid was eliminated or reduced, 67.15% returned for their sophomore year

The difference in retention between students whose financial aid was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 142, chi-square has a value of 114.76 with one degree of freedom. The value of gamma, or the strength of relationship, is -.73.

Data for 903 low SAT students who received financial aid in their 1st year at TCU are presented in Table 143. The relationship between students who received renewed or reduced financial aid and those returning and not returning for the sophomore year is illustrated.

Table 143

Sophomore Retention For Low SAT Students Who Received Financial Aid in 1st Year Showing Relationship Between Reduction in Financial Aid and Retention in 2nd Year

	Renewed aid	Reduced aid
Did not return	4.74%	42.83%
Did return	95.26%	57.17%
Total students	359	544

Note: Significant at .05

In Table 143, the low SAT students who renewed aid received financial aid equal to or greater than the amount they received as freshmen. If the financial aid was reduced, the amount student received as a sophomore was less than the amount student received as a freshman. The amount received could be zero. Table 143 shows that, of the 359 students who renewed their financial aid, 95.26 % returned for their sophomore year. Of the 544 students whose financial aid was eliminated or reduced, 57.17 % returned for their sophomore year

The difference in retention between students whose financial aid was eliminated or reduced and those who renewed is statistically significant at the established threshold of .05. For Table 143, chi-square has a value of 156.77 with one degree of freedom. The value of gamma, or the strength of relationship, is -.88.

Results Not Reported

The original intention of this study was to review five categories of ethnicity, including African American, Anglo, Hispanic, Asian American, and Native American. An additional category of Other was also to be included. The categories of Asian American, Native American, and Other were not reported in this study. These three categories were not included based upon the number of eligible students. The first-time full-time entrants to TCU during the fall semesters 1989-91 who were included in this study numbered 3,392. The combined categories of African American, Anglo, and Hispanic totaled 3,297, or 91.3% of the population of the study. The remaining 95 first-time full-time students included 9 Native Americans, 60 Asian Americans, and 26 Other. No meaningful results were noted based on the small number of participants in each of the variable groupings (demographic, performance, and preparation).

Summary

This chapter contained a chi-square analysis of 3392 students who began as first time full time freshmen at Texas Christian University (TCU) in the fall of 1989, 1990, and 1991. There were certain members of each entering class who were excluded from the study. Students who entered as nonresident of the United States were excluded as were students who were defined as part time (registered for less than 12 semester hours). Both of these groups either are not eligible or have restricted eligibility for participation in a number of federal, state and institutional financial assistance programs. The subjects of the study for the three entering classes consisted of in 1989, in 1990, and in 1991

totaling 3392. The 3392 students were then tracked into their second or sophomore year to determine retention from the freshman to sophomore years.

Chi-square was used to determine if the distribution of data differed statistically significantly from what would be expected by chance. A level of significance of .05 was utilized to determine the strength of the relationship. Gamma was used as a measure of association. Gamma has a range of -1.00 to 1.00. For purposes of this study a negative (-) gamma indicates that retention is more likely to occur and a positive gamma indicates that retention is less likely to occur.

For purposes of this study 9 research questions were investigated. The following summarizes the results of this study by research question.

The first research question asked whether there is a statistically significant difference among students returning for their sophomore year between those receiving assistance (financial aid) and those who did not? A review of the data shows that the impact on retention is not statistically significant although the aid population is slightly more likely to return according to the value of gamma (-.03).

The second research question asked whether renewal or reduction of academic merit scholarships relate to retention? Eighty-eight percent of the 250 subjects who had their academic scholarship renewed returned for the sophomore year, while 75% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return statistically significant, but the gamma value of -.41 leads to a high level of predictability.

The third research question asked whether renewal or reduction of participation in university-operated student employment programs relate to retention? Nearly 94% of the 276 subjects who had their student employment renewed returned for the sophomore year, while 52% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return statistically significant, but the gamma value of -.87 leads to a very high level of predictability.

The fourth research question asked whether renewal or reduction of grants based on the family's economics relate to retention? Nearly 91% of the 398 subjects who had their grants renewed returned for the sophomore year, whereas 60% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return statistically significant, but the gamma value of -.73 leads to a very high level of predictability.

The fifth research question asked whether renewal or reduction of activity awards relate to retention? More than 91% of the 245 subjects who had their activity awards renewed returned for the sophomore year, whereas 58% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return statistically significant, but the gamma value of -.76 leads to a very high level of predictability.

The sixth research question asked whether renewal or reduction of entitlement awards relate to retention? More than 96% of the 79 subjects who had their entitlement awards renewed returned for the sophomore year, whereas 68% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return statistically significant, but the gamma value of -.86 leads to a very high level of predictability. However, in the subgroups, only Anglos and high-GPA students are statistically

significant. This is primarily due to the fact that of the 138 entitlement awardees, 127 of them were Anglos.

The seventh research question asked whether renewal or reduction of student loans relate to retention. More than 98% of the 368 subjects who had their loans renewed returned for the sophomore year, whereas 53% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return statistically significant, but the gamma value of -.96 leads to a very high level of predictability.

The eighth research question asked whether renewal or reduction of any combination of financial assistance (scholarship, student employment, grants, activity awards, entitlement awards, loan) relate to retention? According to the data, there is a statistically significant relationship between renewal of financial aid and returning for the sophomore year. Nearly 94% of the 884 subjects who had his/her aid renewed returned for the sophomore year, while 63% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return statistically significant, but the gamma value of -.80 leads to a very high level of predictability.

The ninth research question asked whether characteristics such as gender, ethnicity (demographic), GPA (performance), or SAT/ACT scores (preparation), altered the relationship between retention and financial aid? Again, the result for each is statistically significant.

There is a statistically significant relationship for all male students who renewed their financial aid. More than 93% of the 356 subjects who had their financial aid renewed returned for the sophomore year, whereas 65% of those whose aid was reduced

or eliminated returned. Not only is the likelihood of return statistically significant, but the gamma value of -.76 leads to a very high level of predictability.

There is a statistically significant relationship for all female students who renewed their financial aid. More than 94% of the 528 subjects who had their financial aid renewed returned for the sophomore year, whereas 61% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return statistically significant, but the gamma value of -.82 leads to a very high level of predictability.

There is a statistically significant relationship for all African American students who renewed their financial aid. One hundred percent of the 45 subjects who had their financial aid renewed returned for the sophomore year, whereas 60% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return statistically significant, but the gamma value of -1.00 leads to a very high level of predictability.

There is a statistically significant relationship for all Hispanic students who renewed their financial aid. More than 97% of the 53 subjects who had their financial aid renewed returned for the sophomore year, whereas 48% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return statistically significant, but the gamma value of -.93 leads to a very high level of predictability.

There is a statistically significant relationship for all Anglo students who renewed their financial aid. More than 93% of the 761 subjects who had their financial aid renewed returned for the sophomore year, whereas 64% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return statistically significant, but the gamma value of -.77 leads to a very high level of predictability.

There is a statistically significant relationship for all high-GPA students who renewed their financial aid. More than 94% of the 636 subjects who had their financial aid renewed returned for the sophomore year, whereas 78% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return statistically significant, but the gamma value of -.63 leads to a very high level of predictability.

There is a statistically significant relationship for all low-GPA students who renewed their financial aid. More than 93% of the 248 subjects who had their financial aid renewed returned for the sophomore year, whereas 48% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return statistically significant, but the gamma value of -.87 leads to a very high level of predictability.

There is a statistically significant relationship for all high-SAT students who renewed their financial aid. More than 92% of the 525 subjects who had their financial aid renewed returned for the sophomore year, whereas 67% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return statistically significant, but the gamma value of -.72 leads to a very high level of predictability.

There is a statistically significant relationship for all low-SAT students who renewed their financial aid. More than 95% of the 359 subjects who had their financial aid renewed returned for the sophomore year, whereas 57% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return statistically significant, but the gamma value of -.88 leads to a very high level of predictability.

CHAPTER 5

SUMMARY, DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purposes of this study were (a) to determine the overall persistence rate of freshman entrants to Texas Christian University (TCU) during the fall semesters 1989-1991 to the 2nd or sophomore year 1990-1992, (b) to determine the overall persistence rate from the freshman to sophomore years of those students receiving any form of financial aid during the same period by demographic (gender, ethnicity), performance (TCU GPA), and preparation (SAT/ACT), (c) to determine the relationship between those students who received renewed or reduced financial aid in the sophomore year and retention, (d) to determine if there is a relationship between demographic variables (gender, ethnicity), performance (TCU GPA), preparation (SAT/ACT), variables, and financial aid programs and retention. In order to fulfill the purposes of this study, data were extracted from the TCU Student Record System (SRS) and the Financial Aid Management System (FAMS) regarding first-time full-time enrolled students for the fall semester 1989-91 and the returning students for the 2nd year, 1990-92. The subjects of the study numbered 3,392 students, of which 810, or 23.88%, did not return for the sophomore year.

The data indicate that, for all students, neither the receipt nor nonreceipt of financial aid in the freshman year shows a significant impact on sophomore-year retention. However, an individualized examination of the six categories of aid does indicate both a positive and negative relationship for sophomore retention. Students who received grant, employment, and loans in their freshman year are significantly less likely to return to the university than students who did not receive these aid programs, whereas all students who received academic scholarships and entitlements are more likely to return than students who did not receive these types of aid. Students who received activity awards have a small but statistically insignificant likelihood of returning to the university.

The data indicate that neither the receipt nor nonreceipt of financial aid by gender in the freshman year shows a significant impact on sophomore retention. The same is true for activity awards and entitlement awards. Males are significantly more likely to return when they received academic scholarships and are significantly less likely to return when they received either grants or loans. Employment has a small but statistically insignificant association with returning for male students.

Females are significantly less likely not to return when they received grants, employment, or loans in the freshman year. Academic scholarship recipients have a small but statistically insignificant association with returning for female students.

The data indicate that neither the receipt nor nonreceipt of financial aid or activity awards in the freshman year shows a significant impact on sophomore retention for African American, Hispanic, and Anglo students. For African American and Hispanic

students, only loans have a significant impact and those who did receive loans as freshman are less likely to return. Anglo students are significantly more likely to return for the sophomore year if they received academic scholarships or entitlement awards as freshman. Anglo students are significantly less likely to return if they received grants or employment or loans.

The data indicate that high-GPA students are significantly more likely to return if they received an entitlement award as a freshman than if they did not. In addition, a gamma of -.69 indicates a high degree of predictability. Neither the receipt nor nonreceipt of financial aid, academic scholarships, grants, activity awards, employment, or loans shows a significant impact on sophomore retention for high-GPA students.

Low-GPA students who received activity awards are significantly more likely to return than those who did not. Students who received financial aid, scholarships, grants, student employment, or loans are significantly less likely to return than those who did not. Entitlement awards recipients and nonrecipients present nonsignificant findings, although the gamma indicates a tendency for recipients to return at a higher rate.

The date indicate that neither the receipt nor nonreceipt of financial aid, academic scholarships, activity awards, entitlements, or employment by high SAT has a significant impact on sophomore retention. The gamma values for financial aid, scholarships, or entitlement indicate a tendency to retain, while the gammas for activity awards and student employment show a tendency of nonretention. Students who received grants and loans are significantly less likely to return in their sophomore year than those who did not.

Low-SAT students who received financial aid, grants, activity awards, employment, or loans have retention patterns that are significantly different from those who did not receive aid. Low-SAT students who received financial aid, grants, employment, or loans are less likely to return than those who did not. Those students who received activity awards are more likely to return than those who did not. The findings for students receiving or not receiving scholarships or entitlements were not significant.

The data indicate that retention of all students who renewed aid is statistically significant over those who either did not renew or had their freshman to sophomore aid reduced.

The data indicate that retention of male and female students who renewed aid is statistically significant over those who either did not renew or had their freshman to sophomore aid reduced. This is true for recipients of financial aid, scholarships, grants, activity awards, entitlements, employment, or loans. In all categories of aid the student is more likely to return if his/her aid is renewed. The gamma values are consistently high, indicating a strong level of prediction.

The data indicate that retention of Anglo students who renewed aid is statistically significant over those who either did not renew or had their freshman to sophomore aid reduced. This is true for the recipients of financial aid, scholarships, grants, activity awards, entitlements, employment, or loans. In all categories of aid the student is more likely to return if his/her aid is renewed. The gamma values are consistently high, indicating a strong level of prediction. The findings support the same conclusion for Hispanic students except that entitlements are not significant although the gamma

tendency is strong for retention if renewed. The finding for African American students is not significant for either scholarships or entitlements although the gammas for each indicate a strong tendency for retention if aid is renewed.

The data indicate that retention of low-GPA students who renewed aid is statistically significant over those who either did not renew or had their freshman to sophomore aid reduced. This is true for recipients of financial aid, scholarships, grants, activity awards, entitlements, employment, or loans. In all categories of aid the student is more likely to return if his/her aid is renewed. The gamma values are consistently high, indicating a strong level of prediction. The findings support the same conclusions as for high-GPA students except for the renewal or nonrenewal of academic scholarships. This finding is insignificant although the tendency is to return if the scholarship is renewed according the value of gamma.

The data indicate that retention of high-SAT and low-SAT students who renewed aid is statistically significant over those who either did not renew or had their freshman to sophomore aid reduced. This is true for recipients of financial aid, scholarships, grants, activity awards, entitlement, employment, or loans. In all categories of aid the student is more likely to return if his/her aid is renewed. The gamma values are consistently high, indicating a strong level or prediction.

Discussion of Findings

This study developed and tested a model for examining the receipt of funding through a variety of financial aid programs and the retention of first-time full-time

freshman to 2nd-year students in a private university. Such a model is important to institutions of higher education for a variety of reasons. First, the model allows virtually all institutions to assess the use of financial aid on freshman to 2nd-year retention. The resulting information can be put to immediate use in setting policies for the distribution of aid in an attempt to increase the existing retention. Second, the model can be extended to review other impact points during the student's stay at the institution (2nd to 3rd years, 3rd to 4th years) in an attempt to positively change the institutional graduation rate through financial-aid-awarding policy changes. Third, if the research is widely conducted and published, it may be possible to positively impact a wide ranging number and types of institutional retention and graduation rates.

The first purpose of the study was to determine the overall persistence rate of freshman entrants to Texas Christian University (TCU) during the fall semesters 1989-1991 to the 2nd or sophomore year 1990-1992, According to information obtained from the TCU Registrar's Office, 2,582 of the 3,392 students who were the subjects of this study returned for the sophomore year. This amounted to a freshman to a sophomore retention rate of 76.12% over the 3-year period of the study. For each of the 3 years the retention rate was similar. The first-time full-time freshman who entered in 1989 returned at a rate of 76.06% in 1990. The 1990 first-time full-time freshman returned at a rate of 74.39%, and the 1991 cohort, at 77.82%. There were 810 students who did not return for the sophomore year. Of the 810, there were 390 first-time full-time students who did not complete the 1st year and were therefore not eligible to be considered for financial aid in the sophomore year. This was a much larger group than what would have

been expected. These individuals left the university either during or after the fall semester or during the spring semester. These individuals are included in the study and were not controlled for in any way. It was not determined how many, if any, of the 390 students participated in aid programs.

The second purpose of the study was to determine the overall persistence rate from the freshman to sophomore years of those students receiving any form of financial aid during the same period by demographic (gender, ethnicity), performance (TCU GPA), and preparation (SAT/ACT). According to the data, 2,116 of the 3,392 first-time full-time students received financial aid during their 1st year. Of the 2,116 first-time full-time freshman who received financial assistance of any type or combination, 514 did not return for the sophomore year, yielding a financial aid freshman year retention rate of 75.71%.

Again, 390 students did not complete the 1st year and were therefore ineligible to be considered for any type of assistance in the sophomore year. They left either during or after the fall semester or during the spring semester. These 390 individuals are included in the study and comprise a large percentage (48%) of the total nonreturn population, which numbered 810.

The first research question asked whether there is a significant difference among students returning for their sophomore year between those receiving assistance (financial aid) and those who did not. A review of the data shows that the impact on retention is not significant although the aid population is slightly more likely to return according to the value of gamma (-.03).

The third purpose of the study was to determine the relationship between those students who received renewed or reduced financial aid in the sophomore year and retention. The eighth research question asked whether renewal or reduction of any combination of financial assistance (scholarship, student employment, grants, activity awards, entitlement awards, loan) relate to retention. According to the data, there is a significant relationship between renewal of financial aid and returning for the sophomore year. Nearly 94% of the 884 subjects who had his/her aid renewed returned for the sophomore year, while 63% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return significant, but the gamma value of -.80 leads to a very high level of predictability.

The data indicate that the students who renewed aid were more likely to return than those whose aid was either eliminated or reduced. Research studies by Anliot (1989), Earl (1989), Grosset (1989), The Institute for Higher Education Policy (1995), Murdock (1989), Nora and Howath (1989), Odutola (1983), St. John (1989), Terkla (1985), and Weidman (1985) support the likelihood of return when aid is renewed. There is also a series of research studies that do not link financial aid with attrition. Included are studies by Baber and Caple (1970), Bayer (1968), DeBoer (1985), Fields and LeMay (1973), Jensen (1981), Moline (1987), Panos and Austin (1968), and Peng and Fetters (1978).

The answers to research questions 2-7 are also related to the third purpose of the study. The second research question asked whether renewal or reduction of academic merit scholarships relate to retention? Eighty-eight percent of the 250 subjects who had

their academic scholarship renewed returned for the sophomore year, while 75% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return significant, but the gamma value of -.41 leads to a high level of predictability.

The data indicate that the students who renewed academic scholarships were more likely to return than those whose aid was either eliminated or reduced. Research studies by Astin (1964), Kohen, Nestel, and Karnas (1978), St. John and Somers (1993), and Woodward (1988) support the likelihood that academic scholarships, if renewed, have a positive effect on retention. A study by Somers (1993) concluded that renewal of academic scholarships has no effect on whether or not a student returns.

The third research question asked whether renewal or reduction of participation in university-operated student employment programs relate to retention. Nearly 94% of the 276 subjects who had their student employment renewed returned for the sophomore year, while 52% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return significant, but the gamma value of -.87 leads to a very high level of predictability.

The data indicate that the students who renewed student employment were more likely to return than those whose aid was either eliminated or reduced. Research studies by Astin (1975), Herndon (1984), McKenzie (1981), Noel (1976), Roark (1982), Sexton (1965), and the University of Maryland (1988), support the likelihood that student employment, if renewed, has a positive effect on retention. No studies were found that concluded that renewal of student employment has no effect on whether or not a student returns.

The fourth research question asked whether renewal or reduction of grants based on the family's economics relate to retention. Nearly 91% of the 398 subjects who had their grants renewed returned for the sophomore year, whereas 60% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return significant, but the gamma value of -.73 leads to a very high level of predictability.

Research studies by Astin (1975), C. D. Carroll (1987a), D. Carroll (1987b), Fenske et al. (1979), Jackson and Weathersby (1975), Leslie and Brinkman (1988), Porter (1989), Schwartz (1985), and Voorhees (1985a) support the likelihood that grants, if renewed, have a positive effect on retention. No studies were found that concluded that renewal of grants has no effect on whether or not a student returns.

The fifth research question asked whether renewal or reduction of activity awards relate to retention. More than 91% of the 245 subjects who had their activity awards renewed returned for the sophomore year, whereas 58% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return significant, but the gamma value of -.76 leads to a very high level of predictability.

The sixth research question asked whether renewal or reduction of entitlement awards relate to retention. More than 96% of the 79 subjects who had their entitlement awards renewed returned for the sophomore year, whereas 68% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return significant, but the gamma value of -.86 leads to a very high level of predictability. However, in the subgroups, only Anglos and high-GPA students are significant. This is primarily due to the fact that of the 138 entitlement awardees, 127 of them were Anglos.

The seventh research question asked whether renewal or reduction of student loans relate to retention. More than 98% of the 368 subjects who had their loans renewed returned for the sophomore year, whereas 53% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return significant, but the gamma value of -.96 leads to a very high level of predictability.

Research studies by Leslie and Brinkman (1988) and Voorhees (1985a) support the likelihood that loans, if renewed, have a positive effect on retention. Research studies by Astin (1975), Hockstein and Butler (1983), and Jensen (1984) concluded that loans have a negative effect on retention.

There is a significant relationship for all students who renewed their academic scholarships, grants, activity awards, entitlements, student employment, and loans.

The fourth purpose of the study was to determine if there is a relationship between demographic variables (gender, ethnicity), performance (TCU GPA), preparation (SAT/ACT), variables and financial aid programs and retention. The ninth research question asked whether characteristics such as gender, ethnicity (demographic), GPA (performance), or SAT/ACT scores (preparation), altered the relationship between retention and financial aid. Again, the result for each is significant.

There is a significant relationship for all male students who renewed their financial aid. More than 93% of the 356 subjects who had their financial aid renewed returned for the sophomore year, whereas 63% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return significant, but the gamma value of -.76 leads to a very high level of predictability.

There is a significant relationship for all female students who renewed their financial aid. More than 94% of the 528 subjects who had their financial aid renewed returned for the sophomore year, whereas 61% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return significant, but the gamma value of -.82 leads to a very high level of predictability.

Research studies by Fife and Leslie (1976) and Gaither (1992) support the likelihood that financial aid if renewed has a positive effect on retention of females.

There is a significant relationship for all African American students who renewed their financial aid. One hundred percent of the 45 subjects who had their financial aid renewed returned for the sophomore year, whereas 60% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return significant, but the gamma value of -1.00 leads to a very high level of predictability.

Research studies by Adams and Smith (1987), Arbeiter (1987), Astin (1975), St. John and Noell (1989), and Wittstruck (1988) support the likelihood that financial aid, if renewed, has a positive effect on the retention of African Americans. Research studies by Selby (1973) and Anliot (1989) concluded that there is no relationship between the renewal of financial aid and the retention of African Americans.

There is a significant relationship for all Hispanic students who renewed their financial aid. More than 97% of the 53 subjects who had their financial aid renewed returned for the sophomore year, whereas 48% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return significant, but the gamma value of -.93 leads to a very high level of predictability.

Research studies by Haro (1983), Nora and Howath (1989), Sanchez et al. (1992), and St. John and Noell (1989) support the likelihood that financial aid, if renewed, has a positive effect on the retention of Hispanics. Research studies by Brewer (1990) and Ottinger (1991) support the likelihood that financial aid, if renewed, has a positive effect on the retention of all minority groups.

There is a significant relationship for all Anglo students who renewed their financial aid. More than 93% of the 761 subjects who had their financial aid renewed returned for the sophomore year, whereas 64% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return significant, but the gamma value of -.77 leads to a very high level of predictability.

There is a significant relationship for all high-GPA students who renewed their financial aid. More than 94% of the 636 subjects who had their financial aid renewed returned for the sophomore year, whereas 78% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return significant, but the gamma value of -.63 leads to a very high level of predictability.

There is a significant relationship for all low-GPA students who renewed their financial aid. More than 93% of the 248 subjects who had their financial aid renewed returned for the sophomore year, whereas 48% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return significant, but the gamma value of -.87 leads to a very high level of predictability.

There is a significant relationship for all high-SAT students who renewed their financial aid. More than 92% of the 525 subjects who had their financial aid renewed

returned for the sophomore year, whereas 67% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return significant, but the gamma value of -.72 leads to a very high level of predictability.

There is a significant relationship for all low-SAT students who renewed their financial aid. More than 95% of the 359 subjects who had their financial aid renewed returned for the sophomore year, whereas 57% of those whose aid was reduced or eliminated returned. Not only is the likelihood of return significant, but the gamma value of -.88 leads to a very high level of predictability.

Conclusions

This study examined student participation in various financial aid programs during the freshman year and persistence at a private university. The following conclusions were made based upon the findings of the study.

1. Receipt of financial aid in the freshman year did not relate to persistence.

2. Students who received grants, student employment, and loans in the freshman year persisted at a rate that was less than the general student body .

3. Regardless of sex, race, grade point average, or national test score renewing financial aid increases the persistence rate of those students above the rate of the general student body. Conversely, the reduction of aid enhances attrition.

Recommendations

At a time when universities and colleges are competing for students, the topic of retention is receiving increasing attention. Quite simply, there is a financial cost to institutions for the recruitment of new students. If students are retained to graduation the cost of recruitment is lessened because fewer new starts are needed to replace attritioning students.

The following recommendations are suggested for increasing the retention of first time full time freshman entering a mid-size, selective, private university.

1. The study demonstrated the need for both more detailed information as to why the institution was originally selected by the student and why the students who left chose to do so. It is recommended that an entrance interview be conducted of all first- time full-time students during the first semester to determine the factors important to their decision to attend and whether or not the institution was meeting their expectations. These interviews would assist the admissions office in identifying for prospective students factors which might influence the student to remain once initially enrolled. Further, a comprehensive exit interview should also be created to identify those factors which contribute to the students decision to not return for their sophomore year.

2. The institution should consider commissioning a longitudinal study. In this way the institution can determine whether changes in financial aid policies or recruiting procedures have an effect on retention.

3. The institution should allow all students a non-reduced financial aid award for their sophomore year.

4. It is difficult to understand why the persistence rate of any group of students receiving financial aid would be less than the group that did not receive assistance. In the case of grants, student employment, and loans this is clearly the case. These programs are for the most part tied to the family's economics. The packaging of need-based financial aid should be reviewed in an attempt to reduce the first year student's dependence on employment and loans. This is especially true for incoming students with low SAT's.

Recommendations for Further Research

This study developed and tested a model for examining the receipt of funding through a variety of financial aid programs and the retention of first time full time freshman to 2nd year students in a private university. The following recommendations for further research are suggested.

1. Replicate the model at a variety of institutions. The body of research knowledge would be greatly enhanced if other institutions would test the model against their population.

2. It is assumed that factors other than financial aid are at work in the student's decision to leave the institution or retain. The model suggested in this study could easily be included in a comprehensive review of institutional retention that includes social, environmental, and academic variables.

3. This research studied a group of subjects who entered one private institution between 5 and 7 years ago. While the programs and policies of the institution have not dramatically changed during this period of time, it is important to bring this model up to date. It is suggested that the institution, as a part of its regular institutional research plan, begin a longitudinal study of the entering first-time full-time freshman starting with the entering class of 1994 and carry the research forward to determine if the conclusions reached as a part of this study are still valid.

4. During the period of this study there were 810 students who did not return for the sophomore year. Of the 810, there were 390 students who were a part of this study who did not complete the first year and therefore were not eligible to be considered for financial aid in the sophomore year. This cohort must be studied to determine what factors led to their departure and whether or not financial aid played a part in the decision.

5. This study did identify externally administered scholarship programs that students received. The study did not determine whether or not these programs were renewable or were available only in the freshman year. Research should be conducted to determine whether or not non renewable forms of external scholarships have a significant effect on retention. Entrance and exit interviews could be used to determine this answer.

6. High GPA for the purpose of this study was defined as a 2.5 on a 4.0 scale at the conclusion of the freshman year. For renewal of many of TCU's financial aid programs a 2.5 is the minimum. However, academic scholarships require a 3.0 for renewal. Replication of this research should be sensitive to local GPA requirements of the institution which is to be studied.

7. This study did not attempt to do gender comparisons in the ethnic, preparation, or performance categories. Additional research may be generated in this area.

APPENDIX A

DATA SOURCES

Data	Source
Identifying Social Security Number	Student Records
Sex	Student Records
Ethnicity	Student Records
Test Score	Admissions
GPA	Student Records
Types and Amount of Aid	Financial Aid
Total Amount of Aid	Financial Aid
Persistence, Non persistence	Student Records
Full-time, Part-time	Student Records

APPENDIX B

ACTIVITY AWARDS

Institutionally Funded

Air Force ROTC Tuition Assistance

Army ROTC Tuition Assistance

Athletic Grant-in-Aid

Band

Choral

Nordan Award

Orchestra

Skiff/Image

Mr. and Mrs. Howard Walsh

Lili Krause

Langdon

Mitchell O. Sadler

Theater

Equipment Managers

Stokes Foundation

Basketball Managers

Mary Sypert Lovejoy

Wels Maddox

T. Smith McCorkle

Brooks Morris Violin

Fine Arts Guild

APPENDIX C

GRANTS

Federally Funded

Pell

Supplemental Educational Opportunity Grant (SEOG)

State Student Incentive Grant (SSIG)

State Funded

Texas Tuition Equalization

Pennsylvania Higher Education Assistance Agency

Rehabilitation Commission

Institutionally Funded

Beasley

Dutch Meyer

Eddleman McFarland

Marriott Corporation

TCU

Hope Pierce Tartt

Miller Brewing Company

Diversity Enhancement

Tandy Employee

Harriet Tubman

Junior Achievement

Mobil Foundation

Middle Income Assistance

APPENDIX D

LOANS

Supplemental Loans for Students

College Access

Perkins

Etta Newby

Stafford

Unsubsidized Stafford

National Direct

Nursing Student

Parent Loan to Undergraduate Students

Concern

Hinson Hazelwood

Alaska Loan

APPENDIX E

SCHOLARSHIPS

Federally Funded

Robert C. Byrd

Air Force ROTC Scholarship

Army ROTC Scholarship

Paul Douglas Teacher

State Funded

Institutionally Funded

Achievement Award

Chancellor Commended

Chancellor

Deans

Distinguished Scholar

First Interstate Foundation of Texas

M.E. Sadler National Merit

Martin Luther King, Jr.

Pate Brothers

External

Outside (numerous)

Minority Nursing

TCU

Valedictorian

Faculty

Northside High School

Anna Byrd Wallace

National Achievement

National Hispanic

APPENDIX F

ENTITLEMENTS

Church Vocations Grant

CYF Regional Executive Assistance

Employee Dependent Tuition Remission

Minister Dependent Grant

SMU Employee Dependent Tuition Remission

Christian Church Dependents Tuition Assistance

APPENDIX G

EMPLOYMENT

Federally Funded

College Work Study

State Funded

Texas College Work Study

Institutionally Funded

Resident Assistant

TCU Student Employment

Skiff Work Award

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