Financial Aid as a Predictor of Retention at a Two-Year College

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FINANCIAL AID AS A PREDICTOR OF RETENTION
AT A TWO-YEAR COLLEGE

A Dissertation
Presented to
the Graduate School of
Clemson University

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy
Educational Leadership

by
Cheryl Burrows Davids
December 2006

Accepted by:
Dr. Frankie Keels Williams, Committee Chair
Dr. Tony W. Cawthon
Dr. Lamont A. Flowers
Dr. Lawrence W. Grimes
ABSTRACT

The primary purpose of this study was to determine the likelihood that the type of financial assistance a student receives is a predictor of retention at a two-year college. The institution utilized in the study is a mid-size, public, two-year college in South Carolina. The effects of five distinct types of financial assistance on retention were investigated. The types of financial assistance include Federal Pell Grant, Legislative Incentive for Future Excellence (LIFE) Scholarship, South Carolina Education Lottery (SCEL) Tuition Assistance, a combination of South Carolina Education Lottery Tuition Assistance and Federal Pell Grant, and a combination of Legislative Incentive for Future Excellence Scholarship and Federal Pell Grant. The secondary purpose of this research study was to explore demographic factors that may also impact retention of the financial aid recipients. Retention was defined as completion of the certificate, diploma, or degree within 150% of the length of time required to complete the program of study, continued enrollment at the institution, or transfer to a four-year institution. Four categorical covariates were age, ethnicity, gender, and program of study.

Two secondary data sources were used in the study for the first-time, full-time freshmen in a Fall 2002 cohort. There were 300 participants in this study. Frequency distributions and percentages are provided on the dependent variable of retention, the independent variables of financial assistance, and the demographic variables. The forward stepwise (likelihood ratio) method of binary logistic regression was used to determine the probability of predicting retention with the independent variables. Once the
significant predictors were identified, the backward stepwise (likelihood ratio) method was used to investigate the significance of age, ethnicity, gender, and/or program of study on types of financial assistance and retention. The .05 level of significance was used to test the six hypotheses in the study.

Findings from the study show that the majority, 89.02% (300), of first-time, full-time freshmen attending CCTC in the fall of 2002 received financial assistance. The highest percentage of students received the Federal Pell Grant. Most of the students were female, between the ages of 18 and 25, White/non-Hispanic, and enrolled in an associate degree program of study. Of the 300 participants, 38% (114) were retained.

The analysis of the data indicate four of the research hypotheses relating to financial assistance received through the Federal Pell Grant, South Carolina Education Lottery Tuition Assistance, SCEL Tuition Assistance and Federal Pell Grant, or LIFE Scholarship and Federal Pell Grant were not rejected. In addition, the research hypothesis on the demographic variables of age, ethnicity, gender, and program of study was not rejected. The research hypothesis on the financial variable of LIFE Scholarship as a predictor of retention at a two-year college was rejected. The conclusion is that a significant positive relationship exists between financial assistance through the LIFE Scholarship and retention for students at a two-year college.
DEDICATION

This dissertation is dedicated to my daughter, Alivia Burrows Davids. We began this journey six years ago, truly unknowing of the challenges. I am thankful for the time Alivia allowed me to work and obtain this Ph.D. in Educational Leadership. She has understood my determination and has been right by my side even when the going was tough. The requirements of this degree could not have been completed without her support. This achievement is to be shared with Alivia.
ACKNOWLEDGMENTS

I have always believed education was the solution to a better way of life. Now, I believe it is the vehicle for the journey. Completing the necessary coursework, writing this dissertation, and defending it have been rewarding and challenging. These tasks would not have been possible without the support of my committee, colleagues, friends, and family.

I am appreciative to my professor and committee chair, Dr. Frankie Keels Williams. She provided support for my academic endeavors at Clemson University, particularly through guidance and direction of this research study. Dr. Williams was patient, knowledgeable, kind, and yet demanding. It has been a learning opportunity to complete this research with her leadership.

For my committee members, Dr. Tony Cawthon, Dr. Lamont Flowers, and Dr. Lawrence Grimes, I express my gratitude for their inquiries, discussions, and contributions to this research. I express appreciation to Dr. Grimes for his assistance in the statistical analysis of the data.

A special thank you is offered to my colleagues and friends. Encouraging questions like “Are you a Doctor yet?” and “What chapter are you writing?” kept the passion for completing this portion of the requirements for the degree, Doctor of Philosophy alive. I am particularly grateful to Mrs. Patricia Moseley for her convicting spirit, unrelenting focus, scholarly demands, and eagle eyes. I say thank you to Mr. Bill Whitlock for his ever-encouraging words and knowledge of financial aid. I offer thanks
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To my parents, Mr. and Mrs. Frank Burrows, I say thank you for your support of my dreams and for giving me roots and wings. You instilled in me habits of discipline, self-sacrifice, duty, honor, integrity, stamina and tenacity, along with the belief that nothing is impossible. You are my heroes.

Last, but certainly not least, to Ms. Dianne Haselton, I say thank you for patience and expertise in formatting this dissertation.
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CHAPTER 1

NATURE AND SCOPE OF THE STUDY

Considerable and consistent research verifies the important roles retention and financial assistance at post-secondary educational institutions play in shaping students’ educational, social, and economic status (Blau & Duncan, 1967; Carnevale & Fry, 2000; Knox, Lindsay, & Kolb, 1993; Pascarella & Terenzini, 1991; Sewell, Haller, & Portes, 1969; Sewell & Hauser, 1975; Umoh & Eddy, 1994). According to Brawer (1996), concern about retention in higher education has increased over the years. Statistics remain fairly constant, showing that approximately 50% of the freshmen enrolled in colleges and universities drop out before completing their programs of study (Lipka, 2004; Napoli, 1996; Tinto, 2002; Whitbourne, 2002). Studies using the 1989-90 National Beginning Post-secondary Student Survey and the 1992 follow-up survey indicate that “students who receive financial aid (compared with those who do not) are less likely to leave post-secondary education after two years and more likely to earn a degree or certificate” (Pascarella & Terenzini, 2005, p. 408).

As college costs have soared, more and more Americans have relied on financial assistance to help them meet postsecondary education expenses (National Association of Students Financial Aid Administrators, 2005). Data from The College Board 2002 show from 1995-1996 to 2002-2003 that the average cost of attendance at a public four-year institution increased 39%, and at a two-year college, the average cost increased by 37%. Over the last decade, Trends in Student Aid 2004 revealed that total student aid increased
122%, grant aid increased 84%, and education loan volume increased 137%. As student financial aid increases, the role of financial assistance and the influence on retention require additional research (DuBrock, 2000; Heller, 2005). There are numerous models for measuring the effect of financial aid at the institutional level (Somers, 1995b; St. John, 1992); however, there are mixed reviews on the impact of financial assistance on retention.

Statement of the Problem

The problem of retention is a concern for most college administrators and faculty (Beal & Noel, 1980). Low retention rates represent a major concern in higher education among public two-year colleges and four-year institutions (Astin, 1975; Beal and Noel, 1980; Lenning, Beal, & Sauer, 1980; Ramist, 1981). According to the National Center for Education Statistics 2005, 48% of students enrolled in a public two-year institution in 1995 did not complete a degree within a five-year period; 22% of students enrolled in a public four-year institution in 1995 did not complete a degree within a five-year period. Mohammadi (1996) reported that more than one-half of the two-year public college students did not return in the sophomore year.

The problem of adequate student financial aid is also a concern for administrators, faculty, and students. During the last two decades, there have been fundamental changes in structure of states and the federal government’s funding for higher education (McPherson & Schapiro, 1999; Paulsen & Smart, 2001; St. John, 1994). The federal government shifted from using grants as the primary means of promoting higher education to using loans. Moreover, reductions in state allocations for public post-secondary education led to increases in tuition, which placed a larger portion of the
burden of paying for college from the public to students and their families (Breneman & Finney, 1997; Mumper, 1996; Paulsen, 1991, 2000). The last 20 years may be characterized as a time of increased tuition costs and additional financial aid needs (Paulsen & St. John, 2002).

Many retention and attrition studies involving two-year colleges identify the characteristics ofpersisters and non-persisters (Bonham & Luckie, 1993; Feldman, 1993; Lanni, 1992; Lewallen, 1993; Moore, 1995; Price, 1993; Windham, 1994). The lack of financial assistance is often identified by non-persisters as a reason for leaving college. While researchers show that student aid has an immediate and direct effect on whether students enroll and whether students can continue their enrollment, the effects of various types of financial assistance on retention have not been investigated.

Purpose of the Study

The primary purpose of this study was to determine the likelihood that the type of financial assistance a student receives is a predictor of retention at a two-year college. Retention was defined as completion of the certificate, diploma, or degree within 150% of the length of time required to complete the program of study, continued enrollment at the institution, or transfer to a four-year institution. The two-year institution utilized in the study is a mid-size, public, two-year post-secondary college in the southeastern portion of the United States. The effects of five distinct types of financial assistance offered at this institution on retention were investigated:

1. Federal Pell Grant,
2. Legislative Incentive for Future Excellence (LIFE) Scholarship,
3. South Carolina Education Lottery (SCEL) Tuition Assistance,
4. a combination of South Carolina Education Lottery Tuition Assistance and Federal Pell Grant,

5. and a combination of Legislative Incentive for Future Excellence Scholarship and Federal Pell Grant.

The secondary purpose of this research was to explore demographic factors that may also impact types of financial assistance and retention. The demographic factors explored in the study were age, ethnicity, gender, and program of study of the participants.

**Research Questions**

The following six research questions were used to guide the research for the study.

1. What is the likelihood that financial assistance received through Federal Pell Grant is a predictor of retention at a two-year college?

2. What is the likelihood that financial assistance received through the Legislative Incentive for Future Excellence Scholarship is a predictor of retention at a two-year college?

3. What is the likelihood that financial assistance received through South Carolina Education Lottery Tuition Assistance is a predictor of retention at a two-year college?

4. What is the likelihood that financial assistance received through a combination of South Carolina Education Lottery Tuition Assistance and Federal Pell Grant is a predictor of retention at a two-year college?

5. What is the likelihood that financial assistance received through a combination of Legislative Incentive for Future Excellence Scholarship and Federal Pell Grant is a predictor of retention at a two-year college?

6. To what extent do demographic variables increase the likelihood of various types of financial assistance as a predictor of retention at a two-year college?
Definitions of Terms

The following are definitions for terms used in the study.

*American College Testing Assessment (ACT):* A multiple choice examination designed to measure academic achievement in English, mathematics, reading, and natural sciences. The Writing Test is optional and measures skill in planning and writing a short essay.

*Categorical Covariate Variables:* These variables are used to test trends within the categorical (independent) variables in logistic regression analysis.

*Central Carolina Technical College (CCTC):* A public two-year institution of higher education that serves a four-county region in the southeastern portion of the state of South Carolina in the United States. The institution offers an array of 16 associate degrees, seven diplomas, and 37 certificate programs which prepare students to enter the work force, transfer to a four-year college or university, and achieve both professional and personal goals.

*Certificate:* Program of study which requires less than one year for completion.

*Cohort:* First time, full-time students who received financial assistance through a Federal Pell Grant, the LIFE Scholarship, South Carolina Education Lottery Tuition Assistance, or combination of SCEL Tuition Assistance and Federal Pell Grant, or LIFE Scholarship and a Federal Pell Grant during the Fall 2002 term at Central Carolina Technical College.

*Degree:* Program of study which requires two years for completion.

*Diploma:* Program of study which requires more than one year and less than two years for completion.
**Drop-out:** Students who enroll in college but do not return, do not transfer to another institution, and do not complete their programs of study.

**Federal Pell Grant recipients:** A form of need-based financial aid. Eligible students receive a specified amount each year under the program. The United States Department of Education uses a standard formula to evaluate student information when they apply for a Pell Grant. Recipients must be undergraduate students who have not earned a bachelor’s degree, be citizens of the United States or eligible non-citizens, and possess a high school diploma or a GED. The maximum Pell Grant for the 2005-2006 award year was $4,050.

**Full-time student:** A student enrolled in 12 or more credit hours per semester.

**Leaving:** When a student departs from a college or university prior to completion of his or her program of study.

**Legislative Incentive for Future Excellence (LIFE) Scholarship:** A scholarship awarded to a student who is a resident of South Carolina and who does not receive South Carolina Education Lottery Tuition Assistance. Two of the following three requirements must be met: achieve a score of 1100 SAT or 24 ACT or above, earn 3.0 GPA at end of high school, and/or rank in top 30% of graduating class. To retain the LIFE Scholarship, the student must earn a 3.0 GPA each year and accumulate a minimum of 30 semester credit hours each academic year. Institutions eligible to award LIFE are four-year degree public or private institutions with an amount up to $5,000 per year; two-year college associate degree granting institutions, public or private, with an amount up to $3,956 per year. This amount is up to the cost of tuition with an additional $300 allowance for textbooks each year.
Non-persistent Behavior: The act of not completing the requirements of a program of study. Demonstration of non-persistent behavior is temporary or permanent withdrawal from school.

Non-traditional Student: A student over the age of 24. This is the same age used by the federal government to classify a student as dependent or independent when awarding financial aid.

Open-door Admission: A practice which provides access to education for individuals with varied potential. By definition, an open door admission college like CCTC admits all students who can benefit from available learning opportunities and places them into specific programs of study where the potential for success is commensurate with program admission standards. Open door admission implies a commitment to assess the student’s potential and to provide appropriate developmental or transitional courses in mathematics, reading, and English to prepare the student for collegiate level academics. Consistent with accrediting agency requirements, in order to be admitted to an associate degree program, the student must possess a high school diploma, Grade Equivalency Test (GED) certificate, and/or demonstrate their ability to make satisfactory progress.

Opt-outs: Students who enroll at a college to take a few courses for vocational purpose. They do not complete a diploma, certificate, or degree.

Part-time student: A student enrolled in fewer than 12 credit hours per semester.

Retention: Completion of the certificate, diploma, or degree within 150% of the length of time required to complete the program of study, continued enrollment at the institution, or transfer to a four-year institution.
Retention percentage: The number of students retained by completion of the diploma, certificate, or degree within 150% of the length of time required to complete the program of study, continued enrollment at the institution, and transfer to a four-year institution divided by the number of students in the cohort times 100%.

South Carolina Education Lottery (SCEL) Tuition Assistance: Lottery Tuition Assistance is available to South Carolina residents who have not completed an associate’s or bachelor’s degree and meet all other lottery tuition assistance eligibility criteria, have completed a FAFSA form each academic year, and are enrolled in a minimum of six credit hours per semester as a degree seeking student. The individuals must not be eligible for, or a recipient of, LIFE Scholarship. To retain SCEL Tuition Assistance, the student must earn a 2.0 each academic year after completing 24 credit hours. Up to $936 per semester is available for eligible full-time technical college students and $78 per credit hour for eligible part-time students.

Stop-outs: Students who enroll in college and begin a program of study, leave that institution for a period of time, and then re-enroll at the same college to complete their degree, certificate, or diploma.

Student Persistence: Students who continue enrollment in college or complete a program of study.

Traditional Student: A student under the age of 24. This is the same age used by the federal government to classify a student as dependent or independent when awarding financial aid.

Transfer: Migration of a student to another post-secondary institution.
Transfer-outs: Students who begin their academic work at one college and then transfer to another institution. Sometimes a student will begin his or her studies at a two-year college and then transfer to a four-year college or university.

Research Methodology

The research method used in this research study was logistic regression analysis with two secondary data sources. Logistic regression analysis was used to examine the association between the binary response for the dependent variable of retention and a set of independent variables (types of financial aid assistance). Logistic regression analysis produces prediction equations, and the regression coefficients measure the predictive capability of the independent variables (Dallal, 2001). Once the significant predictors were identified using forward stepwise logistic regression method in the study, the backward stepwise logistic regression method was used to investigate the possibility that demographic variables of age, ethnicity, gender, and/or program of study increase the likelihood of predicting retention. Frequency tables were created to provide descriptive statistics. The Statistical Package for the Social Sciences 14.0 for Windows (SPSS-G14) was utilized in the management and analysis of the data.

Participants

A cohort of 300 students at a two-year public technical college in South Carolina was selected for the study. The cohort consisted of first-time, full-time freshmen who received financial assistance through a Federal Pell Grant, LIFE Scholarship, SCEL Tuition Assistance, a combination of SCEL Tuition Assistance and Federal Pell Grant, or a combination of LIFE Scholarship and Federal PELL Grant during the Fall 2002 term.
Description of the Institution

According to the *Central Carolina Technical College 2005-2006 Catalog*, Central Carolina Technical College (CCTC) is a public, two-year institution that serves a four-county region in South Carolina. CCTC is an open-door admissions institution. The definition of open door admissions institution implies the College’s commitment to assess each student’s potential and provides the appropriate developmental or transitional courses in mathematics, reading, English, and computer science to prepare students for collegiate level academics. The College confers 16 associate degrees, seven diplomas, and 37 certificates. The institution offers an array of programs that prepare students to enter the work force, to transfer to a four-year college or university, and to achieve both professional and personal goals.

Enrollment data from the *Central Carolina Technical College Fact Book* reflects that the College served more than 4,500 credit students and 10,500 continuing education students during the 2004-2005 academic year. The enrollment distribution during the fall of 2004 was 31% full-time and 69% part-time. The gender distribution was 29% male and 71% female. The graduation or success rate in Fall 2002 for first-time, full-time freshmen entering in Fall 2002 was 10.6%.

Conceptual Framework

Allocation of limited resources has emerged as a major issue in funding for post-secondary education. The impact of finances on enrollment is greater before entry into college than during the actual enrollment (Balderston, 1997; Jump, 1995). Families depended on financial aid to assist in paying for their child’s college education (Miller, 1997). The conceptual framework for this research study was grounded in work by
According to Heller (2003), when money is awarded, it is done with the expectation that the financial assistance makes it possible for the students to remain until they complete the program of study.

The conceptual framework for the study is displayed in Figure 1. The primary purpose of this study was to determine the likelihood that the type of financial assistance a student receives is a predictor of retention at a two-year college. The secondary purpose of this study was to explore the demographic factors that may impact type of financial aid and retention. The dependent variable of retention refers to a student who started the program in Fall 2002 and completed the program of study within 150% of the length of time required to complete the certificate, diploma, or degree, transferred to a four-year institution, or was still enrolled at CCTC in the Fall of 2005. The participants were selected among students who receive one of the five independent or predictor variables in the study Federal Pell Grant, LIFE Scholarship, SCEL Tuition Assistance, the combination of SCEL Tuition Assistance and Federal Pell Grant, or the combination of LIFE Scholarship and Federal Pell Grant during Fall 2002. There were four demographic or categorical covariate variables age, ethnicity, gender, and program of study. Logistic regression analysis was used to determine the effect of the independent variables and categorical covariates on the dependent variable retention.

**Theoretical Framework**

This study is supported by research on retention theory (Bean, 1980, 1982a, 1982b, 1983, 1985; Pascarella & Terenzini, 1980, 1983; Tinto, 1975) and the role of finances (Berger, 2000; Heller, 1997; Paulsen, & St. John, 1997; 2002; St. John, 2003b; St. John, Paulsen, & Starkey, 1996) in higher education. Tinto (1975) argued that
Figure 1. A Conceptual Framework of the Study

1Independent Variable
2Categorical Covariate Variable
3Dependent Variable
financial problems were used as a polite excuse for leaving college. In 1993, Tinto revised his model based on a substantial body of new research on persistence (St. John, 2000). According to research by St. John and others, the perceptions students hold about affordability influence their persistence decisions (St. John, Paulsen, & Starkey, 1996).

**Significance of the Study**

The results of this study may affect scholarly practices in institutional admission and retention activities and decisions by policy makers. This study adds to the body of knowledge on retention and financial assistance at a two-year college. The results of the study may assist faculty, staff, and administrators in understanding the role types of financial aid play as predictors of retention. Additional results of this study may provide policy makers with information useful to financial aid appropriations to students enrolled in post-secondary institutions, particularly at the two-year college.

**Delimitations**

A delimitation of this research is its quantitative approach. A number of qualitative studies have examined ways to improve retention rates, student success in college, and comfort level on campus (DeBeard, Spelman, & Julka, 2004; Grant-Vallone, Reid, Umali, & Pohlert, 2004; Ishler, 2004; Woosley, 2004). This study does not allow input from students as to why persistence was not accomplished. In addition, this study explores four factors that may impact retention of the recipients of financial aid. Other factors related to financial obligations may influence a student’s choice to leave college.
Summary

The primary purpose of this study was to investigate the likelihood that the distinct type of financial assistance a student receives is a predictor of retention at a two-year college. The secondary purpose of this research study was to explore demographic factors that may also affect types of financial assistance and retention. Two secondary data sources on first-time, full-time freshmen at Central Carolina Technical College who received the Federal Pell Grant, LIFE Scholarship, SCEL Tuition Assistance, a combination of SCEL Tuition Assistance and Federal Pell Grant, or LIFE Scholarship and Federal Pell Grant were tracked from their entrance in Fall 2002 through Fall 2005.

The significance of this study may impact scholarly practices on retention activities by administrators on college and university campuses as well as decisions regarding financial appropriations by policy makers. This research is limited to one comprehensive, public, two-year post-secondary institution and five distinct types of financial assistance. Delimitations of this research include the quantitative approach and the selected student demographics that impact retention.

Organization of the Study

Increasingly, financial assistance to post-secondary students is being recognized as a crucial factor in the retention process at two-year institutions. The first chapter includes the introduction to the problem of retention and need for financial assistance, the primary and secondary purposes of the study, six research questions, definitions for terms used in the study, research methodology, description of the participants and the institution, the conceptual and theoretical frameworks, and the significance of the study.
The second chapter reviews the essential theories of student retention and, more specifically, retention at two-year colleges. The second section focuses on prior research related to financial assistance and financial aid of students in two-year institutions of higher learning. The third section focuses on financial assistance as a predictor of retention and financial assistance as a predictor of retention at a two-year college. The third chapter includes a discussion of the research methodology employed in the study of the Fall 2002 cohort of first-time, full-time, freshmen at Central Carolina Technical College.

The fourth chapter provides an analysis of the research findings. Logistic regression models are displayed along with frequency and percentage tables. The fifth chapter presents a summary and analysis of financial assistance as a predictor of retention at a two-year college. Significant findings from the study are presented along with conclusions, limitations, and recommendations for future studies involving two-year college students.
CHAPTER 2
REVIEW OF RELATED RESEARCH
AND LITERATURE

This chapter includes a review of the literature associated with student retention and financial aid as a predictor of retention. The first section focuses on theories that are related to student retention in a post-secondary environment. Tinto’s Student Integration Model and Bean’s Student Attrition Model are discussed in detail. Other attempts to elaborate on theories of retention are also included. This section also focuses more specifically on retention of students in two-year institutions of higher education. The second section focuses on prior research related to financial aid and more specifically on financial aid in two-year institutions. The third and final section of this chapter focuses on research related to studies linking financial assistance and student retention. The section focuses on the role of finances as a predictor of retention of students in a two-year college.

Retention Theories

Several theories explain the college retention process (Bean, 1980; Spady, 1970; Tinto, 1975; Tinto, 1987). The two theories that provide a comprehensive theoretical framework of student departure from college are Tinto’s Student Integration Model and Bean’s Student Attrition Model (Cabrera, Castafieda, Nora, & Hengstler, 1992). A review of the literature indicates that Tinto’s Student Integration Model has motivated additional research for decades. Studies have expanded Tinto’s model to various student
populations (Pascarella & Chapman, 1983; Pascarella, Terenzini, & Wolfe, 1986; Nora, 1987; Nora, Attinasi, & Matonak, 1990; Mallette & Cabrera, 1991; Stage, 1988; and Cabrera, Castafieda, Nora, & Hengstler, 1992). Studies using the Student Attrition Model have shown validity and the model can be generalized among more traditional institutions (Bean, 1980, Bean, 1982a; Bean, 1982b; Bean, 1983; Bean, 1985; Bean & Vesper, 1990; and Cabrera, Castafieda, & Hengstler, 1992). Modifications to Bean’s model have been made to address retention among non-traditional students (Bean & Metzner, 1985; Bean & Metzner, 1987).

**Tinto’s Student Integration Theory**

Building on work by Spady (1970; 1971) and Durkheim (1951), Tinto formulated a theory to explain the process that prompts a student to leave the college or university before graduating. According to Tinto’s theory (1975; 1982; 1987; 1990; 1993; 2002), attrition results from interactions between a student and his or her educational environment during a student’s stay at an institution of higher learning. Student departure from a post-secondary institution occurs in different forms and is the result of many sources. The following focuses on Tinto’s (1987) work.

Some students leave because they are unable or unwilling to meet the minimum academic standards of the institution. They frequently leave because they are forced to leave or soon expect to be. Unfortunately most of these leavings arise because of insufficient academic skills, not the least of which has to do with inadequate prior preparation and the development of poor study habits (Tinto, 1987, p. 4).

Within this major cause of student withdrawal of academic difficulty, Tinto contended most departures arise voluntarily. Despite the acceptable level of grade performance, departures occurred due to social and intellectual characteristics of the higher educational
environment. These were adjustment, goals, commitments, uncertainty, congruence, and isolation.

Tinto (1987) also notes that some students leave because of the lack of ability to adjust to demanding academics and the new social life confronted in college. Some individuals enter college with insufficient academic skills; they are unprepared for the academic challenges. Others come from different backgrounds of the other students, faculty, and staff. Some students have limited coping mechanisms and struggle when confronted with new situations. According to Tinto (1987), without assistance, these students leave because they are not able to cope with the transition to college.

Additional reasons cited by Tinto include departures that reflect the student’s character and the lack of commitment to complete the program of study. Not all students enter college with an undecided major. Others have goals that do not require completion of a certificate, degree, or diploma. Some students have goals that surpass the institution and require transferring to another institution. “In both two- and four-year colleges, but particularly in the former, entry to one institution is seen as a necessary temporary step toward eventual goal completion” (Tinto, 1987, p. 5).

Many students begin their college careers with an undecided major. These individuals have not clearly formulated their educational and career goals. Some degree of uncertainty is typical. When these goals go unresolved for a long period of time, difficulty arises. According to Tinto, lack of goal clarity undermines the ability of the student to successfully meet the demands of college life. This uncertainty also enhances the likelihood that, when stressed, the student will not persist. Completion of a college degree requires stamina and tenacity from the student. Not all students possess that level of
commitment. Tinto’s Student Integration theory emphasizes experiences by the student after entry to college are more important to persistence and departure than what occurred prior to entry.

If the student is integrated into the life of the institution and becomes a member of the community, these experiences will impact retention. Academic and social experiences integrate the student into college life, reinforce the student’s commitment to obtain a diploma, certificate, or degree, and foster a sense of loyalty to the institution. According to Tinto, without student integration and membership in the community, the likelihood that a student will depart from the institution is increased.

Incongruence reflects the student’s evaluation of all aspects of the institution as it meets that individual’s interest and needs. If a student departs because of this mis-match, he or she will usually transfer to another institution that seems to be a better fit (Tinto, 1987). When a student feels disconnected from others at the college or university, isolation will result. The student departs because he or she did not feel a part of the college community.

Tinto’s theory further provides essential features of effective retention programs. The first feature is an emphasis on the communal nature of institutional life. Students should be integrated into all aspects of the college life. Contact between faculty, staff, and the student is important in a variety of settings outside the formal confines of the classroom.

A second common feature of effective retention programs is dedication to meet the needs of the student. Energies are focused on helping students reach their potential. A strong commitment to students by college faculty and staff is an identifiable ethos of
caring which permeates the character of institutional life. The third common feature is educational commitment. This refers to the well-being of the students, not simply their retention. It derives from the social contract higher education has to serve the welfare of society by educating its members and thereby helping to ensure its preservation over time. Tinto emphasizes the following concerning the dedication of higher education to meet the needs of students.

That commitment need not be narrowly defined or taken to be the sole province of a particular argument of the higher educational enterprise. The commitment to education is as important to two-year, open enrollment colleges as it is to the elite liberal arts colleges. The concern for student growth is no less important to the former group of institutions as it is to the latter. Nevertheless, the character of that concern, the particular commitment which inspires it, may vary considerably from institution to institution (Tinto, 1987, p. 11).

The fourth feature identified by Tinto for an effective retention program is institutional commitment and educational choice. Administrators of the institution must decide the character of their educational missions. The institution recognizes that it cannot serve all students who apply or enter through its doors.

Basically, Tinto’s theory hypothesizes that retention occurs when there is a match between the student’s academic abilities and motivational level and all of the characteristics of the post-secondary institution. If an individual’s characteristics and those of the institution match, then there is a commitment to completing college (goal commitment) and a commitment to his or her respective institution (institutional commitment). If a student is driven to complete the diploma, certificate, or degree and/or has a deep level of commitment to the institution, he or she will have a much higher probability of persistence (Cabrera, Castaneda, Nora, & Hengstler, 1992a).
An omission in Tinto’s Student Integration Model is the impact of external factors (Bean, 1985). Even with its limitations, however, Tinto’s theory has been useful in investigating the influence of finances (Braxton, Brier, & Hossler, 1988).

**Student Attrition Model**

An alternative theory to college persistence was developed by Bean (1980, 1982a, 1982b, 1983, 1985) and associates (Bean & Vesper, 1990; Bean & Metzner, 1985). Their theory builds upon models of dissatisfaction and departures in the organization (Price, 1972; March & Simon, 1958) and models of interaction involving attitude-behavior by Bentler and Speckart (1979; 1981).

Bean and his associates have argued that student attrition is analogous to turnover in work organizations and emphasizes the importance of behavioral intentions (stay or leave as predictors of persistence behavior (Cabrera, Castaneda, Nora, & Hengstler, 1992, p. 125).

Bean’s model states that beliefs determine attitudes, and attitudes determine behavior. He theorized that these beliefs were affected by all of the student’s experiences at the college or university. Experiences included faculty, staff, academics, athletics, and friends. This theory also recognizes that external factors affect attitudes and behavior (Bean & Vesper, 1990). In this work by Bean and Vesper, only six variables attributed to the variance in the withdrawal criteria among the 1989 fall freshmen enrolled in a Midwestern college. Cabrera, Castaneda, Nora, and Hengstler reported non-intellective factors played a major role in withdrawal decisions and finances exerted both direct and indirect effects on retention.
Comparison between Models

Tinto and Bean interpreted retention as the result of various interactions over a period of time, where pre-college characteristics impact a student’s adjustment to college life and determine just how successful the match is between the student and the college or university. Hossler (1984) suggested that the Student Integration Model and Student Attrition Model overlap in terms of organizational factors and commitments to the institution. Bean’s Student Attrition Model emphasizes how external institutional factors impact behaviors (Bean, 1982b; Bean, 1983; Bean & Vesper, 1990). With Tinto’s Model, grades are an indicator of academic integration; in Bean’s Model grades are a result of the social-psychological processes (Bean, 1985).

The two researchers present different viewpoints as to what affects retention the most. Tinto’s research suggested integration and commitment (Anderson, 1981; Munro, 1981; Pascarella, Terenzini, 1979; Pascarella & Chapman, 1983; Terenzini, Lorang, & Pascarella, 1981). Bean’s (1985) research introduced numerous variables that impact retention. Some of these variables are: finances, attitudes, institutional fit, and affirmation to continue (Bean, 1982a; Bean, 1982b; Bean & Vesper, 1990).

Retention Studies in Two-year Colleges

Two-year college retention studies have utilized Tinto’s Model (1975, 1982, & 1990).

Several studies (Bers & Smith, 1991; Mutter, 1992; Nora, Attinasi, & Matonak, 1990; Pascarella, Smart, & Ethington, 1990; Rendon, 1995; Rendon & Nora, 1989) have found that Tinto’s theory of academic and social integration are viable and that they do influence (positively or negatively) two-year college persistence (Cofer & Somers, 2001, p. 58).
According to Cofer and Somers (2001), other research studies define the unique mission of two-year colleges and identify other factors that influence retention (Campbell & Blakely, 1996; Conklin, 1995; Feldman, 1993).

Community colleges are facing increased pressure to educate students who come through their open doors academically unprepared. The educational literature suggests that certain demographic characteristics, study patterns and campus involvement factors are more likely to put these students at risk of not attaining a degree or program completion (Schmid & Abell, 2003, p. 46). Schmid & Abell (2003) studied the demographic characteristics, study patterns, and campus involvement as related to individual success at Guilford Technical Community College (GTCC). The purpose of the research was to better understand factors that promote student retention. This research examined three cohorts of GTCC students: students who attended for one semester and dropped out; students who completed the Faces for Future survey generated by ACT Evaluation/Survey Service; and students who were retained and completed their program of study during the 2001/2002 academic year.

According to a study by the Educational Testing Service (Coley, 2000), seven demographic factors put students at risk of not being retained. The factors include delayed entry, part-time enrollment, full-time work, financial independence, dependents, single parenthood, and community college attendance without a high school diploma” (Schmid & Abell, 2003, p. 47). According to Schmid and Abell (2003), 75% of community college students are characterized by at least one of these seven factors. During the 1995-96 academic year, almost one in four students entering community colleges possessed at least four of these demographic factors. Almost 50% of first-time
community college students were classified as delayed entry. Forty-six percent of first-time freshmen were enrolled as part-time students. The percentage of students who worked full-time and attended the community college was 35%. Thirty-five percent of the community college students were classified as financially independent, and approximately 20% had children.

For nearly half a century, supporters and critics of two-year colleges have debated whether these public institutions democratize or divert educational attainment opportunities. Both sides agree that the enrollment increase at community colleges has reduced the pressures exerted by an expanding population on the top four-year institutions and allowed them to maintain selective admission standards (Dougherty, 1994). Proponents contend that community colleges responded to a growing discontent of social and economic inequalities and demanded equitable treatment of all applicants. Pascarella and Terenzini (2005) refer to this functionalist defense maintaining that the proximity, low cost, multipurpose missions, and heterogeneous curricula brought, and continues to bring, postsecondary education and social mobility within the reach of people who would otherwise be left out. The functionalist defense particularly applies to individuals with minimal income and minorities (Cohen & Brawer, 1996; Grubb, 1989). According to Levin (1998), the community college, both institution and movement, alters itself to adapt and survive along with adapting what is not itself to incorporate the new, integrating other with self.

Summarizing Clark’s work (1960), the “open door” policy characterizes a “cooling out” period where two-year colleges divert opportunities rather than democratize them. Faculty, staff, student peers, counselors, advisors, and the lure of a two-year
program of study detour students from a four-year degree toward an associate degree, vocational certificate, or diploma. Also, critics argue that two-year colleges preserve the social stratification. These skeptics reference data that indicates the community college serves students from the working-class and lower-middle-class, many of whom are minorities. By offering only certificates, diplomas, and two-year degrees, educational opportunities are limited (Brint & Karabel, 1989; Dougherty, 1994).

Pascarella and Terenzini (1991) concluded that even after taking into account many relevant characteristics, initial attendance at a two-year (versus a four-year) institution reduced the probability of completing a four-year degree by 15 to 20%. Nevertheless, two-year college proponents argue that public two-year institutions provide a “second chance” to students who do not begin their academic career at a four-year institution (Cohen & Brawer, 1996; Grubb, 1991). Two-year colleges “play an important role as intermediaries between the completion of high school and attendance at a four-year college” (Surette, 1997, p. 3).

Literature reviewed (Leslie & Brinkman, 1987; Paulsen & St. John, 2002; St. John, Paulsen, & Starkey, 1996; Tinto, 1993) suggests that finances impact whether a student attends college, where he or she attends, and how long he or she is retained. The expense of a college education is met through institutional, state, and federal financial aid assistance in the form of grants, scholarships, loans, and work-study. Family financial assistance, utilizing personal savings, and non-school related employment are also methods to pay for higher education (Pascarella & Terenzini, 2005).

Determining the effects of financial aid on student persistence and degree completion is not straightforward (Heller, 2003; Pascarella & Terenzini, 1991). According to
Cope and Hannah (1975), one of the best predictors of whether a student will stay or leave college before completing the program of study is his or her family’s socioeconomic status. Factors include parents’ level of education, wealth, and expectations for the child’s educational attainment (Choy, 2001; Horn & Nunez, 2000). According to Pascarella and Terenzini (2005), findings after 1990 indicate that students who receive financial assistance (compared to students who do not receive financial assistance) are less likely to leave higher education after two years, and they are more likely to earn a degree or certificate.

Females and males, as well as financially dependent and independent students, benefit equally from financial aid (Fitzgerald, Berkner, Horn, Choy, & Hoachlander, 1994). From the national Beginning Post-secondary Student Survey 1989-90 (BPS: 90) study, Cuccaro-Alamin (1997) found that degree-seeking financial aid recipients graduated at approximately the same rate as their peers who were not financial aid recipients. This research also found financial aid recipients completed their programs of study faster than non-recipient students. Financial aid enhances persistence and degree completion, particularly among low-income students (Astin, 1993c; Cabrera, Stampen, & Hansen, 1990; Dynarski, 1999; Ishitani & DesJardins, 2002-2003). Using data from the National Longitudinal Study of the High School Class of 1972, St. John and Masten estimated that financial assistance increased the odds of completing a baccalaureate degree by approximately 11 percentage points. Studies completed at the regional and state level and on single campuses and less well-controlled situations lead to the same conclusions.
Research using the total amount of financial aid received as the predictor variable is consistent with research using the simple receipt of aid as the primary independent variable (Somers, 1995b; St. John, 1990). When studies find that receipt of financial aid is negatively related to persistence, it is not the assistance that was ineffective, it was the amount of assistance that was insufficient (Cofer & Somers, 1999a; Hippenstell, St. John, & Starkey, 1996).

While all groups are affected by challenging economic conditions, the impact is greatest for minorities. It is estimated that 20% of White children, 40% of Hispanic children, and 50% of African American children suffer the despair of poverty (Abramovitz, 1991). According to Gose (1996), college enrollment for the four largest minority groups (American Indians, Asians, African-Americans, and Hispanics) has increased in recent years.

Studies involving college dropouts have focused primarily on African American students (Griffin, 1991; Kobrak, 1992) and Hispanic students (Attinasi, 1986; Nora, 1987; Nora, Attinasi, & Matonak, 1990). Kobrak (1992) reported a much lower graduation rate for African American students attending predominantly white regional universities than for their white counterparts at the same institutions. Institutional barriers to African American student retention include negative attitudes toward African American students by faculty, staff, and administrators (Credle & Dean, 1991). Most successful retention programs for minority students involve the establishment of specialized advising and counseling services to address the special needs of these students (Trippi & Cheatham, 1991; Griffin, 1991). Griffin (1991) reported social integration is a key factor in retaining African American students.
Financial Assistance

State funding for higher education in this country began with public allocations to church-chartered institutions (Heller, 2003). During the late 18th and early 19th centuries, state governments provided direct financial assistance from tax revenues to support a number of private post-secondary institutions. Prompted by the Morrill Act of 1982, most states began to direct appropriations to public institutions. During the first half of the 20th century, some states developed state-sponsored financial aid programs. One example included the New York state scholarship program which awarded grants based on performance in the regent’s examination. The Truman Commission on Higher Education praised this effort (Heller, 2003). According to the President’s Commission, 1947, this was the nation’s first state-wide program. Subsequently, the recommendation of this commission was to create a federally funded program to meet the goal of equal opportunity in higher education. By the end of the 1960s, there were 19 state-run scholarship programs, according to the Carnegie Commission on Higher Education (Heller, 2003).

Almost two decades after the goals set forth by the Truman Commission to provide equality in educational access, the federal government established The Higher Education Act (HEA) of 1965. This was the first federally assisted financial program in the United States. During later years, the creation of the State Student Incentive Grant (SSIG) program was a feature of the first reauthorization of HEA in 1972. With this new component, state-run, need-based grant programs would receive matching federal funds. This proved to be a turning point in the development and expansion of the state programs. In 1969, 19 states appropriated almost $200 million for these programs. Within a five-year period, this had expanded to 36 states and $423 million, and every state reported at least
One grant program. The total appropriated funds were over $800 million (National Association of State Scholarship and Grant Programs, various years). The new SSIG Program permits up to a $1,500 annual student award (equal shares of $750 Federal/State). According to Boyd (1975), during the 1980s and 1990s, state grant programs continued to grow. As of 2002, 48 states (all but Alaska and South Dakota) had financial aid programs awarding more than $5 billion in grants to undergraduate students (National Association of State Student Grant and Aid Programs, 2003).

Other sources also provide reports on the amounts of financial assistance over the years. Quantum Research Corporation (2003) reported that in 1987, $486 million was awarded in institutional grants and scholarships, and over the subsequent decade, the award increased to almost $2 million. In 1999-2000, state and institutional grants awards to undergraduate students in public institutions totaled $4.7 billion. This was almost 41% of the total grants received by students in colleges and universities. Forty percent of all grants awarded were Federal Pell Grants, and private sources supplied the remaining 19% (Heller, 2003). Grants, both state and institutional, are an integral part of the financial aid mechanism this nation uses to offset the rising expenses associated with higher education.

Allocation of limited resources has emerged as a major issue in public policy. States and their post-secondary institutions of higher education struggle to determine appropriate methods to distribute funds. A balancing act must be performed to meet the needs of the citizens, the state, students in need, and meritorious students. According to Heller (2003), when money is awarded, it is done with the expectation that the financial assistance will make it possible for the student to remain until he or she completes the program of study, or it will provide avenues for the student to remain at that particular
institution or at least remain in that particular state. One of the major objectives from the state and the college or university’s perspective is to retain students by providing financial assistance when needed (Heller, 2003).

Assistance through institutional grants has become an essential component of the financial aid system in the United States (Archibald, 2002). During 1999-2000, public colleges and universities in this country awarded $2.5 billion in institutional grants to undergraduate students. During the same time period, through grant programs, states awarded another $2.1 billion to undergraduates in public institutions (Heller, 2003). Combined, these two sources (institutional and state) awarded more than $4.6 billion in Pell Grants.

**Financial Assistance in Two-year Colleges**

Researchers frequently use the number of Federal Pell Grant recipients as a measure to indicate the college participation rate of lower income students (Brown & Clark, 2005; Mortenson, 2004; Heller, 2003). Summarizing findings from Romano and Millard (2006), calculated figures from the National Center for Education Statistics (NCES) showed that the rate was only 16.9% for students enrolled in credit courses in two-year colleges for the 1999-2000 academic year (Malizio, 2001). Romano and Millard (2006) point out that this low rate contradicts the premise that compared with those at four-year colleges, community college students are more likely to come from underrepresented, low-income populations. The average Federal Pell Grant award was $1,673.

In 1999-2000, the nation had 3.8 million Pell Grant recipients who received a total of $8 million dollars (U. S. Department of Education, 1999-2000). Out of this number, 36.4% of all recipients attended public two-year colleges (ACE, 2003). According to
Romano and Millard (2006), South Carolina had 28% of its college students receiving Pell Grants: 86% matriculated, 43% attended full-time, the average tuition was $1,343, and the per capita income was $22,903.

Financial Assistance and Student Retention

Inquiries about how student financial assistance and the costs of attending college impact educational opportunity for diverse groups have lurked beneath the surface of the policy debates concerning post-secondary education for many years. In 1965, when the Higher Education Act (HEA) was passed, there was a state of general acceptance that the federal government would play a vital role in equalizing educational opportunities (St. John, Paulsen, & Carter, 2005).

During that time, civil rights was a concern of many, as demonstrated by many Great Society programs. Since 1980, the federal government’s commitment to need based grants has restructured due to shifting political priorities (McPherson & Schapiro, 1991). Recently, the federal courts have limited the remedies in desegregation litigation (St. John & Hossler, 1998) and have introduced race into question as an explicit consideration in the awarding of financial aid to students (Strope & Wells, 1998).

The analysis of the effects of attending college and student financial assistance is complicated. One economist questions the efficacy of student aid (Kane, 1995). Some individuals debate whether states and the federal government should invest more in student aid, even after decades of decline in assistance through grants (Heller, 1997; St. John, 2003b). Still other economists and researchers in higher education, along with cultural-capital theorists question some of the assumptions behind this position (McDonough, Korn, & Yamasaki, 1997; Paulsen, 2001a, 2001b; St. John & Paulsen,
According to St. John, Paulsen, and Carter (2005), these thinkers offer a new perspective which includes the decline in affirmative action, merit-based over need based aid, and loans over grant aid; however, they do little to combat the decline in aid supplied through the federal or state government. Studies on financial impact have examined all students as undergraduates (St. John, Paulsen & Starkey, 1996), students enrolled in public colleges as compared to students enrolled in private colleges (Paulsen & St. John, 1997), and students from all income groups (Paulsen & St. John, 2002).

Researchers have examined perceptions about how financial factors affect the choice of college and retention decisions. One approach involves assessing the impact of the student’s attitude to pay for college as a variable that can influence academic integration and decisions to persist (Cabrera, Nora, & Castaneda, 1992b). Research using this “role of finances” approach has found that early perceptions of difficulty with finances can influence the experience students have at college. More recently, St. John, Paulsen and Starkey (1996) have presented what is called the Financial Nexus Model. These researchers studied how the financial reasons for selecting a college to attend related to college experiences and retention. The approach states there is a nexus between the financial reasons for selecting to attend a college and the ways the student responds to the process.

According to St. John, Paulsen and Carter (2005), the nexus approach integrates the research on the perceptions of finances with the analysis of the effects of the costs and financial assistance using a differentiated price-response model that surpasses the limitations of the net price approach. Berger (2000) argues that the financial nexus should be expanded to examine diverse groups:
Student choices regarding whether or not to attend college, which college to attend, whether to go full-time or part-time, what to study, whether to drop out, stop out, transfer, or complete their studies are all examples of important choices that individuals make regarding their postsecondary educational attendance. These are examples of what St. John, Paulsen, and Starkey (1996) identify as patterns of decision-making behavior. These patterns might also be defined in terms of an individual’s habitus, and it stands to reason that students with similar habitus would be likely to continue to make similar choices once they enter college. Hence, we expect students with similar levels of capital resources to make similar types of decisions and act in similar ways while in college (Berger, 2000, p. 103).

Patricia Somers (1995b) developed and tested an institutional model to assess the effect of student aid. A comprehensive theoretical model of student matriculation examined first-time attendance, within-year persistence, and year-to-year persistence of the freshmen class at an urban, public university. Somers’ work was significant because it allows any institution to study the impact of student financial assistance on matriculation and provides a linkage between enrollment management and financial planning (Somers, 1995b).

Somers analyzed financial aid in three ways: aid only, type and dollar amount of aid, and total amount of aid awarded. Findings from the first version of the model included receipt of aid illustrating the challenges in attracting minority students. There was a gap between middle-income aid applicants and first-time attendance. This group may not be able to attend college because of the gap between being awarded aid and not qualifying for financial assistance. Somers’ second version showed the impact of the amount of aid on first-time students. The average accepted applicant was 6.2 percentage points more likely to attend per $1,000 in aid awarded. The third version examined merit scholarships. Applicants awarded scholarships were 23.5 percentage points more likely to attend for each $1,000 of financial assistance (Somers, 1995b).
Somers (1995b) found a consistent negative association between being African-American and first-time attendance. Not only did institutions have difficulty in attracting African-American applicants, this challenge was compounded by the amount of the financial award. Somers found a positive association between all income categories and first-time attendance for financial aid recipients.

Further analysis from Somers’ persistence research revealed three variables associated with persistence: Hispanic, full-time, and grade point ratio. The variable of low ACT-score was consistently associated negatively with persistence between the first and second semesters. Five conclusions emerged from the research. First, low-income financial aid recipients did not persist as well as others. Second, the total amount of aid offered was significant in promoting within-year persistence for all groups of students. Third, the amount of both grants and loans (which low-income recipients received) was significantly associated with persistence. Fourth, females were less likely to be retained even when the amount of financial aid assistance was considered. Fifth, African American students were responsive to both the amount and receipt of financial assistance.

Analysis from Somers’ (1995b) year-to-year persistence study found students in special persistence programs like Collaboration of School, College, and Community (TRIO) were as likely to persist as all other groups. Second, there is a high attrition rate associated with students receiving scholarships. Somers makes the suggestion that money could be more effectively used to promote persistence of “at risk” students if put into supplemental need-based grants. A third finding was a positive association between persistence and poor academic performance. Explanations offered for this finding are either that low achieving students are encouraged to continue to enroll until they are
academically dropped by the institution or that retention programs for “at risk” students are successful.

Pantages and Creedon (1978) also found in their study that the second most frequently cited reason provided by students for withdrawing from college was financial difficulties. Academic matters were the primary reason for withdrawing from post-secondary education. Bayer (1968) and Panos and Astin (1978) found that financial reasons ranked high in importance for both male and female dropouts.

The primary question in a study by Terkla (1985) concerned the relationship between the receipt of financial aid and student persistence. A causal model was based on the review of attrition literature (Terkla, 1981). The model provides a conceptual framework and illustrates how variables interact to affect persistence. Terkla (1985) found the financial aid variable had the third strongest direct effect on persistence and the fifth strongest total effect on students’ decision to stay or to leave the post-secondary institution. Terkla states, “The first, and possibly the most important, is that the receipt of financial assistance is relevant to a decision whether or not to remain in college” (Terkla, 1985, p. 16). Even after controlling for other factors, students receiving financial assistance were more likely to complete their program of study than students who did not receive financial assistance. Financial assistance has the third strongest direct effect on retention at a post-secondary institution.

In a national study, Heller (2003) focused on retention and program completion of students receiving institutional and state grant awards. He used both bivariate and multivariate statistical methods to perform these analyses. Heller reviewed six variables in the multivariate models: outcome, demographic, academic, institutional sector, tuition costs,
and financial aid. Logistic regression was used in this multivariate technique because of the dichotomous nature of the outcome.

Results from Heller’s (2003) study indicated that for every year older a student was his or her probability of being enrolled in 1996-1997 declined by 1.2 percentage points. Students in the highest income quartile had a probability of persisting that was 8.1 percentage points greater than students in the lowest quartile. Eighty-seven percent of the 3,234 students (in public institutions) in the survey persisted into their second year, representing 845,802 students nationally (Heller, 2003, p. 20). A summary of the findings includes

1. Students classified as traditional, full-time, and financially dependent were more likely to receive awards.

2. Institutional grants were more often awarded to lower-income students.

3. Academic factors are the strongest predictors of whether a student will complete his or her program of study.

4. Students who received an institutional need-based grant of $1,200 in their freshmen year of college were six percentage points more likely to be retained for their sophomore year than students who did not receive this type of financial assistance.

Hippensteel, St. John, & Starkey (1996) used the National Postsecondary Student Aid Study of 1987 (NPSAS: 87) to review the retention of adult students in two-year colleges and found that tuition had a negative impact on persistence. All of the financial assistance combinations (any aid, grants, loans, scholarships, and packages) had a negative influence on retention. These three researchers concluded that financial assistance was not sufficient to promote retention. St. John and Starkey (1994) used NPSAS: 87 to research the impact of tuition charges and financial assistance on retention of traditional-age students in two-year colleges. St. John and Starkey concluded that there was a
significant negative relationship between tuition charges and retention. For each one hundred dollars of tuition differential, the probability that traditional-age post-secondary students persisted decreased by 1.4% (as compared to 0.5% for traditional students in four-year colleges) (Cofer & Somers, 2001).

Financial Assistance and Student Retention in Two-year Colleges

The National Postsecondary Student Aid Study (NPSAS: 87) of 1987 allowed for persistence to be examined using a national sample of various types of institutions of higher education, including two-year colleges, with variety of variables (Cofer & Somers, 2001). Economic, demographic, and college experience variables were investigated.

Hippensteel, St. John, and Starkey (1996) used NPSAS: 87 to examine the persistence of adult students in two-year colleges and found that tuition had a negative influence on within-year persistence. In addition, all of the combinations of financial assistance had a negative influence on persistence (Cofer & Somers, 2001, p. 58).

St. John and Starkey (1994) concluded that financial assistance is not sufficient to promote retention. St. John and Starkey (1994) utilized NPSAS: 87 and researched the influence of tuition costs and financial awards on retention of traditional age students in a two-year college setting. They found that a strong negative relationship existed between tuition costs at an institution and retention. “For each $100 of tuition differential, the probability that traditional age college students persisted, decreased by 1.4% (as compared to 0.5% for traditional students in four-year colleges)” (Cofer & Somers, 2001, p. 58).

Five factors were used in the model by St. John and Starkey (1994). The first was background which included ethnicity, gender, age, income, marital status, educational level achieved by parents, and financial standing. The second factor of aspiration and
achievement variables included educational goals and standardized college placement tests. The third factor involved all college experiences from GPA to living on campus. The current year price and subsidy variables were the fourth factors in the model. The final factor was the student’s accumulated debt load.

A summary of the *NPSAS: 93* findings found non financial variables that impact retention at a two-year college. Three factors significantly and adversely affect retention while four factors significantly and positively impact retention. Students with ethnicity of “other” were approximately seven percentage points more likely to be retained. Financially dependent students were almost eight percentage points less likely to be retained than students who were financially independent. Students with aspirations of obtaining a bachelor’s degree had an eight percentage point increase in retention. Three college experience factors were found to be significant and negatively impact retention. The first, freshmen were more likely to withdraw than sophomores. Second, if an individual had a low GPA, he or she was more likely to leave the institution; finally, students who were employed full-time were less likely to be retained.

From the *NPSAS: 96* study, 10 non-financial variables were found to be significant as they relate to retention in a two-year college setting. From the study researchers found:

1. African American students were a little more than four percentage points less likely to be retained than White students,
2. non-traditional students were almost six percentage points more likely to be retained than traditional students,
3. dependent students were retained at 10.3 percentage points,
4. students with advanced degrees were nine percentage points more likely to be retained than those without these educational goals.
College experience variables in the study associated with retention were:

1. sophomores were more likely to be retained than freshmen,
2. students enrolled in public post-secondary institutions were more likely to be retained than those students enrolled at a private institution,
3. students enrolled with a full-time status were almost 29 percentage points more likely to be retained than students enrolled on a part-time basis,
4. students with both high and low grades were more committed to completing their academic goals than students who received average grades.

The demographic variables of academic measures, age, and income remain significant predictors of persistence among the possible factors. Students interviewed during their first year in college reported that they expected to attain at least a bachelor’s degree were almost eight percentage points more likely to be retained than students who did not expect to complete their program of study. Students with a higher ability level were also more likely to be retained; every one point of GPA was related to a six percentage point increase in the probability of retention, and students with higher merit measures in high school also were more likely to stay in college. Students who “stopped out” at least once were more than 12 percentage points less likely to persist into 1996-1997.

The academic factors improved the ability of the model to predict persistence. Combined, the demographic and academic factors explained 19% of the variance in student retention. If a student received any type of aid in either or both of his or her first two years of college, that individual was almost nine percentage points more likely to persist when compared to students receiving no assistance during the freshmen and sophomore year. The model of persistence into 2000-2001 revealed academic factors jointly considered were the most important predictors of retention. Students who attended
college exclusively part-time through 1998 were approximately 20 percentage points less likely to still be in school than were students who were full-time through 1998. Students whose attendance was a mixture of part-time and full-time were 10 percentage points less likely to remain in college. Grades were also important predictors of retention. Students with a cumulative GPA of 2.0 or higher were at least 20 percentage points more likely to still be attending college. Race was the only demographic factor found to be related to retention in this study. African American students were 26 percentage points less likely to be retained in 2000-2001 than White students.

Heller reported that students who received any form of aid (from any source) in three or more years were 17.9 percentage points more likely to persist than students receiving no aid in their college career. Students receiving institutional grants in their first year in college were more likely to persist through to 2000-2001 (Heller, 2003, p. 25).

A large body of literature related to student retention has emerged over the last 40 years. Several theories explain the retention process for college students. According to Tinto, attrition results from interactions between a student and his or her educational environment. Factors are adjustment, goals, commitment, uncertainty, congruence, and isolation. Bean developed the Student Attrition Model as an alternate theory to college persistence. His theory builds on departures in the organization and models of interaction involving attitude and behavior.

The student withdrawal rate from higher education has been recognized as a significant social, economic, and educational problem. Investigations into the retention of two-year and four-year college students identify several variables associated with persistence to program completion. Factors such as background, aspirations, college experiences, cost, accumulated debt load, and financial aid were reviewed.
CHAPTER 3

METHODOLOGY AND PROCEDURES

This chapter presents the research design and methodology used in the quantitative study. To investigate the likelihood that financial assistance is a predictor of retention at a two-year college, six research questions were used to guide the research study.

1. What is the likelihood that financial assistance received through Federal Pell Grant is a predictor of retention at a two-year college?

2. What is the likelihood that financial assistance received through Legislative Incentive for Future Excellence Scholarship is a predictor of retention at a two-year college?

3. What is the likelihood that financial assistance received through South Carolina Education Lottery Tuition Assistance is a predictor of retention at a two-year college?

4. What is the likelihood that financial assistance received through a combination of South Carolina Education Lottery Tuition Assistance and Federal Pell Grant is a predictor of retention at a two-year college?

5. What is the likelihood that financial assistance received through a combination of Legislative Incentive for Future Excellence Scholarship and Federal Pell Grant is a predictor of retention at a two-year college?

6. To what extent do demographic variables increase the likelihood of various types of financial aid as a predictor of retention at a two-year college?

The chapter includes a description of the research design, the identification of the research variables, and the research hypotheses. This chapter also covers the statistical procedures used in the study and the data analysis procedures.

The primary purpose of this research design was to determine the likelihood that the specific type of financial assistance a student receives is a predictor of retention at a
two-year college. Retention was defined as completion of the certificate, diploma, or degree within 150% of the length of time required to complete the program of study, continued enrollment at the institution, or transfer to a four-year institution. The five distinct types of financial assistance examined in the study were:

1. Federal Pell Grant,
2. Legislative Incentive for Future Excellence Scholarship,
3. South Carolina Education Lottery Tuition Assistance,
4. a combination of South Carolina Education Lottery Tuition Assistance and Federal Pell Grant,
5. and a combination of Legislative Incentive for Future Excellence Scholarship and Federal Pell Grant.

Secondly, the study was designed to determine to what extent demographic variables increase the likelihood of specific types of financial assistance as a predictor of retention at a two-year college? The four demographic variables examined were age, ethnicity, gender, and program of study.

**Research Design**

Statistical logistic regression methods were used to meet the objectives of the study. Regression methods were used to find the “best fit” between the independent or explanatory variables and the outcome or dependent variable in the study. The study includes one dichotomous dependent variable, five independent variables, and four demographic or categorical covariate variables. Logistic regression is the preferred data analytic tool of choice when the equation to be estimated has a dichotomous dependent variable (Agresti, 1996; Pampel, 2000; Wuensch, 2006).
The first block forward stepwise method was used to build a model using binary logistic regression for the five independent variables of types of financial assistance. The stepwise logistic regression utilized the likelihood ratio test (chi-square difference) to determine automatically which variables to add or drop from the model. Forward selection was the option, starting with the constant-only model and adding variables one at a time in the order they are best until some cutoff level is reached (until all variables not in the model have a significance higher than 0.05). Once the significant predictors were identified, the backward stepwise method was used in block two to investigate the possibility the categorical covariate variables of age, ethnicity, gender, and program of study increased the possibility of predicting retention. Backward selection started with all variables and deleted one at a time, in the order they are worse by some criteria. The categorical variables were set at deviate with an entry option of 0.05 and removal at 0.10. The classification cutoff was 0.5 and the confidence interval for exp (B) was 95%.

Two steps were necessary for SPSS to enter all variables that significantly improved the model. The values from the Omnibus Tests of Model Coefficients test whether or not all of the variables entered in the equation, all the variables entered in the current block, or the current increase in the model fit have a significant effect. Chi-square values were provided for each step. The forward stepwise method took all the independent variables and built a prediction model with those variables that would be the best predictors of retention according to the financial aid received.

To test the hypotheses concerning the relationships between the variables using the binary logistic regression procedure, the level of significance was set at alpha equal to 0.05. In situations where the level of significance was less than 0.05, the research
hypothesis was rejected and the conclusion was stated that there is a significant relationship between the two sets of variables in the sample.

Frequencies were computed on the dependent, independent, and secondary variables. The frequency tables were analyzed and reported.

The Variables

The outcome (dependent) variable in this study was retention. Retention was defined as completion of the diploma, certificate, or degree program within 150% length of time required to complete the program of study, continued enrollment at the College as of Fall 2002, or transfer to a four-year institution. The dependent variable was a dichotomous variable, retained or not retained. The explanatory (independent) variables were the five distinct types of financial assistance utilized by the Fall 2002 cohort of 300 first-time, full-time freshmen. The independent variables were: Federal Pell Grant, Legislative Incentive for Future Excellence Scholarship, South Carolina Lottery Tuition Assistance, a combination of Federal Pell Grant and Legislative Incentive for Future Excellence Scholarship, and the combination of Federal Pell Grant and South Carolina Lottery Tuition Assistance.

Non-financial variables were also analyzed in the study. There were four secondary or demographic variables. These categorical covariates were age, ethnicity, gender, and program of study (diploma, certificate, or degree).

Research Hypotheses

The following research hypotheses were stated about the relationships between the variables:
Hypothesis 1: There is no relationship between financial assistance received through a Federal Pell Grant and retention at a two-year college.

Hypothesis 2: There is no relationship between financial assistance received through South Carolina Lottery Tuition Assistance and retention at a two-year college.

Hypothesis 3: There is no relationship between financial assistance received through Legislative Incentive for Future Excellence Scholarship and retention at a two-year college.

Hypothesis 4: There is no relationship between financial assistance received through a combination of South Carolina Education Lottery Tuition Assistance and Federal Pell Grant and retention at a two-year college.

Hypothesis 5: There is no relationship between financial assistance received through a combination of Legislative Incentive for Future Excellence Scholarship and Federal Pell Grant and retention at a two-year college.

Hypothesis 6: There is no relationship between selected demographic variables of age, ethnicity, gender, and/or program of study and, type of financial assistance on retention at a two-year college.

The findings and conclusions for the study are based on logistic regression procedures which reflect the relationship between the variables in the research study.

The Institution

According to the Central Carolina Technical College 2005-2006 Catalog, Central Carolina Technical College (CCTC) is one of 16 public, two-year institutions in South Carolina. The institution provides educational services to a four county service area within the state. The four counties are Clarendon, Lee, Kershaw, and Sumter. The College is designated as an open-door admission institution. An open-door admission institution provides access to education for individuals with varied potential. Central Carolina Technical College admits all students who can benefit from available learning opportunities and places them into specific programs of study where the potential for
success is commensurate with program admission standards. The College confers associate degrees, diplomas, and certificates to its graduates. CCTC’s mission is to prepare students to enter the work force, to transfer to a four-year institution, and to achieve both professional and personal goals.

The Cohort

Participants in the study consisted of a cohort of 337 first-time, full-time freshmen attending Central Carolina Technical College in the Fall of 2002. Participants were classified according to the distinct type of financial assistance they received. Data on participants were eliminated from the data set if they did not receive one of the following forms of financial aid:

1. Federal Pell Grant
2. Legislative Incentive for Future Excellence Scholarship
3. South Carolina Lottery Tuition Assistance
4. a combination of Federal Pell Grant and Legislative Incentive for Future Excellence Scholarship
5. or a combination of Federal Pell Grant and South Carolina Lottery Tuition Assistance

From the established cohort of 337 students, 37 entries for participants were removed from the secondary data sources. Data entries were removed because of the death of one student during the period between Fall 2002 and Fall 2005; 33 students who did not receive one of the five distinct types of financial assistance; and three students who were non-degree seeking students. The total number of participants in the study’s cohort included 300 first-time, full-time freshmen who enrolled during Fall 2002. Table
3.1 shows frequencies and percentages by the type of financial aid awarded and student retention from the cohort.

Table 3.1  *Participants Retained by Type of Financial Aid, by Frequency and Percentage (N = 300)*

<table>
<thead>
<tr>
<th>Financial Assistance</th>
<th>Retained</th>
<th>No.</th>
<th>%</th>
<th>Not Retained</th>
<th>No.</th>
<th>%</th>
<th>Total Frequency and Percentage</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pell</td>
<td>62</td>
<td>20.67</td>
<td>125</td>
<td>41.67</td>
<td>187</td>
<td>62.33</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIFE</td>
<td>15</td>
<td>5.00</td>
<td>6</td>
<td>2.00</td>
<td>21</td>
<td>7.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCEL</td>
<td>25</td>
<td>8.33</td>
<td>42</td>
<td>14.00</td>
<td>67</td>
<td>22.33</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pell/SCEL</td>
<td>6</td>
<td>2.00</td>
<td>10</td>
<td>3.33</td>
<td>16</td>
<td>5.33</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pell/LIFE</td>
<td>6</td>
<td>2.00</td>
<td>3</td>
<td>1.00</td>
<td>9</td>
<td>3.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>114</td>
<td>38.00</td>
<td>186</td>
<td>62.00</td>
<td>300</td>
<td>100.00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Data Used in the Study**

Two secondary data sources were used in the study. First, requests were made by the researcher to the Director of Enrollment Management at the South Carolina State Board for Technical and Comprehensive Education for the cohort listing of first-time, full-time freshmen in the Fall 2002 cohort. The following data, consistent with the Integrated Postsecondary Education Data System (IPEDS) reports, were transmitted:

- cohort year started,
- college identification code,
- student social security number,
- student original program,
- gender,
- race,
- age,
- birth date,
- award used for graduation calculation (GRS),
- degree level award program,
- award conferred date,
- transfer out code,
- exclusion code,
- still enrolled data.

The data included all updates for each participant in the cohort for Fall 2002 through Fall 2005.

The Clemson University Institutional Review Board (IRB) approved the research study and granted exemption certification because the study involved the use of the existing secondary data sets. The data are publicly available for research purposes. The information was recorded by the investigator in such a manner that participants were not identified directly or through identifiers linked to the participants. Participants were not placed at risk. All requirements of Category 4 of Federal Code [45 CFR 46 (46.101)] which permits research activities exempt from continuing review were met.

Data Analysis Procedures

The secondary data sources obtained for the study were merged and cross-checked for accuracy. Before entering data in an SPSS spreadsheet, a coding sheet was created. The following is an item-by-item analysis of the variables used in the study.

Personal Characteristics (Categorical Covariate Variables)

Item 1 Identification
Item 2 Gender
Item 3 Ethnicity
Item 4 Age
Item 5 Program of study

Financial Assistance  (Independent Variables)
Item 6 Federal Pell Grant
Item 7 LIFE Scholarship
Item 8 SCEL Tuition Assistance
Item 9 SCEL Tuition Assistance and Federal Pell Grant
Item 10 LIFE Scholarship and Federal Pell Grant

Retention
Item 11 Retained or Not Retained

Data were coded and analyzed using the Statistical Package for the Social Sciences 14.0 for Windows. The cohort consisted of data from 300 participants.

Summary of the Procedures Used in the Study

The study focused on determining the likelihood that the type of financial assistance a student received is a predictor of retention at a two-year college. Retention was defined as completion of the certificate, diploma, or degree within 150% of the length of time required to complete the program of study, continued enrollment at the institution, or transfer to a four-year institution. The effects of five distinct types of financial assistance offered at this institution on retention were investigated:
1. Federal Pell Grant
2. Legislative Incentive for Future Excellence Scholarship
3. South Carolina Education Lottery Tuition Assistance
4. a combination of South Carolina Education Lottery Tuition Assistance and Federal Pell Grant
5. a combination of Legislative Incentive for Future Excellence Scholarship and Federal Pell Grant

The secondary purpose of the study focused on the extent selected demographic factors increase the likelihood of financial aid as a predictor of retention at a two-year college. The four demographic, categorical covariate variables were age, ethnicity, gender, and program of study.

The steps used in completing the study included:

1. Secondary data sources of a cohort consisting of 300 participants who were first-time, full-time freshmen were obtained from the South Carolina State Board for Technical and Comprehensive Education and the Information System Department at Central Carolina Technical College.
2. Data were coded and entered on the computer using SPSS as statistical package.
3. The data were analyzed using SPSS 14.0 for Windows to generate frequencies and binary logistic regressions.
4. The results were interpreted and analyzed as each relates to the six research questions, six research hypotheses, and current literature reviewed in the study.
CHAPTER 4
ANALYSIS OF THE DATA

The purpose of this chapter is to present the data analysis and interpretation of the research study concerning the likelihood that a specific type of financial assistance is a predictor of retention at a two-year college. Retention is the dependent variable. Retention is defined as the completion of the certificate, diploma, or degree within 150% of the length of time required to complete the program of study, continued enrollment at the institution, or transfer to a four-year institution. Independent variables. The five distinct types of financial assistance were:

1. Federal Pell Grant
2. Legislative Incentive for Future Excellence Scholarship
3. South Carolina Lottery Tuition Assistance
4. a combination of South Carolina Education Lottery Tuition Assistance and Federal Pell Grant
5. and a combination of Legislative Incentive for Future Excellence Scholarship and Federal Pell Grant

This chapter also includes analysis of the data collected concerning specific demographic variables that may increase the likelihood of financial assistance as a predictor of retention at a two-year college. These categorical covariates include age, ethnicity, gender, and program of study.

Two sources of administrative data were utilized for the study. Data were analyzed using the Statistical Package for the Social Sciences (SPSS) 14.0 for Windows. The total number of participants was 300 first-time, full-time freshmen attending Central
Carolina Technical College in the Fall of 2002. Of the participants, 220 (73.33%) were between the ages of 18 and 25; 155 (51.67%) listed ethnicity as White/non-Hispanic; 193 (64.33%) were female; and 182 (60.70%) were enrolled in an associate degree program of study.

Frequency distribution tables were formulated using the data collected and are displayed. Binary logistic regression was utilized to determine the relationship between retention, financial aid, and the demographic variables. The data were analyzed based on six research questions and six hypotheses statements.

The first section of Chapter 4 addresses the descriptive statistics of the study. The second section of this chapter addresses the six research questions and six research hypotheses, and the third section provides a summary of the results of the study.

Descriptive Statistics

Table 4.1 shows data on the number of financial aid recipients and the number of participants from the cohort retained. Of the 300 participants in the administrative data set, 187 (62.33%) received the Federal Pell Grant, 21 (7.00%) received LIFE Scholarship, 67 (22.33%) received SCEL Tuition Assistance, 16 (5.33%) received a combination of Federal Pell Grant and SCEL Tuition Assistance, and 9 (3.00%) received a combination of Federal Pell Grant and LIFE Scholarship. More students were not retained, or left the college, 62% (186), than were retained, 38% (114).

Age, Retention, and Type of Financial Assistance of Participants

Data pertaining to the age and retention of participants retained and not retained by frequency and percentages are shown in Table 4.2. The highest percentage of
Table 4.1  *Participants Retained by Type of Financial Aid, by Frequency and Percentage (N = 300)*

<table>
<thead>
<tr>
<th>Financial Assistance</th>
<th>Retained No.</th>
<th>%</th>
<th>Not Retained No.</th>
<th>%</th>
<th>Total No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pell</td>
<td>62</td>
<td>20.67</td>
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<tr>
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<td>5.00</td>
<td>6</td>
<td>2.00</td>
<td>21</td>
<td>7.00</td>
</tr>
<tr>
<td>SCEL</td>
<td>25</td>
<td>8.33</td>
<td>42</td>
<td>14.00</td>
<td>67</td>
<td>22.33</td>
</tr>
<tr>
<td>Pell/SCEL</td>
<td>6</td>
<td>2.00</td>
<td>10</td>
<td>3.33</td>
<td>16</td>
<td>5.33</td>
</tr>
<tr>
<td>Pell/LIFE</td>
<td>6</td>
<td>2.00</td>
<td>3</td>
<td>1.00</td>
<td>9</td>
<td>3.00</td>
</tr>
<tr>
<td>Total</td>
<td>114</td>
<td>38.00</td>
<td>186</td>
<td>62.00</td>
<td>300</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Table 4.2  *Age of Participants Retained, by Frequency and Percentage (N = 300)*

<table>
<thead>
<tr>
<th>Age</th>
<th>Retained No.</th>
<th>%</th>
<th>Not Retained No.</th>
<th>%</th>
<th>Total No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 to 25</td>
<td>85</td>
<td>28.33</td>
<td>135</td>
<td>45.00</td>
<td>220</td>
<td>73.33</td>
</tr>
<tr>
<td>26 to 30</td>
<td>14</td>
<td>4.67</td>
<td>19</td>
<td>6.33</td>
<td>33</td>
<td>11.00</td>
</tr>
<tr>
<td>31 to 39</td>
<td>9</td>
<td>3.00</td>
<td>18</td>
<td>6.00</td>
<td>27</td>
<td>9.00</td>
</tr>
<tr>
<td>40 to 49</td>
<td>5</td>
<td>1.67</td>
<td>13</td>
<td>4.33</td>
<td>18</td>
<td>6.00</td>
</tr>
<tr>
<td>50 to 59</td>
<td>1</td>
<td>0.33</td>
<td>1</td>
<td>0.33</td>
<td>2</td>
<td>0.67</td>
</tr>
<tr>
<td>Total</td>
<td>114</td>
<td>38.00</td>
<td>186</td>
<td>62.00</td>
<td>300</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Participants retained were between the ages of 18 and 25, 28.33% (85); 4.67% (14) were between the ages of 26 and 30; 3.00% (9) were between the ages of 31 and 39; 1.67% (5) were between the ages of 40 and 49, and fewer than one percent (1) were between the ages of 50 and 59.

The data concerning the age and retention of first-time, full-time freshmen in the 2002 cohort receiving financial assistance through the Federal Pell Grant are presented in Table 4.3. The data collected show that 64.71% (121) of the participants were between the ages of 18 and 25. The number of participants retained was approximately 33.15%
Table 4.3 *Age of Federal Pell Grant Recipients, by Frequency and Percentage (N = 187)*

<table>
<thead>
<tr>
<th>Age</th>
<th>Retained</th>
<th></th>
<th>Not Retained</th>
<th></th>
<th>Total Frequency and Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>18 to 25</td>
<td>38</td>
<td>20.32</td>
<td>83</td>
<td>44.39</td>
<td>121</td>
</tr>
<tr>
<td>26 to 30</td>
<td>11</td>
<td>5.88</td>
<td>17</td>
<td>9.09</td>
<td>28</td>
</tr>
<tr>
<td>31 to 39</td>
<td>9</td>
<td>4.81</td>
<td>14</td>
<td>7.49</td>
<td>23</td>
</tr>
<tr>
<td>40 to 49</td>
<td>4</td>
<td>2.14</td>
<td>10</td>
<td>5.35</td>
<td>14</td>
</tr>
<tr>
<td>50 to 59</td>
<td>0</td>
<td>0.00</td>
<td>1</td>
<td>0.53</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>62</td>
<td>33.15</td>
<td>125</td>
<td>66.85</td>
<td>187</td>
</tr>
</tbody>
</table>

(62) compared to the number of participants receiving Federal Pell Grant that were not retained, 66.85% (125). The highest percentage, 20.32% (38) of participants retained were in the age category of 18 to 25; 5.88% (11) of the participants retained was in the age category of 26 to 30; 4.81% (9) of the participants retained were in the age category of 31 to 39; 2.14% (4) were in the age category of 40 to 49, and there were no participants retained in the age category of 50 to 59. The highest percentage of non-retained students was 44.39% (83) in the age category of 18 to 25. Two times the number of students who received Federal Pell Grants were not retained compared to those retained.

Data pertaining to the age and retention of participants receiving financial assistance through the LIFE Scholarship are presented in Table 4.4. The data collected show that 100% (21) of the participants receiving LIFE Scholarship were between the ages of 18 and 25. Of the total 21 participants receiving LIFE Scholarships, 71.43% (15) between the ages of 18 to 25 were retained, and 28.57% (6) were not retained.

Data concerning the age and retention of participants receiving financial assistance through the SCEL Tuition Assistance are presented in Table 4.5. The data
Table 4.4  *Age of LIFE Scholarship Recipients, by Frequency and Percentage (N = 21)*

<table>
<thead>
<tr>
<th>Age</th>
<th>Retained</th>
<th></th>
<th>Not Retained</th>
<th></th>
<th>Total Frequency and Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>18 to 25</td>
<td>15</td>
<td>71.43</td>
<td>6</td>
<td>28.57</td>
<td>21</td>
</tr>
<tr>
<td>26 to 30</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>31 to 39</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>40 to 49</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>50 to 59</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>71.43</td>
<td>6</td>
<td>28.57</td>
<td>21</td>
</tr>
</tbody>
</table>

Table 4.5  *Age of SCEL Recipients, by Frequency and Percentage (N = 67)*

<table>
<thead>
<tr>
<th>Age</th>
<th>Retained</th>
<th></th>
<th>Not Retained</th>
<th></th>
<th>Total Frequency and Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>18 to 25</td>
<td>21</td>
<td>31.34</td>
<td>34</td>
<td>50.75</td>
<td>55</td>
</tr>
<tr>
<td>26 to 30</td>
<td>3</td>
<td>4.48</td>
<td>1</td>
<td>1.49</td>
<td>4</td>
</tr>
<tr>
<td>31 to 39</td>
<td>0</td>
<td>0.00</td>
<td>4</td>
<td>5.97</td>
<td>4</td>
</tr>
<tr>
<td>40 to 49</td>
<td>1</td>
<td>1.49</td>
<td>3</td>
<td>4.48</td>
<td>4</td>
</tr>
<tr>
<td>50 to 59</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
<td>37.31</td>
<td>42</td>
<td>62.69</td>
<td>67</td>
</tr>
</tbody>
</table>

collected show that a total of 67 students received SCEL Tuition Assistance. The majority of the students, 82.09%, (55) were between the ages of 18 and 25. Of the participants retained, 31.34% (21) were between the ages of 18 and 25. Overall, 37.31% (25) of the students receiving financial assistance at CCTC through SCEL Tuition Assistance were retained. Of the 42 students receiving SCEL Tuition Assistance not retained, the majority, 50.75% (34), were between the ages of 18 to 25.

The data concerning the age and retention of first-time, full-time freshmen in the 2002 cohort receiving financial assistance through a combination of Federal Pell Grant
Table 4.6 *Age of Federal Pell Grant/LIFE Recipients, by Frequency and Percentage (N = 9)*

<table>
<thead>
<tr>
<th>Age</th>
<th>Retained</th>
<th></th>
<th>Not Retained</th>
<th></th>
<th>Total Frequency and Percentage</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>18 to 25</td>
<td>6</td>
<td>66.67</td>
<td>3</td>
<td>33.33</td>
<td>9</td>
<td>100.00</td>
</tr>
<tr>
<td>26 to 30</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>31 to 39</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>40 to 49</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>50 to 59</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>66.67</td>
<td>3</td>
<td>33.33</td>
<td>9</td>
<td>100.00</td>
</tr>
</tbody>
</table>

and LIFE Scholarship are presented in Table 4.6. The data collected show that 67% (6) of the nine participants between the ages of 18 and 25 were retained; 33% (3) of the recipients receiving Federal Pell Grant and LIFE Scholarship between the ages of 18 and 25 were not retained. Overall, all recipients of a combination of Federal Pell Grant and LIFE Scholarship were in the age category of 18 to 25.

Data pertaining to the age and retention of participants receiving financial assistance through the combination of Federal Pell Grant and SCEL Tuition Assistance are presented in Table 4.7. The data collected show that 87.50% (14) of the participants were between the ages of 18 and 25. Approximately 62.50% (10) of the participants were not retained; 37.50% (6) of the participants receiving a combination of Federal Pell Grant and SCEL Tuition Assistance were retained.

**Ethnicity, Retention, and Type of Financial Assistance of Participants**

Data concerning the ethnicity and retention of the participants in the 2002 cohort are summarized in Table 4.8. African American students comprised 44.67% (134) and
Table 4.7 *Age of Federal Pell Grant/SCEL Tuition Assistance Recipients, by Frequency and Percentage (N = 16)*

<table>
<thead>
<tr>
<th>Age</th>
<th>Retained</th>
<th>Not Retained</th>
<th>Total Frequency and Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>18 to 25</td>
<td>5</td>
<td>31.25</td>
<td>9</td>
</tr>
<tr>
<td>26 to 30</td>
<td>0</td>
<td>0.00</td>
<td>1</td>
</tr>
<tr>
<td>31 to 39</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>40 to 49</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>50 to 59</td>
<td>1</td>
<td>6.25</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>37.50</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 4.8 *Ethnicity of Participants Retained by Frequency and Percentage (N = 300)*

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Retained</th>
<th>Not Retained</th>
<th>Total Frequency and Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>African American</td>
<td>43</td>
<td>14.33</td>
<td>91</td>
</tr>
<tr>
<td>White/Non-Hispanic</td>
<td>66</td>
<td>22.00</td>
<td>89</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>1.67</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>114</td>
<td>38.00</td>
<td>186</td>
</tr>
</tbody>
</table>

White/Non-Hispanic students comprised 51.67% (155) of the first-time, full-time freshmen cohort in the study. White/Non-Hispanic students had the largest representation in the study. Eleven students (3.67%) in the sample were classified as “Other.” These 11 students included eight Hispanic students, one Asian or Pacific Islander, one American Indian/Alaskan Native, and one student (female) who classified her ethnicity as non-resident alien. There were 43 (14.33%) African-American students retained and 66 (22%) White/Non-Hispanic students retained. The majority of students not retained included 91
(30.33%) African American students and 89 (29.67%) White/Non-Hispanic students.

There were six (2%) students in the “Other” category who were not retained.

Data on the ethnicity and retention of the 187 first-time, full-time participants who received Federal Pell Grant financial assistance are summarized in Table 4.9. There were 33 (17.65%) African American students receiving the Federal Pell Grant who were retained, and 77 (41.17%) were not retained. There were 25 (13.37%) White/Non-Hispanic students who were retained and 44 (23.53%) not retained. Of the eight students in the “Other” category receiving Federal Pell Grants, 4 (2.14%) were retained, and 4 (2.14%) were not retained.

Table 4.9 Ethnicity of Federal Pell Grant Recipients, by Frequency and Percentage (N = 187)

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Retained</th>
<th></th>
<th>Not Retained</th>
<th></th>
<th>Total Frequency and Percentage</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>African American</td>
<td>33</td>
<td>17.65</td>
<td>77</td>
<td>41.17</td>
<td>110</td>
<td>58.82</td>
</tr>
<tr>
<td>White/Non-Hispanic</td>
<td>25</td>
<td>13.37</td>
<td>44</td>
<td>23.53</td>
<td>69</td>
<td>36.90</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>2.14</td>
<td>4</td>
<td>2.14</td>
<td>8</td>
<td>4.28</td>
</tr>
<tr>
<td>Total</td>
<td>62</td>
<td>33.16</td>
<td>125</td>
<td>66.84</td>
<td>187</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Data pertaining to the ethnicity and retention of first-time, full-time participants receiving the LIFE Scholarship are summarized in Table 4.10. Of the 21 students receiving LIFE Scholarship, four (19.05%) were African American, 16 (76.19%) were White/Non-Hispanic, and one (4.76%) was coded as “Other.” The majority, 12 (57.14%) of the LIFE Scholarship recipients retained were White/Non-Hispanic. There were three
Table 4.10 *Ethnicity of LIFE Scholarship Recipients, by Frequency and Percentage*  
\(N = 21\)

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Retained</th>
<th></th>
<th>Not Retained</th>
<th></th>
<th>Total Frequency and Percentage</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>African American</td>
<td>3</td>
<td>14.29</td>
<td>1</td>
<td>4.76</td>
<td>4</td>
<td>19.05</td>
</tr>
<tr>
<td>White/Non-Hispanic</td>
<td>12</td>
<td>57.14</td>
<td>4</td>
<td>19.05</td>
<td>16</td>
<td>76.19</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0.00</td>
<td>1</td>
<td>4.76</td>
<td>1</td>
<td>4.76</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>71.43</td>
<td>6</td>
<td>28.57</td>
<td>21</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(14.29%) African American LIFE Scholarship recipients retained. Of the six students receiving LIFE Scholarship who were not retained, one (4.76%) was African American, four (19.05%) were White/Non-Hispanic, and one (4.76%) was classified as “Other.”

Table 4.11 shows the data collected on the ethnicity and retention of first-time, full-time participants receiving the SCEL Tuition Assistance. The majority of the participants, 77.61% (52), receiving SCEL Tuition Assistance were White/Non-Hispanic; 19.40% (13) were African American students, and 2.99% (2) were coded as “Other.” Fewer students were retained who received SCEL Tuition Assistance, 37.31% (25), as compared to students who were not retained, 62.69% (42).

Data pertaining to the ethnicity and retention of first-time, full-time participants receiving a combination of the Federal Pell Grant and LIFE Scholarship are shown in Table 4.12. The majority, 66.66% (6), of students receiving this combination of financial assistance were White/Non-Hispanic, 33.33% (3) were African American students. More students who received this type of aid were retained, 66.66% (6), than were not retained, 33.33% (3).
Table 4.11 Ethnicity of SCEL Tuition Assistance Recipients, by Frequency and Percentage (N = 67)

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Retained</th>
<th>No.</th>
<th>%</th>
<th>Not Retained</th>
<th>No.</th>
<th>%</th>
<th>Total Frequency and Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td></td>
<td>2</td>
<td>2.98</td>
<td>11</td>
<td>16.42</td>
<td></td>
<td>13 19.40</td>
</tr>
<tr>
<td>White/Non-Hispanic</td>
<td></td>
<td>22</td>
<td>32.84</td>
<td>30</td>
<td>44.78</td>
<td></td>
<td>52 77.61</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>1</td>
<td>1.49</td>
<td>1</td>
<td>1.49</td>
<td></td>
<td>2 2.99</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>25</td>
<td>37.31</td>
<td>42</td>
<td>62.69</td>
<td></td>
<td>67 100.00</td>
</tr>
</tbody>
</table>

Table 4.12 Ethnicity of Pell/LIFE Scholarship Recipients, by Frequency and Percentage (N = 9)

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Retained</th>
<th>No.</th>
<th>%</th>
<th>Not Retained</th>
<th>No.</th>
<th>%</th>
<th>Total Frequency and Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td></td>
<td>3</td>
<td>33.33</td>
<td>0</td>
<td>0.00</td>
<td></td>
<td>3 33.33</td>
</tr>
<tr>
<td>White/Non-Hispanic</td>
<td></td>
<td>3</td>
<td>33.33</td>
<td>3</td>
<td>33.33</td>
<td></td>
<td>6 66.66</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
<td></td>
<td>0 0.00</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>6</td>
<td>66.66</td>
<td>3</td>
<td>33.33</td>
<td></td>
<td>9 100.00</td>
</tr>
</tbody>
</table>

Table 4.13 shows the data collected on the ethnicity and retention of first-time, full-time participants receiving a combination of Federal Pell Grant and SCEL Tuition Assistance. Twelve (75%) White/Non-Hispanic students received this combination of financial assistance, and four (25%) African American students received Federal Pell Grants and SCEL Tuition Assistance. The highest percentage, 25% (4), of students retained who received Pell and SCEL Tuition Assistance was White/Non-Hispanic students; 12.50% (2) African American students who received this aid were retained.
Table 4.13 *Ethnicity of Pell Grant/SCEL Tuition Assistance Recipients, by Frequency and Percentage (N = 16)*

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Retained</th>
<th>No.</th>
<th>%</th>
<th>Not Retained</th>
<th>No.</th>
<th>%</th>
<th>Total Frequency and Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td></td>
<td>2</td>
<td>12.50</td>
<td>2</td>
<td>12.50</td>
<td>4</td>
<td>25.00</td>
</tr>
<tr>
<td>White/Non-Hispanic</td>
<td></td>
<td>4</td>
<td>25.00</td>
<td>8</td>
<td>50.00</td>
<td>12</td>
<td>75.00</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>6</td>
<td>37.50</td>
<td>10</td>
<td>62.50</td>
<td>16</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Fewer students receiving Pell and SCEL Tuition Assistance were retained, 37.50% (6) than left the institution, 62.50% (10).

**Gender, Retention, and Type of Financial Assistance of Participants**

Data pertaining to the gender of the participants in the 2002 cohort are shown in Table 4.14. Data collected on the participants show 64.33% (193) were female, and 35.67% (107) were male. The majority of the students in the study who were retained were females, 70 (23.33%). There were 123 (41.00%) females in the cohort who were not retained. There were 44 (14.67%) males retained and 63 (21.00%) not retained.

Table 4.15 shows the data collected on gender and retention of Federal Pell Grant recipients. The majority of students, 74.87% (140), who received financial assistance through Federal Pell Grant were female; 2513% (47) were male. There were 49 (26.20%)
females receiving Federal Pell Grant assistance who were retained. There were 13 (6.96%) males who were not retained.

Data concerning the gender and retention rate of participants receiving LIFE Scholarship are shown in Table 4.16. There were 11 (52.38%) females of the 21 students who received financial assistance through LIFE Scholarship. Ten (47.62%) recipients were males. There were eight (38.10%) males receiving LIFE Scholarship who were retained and seven (33.33%) females who were retained.

Table 4.17 shows the data on gender and retention of SCEL Tuition Assistance recipients. The majority of students, 61.19% (41), who received financial assistance through SCEL Tuition Assistance were male, and 38.81% (26) were female. There were
Table 4.16 *Gender of LIFE Scholarship Recipients, by Frequency and Percentage (N = 21)*

<table>
<thead>
<tr>
<th>Gender</th>
<th>Retained</th>
<th></th>
<th>Not Retained</th>
<th></th>
<th>Total Frequency and Percentage</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Female</td>
<td>7</td>
<td>33.33</td>
<td>4</td>
<td>19.05</td>
<td>11</td>
<td>52.38</td>
</tr>
<tr>
<td>Male</td>
<td>8</td>
<td>38.10</td>
<td>2</td>
<td>9.52</td>
<td>10</td>
<td>47.62</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>71.43</td>
<td>6</td>
<td>28.57</td>
<td>21</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Table 4.17 *Gender of SCEL Tuition Assistance Recipients, by Frequency and Percentage (N = 67)*

<table>
<thead>
<tr>
<th>Gender</th>
<th>Retained</th>
<th></th>
<th>Not Retained</th>
<th></th>
<th>Total Frequency and Percentage</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Female</td>
<td>6</td>
<td>8.95</td>
<td>20</td>
<td>29.85</td>
<td>26</td>
<td>38.81</td>
</tr>
<tr>
<td>Male</td>
<td>19</td>
<td>28.36</td>
<td>22</td>
<td>32.84</td>
<td>41</td>
<td>61.19</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
<td>37.36</td>
<td>42</td>
<td>62.69</td>
<td>67</td>
<td>100.00</td>
</tr>
</tbody>
</table>

19 (28.36%) males and 6 (8.95%) females receiving SCEL Tuition Assistance who were retained.

Data concerning the gender and retention of participants receiving a combination of Federal Pell Grant and LIFE Scholarship are shown in Table 4.18. The majority of students, 77.78% (7), who received financial assistance through a combination of Pell and LIFE Scholarship were female, and 22.22% (2) were male. Six (66.66%) students who received Federal Pell Grant and LIFE Scholarship were retained. Four (44.44%) females and 2 (22.22%) males were retained. Three (33.33%) female students receiving this combination of financial assistance were not retained.
Table 4.18 *Gender of Federal Pell Grant/LIFE Scholarship Recipients, by Frequency and Percentage (N = 9)*

| Gender | Retained | | | Total Frequency and Percentage | |
|--------|---------|---------|-----------------|-----------------------------|
|        | No.     | %       | No.             | %                          |
| Female | 4       | 44.44%  | 3               | 33.33%                     |
| Male   | 2       | 22.22%  | 0               | 0.00%                      |
| Total  | 6       | 66.66%  | 3               | 33.33%                     |

Table 4.19 shows the data on gender and retention of Federal Pell Grant and SCEL Tuition Assistance recipients. The majority of students, 56.25% (9), who received financial assistance through a combination of Pell and SCEL Tuition Assistance were female, and 43.75% (7) were male. There were 25.00% (4) females receiving this combination of assistance who were retained and 12.50% (2) males who were retained. Five (31.25%) females and five (31.25%) males who received Pell and SCEL Tuition Assistance were not retained. Fewer students, 6 (37.50%), were retained than not retained, 10 (62.50%).

Table 4.19 *Gender of Federal Pell Grant/SCEL Tuition Assistance Recipients, by Frequency and Percentage (N = 16)*

| Gender | Retained | | | Total Frequency and Percentage | |
|--------|---------|---------|-----------------|-----------------------------|
|        | No.     | %       | No.             | %                          |
| Female | 4       | 25.00%  | 5               | 31.25%                     |
| Male   | 2       | 12.50%  | 5               | 31.25%                     |
| Total  | 6       | 37.50%  | 10              | 62.50%                     |
Program of Study, Retention, and Type of Financial Assistance of Participants

Data concerning the program of study selected by the participants from the 2002 cohort are shown in Table 4.20. The majority of students, 60.70% (182), were enrolled in an associate degree program of study; 5.30% (16) were enrolled in a diploma program, and 34.00% (102) were enrolled in a certificate program of study. The majority of students retained, 26.33% (79), were enrolled in an associate degree program, 1.67% (5) were enrolled in a diploma program of study, and 10.00% (30) were enrolled in a certificate program of study.

Table 4.20  Program of Study of Participants Retained, by Frequency and Percentage (N = 300)

<table>
<thead>
<tr>
<th>Program of Study</th>
<th>Retained</th>
<th></th>
<th>Not Retained</th>
<th></th>
<th>Total Frequency and Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Associate Degree</td>
<td>79</td>
<td>26.33</td>
<td>103</td>
<td>34.33</td>
<td>182</td>
</tr>
<tr>
<td>Diploma</td>
<td>5</td>
<td>1.67</td>
<td>11</td>
<td>3.67</td>
<td>16</td>
</tr>
<tr>
<td>Certificate</td>
<td>30</td>
<td>10.00</td>
<td>72</td>
<td>24.00</td>
<td>102</td>
</tr>
<tr>
<td>Total</td>
<td>114</td>
<td>38.00</td>
<td>186</td>
<td>62.00</td>
<td>300</td>
</tr>
</tbody>
</table>

Table 4.21 displays the data on program of study and retention of Federal Pell Grant recipients. The majority of students, 56.68% (106), were enrolled in a degree program, 3.74% (7) were enrolled in a diploma program, and 39.57% (74) were enrolled in a certificate program. Participants enrolled in an associate degree had the highest retention rate, 21.93% (41).
Table 4.21 Program of Study of Federal Pell Grant Recipients, by Frequency and Percentage (N = 187)

<table>
<thead>
<tr>
<th>Program of Study</th>
<th>Retained</th>
<th></th>
<th></th>
<th>Total Frequency and Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Degree</td>
<td>41</td>
<td>21.93</td>
<td>65</td>
<td>34.76</td>
</tr>
<tr>
<td>Diploma</td>
<td>1</td>
<td>0.53</td>
<td>6</td>
<td>3.20</td>
</tr>
<tr>
<td>Certificate</td>
<td>20</td>
<td>10.70</td>
<td>54</td>
<td>28.88</td>
</tr>
<tr>
<td>Total</td>
<td>62</td>
<td>33.16</td>
<td>125</td>
<td>66.84</td>
</tr>
</tbody>
</table>

Data concerning program of study and retention of participants receiving LIFE Scholarship are displayed in Table 4.22. The majority, 76.19% (16), of students receiving LIFE Scholarship were enrolled in an associate degree program of study, 4.76% (1) of these participants were enrolled in a diploma program, and 19.05% (4) were enrolled in a certificate program. More students receiving LIFE Scholarship were retained, 71.42% (15), than students not retained 28.57% (6). The majority, 57.14% (12), of students retained were enrolled in a degree program of study.

Table 4.22 Program of Study of LIFE Scholarship Recipients, by Frequency and Percentage (N = 21)

<table>
<thead>
<tr>
<th>Program of Study</th>
<th>Retained</th>
<th></th>
<th></th>
<th>Total Frequency and Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Degree</td>
<td>12</td>
<td>57.14</td>
<td>4</td>
<td>19.05</td>
</tr>
<tr>
<td>Diploma</td>
<td>1</td>
<td>4.76</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>Certificate</td>
<td>2</td>
<td>9.52</td>
<td>2</td>
<td>9.52</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>71.42</td>
<td>6</td>
<td>28.57</td>
</tr>
</tbody>
</table>
Data pertaining to program of study and retention of students receiving SCEL Tuition Assistance is displayed in Table 4.23. The majority of students receiving SCEL Tuition Assistance, 65.67% (44), were enrolled in a degree program, 22.39% (15) were enrolled in a diploma program, and 11.94% (8) were enrolled in a certificate program of study. Most of the students retained, 25.37% (17), were enrolled in a degree program. Fewer students were retained, 37.31% (25), than students not retained, 62.69% (42).

Table 4.23 Program of Study of SCEL Tuition Assistance Recipients, by Frequency and Percentage (N = 67)

| Program of Study | Retained | | | Not Retained | | | Total Frequency and Percentage | |
|------------------|----------|----------|----------|----------|----------|----------|----------|
|                  | No. | %       | No. | %       | No. | %       |                  |
| Degree           | 17  | 25.37   | 27  | 40.30   | 44  | 65.67   |
| Diploma          | 5   | 7.46    | 10  | 14.93   | 15  | 22.39   |
| Certificate      | 3   | 4.48    | 5   | 7.46    | 8   | 11.94   |
| Total            | 25  | 37.31   | 42  | 62.69   | 67  | 100.00  |

Table 4.24 shows the data on program of study and retention of students receiving a combination of Federal Pell Grant and LIFE Scholarship. The majority, 66.67% (6), of students were enrolled in an associate degree program; 11.11% (1) of the students were enrolled in a diploma program, and 22.22% (2) were in the certificate program of study. Students were retained at a higher percentage, 44.44% (4), if they were enrolled in associate degree program. Students were retained at 22.22% (2) if they were enrolled in a certificate program. More students were retained, 66.66% (6), than not retained, 33.33% (3), if they received assistance through the combination of Federal Pell Grant and LIFE Scholarship.
Table 4.24 Program of Study of Federal Pell Grant/LIFE Scholarship Recipients, by Frequency and Percentage (N = 9)

<table>
<thead>
<tr>
<th>Program of Study</th>
<th>Retained</th>
<th>Not Retained</th>
<th>Total Frequency and Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Degree</td>
<td>4</td>
<td>44.44</td>
<td>2</td>
</tr>
<tr>
<td>Diploma</td>
<td>0</td>
<td>0.00</td>
<td>1</td>
</tr>
<tr>
<td>Certificate</td>
<td>2</td>
<td>22.22</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>66.66</td>
<td>3</td>
</tr>
</tbody>
</table>

Data on program of study and retention of students receiving a combination of Federal Pell Grant funding and SCEL Tuition Assistance is shown in Table 4.25. The majority of students were enrolled in a degree program, 62.50% (10). There were 37.50% (6) students enrolled in a certificate program. There were no students enrolled in a diploma program receiving Federal Pell Grant and SCEL Tuition Assistance. The majority of students, 31.25% (5), retained were enrolled in a degree program of study. Six (37.50%) students who received this combination of financial assistance were retained and 10 (62.50%) students were not retained.

Table 4.25 Program of Study of Federal Pell Grant/SCEL Recipients, by Frequency and Percentage (N = 16)

<table>
<thead>
<tr>
<th>Program of Study</th>
<th>Retained</th>
<th>Not Retained</th>
<th>Total Frequency and Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Degree</td>
<td>5</td>
<td>31.25</td>
<td>5</td>
</tr>
<tr>
<td>Diploma</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>Certificate</td>
<td>1</td>
<td>6.25</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>37.50</td>
<td>10</td>
</tr>
</tbody>
</table>
Summary of Descriptive Statistics

The majority of students, 62.33% (187), received Federal Pell Grant financial assistance. Of the 300 participants, 38.00% (114) were retained, and 62.00% (186) were not retained. The majority, 20.67% (62), of students who were retained received financial assistance through the Federal Pell Grant. Most students, 73.33% (220), were between the age of 18 and 25; this age category also had the highest percentage, 28.33% (85), of students retained. Black/ African American students comprised 44.67% (134) of the cohort while White/Non-Hispanic students totaled 51.67% (155), and students classified as “Other” made up 3.67% (11) of the cohort. The ethnic group retained at the highest percentage was White/Non-Hispanic, 22.00% (66). The ethnic group leaving the College at the highest rate was African American, 30.33% (91). The majority of participants were female, 64.33% (193), while 35.67% (107) were male. Females were retained at a higher percentage, 23.33 (70), than males, 124.67% (44). Of the programs of study, 60.70% (182) participants were enrolled in an associate degree, 5.30% (16) were enrolled in a diploma program of study, and 34.00% (102) were enrolled in a certificate program. The majority, 26.33% (79), of the students retained were enrolled in an associate degree program of study.

Analysis of Relationships and Hypotheses Testing

Data collected in this study were analyzed utilizing the dependent variable of retention, the five independent variables of types of financial aid, and four demographic variables. The five independent variables were Federal Pell Grant, LIFE Scholarship, SCEL Tuition Assistance, a combination of SCEL Tuition Assistance and Pell, and a
combination of LIFE Scholarship and Pell. The four demographic variables were age, ethnicity, gender, and program of study.

The first block method used was forward stepwise (likelihood ratio) method to build models using binary logistic regression for the five independent variables of financial assistance. The stepwise logistic regression utilized the likelihood ratio test (chi-square difference) to determine automatically which variables to add or drop from the model. Forward selection is the usual option, starting with the constant-only model and adding variables one at a time in the order they are best fitted until some cutoff level is reached (until all variables not in the model have a significance higher than 0.05). Once the significant predictors were identified, the backward stepwise (likelihood ratio) method was used in block two to investigate the possibility that the categorical covariate variables of age, ethnicity, gender, and program of study increase the possibility of predicting retention. Backward selection started with all variables and deleted one at a time, in the order they are worse by some criteria. The categorical variables were set at deviate with an entry option of 0.05 and removal at 0.10. The classification cutoff was 0.5, and the confidence interval for exp (B) was 95%.

From Table 4.26, two steps for SPSS were required to enter all variables that significantly improved the model. The variables in the equation were LIFE Scholarship and recipients of LIFE Scholarship/PELL. The values from the Omnibus Tests of Model Coefficients tested whether or not all of the variables entered in the equation, all the variables entered in the current block, or the current increase in the model fit had a significant effect. Chi-square values are provided for each step; from step 1, the Chi-square value is 10.393 with a significance of 0.001. The Chi-square value in step 2 is 14.127 with a
Table 4.26 Logistic Regression Method = Forward Stepwise (Likelihood), Predictors of Retention, Omnibus Tests of Model Coefficients

<table>
<thead>
<tr>
<th>Financial Assistance</th>
<th>Chi-square</th>
<th>Df</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIFE Scholarship</td>
<td>Step</td>
<td>10.393</td>
<td>1</td>
</tr>
<tr>
<td>Block</td>
<td>10.393</td>
<td>1</td>
<td>0.001</td>
</tr>
<tr>
<td>Model</td>
<td>10.393</td>
<td>1</td>
<td>0.001</td>
</tr>
<tr>
<td>LIFE Scholarship/Federal Pell Grant</td>
<td>Step</td>
<td>3.733</td>
<td>1</td>
</tr>
<tr>
<td>Block</td>
<td>14.127</td>
<td>2</td>
<td>0.001</td>
</tr>
<tr>
<td>Model</td>
<td>14.127</td>
<td>2</td>
<td>0.001</td>
</tr>
</tbody>
</table>

significance of 0.001. This indicates that adding a second variable improved the model, and the two variables are significant. The forward LR took all the independent variables and built a prediction model with those variables that would be the best predictors of retention according to the financial aid received. This data indicated LIFE Scholarship and LIFE Scholarship/PELL were the best predictors of retention.

From Table 4.27, the -2 Log likelihood value indicates how well the model fits the data. Cox & Snell R-square and Nagelkerke R-square indicate what percentage of the dependent variable of retention may be accounted for by all included predictor variables. From the table, retention of LIFE Scholarship recipients could account for five percentage of the variance in retention rates. Adding LIFE Scholarship/PELL recipients with the LIFE Scholarship recipients increased the percentage of variability to six percent.

From Table 4.28, the classification table compares the predicted values for the dependent variable of retention, based on the regression model, with the actual observed values in the data. In this study, the Model -2 variables can predict which value of retention is observed in the data 66% of the time.
Table 4.27 Model Summary, Percentage of Variance in Retention

<table>
<thead>
<tr>
<th>Financial Assistance</th>
<th>-2 Log Likelihood</th>
<th>Cox &amp; Snell R-square</th>
<th>Nagelkerke R-square</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIFE Scholarship</td>
<td>388.045</td>
<td>0.034</td>
<td>0.046</td>
</tr>
<tr>
<td>LIFE Scholarship/Federal Pell Grant</td>
<td>384.312</td>
<td>0.046</td>
<td>0.063</td>
</tr>
</tbody>
</table>

Table 4.28 Classification Table, Percentage of Accurately Predicting Retention of LIFE Scholarship and LIFE Scholarship/PELL Recipients

<table>
<thead>
<tr>
<th>Type of Financial Assistance</th>
<th>Retained</th>
<th>Observed Retention</th>
<th>Predicted Retention</th>
<th>Percentage Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIFE Scholarship</td>
<td>1 – Yes</td>
<td>15</td>
<td>99</td>
<td>13.2</td>
</tr>
<tr>
<td></td>
<td>2 – No</td>
<td>6</td>
<td>180</td>
<td>96.8</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td></td>
<td></td>
<td></td>
<td>65.0</td>
</tr>
<tr>
<td>LIFE Scholarship/Federal Pell Grant</td>
<td>1 – Yes</td>
<td>21</td>
<td>93</td>
<td>18.4</td>
</tr>
<tr>
<td></td>
<td>2 – No</td>
<td>9</td>
<td>177</td>
<td>95.2</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td></td>
<td></td>
<td></td>
<td>66.0</td>
</tr>
</tbody>
</table>

The two variables used in this first logistic regression model produced the results shown in Table 4.29. From Table 4.29, two variables have been used in the equation. Recipients of LIFE Scholarship demonstrate the most significant relationship and contribute most to the regression equation (0.002). Retention of LIFE Scholarship/PELL recipients approach significance (0.063).

All variables that are not entered into the regression equation that could possibly be entered are listed in Table 4.30. The Sig. indicates for each variable whether it has a significant impact on the predicted variable, independently from the other predictor variables.
Table 4.29 Variables in the Equation That Have Been Included in the Regression Equation

<table>
<thead>
<tr>
<th></th>
<th>Bᵃ</th>
<th>S.E.</th>
<th>Wald</th>
<th>Df</th>
<th>Sig.</th>
<th>Exp(b)ᵇ</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIFE</td>
<td>1.514</td>
<td>0.499</td>
<td>9.208</td>
<td>1</td>
<td>0.002</td>
<td>4.545</td>
<td>1.709</td>
<td>12.087</td>
</tr>
<tr>
<td>Constant</td>
<td>-2.430</td>
<td>0.974</td>
<td>6.224</td>
<td>1</td>
<td>0.013</td>
<td>0.088</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIFE</td>
<td>1.560</td>
<td>0.500</td>
<td>9.743</td>
<td>1</td>
<td>0.002</td>
<td>4.758</td>
<td>1.787</td>
<td>12.671</td>
</tr>
<tr>
<td>LIFE/PELL</td>
<td>1.337</td>
<td>0.719</td>
<td>3.460</td>
<td>1</td>
<td>0.063</td>
<td>3.806</td>
<td>0.931</td>
<td>15.567</td>
</tr>
<tr>
<td>Constant</td>
<td>-5.150</td>
<td>1.755</td>
<td>8.607</td>
<td>1</td>
<td>0.003</td>
<td>0.006</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ᵃ The weighting value of B used in the regression equation is the magnitude of B along with the scale of the variable B used to weight. Both LIFE Scholarship recipients and LIFE Scholarship/PELL recipients have a positive effect of retention. The dispersion of B is the standard error. Wald, the degree(s) of freedom is indicated by significance in the sig column. Exp(B) is utilized as an assistance to interpreting the meaning of the regression coefficients.

ᵇ 95.0% C.I. for Exp(b).

Table 4.30 Variables Not in the Equation

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>Score</th>
<th>Df</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pell</td>
<td>1.343</td>
<td>1</td>
<td>0.246</td>
</tr>
<tr>
<td></td>
<td>SCEL</td>
<td>0.129</td>
<td>1</td>
<td>0.720</td>
</tr>
<tr>
<td></td>
<td>SCEL/PELL</td>
<td>0.030</td>
<td>1</td>
<td>0.862</td>
</tr>
<tr>
<td></td>
<td>LIFE/PELL</td>
<td>3.950</td>
<td>1</td>
<td>0.047</td>
</tr>
<tr>
<td>2</td>
<td>Pell</td>
<td>0.448</td>
<td>1</td>
<td>0.503</td>
</tr>
<tr>
<td></td>
<td>SCEL</td>
<td>0.325</td>
<td>1</td>
<td>0.569</td>
</tr>
<tr>
<td></td>
<td>SCEL/PELL</td>
<td>0.070</td>
<td>1</td>
<td>0.791</td>
</tr>
</tbody>
</table>

From Table 4.31, neither Pell, SCEL Tuition Assistance, a combination of SCEL Tuition Assistance and Pell, nor the combination of LIFE and Pell has an impact on retention. No variables can be added or deleted; therefore, the binary logistic regression is completed. Table 4.31 verifies recipients of LIFE impact retention.
Table 4.31 *Omnibus Tests of Model Coefficients*

<table>
<thead>
<tr>
<th>Financial Aid</th>
<th>Chi-square</th>
<th>Df</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1 Step</td>
<td>8.947</td>
<td>9</td>
<td>0.442</td>
</tr>
<tr>
<td>Block</td>
<td>8.947</td>
<td>9</td>
<td>0.442</td>
</tr>
<tr>
<td>Model</td>
<td>23.073</td>
<td>11</td>
<td>0.017</td>
</tr>
<tr>
<td>Step 2 Step</td>
<td>8.867</td>
<td>8</td>
<td>0.354</td>
</tr>
<tr>
<td>Block</td>
<td>22.993</td>
<td>9</td>
<td>0.006</td>
</tr>
<tr>
<td>Model</td>
<td>23.073</td>
<td>11</td>
<td>0.017</td>
</tr>
<tr>
<td>Step 3 Step</td>
<td>-2.614</td>
<td>4</td>
<td>0.624</td>
</tr>
<tr>
<td>Block</td>
<td>6.252</td>
<td>4</td>
<td>0.181</td>
</tr>
<tr>
<td>Model</td>
<td>20.379</td>
<td>8</td>
<td>0.009</td>
</tr>
<tr>
<td>Step 4 Step</td>
<td>-1.686</td>
<td>2</td>
<td>0.430</td>
</tr>
<tr>
<td>Block</td>
<td>4.566</td>
<td>2</td>
<td>0.102</td>
</tr>
<tr>
<td>Model</td>
<td>18.693</td>
<td>4</td>
<td>0.001</td>
</tr>
<tr>
<td>Step 5 Step</td>
<td>-4.566</td>
<td>2</td>
<td>0.102</td>
</tr>
<tr>
<td>Model</td>
<td>14.127</td>
<td>2</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Note: The negative Chi-square value indicates the Chi-square value has decreased from the previous step. The overall model remains significant.

From Block Two: Method = Backward Stepwise (Likelihood Ratio), the specific demographic variables were assessed to determine the significance of contribution to retention of the financial aid recipients. The demographic variables of age, ethnicity, gender, and program of study individually were not significant; however, the model was significant (0.001), as shown in Table 4.32. From Table 4.32, Nagelkerke R-square dictates the predictive capacity of age, ethnicity, race, and program of study. No one variable indicated statistical significance. Once all secondary variables were removed, the percentage of retention accounted for by all included variables is the same as that found in Block One (6.3%). Because all of the significance in change values is more than 0.10, all of the variables are removed from the equation, as shown in Table 4.33.
To test the hypotheses concerning the relationships between the variables using the binary logistic regression procedure, the level of significance was set at alpha is equal to 0.05. In situations where the level of significance was less than 0.05, then the research hypothesis was rejected, and the conclusion was stated that there is a significant relationship between the two sets of variables in the sample.

The following research questions and research hypotheses were stated about the relationships between the variables. Findings are included.
Hypothesis 1: There is no relationship between financial assistance received through a Federal Pell Grant and retention at a two-year college.

Finding: Being the recipient of financial assistance through a Federal Pell Grant is not a significantly related predictor of retention at a two-year college. From the logistic regression equation Step 1, the level of significance was 0.246. From Step 2 of the model after factoring out the recipients of LIFE Scholarship and Pell, recipients of the Federal Pell Grant did not reach a level of significance (0.503). Hypothesis 1 is not rejected.

Hypothesis 2: There is no relationship between financial assistance received through the South Carolina Education Lottery Tuition Assistance and retention at a two-year college.

Finding: The receipt of financial assistance through the South Carolina Education Lottery Tuition Assistance is not a significantly related predictor of retention at a two-year college. From the logistic regression equation Step 1, the level of significance was 0.720. From Step 2 of the model after factoring out the recipients of LIFE Scholarship and Pell, recipients of the SCEL Tuition Assistance did not reach a level of significance (0.569). Hypothesis 2 is not rejected.

Hypothesis 3: There is no relationship between financial assistance received through Legislative Incentive for Future Excellence Scholarship and retention at a two-year college.

Finding: The receipt of financial aid through LIFE Scholarship is a predictor of retention at a two-year college. From Table 4.37, the level of significance is 0.002. The model was able to correctly classify 65% of those who were retained using LIFE Scholarship financial assistance and 66% of those who were retained using LIFE Scholarship and Federal Pell Grant financial assistance. Hypothesis 3 is rejected.

Hypothesis 4: There is no relationship between financial assistance received through a combination of South Carolina Education Lottery Tuition Assistance and Federal Pell Grant and retention at a two-year college.

Finding: The receipt of financial assistance through a combination of South Carolina Education Lottery Tuition Assistance and Federal Pell Grant is not a significantly related predictor of retention at a two-year college. From the logistic regression equation step 1, the level of significance was 0.862. From step 2 of
the model, after factoring out the recipients of SCEL Tuition Assistance and Pell, recipients of the SCEL Tuition Assistance did not reach of level of significance (0.791). Hypothesis 4 is not rejected.

Hypothesis 5: There is no relationship between financial assistance received through a combination of Legislative Incentive for Future Education Scholarship and Federal Pell Grant and retention at a two-year college.

Finding: The receipt of financial assistance through a combination of LIFE Scholarship and Federal Pell Grant is not a significantly related predictor of retention at a two-year college; however, when combined with LIFE Scholarship recipients, these two groups approach significance. LIFE Scholarship/ Pell recipients are the second best predictor of retention used in the equation. From the logistic regression equation step 1, the level of significance was 0.063. When combined with receipt of LIFE Scholarship, the level of significance greatly improves to 0.003. Hypothesis 5 is not rejected.

Hypothesis 6: There is no relationship between selected demographic variables of age, ethnicity, gender, and program of study and retention at a two-year college.

Finding: The specific demographic variables were assessed to determine significance of contribution to retention of financial aid recipients. No categorical covariate variable (age, ethnicity, gender, or program of study) was significant. Hypothesis 6 is not rejected.

Summary

The results of the analysis of the data indicate five of the six research hypotheses were not rejected. Financial assistance received through the financial variables of Federal Pell Grant, South Carolina Education Lottery Tuition Assistance, SCEL Tuition Assistance and Federal Pell Grant, or LIFE Scholarship and Federal Pell Grant were not predictors of retention for participants at a two-year college. In addition, the research hypothesis on the demographic variables of age, ethnicity, gender, and program of study was not rejected. The research hypothesis on the financial variable of Legislative
Incentive for Future Excellence Scholarship as a predictor of retention at a two-year college was rejected.
The primary purpose of this study was to determine the likelihood that the type of financial assistance a student receives is a predictor of retention at a two-year college. Retention was defined as completion of the certificate, diploma, or degree within 150% of the length of time required to complete the program of study, continued enrollment at the institution, or transfer to a four-year institution. The effects of five distinct types of financial aid offered at a mid-size, public, two-year post-secondary college in South Carolina were investigated. The types of financial aid included Federal Pell Grant, Legislative Incentive for Future Excellence Scholarship (LIFE), South Carolina Education Lottery Tuition Assistance (SCEL), a combination of South Carolina Education Lottery Tuition Assistance and Federal Pell Grant, and a combination of Legislative Incentive for Future Excellence Scholarship and Federal Pell Grant. The secondary purpose of this research study was to determine to what extent demographic variables increase the likelihood of a specific type of financial aid as a predictor of retention.

Chapter 1 outlined background information on retention and financial assistance. Retention was selected as the dichotomous dependent variable. Retention was defined as completion of the program of study within 150% length of time enrolled in the program of study, continued enrollment at Central Carolina Technical College as of Fall 2005, or transfer to a four-year institution. Five independent variables were selected for the study:
Federal Pell Grant, LIFE Scholarship, SCEL tuition assistance, a combination of Pell and LIFE Scholarship, and a combination of Pell and SCEL Tuition Assistance. Non-financial variables were also analyzed. The four categorical covariate demographic variables were age, ethnicity, gender, and program of study. Six research questions and research hypotheses were presented in Chapter 1 and provided direction for the study.

Chapter 2 provided a review of the literature related to the study. The first section of this chapter presented essential theories of student retention, and more specifically, retention at two-year colleges. The second section of Chapter 2 focused on prior research related to financial assistance, and, more specifically, financial aid of students in two-year institutions of higher learning. The third section of Chapter 2 focused on financial assistance as a predictor of retention, and, more specifically, financial assistance as a predictor of retention at a two-year college.

Chapter 3 presented the research methodology utilized in the study of the Fall 2002 cohort of first-time, full-time, freshmen at Central Carolina Technical College. Also included in Chapter 3 were research design, information detailing the institution and cohort of 300 financial aid participants, data collection, and data analysis procedures.

Chapter 4 provided an analysis of the data. The data were presented and analyzed based on the six research questions and the research hypotheses. Frequency distribution tables were formulated, and descriptions were presented on each of the independent variables: Federal Pell Grant, LIFE Scholarship, SCEL Tuition Assistance, the combination of Pell and SCEL Tuition Assistance, and the combination of Pell and LIFE Scholarship and retention. Frequency and Percentage tables also were presented on each of the independent variables, the demographic variables of age, ethnicity, gender, and program
of study, and retention. From the administrative set of data, forward stepwise Logistic Regression analysis was used to examine the association between the binary response for the dependent variable of retention and the set of independent variables. Once the significant predictors were identified, the backward stepwise logistic regression method was used to investigate the possibility that categorical covariate variables (secondary variables) increased the likelihood of predicting retention.

This chapter, Chapter 5, presents the summary, conclusions, limitations, and recommendations of the study. The findings are summarized and presented within the context of the study design and methodology. The conclusions are relevant to the Fall 2002 sample of first-time, full-time, freshmen attending Central Carolina Technical College utilized in the study. General recommendations and recommendations for further research are provided.

**Overall Summary**

The following is an overall summary of the research study. From the review of literature in Chapter 2, it is evident college students face a myriad of challenges in the academic environment as they seek to complete their programs of study (Bean and Vesper, 1990; Heller, 2003; Tinto, 1987). Smith (2002) reported that more than 30% of first-year students did not return for their second year of college, and Newby (2002) reported that only 40% of post-secondary students actually complete their degree and graduate (Newby, 2002). Attrition among college students is one of the most researched topics in higher education (Stampen & Cabrera, 1986). The literature review identifies many factors including academic preparedness, motivation, personal relationships, and a
variety of demographic and financial variables affecting attrition (Pantages and Creedon, 1978; Tinto, 1975; Attinasi, 1986).

A decade ago, researchers doubted that student aid had an impact on persistence. Tinto (1975), the leading retention theorist, argues that financial problems were used as a polite excuse for leaving college; however, Tinto ([1987] 1993) reconceptualized his model based on new research on persistence. Financial considerations explain more variance in the retention process than variables related to the college experience and achievement in college (St. John, Paulsen, and Starkey, 1996). Numerous studies indicate that the overall effect of student financial aid seems to eliminate financial reasons for leaving college (Pantages and Creedon, 1978; Terkla, 1985). It is clear from research that student aid is only one of several factors affecting attrition rates.

Financial assistance by itself should not be expected to overcome other factors such as age, gender, program of study, race, or academic preparedness (Stampen & Cabrera, 1986). However, student aid is recognized as a crucial factor in the persistence process in the post-secondary environment (St. John, 2000).

A large body of literature related to student retention has emerged over the last 40 years. Several theories explain the retention process for college students. According to Tinto, (1976, 1987), attrition results from interactions between a student and his or her educational environment. Factors influencing retention are adjustment, goals, commitment, uncertainty, congruence, and isolation. Bean developed the Student Attrition Model as an alternate theory to college persistence. His theory builds on departures in the organization and models of interaction involving attitude and behavior.
The student withdrawal rate from higher education has been recognized as a significant social, economic, and educational problem. Investigations into the retention of two-year college students identify several variables associated with persistence to program completion. Research studies that focused on factors such as finances, background, aspirations, and college experiences were reviewed (Cofer & Somers, 2001). The impact of financial aid is particularly evident among students at two-year colleges.

Research Methodology

Secondary data sources of a cohort consisting of 300 participants who were first-time, full-time freshmen were obtained from the South Carolina State Board for Technical and Comprehensive Education and the Information System Department at Central Carolina Technical College. Data were coded and entered on the computer using SPSS as the statistical package. The data sources were analyzed using SPSS 14.0 for Windows to generate frequencies and binary logistic regressions. The results were interpreted and analyzed as each related to the six research questions, six research hypotheses, and current literature reviewed in the study.

Summary of Data Analysis and Findings

Analysis of the descriptive statistics revealed the majority of students, 62.33% (187) received Federal Pell Grant financial assistance. Of the 300 participants, 38.00% (114) were retained, and 62.00% (186) were not retained. The majority, 20.67% (62), of students who were retained received financial assistance through the Federal Pell Grant. Most students, 73.33% (220), were between the ages of 18 and 25. This age category also had the highest percentage, 28.33% (85), of students retained. African American students comprised 44.67% (134) of the cohort while White/Non-Hispanic students
totaled 51.67% (155), and students classified as “Other” made up 3.67% (11) of the cohort. The ethnic group retained at the highest percentage was White/Non-Hispanic, 22.00% (66). The ethnic group leaving the College at the highest rate was African American, 30.33% (91). The majority of participants were female, 64.33% (193), and 35.67% (107) were male. Females were retained at a higher percentage, 23.33% (70), than males 14.67% (44). Of the programs of study, 60.70% (182) participants were enrolled in an associate degree, 5.30% (16) were enrolled in a diploma program of study, and 34.00% (102) were enrolled in a certificate program. The majority, 26.33% (79), of the students retained were enrolled in an associate degree program of study.

Forward stepwise (likelihood ratio) logistic regression (block one) was used to access the significance of the five independent variables of financial assistance. Once the significant predictors were identified, the backward stepwise (likelihood ratio) logistic regression method was used in block two. The results of the analysis of the data indicated that the research hypotheses for each of the variables of Federal Pell Grant, SCEL Tuition Assistance, the combination of Federal Pell Grant and SCEL Tuition Assistance, and the combination of Federal Pell Grant and LIFE Scholarship were not rejected. The research hypothesis on the financial variable of financial assistance through LIFE Scholarship and retention at a two-year college was rejected. The research hypothesis on the selected demographic variables of age, ethnicity, gender, and program of study and retention at a two-year college was not rejected. The conclusion was that there was a positive significant relationship between the receipt of financial assistance through LIFE Scholarship and retention at a two-year college.
Conclusions

The following two conclusions are relevant to the sample of first-time, full-time freshmen in this study. The conclusions presented are based on the research design of the study, the literature reviewed for the study, and the analysis of the data of the study.

**Conclusion 1**: The first-time, full-time freshmen receiving financial assistance through Legislative Incentive for Future Excellence (LIFE) Scholarship appear more likely to be retained than students receiving Federal Pell Grant, South Carolina Education Lottery (SCEL) Tuition Assistance, a combination of SCEL Tuition Assistance and Federal Pell Grant, or a combination of LIFE Scholarship and Federal Pell Grant.

The first conclusion from the research study parallels findings from Somers (1995) and Cofer & Somers (2001). Both research studies found that academic factors jointly considered were the most important predictors of retention. Findings by two researchers explain the results of this research study. LIFE Scholarship recipients are awarded this financial assistance based on academic performance rather than need. Two of the following three requirements must be met to receive the LIFE Scholarship: achieve a score of 1100 SAT or 24 ACT or above, earn 3.0 GPA at end of high school, and/or rank in top 30% of graduating class. To retain the LIFE Scholarship, the student must earn a 3.0 GPA each year and accumulate a minimum of 30 semester credit hours each academic year.

**Conclusion 2**: The demographic variables of age, ethnicity, gender, or program of study do not appear to impact the retention of financial aid recipients.

The primary question in a study by Terkla (1985) concerned the relationship between the receipt of financial aid and student persistence. A causal model was based on the review of attrition literature (Terkla, 1981). The model provides a conceptual frame-
work and illustrates how variables interact to affect persistence. Terkla (1985) found the financial aid variable had the third strongest direct effect on persistence and the fifth strongest total effect on students’ decision to stay or to leave the post-secondary institution. Terkla states, “The first, and possibly the most important, is that the receipt of financial assistance is relevant to a decision whether or not to remain in college” (Terkla, 1985, p. 16). Even after controlling for other factors, students receiving financial assistance were more likely to complete their program of study than students who did not receive financial assistance. Financial assistance has the third strongest direct effect on retention at a post-secondary institution.

Other factors found to influence a student’s decision to leave college before completing his or her diploma, certificate, or degree included the need for employment, low grade point average, ethnicity, family obligations, and female gender (Bonham & Luckie, 1993; Lewallen, 1993). Full-time attendance was the most prevalent characteristic of persisters found by Moore (1995) and Windham (1994). Part-time attendance was the most prevalent characteristic of non-persisters (Feldman, 1993; Lanni, 1992; Price, 1993; Windham, 1994).

This research study is consistent with three findings from the national study conducted by Heller (2003). First, according to Heller (2003), students classified as traditional, full-time, and financially dependent were more likely to receive awards. In this research study, 73.33% (220) of the first-time, full-time freshmen were in the age category of 18 to 25 and received financial assistance. Heller’s (2003) second finding stated institutional grants were more often awarded to lower-income students. From the cohort, 62.33% (187) of the students received Federal Pell Grant financial assistance.
Federal Pell Grant assistance is provided as a need-based financial aid. The third consistent point with Heller’s (2003) findings included the idea that academic factors are the strongest predictors of whether a student will complete his or her program of study. From the forward stepwise block of binary logistic regression, the data analysis indicated LIFE Scholarship recipients and LIFE Scholarship/Federal Pell Grant recipients were the best predictors of retention. LIFE Scholarship is awarded after demonstration of academic achievement. Two of the following three requirements must be met to receive the LIFE Scholarship: achieve a score of 1100 SAT or 24 ACT or above, earn 3.0 GPA at the end of high school, and/or rank in top 30% of graduating class. To retain the LIFE Scholarship, the student must earn a 3.0 GPA each year and accumulate a minimum of 30 semester credit hours each academic year. Findings from Heller’s (2003) work and this research study would explain the financial aid research hypotheses of Federal Pell Grant, South Carolina Education Lottery Tuition Assistance, a combination of South Carolina Education Lottery Tuition Assistance and Federal Pell Grant, and the combination of LIFE Scholarship and Federal Pell Grant not being rejected.

Limitations

This study is limited to one comprehensive, public, two-year post-secondary institution that serves a four county area in the state of South Carolina. Central Carolina Technical College has an unduplicated headcount of over 4,600 credit students; the institution serves over 10,500 continuing education students in both traditional and non-traditional formats. Depending on the sources (and whether or not one includes proprietary schools), there are between 1,100 and 1,500 two-year colleges in the United States (Solarek & Solarek, 1998). In South Carolina, there are two other community
colleges similar in size. By incorporating additional two-year, public post-secondary institutions similar in size, socio-economic standing, and location, the population of first-time, full-time freshmen would increase, and the findings would have additional validation to generalisability.

This study is also limited by the types of financial assistance researched as likely predictors of retention at a two-year college. During the last two decades, there have been fundamental changes in structure of states and the federal government’s funding for higher education (McPherson & Schapiro, 1999; Paulsen & Smart, 2001; St. John, 1994). The federal government has shifted from using grants as the primary means of promoting higher education to using loans. Reductions in state allocations for public post-secondary education have led to increases in tuition, which have placed a larger portion of the burden of paying for college from the public to students and their families (Breneman & Finney, 1997; Mumper, 1996; Paulsen, 1991, 2000). The last 20 years can be characterized as a time of increased tuition costs and additional financial aid needs (Paulsen & St. John, 2002). Investigating the impact of loans and scholarships would expand the parameters of the research.

**General Recommendations**

According to Hossler (2000), financial aid has become an integral part of enrollment management strategies on college campuses. Financial aid influences college enrollment decisions and student retention. College administrators find it challenging to separate the impact of tuition on student enrollments from the effects of student financial aid. The amount of financial assistance does matter. Several studies have validated that
enrollment decisions are influenced by the amount of financial aid awarded (Chapman & Jackson, 1987; Tierney, 1980).

St. John (1990) discussed the relationships between financial aid and persistence. Because federal, state, and institutional financial assistance policies change frequently, enrollment managers have to be aware of the impact on student matriculation and retention decisions. In addition, the office of admissions, counseling, financial aid, and academic units are involved in the strategic information and impact of financial assistance through recruitment and retention programs.

According to Hossler (2000), it was common for presidents and academic administrators to set goals for increasing the number of total new students. Predictive modeling for financial assistance is an important tool in helping institutions prioritize goals. Yet, given the various types of financial assistance available, the concern is not only shared by college or university personnel, but also policy makers who establish the guidelines for merit programs and also state lottery tuition assistance programs.

The following general recommendations have been developed as a result of the literature reviewed and this study:

1. College faculty, staff, and administrators should be knowledgeable about issues concerning financial aid.

2. Enrollment managers should discuss financial opportunities with students during periods of recruitment and admissions.

3. Programs should be in place to assist students financially challenged (TRIO) to promote retention.

4. The introductory course to college (COL 103) should inform students of the benefits and regulations of type of financial assistance.

5. With a replication of this study to include a larger cohort, policy makers may review the findings for information relating to financial aid appropriations to
students enrolled in post-secondary institutions, particularly at the two-year college.

6. Information data bases utilized by two-year colleges and the South Carolina Board for Technical and Comprehensive Education should be compatible.

The information and findings from this research study may be used to educate administrators, faculty, and staff to the important role financial aid plays in attracting a student to the two-year college and retaining that student through graduation, transfer to a four-year institution, or continued enrollment. This research study also emphasized the importance of retention activities once the student has enrolled at the two-year college.

The TRIO Program is designed to assist low-income students to enter the post-secondary environment and obtain their educational goals. COL 103 was designed to assist the student in understanding the benefits and guidelines of financial aid. This is an additional retention device. By replicating this study at additional two-year colleges, the validity of the findings would increase, and generalizations may be extended. The final useful finding of this research study was the need for compatibility of the data bases utilized by all two-year colleges in South Carolina and the South Carolina Board for Technical and Comprehensive Education. Through like data bases, students would be identified by one number (college identification number) and all information (financial and personal) could be obtained from one secondary data source.

**Recommendations for Further Study**

The following recommendations are offered for further research regarding retention at a two-year college:

1. This study should be replicated with other two-year colleges in South Carolina.
2. A study should be replicated with all 16 technical colleges in South Carolina to determine the likelihood that financial aid is a predictor of retention at two-year colleges.

3. This study should be conducted using research designs such as open-ended questions, focus interviews, or personal interviews which would allow participants to describe in detail why retention was not achieved.

4. This study should be conducted using additional independent variables to include scholarships and student loans.

5. This study should be expanded to include additional secondary variables that may impact retention of financial aid recipients at a two-year college.

These recommendations encompass a broad perspective of retention, financial assistance as a predictor of retention, and variables that may impact retention.

**Chapter Summary**

Chapter 5 presented a summary of the quantitative study and conclusions from the data analyzed and the related literature. Limitations and general recommendations with implications for changes on behalf of first-time, full-time freshmen were presented along with recommendations for further study on retention at a two-year college.
To: fkw <fkw@CLEMSON.EDU>
From: Daniel Harris <dharri2@CLEMSON.EDU>
Subject: Validation of IRB application #06-IRB-103EX entitled "Financial Assistance as a Predictor of Retention at a Community College"

Dear Dr. Williams:

The Chair of the Clemson University Institutional Review Board (IRB) validated the proposal identified above using the Exempt review procedures and a determination was made on March 28, 2006 that the proposed activities involving human participants qualify as Exempt from continuing review under Category 4 based on the Federal Regulations. You may begin this study.

Please remember that no change in this research proposal can be initiated without prior review by the IRB. Any unanticipated problems involving risks to subjects, complications, and/or any adverse events must be reported to the IRB immediately. The Principal Investigator is also responsible for maintaining all applicable protocol records (regardless of media type) for at least three (3) years after completion of the study (i.e., copy of validated protocol, raw data, amendments, correspondence, and other pertinent documents). You are requested to notify the Office of Research Compliance (ORC) if your study is completed or terminated.

Attached is a document developed by Clemson University regarding the Principal Investigator's Responsibilities.

Good Luck with your study and please feel free to contact us if you have any questions. Please use the IRB number and title in all communications regarding this study.

Daniel Harris
Program Assistant
Institutional Review Board (IRB)
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Fax: 864-656-4475
www.clemson.edu/research/orcSite/indexComply.htm
LIST OF REFERENCES


Lottery funded tuition assistance now pays more than half of technical college tuition for SC residents! Retrieved December 28, 2005 from the World Wide Web: http://www.sctechied.tec.sc.us/lottery/lotteryinfo.htm


Windham, P. (1994, August). *The relative importance of selected factors to attrition at public community colleges.* Paper presented at the 23rd Annual Conference of the Southeastern Association for Community Colleges, Savannah, GA.

