

ABSTRACT

BALKCUM, KIMBERLY SHARON. Retention of Community College Students: An Examination of Related Student and Institutional Characteristics of First-Year Community College Students. (Under the direction of Siu-Man Raymond Ting).

Effective retention strategies are the cornerstone of creating a positive learning climate and a successful college experience in higher education. In an effort to provide an education to all people through an open-door admissions policy, community colleges face the unique challenge of maintaining educational standards while at the same time retaining a diverse group of students who are often under-prepared for the college environment. The purpose of this quantitative, retrospective study was to determine if a particular set of variables could be used to predict fall to spring retention of community college students in one small community college in the southeastern part of the United States. The sample used for this study was selected from an existing data base and included four, separate cohorts of newly enrolled students for the fall semesters of 2009, 2010, 2011, and 2012. The total sample size was 2945 ($N = 2945$). Tinto's Student Interactionist Theory, the theoretical basis for this study, influenced the selection of both academic and social variables to be examined. Multivariate logistic regression and Chi-square analysis were used to determine the predictive ability of the independent variables on student retention. The results indicated factors related to retention were: completion of a student success course, completion of a remedial English course, completion of a remedial math course, and completion of an online course.

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Retention of Community College Students: An Examination of Related Student and
Institutional Characteristics of First-Year Community College Students

by
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DEDICATION

This is dedicated to my parents, Beatrice Kearney Balkcum and the late Vassie Gerald Balkcum (November 8, 1926 - July 7, 2011), for their unwavering love and support.

BIOGRAPHY

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Kimberly is originally from Goldsboro, NC. Before moving to Raleigh, NC, in 1988, she lived in Charlotte, NC and Ft. Lauderdale, FL. She enjoys traveling, gardening, and spending time with family and friends.

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CHAPTER 1: INTRODUCTION

The ability to promote and provide educational opportunities to all its citizens will be the major determining factor in positioning America's economic competitiveness in a changing global economy (Cohen & Brawer, 2006; Laanan, 2008; McClenney, 2004). From the industrial revolution to the most recent technological advances, community colleges have historically been affected by economic turns and population changes. Through their vital role of promoting access to higher education for less advantaged populations, community colleges are at the forefront of laying the foundation to strengthen and solidify our nation's future.

Figures reported by the U.S. Census Bureau (2010) indicate that our nation is becoming increasingly more diverse. Harris (2001) states that "community colleges are at the forefront of helping their students live in a multicultural, multiethnic, pluralistic society" (p. 27). With the nation's most recent economic downturn and subsequent high unemployment rates, the need to increase retention of students at community colleges has become a concerted effort among community college administrators and government leaders (Nora & Crisp, 2012).

By meeting the various needs of a diverse student population, community colleges provide educational opportunities and expanded career choices to students who otherwise could not obtain a college education, achieving their mission by providing flexible and convenient access to courses through offering classes at a variety of locations as well as online. Seated class meeting times include days, evenings, and weekends with class start

times as early as 7:00 am; evening classes typically end as late as 10:00 pm.

As opposed to students in residential school settings who have the convenience of eating, sleeping, socializing, and attending classes in the same setting, community college students have many other obligations outside of the college environment. “For them, going to college is but one of a number of tasks to be completed during the course of the day” (Tinto & Russo, 1994, p. 4). Community colleges are expected not only to serve the broadest, most diverse student population, but to also provide “effective educational experiences for students who may otherwise not attend and successfully complete college” (Tovar & Simon, 2003, p. 3).

Need for Study

Retention and attrition rates are the two major determining factors used in measuring a college’s overall performance and institutional effectiveness (Bailey, Calcaegno, Jenkins, Kienzl, & Leinbach, 2005; Crawford, 1999; Dale & Zych, 1996; Goel, 2002; Seidman, 1985). As a result, these two factors have been studied extensively in colleges and universities throughout the United States. Public policy makers at both the state and national level have recently begun to focus on accountability as a major determining factor for funding of public academic institutions and have consequently identified high retention rates to be a strong measure of overall institutional effectiveness (Fike & Fike, 2008; Roman, 2007).

The founding mission of the community college is to provide an education to all people through an open-door admissions policy (Cohen, 2008). While all colleges and

universities struggle with retaining students, community colleges face the unique challenge of adhering to the open-door admissions policy, while at the same time, retaining a diverse group of students who are often under-prepared for the college environment. Although research findings indicate that it is neither productive nor fair to make comparisons between community colleges and four-year institutions, funding for both types of institutions is determined using the same criteria-retention and attrition rates; therefore, the issue of student retention is equally as important in community colleges as it is in four-year colleges and universities.

Although many variables have been identified as predictors of retention rates at four-year colleges and universities, research studies of community college student populations and retention are scarce. Additionally, many of the research studies previously conducted are outdated, and others need to be replicated using different geographic locations and varied student populations.

Diversity challenges. The American Association of Community Colleges (AACC) (2013) reported that there are 1167 community colleges in the United States which enroll 13 million students a year. The diverse population of community college students is one factor that makes these learning institutions unique. According to the most recent AACC fact sheet (2013), minority students comprise 48% of the total community college student population; 15% of the total student population is Black; 1% is Native American; 6% is Asian/Pacific Islanders; and 18%, Hispanic. Additionally, 40% of community college students identify themselves as first generation college students, 16% report being single parents, 7% are non-

U.S. citizens, 3% are veterans, and 12% are categorized as students with disabilities. The average age of community college students is 28 years old; however, 15% of the community college student population is 40 years old or older (AACC, 2013).

Of the more than 13 million community college students, 7.4 million are enrolled in credit programs and 5 million are enrolled in noncredit programs; 58% are women and 42% are men; 60% are part-time students while 40% are enrolled full-time; and about one fifth of full-time students (21%) are also employed full time. Over half (56%) of all community college students in the U.S. are receiving financial aid in the form of Pell Grants, campus-based aid, or academic competitiveness grants (AACC, 2011).

Under-prepared college students. A unique challenge faced by colleges throughout the United States is the influx of under-prepared students who increasingly comprise a large percentage of the college freshmen class (Cohen & Brawer, 2006). Since high school academic success is a predictor of college retention, four-year colleges and universities realize that enacting more stringent admissions criteria, such as minimum high school grade point averages and SAT cutoff scores, will likely increase their retention rates (Crawford, 1999; Freer-Weiss, 2004). These criteria are clearly not an option for the community college whose mission is to make higher education more attainable by offering an open-door admissions policy. As a result, many of the students who are denied admission to four-year colleges and universities are absorbed by community colleges.

Student Retention. Effective retention strategies are the cornerstone of creating a positive learning climate and a successful college experience in higher education. In an effort

to increase overall institutional effectiveness, the community colleges have developed and implemented countless programs to retain and graduate students. Crawford (1999) reported that a study prepared for the California Community Colleges Chancellor's Office suggested that a rise in community college attrition rates is expected as a result of changing demographics. Because of this inclination, "successful community college retention activities and programs need to be identified and qualified for future use and reference in response to projected changes in enrollment trends of the new millennium" (Crawford, 1999, p. 4).

Researchers have examined many variables to determine what causes students to remain in college and what causes them to leave. Demographic variables such as age, gender, socioeconomic status, and ethnicity as well as academic variables, including grade point average and test scores are most often identified as predictors of college retention. More recently non-cognitive variables, such as persistence, motivation, social adjustment, and career goals, and institutional variables such as student services, curriculum, faculty advising, and campus climate have been examined in relation to student retention (Bers & Smith, 1991; Crawford, 1999; Felder & Brent, 2005; Tinto, 1997).

Purpose of the Study

The purpose of the current research study is to examine factors related to student retention at one specific community college in North Carolina. This type of study is referred to as an "institutional specific study" in that it is designed to assist the administration at one particular community college to further examine student retention at their specific college (Craig & Ward, 2008). Since community colleges enroll such a diverse student population,

several student retention researchers have suggested individual institutions conduct their own studies to determine institutional strategic planning needs (Astin, 1993; Craig & Ward, 2008; Pike, Kuh, McCormick, Ethington, & Smart, 2011). Understanding the population a college serves is also important for measuring institutional effectiveness, a major determining factor for federal and local funding (AACC, 2011). Heverly (1999) suggested that once student retention patterns are identified, institutions can develop programs to address these specific issues by targeting at-risk populations. Furthermore, institutional specific studies can be replicated using other community college populations for comparison purposes.

In conducting this study, the demographic factors of age, race, and gender, which the literature reports as being strongly related to student retention, will be examined. The chosen variables of age, race, and gender are important to community college students because research findings indicate the average age of the community college student to be higher than that of four-year university students. Also, community colleges enroll a higher percentage of women and minority students than do four-year colleges and universities (Cohen & Brawer, 2006). In addition to demographic factors related to student retention, this study will also examine the relationship between retention and two academic variables: enrollment in remedial courses, and Internet course completion. Although required remedial courses help to improve students' academic skills, the time period for completing a degree is usually lengthened by one or two semesters; this prolongation sometimes causes students to withdraw from college altogether. While Internet course completion is considered an academic variable, research findings indicate that students who take online classes also

become more socially integrated into the college environment by interacting with students and faculty in discussion boards, chat rooms, Skype, text messaging, and e-mail exchanges; therefore, online classes tend to encourage both academic integration as well as student involvement, albeit in a virtual setting (Salter, 2012).

This study will also examine the relationship of variables outside of the traditional academic and demographic factors related to student retention by examining the relationship between completion of a first-semester, student orientation course and student retention. Variables outside of traditional academic and demographic factors and student retention have been found to impact whether a student remains in college (Astin, 1984; Bean & Eaton, 2001). Tinto (1993) posited that students who are more involved in the campus environment are more likely to remain in college. According to Derby and Smith (2004), “orientation courses are designed to acclimate students to the campus environment and allow them the opportunity to meet other students, faculty, and administrators” (p. 766).

Research Questions

The current study was guided by the following research questions:

Research question 1: How well do age, ethnicity, gender, financial aid, online course completion, and completion of remedial coursework predict student retention of first-year community college students?

Research question 2: Are there differences in retention rates of students completing a first-semester, student success course as contrasted with other students who do not complete a student success course?

Theoretical Foundation

Tinto (1975) is credited with developing the most comprehensive and relevant retention model which can be used as a theoretical foundation for conducting empirical studies to identify and determine the reasons students leave college (Pascarella & Chapman, 1983; Metz, 2002). Tinto (1975) initially posited that “individuals enter institutions with a variety of attributes (e.g., sex, race, ability), precollege experiences (e.g., grade-point averages, academic and social attainments), and family background characteristics (e.g. social status attributes, value climates, expectational climates)” which have both a direct and an indirect impact on their college performance (p. 94). In the most recent revision of his theory, Tinto (1993) stated that the college is an interactive system, a “systematic enterprise comprised of a variety of linking interactive, reciprocal parts, formal and informal, academic and social” (p. 118). He suggested that social involvement and social integration are just as critical to student success as are cognitive factors like grade point average and test scores (Zhang & Richarde, 1999) and stressed the importance of effective student services programs in relation to student retention. Furthermore, the interplay of students’ interactions with academic and social systems of a college influence academic and institutional commitments which ultimately determine student persistence (Tinto, 1975). Tinto’s goal was to help to explain these interactive processes in an attempt to define different types of dropout behaviors (Tinto, 1975, p. 90). Secondly, Tinto also intended for his initial model to be used to predict whether a student was at risk of dropping out of college based on factors other than academics.

Definition of Terms

Attrition. According to Berger, Ramirez, and Lyon (2012), “attrition refers to a student who fails to re-enroll at an institution in consecutive semesters” (p. 12).

Community College. Cohen and Brawer (2008) defined the community college as “any institution regionally accredited to award the associate in arts or the associate in science as its highest degree” (p. 5).

Drop-outs. Students who do not complete a particular course of study.

Student Success Course. A course developed by community colleges modeled after the First-Year College course. The purpose of the course is to orient newly enrolled students to the academic and social environment of the community college; to introduce students to the faculty, staff, and administration of the college; and to ease the transition from high school to college (Derby & Smith, 2004).

Gender. For the purposes of this study gender is used instead of sex to denote whether a student is biologically male or female.

Non-cognitive variables. Variables that relate to a student’s level of adjustment, motivation, and perception; these variables are more difficult to isolate and study than cognitive variables, such as verbal and quantitative skills that have traditionally been used to predict college success; also referred to as psychosocial variables.

Non-completers. Students who do not complete a semester-long course (Seidman, 2009).

Remedial Courses. Courses which address basic reading, English, and math skills

necessary for under-achieving students entering community colleges. Although students receive course credit for remedial coursework at community colleges, these credits cannot be transferred to any four-year college or university. Remedial courses are also referred to as Developmental Courses.

Retention. Student retention, as defined by Tinto (1975, 1982, 1993) is a process that occurs over time because of the interplay of social and academic integration coupled with student goals and institutional commitment. In this study “retention” follows a student’s progress from an initial fall enrollment to the subsequent spring semester.

Underprepared students. This term refers to students who lack basic reading, writing, and math abilities as reflected in high school grades and/or college placement test scores. Such students usually require remedial coursework in English, reading, or math prior to taking freshman English and math courses.

Limitations

One of the limitations of this research study is that, when attempting to predict retention factors for such a diverse population as community college students, additional variables had to be considered. Psychosocial variables such as realistic self-appraisal, strong support system, motivation, and long-range goals have been studied in relation to retention rates at four-year colleges and universities; an examination of these factors could possibly help predict retention rates of community college students as well. A second limitation is that cause and effect between any two variables cannot be inferred since the research method used in this study is not experimental.

CHAPTER II: REVIEW OF HISTORY AND RELEVANT LITERATURE

With more than 12 million students enrolling in classes each year, community colleges have often been called the gateway to higher education and are referred to as centers of opportunity for everyone (Bailey et al., 2005). Community colleges play a vital role in preparing people for a changing society. Our society benefits as a whole “when everyone has access to an education, and community colleges provide that access” (AACC, 2009).

The National Center for Education Statistics (2010) reports the number of high school graduates enrolling in postsecondary educational institutions has increased significantly between 1975 and 2010. Sixty-eight percent of all 2010 high school graduates enrolled in colleges the fall semester immediately following high school graduation. Although enrollments at 2-year colleges were lower than at 4-year colleges, the percentage of high school graduates enrolling in 2-year colleges during this time increased from 18% to 27% (National Center for Education Statistics, 2010). Roman (2007) states that nearly half of all undergraduate college students in the United States are enrolled in community colleges, making these institutions key to the “academic, social, political, and economic future of our nation” (p. 19).

Overview

Chapter II of this dissertation is comprised of the history, theories, and relevant literature pertaining to college student retention. Following the introduction to the literature review, a brief history of community colleges will be discussed to emphasize the importance of these institutions and their impact on postsecondary education. Although numerous

theories have been developed in an attempt to predict and explain student retention, it is beyond the scope of this literature review to discuss each of these theories. For the purposes of this study, I chose to discuss two of the most prominent theories of student retention, Astin's Student Involvement Model (1984) and Tinto's Student Integration Model (1972, 1993). The theory I chose to use as a framework for this particular study is Tinto's Interactionist Theory; therefore, this theory will be examined in greater detail. During this literature review, an especially salient student departure model of community college students was discovered and will be mentioned. Developed by Braxton, Hirschy, and McClendon (2004), the model is a revision of Tinto's theory and uses Tinto's basic premises as a framework for explaining student departure in two-year commuter colleges. Finally, an integration of theories will be examined for implications for further research in the study of retention of community college students.

History of Community Colleges

American community colleges were established in the early 20th century in response to societal and educational needs of the changing American population. In the early 1900s the demand for college access grew as a result of increasing secondary school enrollments (Cohen, 2008). While some states simply expanded their universities to accommodate the influx of college students, many of the prominent educators of the late nineteenth and early twentieth century sought other alternatives as these educators viewed teaching adolescents to be a nuisance and a distraction and looked for ways to relegate the task of teaching freshmen and sophomore college students. As a result, junior colleges became widespread in the early

part of the 20th century, while universities maintained their elite reputations of being primarily research and professional development institutions. “Junior colleges” became the generic name for all two-year colleges up until the late 1950’s, when publicly-funded colleges became known as community colleges while “lower-division branches of private universities” and church supported schools remained junior colleges (Cohen, 2008).

While initially providing additional grades of high school and more complex job training than high school vocational programs offered, some of the first skilled training programs of community colleges were radio repair and secretarial training. As American society transitioned from an agricultural society to a more industrialized nation, the rapidly growing need for skilled workers to operate newly developed machinery became a primary focus of community college programs.

Cohen (2008) stated “the development of community colleges should be placed in the context of the growth of all higher education in the twentieth century” (p. 6). College enrollment increases in the 1960’s, a result of an increased population of high school graduates, created a movement to equalize college access to all rather than just the wealthy and the elite. Low tuition rates and close proximity to most large cities and counties nationwide made community colleges a reasonable and economical choice for obtaining an education beyond high school, especially for low-income and minority students (Bailey & Morest, 2006).

Another notable change in community colleges took place in the early 1990s as articulation agreements between four-year colleges and community colleges were developed,

some with individual colleges and others on a statewide level. Articulation agreements served as contracts between four-year colleges and community colleges, allowing students to complete up to two years of college credits at a community college and seamlessly transfer into a four-year college or university with the goal of obtaining a four-year degree.

Hagedorn (2010) stated that because of a variety of factors, most importantly increasing college enrollments and drastic educational budget cuts, community colleges are entering a time of transition which will result in a revision of the current model of the early 21st century. National factors such as the American Graduation Initiative (AGI) whose goal is for every American to obtain “at least one year of higher education or career training” will further increase community college enrollments (p. 131). Other factors influencing the revision of the earlier community college model are the growing number of baccalaureate programs community colleges are adding nationwide as well as an increase in dual degree programs for high school students allowing them to earn college credits while still attending high school.

Community College Student Populations

The uniqueness of the community college student population and the challenges faced in retaining students from one semester to the next are largely due to the diverse student population the community college serves (Bailey & Weininger, 2002; Bailey et al., 2005). Several studies examined in this literature review report academic degree completion rates at the community college to be negatively impacted by the large number of minority students they enroll (Bailey et al., 2005; Wells, 2008). Cohen and Brawer (2008) suggested that

institutional factors such as low tuition costs, easy access, and an open-door admissions policy account for the increase of minority students in community colleges. According to the U.S. Department of Education (2003) community colleges enroll “just under half of all credit-earning undergraduates” (p. 117). One study completed by Bailey and Morest (2006) compared income enrollment data of community college students to both public and private four-year college students, citing statistics from the U.S. Department of Education they reported that 63.5% of community college students said their annual income is less than \$30,000 compared to 51.7% of public four-year colleges and 49.9% of private four-year community college students. Income statistics are based on “parents’ income for dependent students and student’s (and spouse’s income for independent students” (p. 7).

Community colleges are expected not only to serve the broadest, most diverse population of students, but also to provide “effective educational experiences for students who may otherwise not attend and successfully complete college” (Tovar & Simon, 2003, p. 3). The AACC (2011) reported that 40% of community college students identify themselves as first-generation college students, while 13% reported as single parents, 7% as non-U.S. citizens, 3% as veterans, and 12% as categorized as students with disabilities. Cohen and Brawer (2008) reported that “developmental education – also known as remedial, compensatory, preparatory, or basic skills studies – grew as the percentage of students poorly prepared in secondary schools swelled community college rolls” (p. 25). With an open-door admissions policy, students not meeting minimum admission requirements of four-year colleges based on course work and/or satisfactory grades, flooded community colleges in the

1960's as the number of high school graduates increased while mastery of basic, secondary school academic skills declined .

Several studies concluded that students enrolled full-time tend to attain their educational goals at a higher rate than students who attend college part-time (Bailey, 2004; Leinbach & Jenkins, 2008; Manning & Bostian, 2006). Consequently, of the more the 13 million community college students, 60% is part time students while just 40% is enrolled full time. Part-time enrollment figures for public four-year and private four-year colleges are 30.2% and 26.7% respectively (Bailey & Morest, 2006).

The AACC (2011) reported 7.4 million community college students are enrolled in credit programs while 5 million are enrolled in noncredit programs. Bailey (2004) asserts that educational goals of community college students are often attained without ever completing a certificate or degree program. Neutzling (2003) further concluded that “defining student success at the community college is as complex and diverse as the students who choose to attend these institutions” (p. 3).

Retention

The issue of student retention was first recognized in higher education over 40 years ago (Tinto, 2006). Since then “few institutional research issues have received as much attention as student retention in higher education” (Grosset, 1991, p. 159). Rooted in psychology, retention theories initially focused on characteristics of individual students who dropped out of college and college attrition rates. Tinto (2006) stated that “student retention or the lack thereof was seen as the reflection of individual attributes, skills, and motivation;

students who did not stay were thought to be less able, less motivated, and less willing to defer the benefits that college graduation was believed to bestow” (p. 2). By 1970, student retention issues came to be viewed as an institutional failure rather than some individual short-coming or personality deficit, and society began to take on a broader view of the relationship between individuals and society. Tinto (2006) posited that the view of student retention should be “shifted to take into account the role of the environment, in particular the institution, in student decisions to stay or leave” (p. 3).

Although research suggests that it is much more financially responsible for colleges and universities to focus their resources on programs that target student retention rather than recruitment of new students (Craig & Ward, 2008), the literature suggests that institutions disregard the data, continuing to focus more time and resources on student recruitment as opposed to student retention (Astin, 1993; Fike & Fike, 2009; Hossler, 2006; Tinto, 2006). Tinto (1999) argued that although college budgets include numerous recruitment programs and strategies, little money is allocated towards retaining students who are already enrolled. Furthermore, Hossler (2006) reported that the few higher educational institutions who actually have retention programs in place rarely evaluate the effectiveness of their retention efforts; he asserts that retention strategies must be campus-wide efforts led by college administrators and should include both faculty and staff in the planning, implementation, and evaluation of effective retention programs.

Community College Student Retention

As previously established, community colleges play a vital role in higher education.

Retention of students is one of the key factors legislators use in deciding funding for higher educational institutions (Conway, 2009). Although retention and attrition rates are two of the major determining factors used in measuring overall performance and institutional effectiveness in colleges, most of the research studies on student retention draw from undergraduate students attending four-year colleges and universities (Astin, 1975; 1993; Bean, 1980; Braunstein, McGrath, & Pescatrice, 2000; Cabrera, Burkum, & La Nasa, 1993; Davig & Spain, 2004; Fox, 1986; Friedman & Marsh, 2009; Liu & Liu, 1999; Nora & Cabrera, 1993; Pascarella & Terenzini, 1983; Rhee, 2008; Terenzini et. al, 1981; Tinto, 1987). Furthermore, Bailey (2004) asserted that educational goals of community college students vary and may be attained in just one semester.

Bean & Metzner (1985) argued that because the four-year college students usually range between 17 and 24 years of age, little is known about persistence among older, non-traditional students who attend community colleges. Several studies that specifically focused on retention of community college students were discovered during this literature review and will be discussed (Bailey, Calcagno, Jenkins, Leinbach, & Kienzl, 2006; Behrs & Smith, 1991; Cabrera, Nora, & Castaneda, 1993; Craig & Ward, 2008; Friedman & Mandel, 2011; Halpin, 1990; Mohammadi, 1996; Napoli & Wortman, 1998; Pascarella & Chapman, 1983; Terenzini, Lorang, & Pascarella, 1981). The literature also suggests that additional studies representing a variety of geographic regions and student populations are necessary to form a more complete picture of community college student retention and that it is equally as important that colleges conduct their own, individual studies to determine the effectiveness

of their individual retention programs on their specific student population (Astin, 1993; Hossler, 2005).

Predictor Variables

Many variables have been identified as predictors of student retention, including demographic factors, such as age, gender, socio-economic status, and ethnicity; academic readiness and achievement such as grade point average (GPA), standardized test scores, and completion of remedial coursework; and psychosocial factors (also referred to as non-cognitive factors) including motivation, self-concept, social integration, career readiness, and psychological adjustment (Bean & Metzner, 1986; Craig & Ward, 2008; Crisp & Mina, 2012; Feldman, 1993; Fox, 1986; Hirschy, Bremmer, & Castanello, 2011; Liu & Liu, (1999); Napoli & Wortman, 1998; Sedlacek, 1991, 2005; Summers, 2003). Additionally, numerous studies reported that students enrolled full-time tend to attain their educational goals at a higher rate than students who attend college part-time (Bailey, 2004; Brooks-Leonard, 1991; Leinbach & Jenkins, 2008; Manning & Bostian, 2006). Institutional characteristics such as liberal withdrawal policies, low tuition rates, and inadequate student services have also been identified as contributing to drop out rates of community college students (Cohen & Brawer, 2006; Manning & Bostian, 2006; McClenney, 2004). Bailey (2004) identifies “background characteristics and educational preparation that students bring to their post- secondary education, as well as the enrollment pattern in which students engage while in school” to be key factors that impact retention rates of community college students (p. 2).

In 2006, Central Piedmont Community College (CPCC), the second largest community college in North Carolina, participated in a pilot program sponsored by the National Community College Benchmark Project (NCCBP). Using data compiled by the NCCBP, CPCC analyzed factors identified as predictors of student retention and withdrawal rates (Manning & Bostian, 2006). Prior to the implementation of the pilot program, faculty and staff at CPCC believed that students who dropped all of their courses, (referred to as “walk-aways”), had different characteristics from students who dropped just one or two of their courses during a school term. Manning and Bostian (2006) reported that “while both groups of students may not be adequately prepared or may have enrolled in too many courses, walk-aways are more likely to have a major life event that influences them to drop out completely” (p. 74). Upon further examination of the so called walk-away students, it was found that many of these students actually showed a pattern of dropping out of college repeatedly, further affecting retention rates for more than one semester (Manning & Bostian, 2006).

Demographic Factors

Conway (2009) stated that “demographically, community college students are poorer, less prepared academically, and have lower aspirations than their counterparts in 4- year colleges” (p. 212). An influential study conducted by Craig and Ward (2008) examined the effect of several student factors on retention of first-time community college students entering a large, multi-campus community college located in New England. The sample used in this study consisted of a cohort of 1729 newly enrolled students (defined as students who

had never enrolled in any college or university). Using an analysis of variance (ANOVA) and logistic regression analysis, the researchers examined the relationship among demographic, academic, and institutional factors related to student retention in this single institution study. Demographic factors used in this study were “age, gender, race/ethnicity, and interval between high school graduation and college enrollment” (p. 507); the only significant demographic factor related to student retention in this particular study was the length of time between high school graduation and first-time college enrollment.

Although demographic factors are largely defined as age, gender, socio-economic status, and ethnicity, Cooley (2000) found that demographic factors can also include “delayed entry, part-time enrollment, full-time work, financial independence, dependents, single parenthood, and community college attendance without a high school diploma” (p. 4). According to a study conducted by Cooley (2000) for the Educational Testing Service, “24% of students entering community colleges had four or more of these demographic factors” compared to only 4% of students at public four-year colleges (p. 4).

Age. Specific demographic factors that have been found to be related to college student retention have been studied extensively (Barnett, 2011; Cohen & Brawer, 2006; Coley, 2000; Hawley & Harris, 2005; Schmid & Abell, 2010). One such factor, student age, has been found to be a significant factor in studying retention of college students (Cohen & Brawer, 2006; Craig & Ward, 2010).

Research indicates the average age of the community college student to be higher than that of a four-year university student (Cohen & Brawer, 2006). According to the most

recent AACC Fact Sheet, the average age of community college students is 28 years; however, 15% of the community college student population is 40 years old or older (AACC, 2011).

A study published by Fike and Fike (2008) in the *Community College Review* asserted that “about 60% of adults (25 and older) who study at the undergraduate level are enrolled at two-year/community colleges” (p. 70). Barnett (2011) reported that 46% of community college students are over the age of 24. Although older students are believed to be more mature, more committed to career goals and more motivated than students who just graduated from high school, they often have jobs and family responsibilities creating both financial and time constraints that interfere with their ability to attend college (Durkin & Kircher, 2010). Additionally, “research suggests that due to the lapse in time since attending high school or earning a General Educational Development certificate (GED), older students may lose important study habits and technical knowledge (especially in mathematics) required to perform in community college” (Craig & Ward, 2008, p. 507).

Gender. Gender is a demographic factor often studied in terms of retention of college students. One study done by Voorhees (1987) for the purposes of identifying factors associated with student retention reported that one of the three factors found to be related to persistence of college students was gender and that female students have a higher retention rate than males. Feldman (1993) confirmed this study, selecting a sample from 1623 first-time students at Niagara County Community College in NY. The sample used in the study consisted of 1140 students, a sufficient sample size to draw conclusions. Feldman reported

that 54.5% of females in the sample remained in college contrasted with to 45.5% of the males.

Conversely, a more recent study by Bailey et al. (2006) examining institutional characteristics related to community college student retention revealed that colleges with higher populations of women had lower retention rates. Bailey et al. (2006) found their results to be so surprising that they decided to further examine this relationship. Upon further examination, the researchers determined that the negative effect of women on retention rates is primarily found in colleges with higher part-time enrollments.

Financial Aid. Financial aid was previously identified as a significant factor in studying student retention of first generation students by researchers including St. John (1994). A renewed interest in financial aid and its effect on retention resurfaced in the 1990s (Berger, Ramirez, & Lyon, 2012). Colleges often used financial aid offers as incentives for recruiting college students, later learning that this could also adversely affect retention rates of students, especially at community colleges (Braxton, Hirschy, & McClendon, 2004).

One notable study conducted by Singell (2004) studied the role of financial aid on student retention by examining existing data compiled by the University of Oregon. Although findings of this study report that overall, students who completed the Free Application for Federal Student Aid (FAFSA) were more likely to re-enroll, retention rates for students with the highest need of financial aid actually decreased. A more recent study (Wohlegemuth et al., 2006) using a meta-analysis of 31 different studies, revealed “financial aid to have a small, but significant, positive effect on student persistence, enabling lower-income students to

persist at a rate roughly equal to that of middle-and upper-income students” (p. 461).

Over half (56%) of all community college students in the U.S. are receiving financial aid in the form of Pell Grants, campus-based aid, or academic competitiveness grants (AACC, 2011). AACC (2010) also reported that one fifth of full time community college students (21%) are also employed full time which could indicate a need for financial assistance.

The type of financial aid, whether grants or loans, and the total amount of financial aid received have also been examined in relation to student retention. Findings report that grants and loans are positively related to retention of low-income students; these resources can sometimes replace the need for students to work while attending college (Creech, 1998; Perna, 1998). Although Fike and Fike (2008) found receiving financial aid to be a predictor of retention of community college students, because of the various types of aid available, they determined that additional studies are needed.

Academic Factors

In addition to demographic variables such as ethnicity, race, gender, and low socioeconomic status, numerous studies have found academic factors such as high school coursework, poor SAT scores, and low high-school GPA to be positively correlated with college student drop-out rates (Bean & Metzner, 1985; Kuh 2009; Nora & Cabrera, 1993; Pascarella & Chapman, 1983; Pascarella & Terenzini, 1980; Schmid & Abell, 2010; Ting & Robinson, 1998; Tinto, 1975, 1993; Wohlgemuth et al., 2007). Bailey (2004) identified “background characteristics and educational preparation that students bring to their post-

secondary education” to be key factors that impact retention rates of community college students (p. 2). Cohen and Brawer (2008) reported that the mean SAT scores of community college students are considerably lower than the norm. According to The College Board, the 2004-2005 average national SAT composite score for students planning to attend a two-year college after graduating from high school was 841 (Verbal-420, Math-421) compared to an average composite score of 968 (Verbal-481, Math-487) for students planning to obtain a bachelor’s degree.

Remedial Coursework. Several researchers suggested that the selective admission standards limiting enrollment numbers of underprepared students in universities to be the primary reason that community colleges enroll a higher proportion of underprepared students than do universities (Fike & Fike 2008; Neutzling, 2003; Schmid & Abell, 2010). Others attribute the open-door admissions policy to be responsible for the large population of academically underprepared students which make up a large portion of the community college student population (Cohen, & Brawer, 2008; Feldman, 1993). McCabe (2000) reported that 41% of newly enrolled community college students “are underprepared in at least one of the basic skills (reading, writing, mathematics)” while just 29% of all first-time students meet the same criteria (p. 4).

A recent study by Fike and Fike (2008) is noteworthy based on the findings which suggest a significant relationship ($p < .001$) between completion of developmental coursework (in both mathematics and reading) in predicting community college student retention from both fall to spring and fall to fall semesters. Using a sample of 9200 first-

time community college students enrolled in an urban Texas community college, Fiki and Fike used bivariate correlation coefficients to determine the relationship between a set of predictor variables and student retention over a four-year period. The variables used in this study included the following: student gender, age, and ethnicity; student completion status for developmental mathematics, reading, and writing courses; participation in a Student Support Services TRIO course; receipt of financial aid; enrollment in Internet courses; semester hours enrolled in the first semester; semester hours dropped in the first semester; and the education level of parents (p. 72). Passing a developmental mathematics course and a developmental reading course was found to be a predictor of retention (fall to spring, $r=.241$ for mathematics and $r=.409$ for reading; and fall to fall, $r=.248$ and $r=.403$).

Another study reports somewhat different findings than the previously documented studies. The study, conducted by Hawley and Harris (2005), took place at Prince George's Community College (PGCC) in Largo, Maryland. Data was obtained through surveys collected from entering freshman at PGCC in the fall semester of 2000. Three hundred and sixty-two completed surveys were returned for a total response rate of 17.1% (Hawley & Harris, 2005). The participants for the study were then selected based on respondents who had verifiable social security numbers. The final sample for the study consisted of 133 respondents. The results of the study concluded that one of the strongest predictors of drop-out rates among first-time students is the amount of developmental coursework required upon initial enrollment. Although the results of the study are useful for determining factors related to student retention at PGCC, the results cannot be generalized to other community

college populations because of geographic factors that influence individual college demographics. Of particular importance regarding the generalizability of this study is that the population of PGCC, located in Prince George's County, part of the Washington, DC metropolitan area, is comprised of an unusually large number of minority students; of these, 74% are African American, 5.3% are Asian American, and 4.3% are Hispanic American.

Online Learning. The popularity of online courses has grown exponentially over the last decade. Online classes are particularly attractive to community college students for a variety of reasons, most importantly convenience of scheduling. Eighty-five percent of community college students work (full-time and part-time) in addition to taking classes, and 33% are parents (AACC, 2009). A previously mentioned noteworthy study by Fike and Fike (2008) also found first-time, fall semester students who enrolled in Internet courses to have a positive correlation to student retention for the following spring semester ($r = .238$) as well as the next fall semester ($r = .312$). Contrary to this finding, Angelino, Williams, and Natvig (2007) reported attrition rates to be higher (10-20%) for online courses when compared to the attrition rates of face-to-face classes. This could in part be due to the realization that online courses actually require a greater time commitment than seated, face-to-face classes.

A significant study of online courses and community college retention was done by Doherty (2006). The study examined student attributes, external factors, and course attributes as they relate to retention for students taking Internet courses (Doherty, 2006). Doherty found the two leading causes of students' failing or dropping online courses to be poor time management skills and scheduling issues. The results of this study are not particularly

surprising since the student participants also reported the number one reason for taking an online class was that they were too busy to attend a face-to-face class.

Social Integration

Non-cognitive variables, also referred to as psychosocial variables, relate to a student's level of adjustment, motivation, self-concept, social integration, and career readiness. Although non-cognitive variables are more difficult to isolate and measure than are demographic and academic variables, there is sufficient literature to support that many of these variables warrant closer examination as they relate to student retention (Bean & Metzner, 1986; Sedlacek, 1991; Ting & Robison, 1998). Karp, Hughes, and O'Gara (2010) stated, "students who become integrated into a college by developing connections to individuals, participating in clubs, or engaging in academic activities, are more likely to persist than those who remain on the periphery" (p. 71). The Community College Survey of Student Engagement (CCSSE, 2010) reports that "the more actively engaged students are--with college faculty and staff, with other students, and with the subject matter--the more likely they are to learn and to achieve their academic goals" (retrieved from www.ccsse.org).

Since community college students commute to class rather than reside on campus as do most freshman students enrolled in four-year colleges, fewer opportunities exist for these students to become socially integrated into the college environment. Most student integration for residential college students is achieved through participation in activities outside of class. Bailey and Alfonso (2005) concluded that "the most relevant form of student engagement in the community college takes place in the classroom" (p. 8).

As opposed to students in residential school settings who have the convenience of eating, sleeping, socializing, and attending classes in the same setting, community college students have many other obligations outside of the college environment. “For them, going to college is but one of a number of tasks to be completed during the course of the day” (Tinto & Russo, 1994, p. 4).

Pascarella and Terenzini’s (1991) research provided sound, empirical evidence that an individual’s college experience is largely determined by the individual’s quality of effort and level of involvement in both academic and nonacademic activities” (p. 610); they concluded that intellectual development takes place outside the classroom through student interactions with peers in the form of healthy debates and verbal exchanges.

A significant study related to both academic and social integration conducted by Schmid and Abell (2003) examined the relationship of “demographic risk factors, study patterns, and campus involvement” to student success of North Carolina’s Guilford Technical Community College (GTCC) students. Data received from three different cohorts of students were analyzed. Results from the following three surveys comprised the three cohorts: 1) the 2001 Non-Returning Student Survey, 2) the 2001 Faces of the Future Survey, and 3) the 2002 Graduate Exit Survey. The North Carolina Community College System (NCCCS) office developed the first two instruments while the ACT Evaluation/Survey Service generated the third. One of the notable results of this study is that the researchers found that non-returning students were “less integrated into college life” as measured by participation in study groups, meetings with faculty outside of regular class meetings, and

participation in school clubs (Schmid & Abell, 2010, p. 12). Findings reported that only 22% of non-returning students participated in study groups compared to 41% of the returning students. Additional findings reported that 61% of returning students talked to faculty members outside of class while 41% of non-returning students reported this same interaction. Lastly, just 7% of non-returning students reported participation in school clubs, compared to 21% of current students.

First-year Programs

In an effort to increase overall institutional effectiveness, colleges have developed and implemented countless programs, often referred to as first-year programs, for the purposes of retaining and graduating students. Toblow (2008), in conjunction with the 2006 National Resource Center for First-Year Experience and Students in Transition, reported that of 968 completed surveys (a response rate of 36.6%), 84.8% of the respondents offered some type of first-year seminar. The three primary objectives of the seminars, in order of importance were: 1) to develop academic skills (64.2%); 2) to provide orientation to campus resources and services (52.9%); and 3) to provide opportunities for self-exploration and personal development (36.9%). Of the responding colleges in the 2006 survey, 92.2% reported the first-year seminars count between one and three hours of course credit.

Pepper (2012) reports that “special courses for entering college students appear in nearly every setting of U.S. higher education, from community colleges to research universities, from tiny Bible colleges to mammoth state universities” (p. 1). Pascarella, Smart, and Ethington (1986) reported that participation in an orientation course “directly

fosters social integration and has a positive, indirect effect on persistence” (p. 65).

Community College Student Success Courses

Although much more condensed than first-year college programs offered at four-year colleges, the majority of community colleges offer their own version of a first-year program commonly referred to as student success courses. First-time, newly enrolled students take these semester-long courses that include topics like study skills, critical thinking activities, orientation to campus resources, academic planning and advising, time management, career exploration and learning styles. Classes meet between one and three hours per week and usually count as one to three hours of course credits.

Numerous studies have found that students who complete a student success course are more likely to have higher grade point averages at the end of their first semester of college than students who did not complete such a course (Braxton & McClendon, 2001; Fike & Fike, 2008). Successful completion of a student success course has also been proven to increase the likelihood a student will re-enroll the following spring semester (Craig & Ward, 2007; Derby & Smith, 2004; Glass & Garrett, 1995).

A significant study conducted by Derby and Smith (2004) used four different retention measures to assess “the relationship between taking an orientation course and (a) student’s success in obtaining a transferable degree within a specified two-year time period, (b) student drop-out, (c) student re-enrollment after brief enrollment breaks (stopping-out), and (d) student persistence” (p. 767). The longitudinal study was conducted on a sample of students attending a Midwestern community college between 1999 and 2002. The sample

consisted of 7466 students. Using chi-square analysis, the researchers report a relevance between taking an orientation course to each of the four retention measures outlined in this study. A limitation of the study is that the sample used was representative only of students taking courses in a transferable degree program, just one portion of the entire community college student population. Student success courses offer opportunities for students not only to hone their academic skills but also to provide many opportunities for students to interact with other students, faculty, and staff. The Community College Student Experiences Questionnaire (CCSEQ) reports that students who take advantage of campus resources such as the library and the writing center have additional opportunities to interact with faculty and other students outside of the classroom. A common goal of student success courses is to provide opportunities for students to feel a sense of community with classmates, staff, instructors, and ultimately with their institution (Derby & Smith, 2004).

Theories and Models of Retention

Colleges have examined several theoretical models as a basis for designing a variety of college retention programs; however, most of the research on specific retention programs has been conducted at four-year colleges and universities (Andres & Carpenter, 1997; Liu & Liu, 1999; Metz, 2002; Summers, 2003; Ting et al., 2000; Zhang & Watkins, 2001).

Morrison and Silverman (2012) reported in a chapter summary of retention theories and models that there is an “abundance of studies on college student retention” (p. 61) beginning as early as 1937, and that the information available can be overwhelming. Derby and Smith (2004) concluded that although several retention models exist for four-year colleges and

universities, similar models specific to community college students do not exist.

One of the most prominent theories of student retention is Astin's (1984) Student Involvement Theory. Astin (1984) posited that the more involved a student is with the campus environment, the more likely the student is to persist; he describes his Student Involvement Theory as a developmental theory, defining student involvement as devoting both physical and psychological energy to an academic experience. Astin (1984) suggested that student involvement can be measured by the number of hours a student spends on campus, engaging in activities both inside and outside of regular classroom attendance and participation. Many student retention programs are based on Astin's theory because it suggests that non-cognitive factors such as student involvement and social integration are just as critical to student success as are cognitive factors like grade point average and test scores (Sedlacek, 1991; Zhang & RiCharde, 1999). Although Astin's Student Involvement Theory is, as he intended it to be, a simpler way to study student involvement, its simplicity affects its lack of generalizability to all college student populations, particularly community college students. Astin (1984) even admitted that because of the unique population of community college students, his model is difficult to apply to such a diverse group of students and that student involvement in the community college environment is limited partly because of the part-time status of both students and faculty members.

During this literature review, a salient student departure conceptual model for community college students was also discovered. The model, developed by Braxton, Hirschy, and McClendon (2004), is a revision of Tinto's theory and uses Tinto's basic

premises as a framework for explaining student departure in two-year, commuter colleges. Braxton et al. (2004) accentuated the obvious gap in retention studies focusing on disadvantaged student populations such as racial and ethnic minorities and emphasized the need for more empirical research using broader student populations and a variety of institutional types to help improve efforts in understanding student retention. This newer retention model for commuter colleges was not considered as a theoretical framework for this current study because of the lack of empirical studies supporting the model.

The majority of the studies found during this literature review use Tinto's (1975, 1993) Interactionalist Theory as a theoretical framework for research. Tinto's theory recognizes both academic and social integration as key to student retention. Although the social integration portion of Tinto's Model is believed by some researchers to be inapplicable to the study of student retention at community colleges, a more recent study by Karp, Hughes, and O'Gara (2010) found that community college students can "become integrated into a college by developing connections to individuals, participating in clubs, or engaging in academic activities" and that the students who do become socially involved in their colleges "are more likely to persist than those who remain on the periphery" (p. 71). This study as well as other studies that will be discussed in the next section influenced my decision to use Tinto's Interactionalist Theory as a framework for this particular study.

Tinto's Theory

Origins of Tinto's Theory. Prior to 1970, research on student retention was limited; in fact, little to no attention was devoted to the phenomenon of college student retention

(Bean, 2001; Derby & Smith, 2004; Halpin, 1990; Liu & Liu, 1999; Pascarella & Terezinni, 1981; Tinto, 1975). Bers and Smith (1991) reported that “as is often the case in higher education research, most theories and empirical research focus on traditionally aged college students, usually at selective, residential institutions” (p. 539). Prior to Vincent Tinto’s theoretical model of student retention, even the term “dropout” was poorly defined in the limited research that did exist. Dropout rates were traditionally calculated using the total number of students who left college, regardless of their reasons for leaving, whether it be for academic reasons such as suspension, or personal reasons such as financial hardship or family responsibilities. Even students who matriculated to other colleges to continue on to degree completion were categorized as dropouts.

Seeing the need to define and address attrition from a theoretical standpoint rather than as a descriptive statement, Tinto (1975) is credited with developing the most comprehensive and parsimonious theoretical model which can be used as a foundation for conducting empirical studies to identify and determine the reasons students leave college (Metz, 2002; Pascarella et.al, 1983). Tinto’s goal was to attempt to explain the “processes of interaction between the individual and the institution that lead differing individuals to drop out from institutions of higher education, and that also distinguishes between those processes that result in definably different forms of dropout behavior” (p. 90). Secondly, Tinto intended for his initial model to be used to predict whether a student was at risk of dropping out of college based on factors other than academics.

Tinto (1975) referenced studies conducted by Spady (1970) and Rootman (1972), and

indicated the value of both studies as being “limited to descriptive statements of how various individual and/or institutional characteristics relate to dropout” (p. 90). Tinto sought to develop a longitudinal model, borrowing concepts from sociology, anthropology, psychology, and education, a true theory that could predict and explain student retention; his model was designed to “explain all of the aspects and processes that influenced an individual’s decision to leave college or university, and how these processes interact to ultimately produce attrition” (McCubbin, 2003, p. 1).

Tinto (1975) credited Durkheim’s theory of suicide as the foundation of his Student Integration Model (SIM) and stated that “according to Durkheim (1961), suicide is more likely to occur when individuals are insufficiently integrated into the fabric of society” (p. 91). Tinto (1975) proposed that the college environment operates as a social system and that social conditions of the college environment can affect a student’s commitment either to stay or leave that environment; he suggested that “one can reasonably expect, then, that social conditions affecting dropout from the social system of the college would resemble those resulting in suicide in the wider society” (p. 91). Although this statement is somewhat useful in making comparisons among social systems, it somehow seems to trivialize reasons underlying an individual’s suicidal thoughts, tendencies, and behaviors. A more useful analogy used by Tinto is the implication that the college environment is a microcosm or subculture of a larger social system, operating according to a subscribed set of values and rules adopted by the majority. This perception could also explain situations where seemingly normal people become outcasts or misfits, and desperately seek fraternization at any cost,

sometimes joining gangs or other groups. Although Tinto's analogy is somewhat extreme, it is still useful to a degree.

Tinto (1975) also acknowledged that Van Gennep's anthropological studies influenced the development of his theory. Through Van Gennep's study of tribal societies he developed a rites of passage theory that focused on rituals that moved individuals from one social group or developmental stage to another (McCubbin, 2003; Tierney, 1992). This theory seems like a more appropriate explanation of student retention behaviors than Durkheim's theory of suicide. The educational system in the United States does indeed view colleges as institutions that move individuals from one social group to another; therefore, in this sense, attending college, and certainly graduation from college, symbolize a rite of passage to a better and more prosperous life.

Theoretical Assumptions. Tinto (1993) viewed the college as an interactive system, a "systematic enterprise comprised of a variety of linking interactive, reciprocal parts, formal and informal, academic and social" (p. 118). A major contribution of Tinto's theory is that it is an explanatory model that approaches the issue of student retention as a condition rather than a combination of individual attributes. Tinto (1975) posited that individuals enter institutions with a variety of attributes which both directly and indirectly impact college performance (p. 94); background characteristics influence an individual's commitments including their academic goals as well as their commitment to the college (Tinto, 1975, 1982, 1993). The interplay of students' interactions with the academic and social systems of the college affects these previous commitments which in turn determine student persistence

(Tinto, 1975). In other words, as students' attitudes about their academic success and/or degree completion and their loyalty to their academic institution change, goals are redefined, ultimately determining whether an individual stays or leaves the institution.

Key Constructs. Five key constructs of Tinto's theory include: 1) social integration; 2) academic integration; 3) goal commitment; 4) institutional commitment; and 5) perceptions. The first construct, academic integration, refers to academic achievement as measured in terms of student grades and intellectual development; social integration, on the other hand, refers to student involvement in social systems within the college and includes peer relationships and faculty interactions (Bean, 2002).

Goal commitment, in the context of Tinto's theory, refers to an individual's commitment to completing college. Tinto (1975) saw goal commitment as crucial to student persistence. According to Tinto (1993), these first two constructs affect goal commitment and institutional commitment respectively and influence a student's ultimate decision either to stay in college or leave. Tinto (1975) views the last construct, perceptions, as "central to the process, the notion that perceptions of reality have real effects on the observer, and, for a variety of reasons, persons of varying characteristics may hold differing perceptions of apparently similar situations" (p. 98). This statement demonstrates Tinto's acknowledgement of and sensitivity to cultural differences and issues which he has been accused of glossing over in his student departure model.

Definitions. Student retention as defined by Tinto (1975, 1982, 1993) is a process that occurs over time because of the interplay of social and academic integration coupled

with student goals and institutional commitment. Tinto (1975) distinguished between dropouts and voluntary withdrawals because not all students who leave college are dropouts; some students voluntarily leave college for personal and financial reasons. The negative connotation of the term dropout does not adequately describe voluntary withdrawals. According to Tinto (1975), dropouts are students who are academically dismissed due to poor performance. Another term Tinto (1975) uses often in his theory is *social system*. Tinto (1975) views the social system of a college to include not just students but also staff, administrators, and faculty members.

Usefulness. A major contribution of Tinto's theory, an explanatory model that approaches the issue of student retention as a condition rather than a combination of individual attributes, is that it lends itself to empirical research (Pascarella & Terenzini, 1980; Liu, 2002; Bean, 1980; McCubbin, 2003). Additionally, Tinto's theory is especially useful for planning purposes at both the institutional as well as the state level in terms of budgeting and program planning. By identifying potentially high-risk students in their first semester of college, intervention programs can ultimately help reduce attrition rates (Bean, 1990). Tinto (1993) stresses the importance of effective academic and student services programs in relation to student retention. Hutto (2002) asserted that a "primary contribution of Tinto's 1987 college retention theory is that it provides insights into the stages and sources which impact student persistence" (p. 27).

Testability. Tierney (1992) stated that "today few would question that students' commitment, academic integration, and social integration are crucial to their academic

success” (p. 606). Further support of Tinto’s theory has been reported in studies conducted by Pascarella and Terenzini (1978, 1983, 1991); Pascarella and Chapman (1983); Bean (1982, 1983, 1990); Halpin (1990); and Voorhees (1987); numerous others, in fact, have also found results supporting Tinto’s theory. Most of the research on student retention using Tinto’s theory for a framework provides sound, empirical evidence that “the impact of college is largely determined by the individual’s quality of effort and level of involvement in both academic and nonacademic activities” (p. 610); they further conclude that intellectual development takes place outside the classroom through students’ interactions with peers in the form of healthy debates and verbal exchanges.

Numerous studies conducted on student retention, using Tinto’s theory as a theoretical foundation, have proven the predictive validity of his theory of student interaction (Pascarella & Terenzini, 1980, 1983; Pascarella et al., 1986; Bean, 1982). Pascarella and Terenzini (1979, 1980) conducted two studies testing Tinto’s model of retention, the second one being a duplicate of the first.

Generalizability. Tinto (1987) acknowledged the presumption in suggesting that any theory, including his own theory of student retention, is applicable to populations other than the population for which the theory was intended. Tinto’s original intent was to study college student retention from a theoretical basis rather than a descriptive one, as had previously been done.

Tierney (1992) stated that “today few would question that students’ commitment, academic integration, and social integration are crucial to their academic success (p. 606);

however, he goes on to criticize Tinto's theory to be lacking in generalizability for racial and ethnic minorities. Tierney (1992) also argued that Tinto's theory is too broad and so cannot be applied to non-traditional students such as older students and students in need of developmental courses.

Another criticism of the generalizability of Tinto's theory is in the comparison of student departure and rites of passage. Both of these concepts can be seen as different meanings in different contexts, depending on the group to which an individual belongs. Tierney (1992) specifically mentioned the inappropriateness of Tinto's theory to Native Americans as this group of people has its own distinct set of rites of passage, marked by ceremonies and initiations. Although I agree with these assertions to some extent, I still believe that the evidence espousing the generalizability of Tinto's theory outweighs these arguments. Furthermore, Native Americans make up less than 1% of college student populations in most areas of the United States, so if Tinto's model is applicable to the other 99%, it is still useful in generalizing characteristics of students who leave college. A report to the New Mexico Commission on Higher Education, published in 1996, reported nearly 7% of college freshman as being Native American and recommended development and implementation of programs specifically targeting recruitment and retention of Native American students. This seems like a viable way to address many of the criticisms made against Tinto's exclusion of this group.

Tinto (1987) in fact addressed the lack of generalizability of his earlier theory and revised his original theory in an effort to make it more inclusive of racial and ethnic

minorities. The most recent revision of Tinto's student departure model expands on the rites of passage concepts of Van Gennep (1960) and is more suited to a diverse student population. Tinto (1987) stated that the primary reason he revised his model was "to explain how interactions among different individuals within the academic and social systems of the institution lead individuals of different characteristics to withdraw from that institution prior to degree completion" (p. 113). The emphasis on "individual characteristics" implies his sensitivity to different cultures and ethnic groups.

Limitations. The major criticism of Tinto's original theory was that it lacked operational definitions (Liu, 2002). Liu (2002) stated that "Tinto did not intend for his theory to be incorporated into Path Analysis; thus he did not provide operational definitions for his variables" (p. 6). Liu (2002) also criticized Tinto's model for its "lack of substantive explanatory power of the variables" and "Causal Order of Variables, which should be considered when Path Analysis is used" (p. 7) Pascarella and Terenzini (1979, 1980) later developed operational definitions for academic integration, social integration, institutional commitment, goal commitment, and intention to persist. Pascarella and Terenzini (1980) also reported predictive validity of Tinto's model when tested using these operational definitions.

Another limitation of Tinto's model as interpreted by McCubbin (2003) is that the model is "globally flawed and fails to explain the majority of attrition behavior" (p. 3). McCubbin (2003) does acknowledge that Tinto addressed the issue that his model was limited to the explanation of retention of traditional students and made changes in the 1987 revision of his model to include more diverse student populations.

Empirical Studies. A study conducted by Bers and Smith (1991) reported that the two key constructs of Tinto's theory, academic and social integration, have been identified as predictors of student persistence of traditional college students; the purpose of this study was to determine the usefulness of Tinto's integration theory when applied to two-year, community college students in terms of external validity.

Bers and Smith (1991) conducted their study on the entire student population enrolled in the fall of 1988 at a "midsize suburban community college in the Midwest" (p. 543). Participants were randomly selected and administered in-class surveys early in the fall semester of 1988. The total sample consisted of 1142 students. The instrument used in this study was the Current Student Survey (CSS), a self-administered questionnaire which includes questions asking students why they chose to attend a two-year college, what their future college plans were, and several questions that are used to gather demographic information. The questionnaire also incorporated 30 items previously developed and tested from Pascarella and Terenzini (1980).

Bers and Smith (1991) used "a stepwise discriminant analysis and classification analysis to estimate the contribution of the integration summary scales and educational objective and intent to reenroll to group discrimination" and "covariates were students' background characteristics: gender, age, employment, ethnicity, and program (transfer or vocations)" (p. 548). Persistence was the dependent variable used in this study. However, Bers and Smith's (1991) sample, having only included students enrolled in a freshman seminar, did not represent all community college students threatening the internal validity of

this study. Furthermore, the instrument, partially made up of Pascarella and Terenzini's questions, adds to this threat and could be perceived as researcher bias. The results of this study are very well summarized in the tables provided by the authors. The study supports Tinto's constructs of academic and social integration as well as educational goals as being valid predictors of community college retention. Intent to reenroll was also found to be an indicator of persistence.

Halpin (1990) conducted a study testing Tinto's theory as its theoretical orientation. The purpose of the study was to examine the usefulness of Tinto's model of student retention in analyzing student retention rates at a community college. Halpin (1990) reported that several previous studies of college student retention (Bean, 1972; Rootman, 1972; Tinto, 1975) have primarily focused on the theory of person/environment fit in explaining why students leave college. He also cites a study conducted by Pascarella and Chapman (1983) that proved the predictive validity of Tinto's model among several different student populations including two-year colleges; "at commuter institutions academic integration had the strongest influence whereas at residential colleges social integration had a stronger effect" (p. 23). The research question by Halpin (1990) was: "Does the Tinto model have utility in the analysis of student persistence or exit from a community college?" (p. 24).

The participants for this study were all newly enrolled, full-time, degree-seeking students at a small community college located in a relatively rural section of New York. The researcher defines "newly enrolled, degree-seeking students" as those students who are both taking classes for the first time and also enrolled in an academic degree program at the

community college. The total population for this study consisted of 381 students. Halpin (1990) reported that 76% (or 291 students) of the original cohort completed questionnaires.

The research design used in this study was a series of three-group stepwise discriminant analysis; the selected method seems appropriate since the researcher's purpose was "to discriminate groups from one another on the basis of sets of measures" (Kerlinger & Lee, p. 209). The sets referred to in this study are the social and academic measures identified in Tinto's model (1975).

For the purposes of this study, Halpin (1990) used a questionnaire he developed and modeled after Pascarella and Terenzini's (1980) questionnaire for measuring integration levels. Halpin (1990) stated that the questionnaire "included 30 statements about the students' experiences with and perceptions of the college, to which respondents indicated their degrees of agreement or disagreement using a five-point Likert scale" (p. 25).

The questionnaire was "administered to freshman in the freshman composition class, in which 90% of first-time, full-time students were enrolled" (p. 24); students absent during the class period on this particular day were mailed the questionnaire along with a written confidentiality clause and a prepaid return envelope; including a prepaid return envelope usually results in a higher response rate. The researcher strategically scheduled his data collection towards the end of the semester (third week before the semester end) in order to provide students an opportunity to settle into the college environment and experience a real sense of college life, both academic demands as well as social aspects, and to minimize the risk of non-returning students' participation. Ultimately, a total of 291 questionnaires (or

76% of the original cohort) were used for the data analysis of the study.

Tinto's model outlines a longitudinal series of variable sets which Halpin used as independent variables. For this study, the background variable set included sex, highest degree expected, father's educational background, and mother's educational background. The "environmental variable set used to assess institutional experiences and contemporaneous external constraints, included the following: Commuting distance; Involvement in college organizations; Informal conversations with faculty; Academic conversations with faculty; and Perceived cost burden of college" (p. 25). Halpin used a questionnaire he developed himself to assess Integration levels, and reports "a principal component factor analysis yielded a five-factor solution which was generally consistent with the Tinto model" (p. 25). The integration set included Social integration, Academic integration, and Commitments. The three dependent variables for this study were: 1) Persister (enrolled for second semester); 2) Dismissal (academically dismissed from full-time study); and 3) Withdrawer (allowed to enroll as a full-time student but did not do so) (p. 25).

Although Halpin (1990) stated that he modeled his questionnaire after Pascarella and Terenzini's questionnaire, which has been proven to be high in both reliability and validity (Pascarella and Terenzini, 1980), it is unfortunate that he did not include more information about his questionnaire. The instrument in this study was developed by the researcher and presumably used for the first time in a study done by the same researcher, threatening the internal validity of this study. Since this is a longitudinal study, maturation is an additional

threat to internal validity.

Of the 291 questionnaires, there was a total of “240 persisters, 23 withdrawers, and 28 dismissals. The final sample for this study was randomly selected from the initial 240 persisters and included 48 (20%) of the persisters. Based on the results of a chi square goodness-of-fit test, the sample appears to be representative of the persisters at this particular community college. Although the sample is representative of the college used in the study and is a random sample, other factors of this sample threaten the external validity of the study. Two of these factors are the size of the college from which the sample was drawn and the geographic location of the college. Both of these factors need to be taken into consideration before attempting to generalize these findings to all community college students. Students who attend small, rural community colleges differ from students who attend larger, inner-city community colleges. Tinto (1975) reported that previous research indicated that the size of an institution “appears to be related to persistence” (p. 115) and furthermore cites several studies that conclude that larger institutions have higher dropout rates than do smaller institutions. To summarize, students who attend small, rural community colleges may differ from students who attend larger, inner-city community colleges for reasons that are not implicitly clear.

The results of this study “indicate that the integration variables significantly discriminate among the three groups (persisters, withdrawers, dismissals), even after the effects of the background and environmental variables are held constant” (p. 28). Halpin (1996) reported that while controlling for effects of the variables background and

environmental factors, this analysis indicates that different levels of the integration “are significant predictors of persistence, withdrawal and academic dismissal” (p. 30). These results satisfactorily met the researchers’ purpose for conducting this analysis and suggested that Tinto’s model can be applied to community college students.

Integration factors which had the highest significance and “accounted for 74.5% of the explained variance, were Faculty Concern for Teaching and Student Development, Academic and Intellectual Development, and Interaction with Faculty” (p. 30). The remaining “25.5% of the explained variance, were Institutional and Goal Commitments and, again, Interactions with Faculty” (p. 30). Halpin (1996) concluded that community colleges should focus on improving the factors they can control, such as increasing faculty interaction among students by decreasing class size, and increasing faculty office hours and academic advising responsibilities.

Mohammadi (1996) conducted a research study to explain retention and attrition at a two-year community college in an effort to improve retention rates for this particular college as well as to assist the Virginia Community College system with improving accountability measures and institutional effectiveness. This exploratory study assessed “process variables to explore the retention pattern and analyze the influence of student/institutional variables on retention and attrition” (Mohammadi, 1996, p. 41). The research questions in the study were:

1. What was the retention pattern of the first-time students enrolled in the fall of 1988 after one year, two years, three years, and four years by ethnic background?
2. What was the retention pattern of the first-time students enrolled in the fall of 1988

- after one year, two years, three years, and four years by gender?
3. What was the nature of data on demographic and academic (typo) variables for students who first enrolled in the fall of 1988 and did not return in the fall of 1989?
 4. What were the significant variables that contributed in determining the retention and/or attrition rates? (p. 41).

The researcher reported that previously published studies of retention and attrition of community college students are few. Furthermore, the theoretical models used as the basis of many of these studies, such as Tinto's (1975) interactional theory, are not adequate models for studying retention at two-year community colleges because the population of community college students in terms of demographics and socio-economic status is very different than those of four-year, residential, university students for which most of the retention theories are intended. Mohammadi (1996) contended that in addition to major student differences, external factors of the community college student population are unique and must be considered when applying theories and methodologies traditionally used in studying student retention and attrition. External factors which contribute to lower retention rates of community college students are described as students' differing intentions upon entering a community college, which can range from an initial goal of transferring to a four-year college after completing general college courses to enrolling in technical courses intending to take as few classes as possible to gain necessary job skills or satisfy employers' demands. Other students attending community colleges simply take a course or two because of self-interest in a particular topic.

Mohammadi (1996) reports four studies as significant in specifically targeting retention of community college students: Brooks-Leonard (1991); Daniels (1990); Feldman (1993); and Voorhees (1987). However, he concluded that these studies merely identify different variables that can be *associated with* retention and attrition rather than variables that can *predict* retention and attrition.

The participants of this study were newly enrolled students in the fall semesters of the 1988-1989 through 1991-1992 academic years at Patrick Henry Community College (PHCC). The college is described as being one of the 23 community colleges in the Virginia Community College system; it is located in Martinsville, VA, south of Roanoke, VA, just 25 miles north of the North Carolina border (Mohammadi, 1996). The only demographics reported in regards to the sample are demographics of the total student population in the fall of 1993. The researcher also provides student characteristics of race and gender for his chosen sample in Tables 2, 3, 4, and 5. I found this information to be difficult to interpret and would have preferred he described the population not only in more detail, but also in more straight forward terms. Interestingly, Mohammadi gives a great amount of detail about the student population in 1993, which, again, is not really relevant to the current study.

Mohammadi (1996) reported using several statistical procedures in his study, yet he does not report all of the results. He initially reported that the type of method was a longitudinal exploratory factor analysis which seems appropriate based on the researchers goals of identifying variables related to retention and attrition of community college students.

The independent variables for this study included: status (full-time or part-time); gender; race; goals; age, hours completed; hours taken in a semester; overall GPA; and semester GPA. The dependent variable for the logistic regression analysis was dichotomous and measured both persisters and leavers “with both discrete and continuous variables” (p. 42).

Mohammadi (1996) reported that the logistic regression analysis identifies significant variables that determine persistence of college students. “In order of importance to retention these variables were student’s goal (academic level), hours per semester (HrsSem), hours completed (HrsComp), semester GPA (SemGPA), and overall GPA” (p. 47).

The purpose of a comparable study conducted by Napoli and Wortman (1998) was twofold: first to determine the validity of Tinto’s model of college retention to community college students and second, to study the relationships between a specific set of psychosocial variables as they relate to the major constructs of Tinto’s model. Four research hypotheses for this study clearly and specifically describe the intentions of the researchers to determine relationships among psychosocial variables and constructs of Tinto’s theory:

1. Educational goal and institutional commitment were predicted to be positively associated with socioeconomic status, prior academic achievement, and quality of work effort.
2. Social and academic integration were predicted to be positively linked to initial institutional and goal commitment, social support, agreeableness, self-esteem, campus

size, satisfaction with college, and psychological adjustment. Academic integration was also predicted to be positively associated with quality of work effort and first-semester academic achievement. External commitments and involvements and negative life events occurring in and out of school, were expected to negatively impact both academic and social integration.

3. Initial goal and institutional commitment were predicted to be positively linked to goal and institutional commitment at the second administration. In addition, end-of-term goal and institutional commitment were predicted to be positively related to social integration, academic integration, social support, self-esteem, personal-psychological adjustment to college, and satisfaction with college. Negative and positive life events, negative events in school, and external commitments and involvements were hypothesized to have an adverse impact on end-of-term goal and institutional commitment.
4. Persistence/withdrawal behavior was predicted to be positively linked to Time-2 goal and institutional commitment. That is, individuals with greater goal commitment and institutional commitment would be more likely to persist. In addition, persistence was predicted to be positively and directly associated with academic and social integration (p. 419).

The sample in this study consisted of students from three different campus locations of Suffolk Community College (SCC) located in New York. The total enrollment at SCC at the time was 22,175 students. Participants were randomly selected from freshman seminar

classes at each of the three campuses. “The final sample consisted of 1101 first-time freshmen students” (p. 429). Since participants were chosen from three different geographic locations of SCC, this appears to be a representative sample of students from this particular community college.

Napoli and Wortman (1998) used a longitudinal design for this study, collecting data at three time intervals during the 1994-1995 year (p. 430). Portions of the data collected were unobtrusive, and information such as demographics and academic information was obtained from student files kept at the college. An instructor administered two different self-report instruments to students enrolled in a freshman seminar class. The instructor asked students to participate in a study being conducted on freshman students. The first self-report instrument (Time-1 data) was administered at the beginning of the fall semester (first and second weeks) and the second one (Time-2 data) was administered at “the end of the fall semester” (p. 430). Additional data consisting of GPA and reenrollment status were obtained from student records. Time-1 self-report scales measured several precollege factors such as “socioeconomic status, initial goal and institutional commitment, external commitments, agreeableness, and conscientiousness” (p. 431) which align with Tinto’s constructs. Time-2 scales assessed attitudes and perceptions of students as a result of both school and external experiences, “including external involvement, positive and negative life events, social support, self-esteem, psychological well-being and emotional adjustment to college, overall satisfaction with college, social and academic integration, and goal and institutional commitment. All of the measures used by the researchers were clearly defined. Validity and

reliability were reported for the instruments used. Instruments utilized such as the Student Involvement Questionnaire (Pascarella & Terenzini, 1980); the Student Involvement Questionnaire Social Integration Scale (SIQ-SI); the Student Adaption to College Questionnaire (Baker & Siryk, 1989); the Academic Adjustment scale of the Student Adaption to College Questionnaire (SACQ-AA) were reported to have well-established construct validity; other types of validity including content, criterion-related, known-groups, convergent, and predictive validity were also reported for many of these instruments. Data collected from student records such as test scores and GPA, were measured using standardized instruments such as the College Entrance Examination Board's (CEEB) placement test. Other instruments such as the External Commitments and External Involvements operationalized using two and three item scales. Internal consistency and reliability results were also reported for several measures (e.g. NEO Personality Inventory).

The method used for this study, factor analysis, seems appropriate based on the researchers' goals of testing the validity of Tinto's (1975) model by identifying variables related to retention and attrition of community college students. They used a discriminant function analysis to assess both background and psychosocial sets to determine their relationship to persisters and non-persisters. The researchers used only the items that were found to be significant ($p < .05$).

Napoli and Wortman (1998) reported that the results of this study confirm previous studies and further validate Tinto's retention theory. As predicted in the second hypothesis, social support was found to have the highest impact on social interaction. The second

hypothesis was further supported, and the researchers found that “negative school events, such as conflicts or problems within the social, academic, and administrative systems of the college, inhibited social integration, and ultimately persistence” (p. 445). This study also indicates the added psychosocial measures “explained a significant ($F(8.980) = 35.6; p < .001$) and sizable portion of the variance ($R^2 = .21$) in persistence/withdrawal behavior” (p. 450).

Napoli and Wortman (1998) concluded that the findings from their study cannot necessarily be generalized to other community colleges, especially for colleges with different geographic locations and demographics. Also, since the sample was taken from a freshman seminar class, it did not in fact include all newly enrolled students.

A longitudinal study completed by Cabrera, Nora, and Castaneda (1993) was conducted for the purposes of studying student retention by merging Tinto’s Student Integration model with Bean’s Student Attrition Model. Participants for this study were selected from a population of 2459 unmarried United States citizens under the age of twenty-four who were newly enrolled, first year students at a large southern urban university in the fall of 1988. The researchers gathered data from several different sources at two different points (spring 1989, fall 1989) during the 1988-89 academic year (p. 129). They used a survey questionnaire to study the variables of Encouragement From Friends and Family, Finance Attitudes, Academic Integration, Institutional Commitment, and Goal Commitment; “academic performance was measured by a single item: cumulative grade point average in the spring 1989 semester” (p. 130). The researchers reported that the results of this study

validate both Tinto and Bean's theories but that combining the two theories creates "an integrative framework in understanding the interplay among individual, institutional, and environmental variables" as predictors of college persistence (p. 136).

Integration of Theories

This literature review discusses several theories about college student retention and cites and assesses specific research studies. Student retention, a process that occurs over time, is related to student and institutional characteristics. One of the oldest theories of college student retention, Astin's Theory of Student Involvement (1984), was certainly worth noting but was not determined to be the most applicable theory for the proposed study. A newer retention model which builds on some of the concepts of Tinto's theory and is specific to commuter colleges was also discovered; however, because of the lack of empirical studies supporting this model, I chose not to examine this model in length.

Although several of the theories reviewed had some features relevant to the population to be used in my study, I found Tinto's theory to be the most useful foundation for studying retention of community college students because of his acknowledgement of both background characteristics (social status, place of residence, and high school experiences-both academic and social) as well as individual characteristics (race, ethnicity, sex) all of which cannot be changed but are still influential in social and academic commitments. Furthermore, in his most recent revision, Tinto (1997) took into account the influences that external commitments have on student intentions, goals, and commitments and ways these factors can subsequently affect academic persistence, especially in commuter

colleges.

A common theme that emerged during this literature review is that retention researchers have recently begun to recognize and acknowledge that college populations differ from one institute to another based on geographic locations, student demographics, educational characteristics, and academic goals. Although it is important for college administrators to grasp the basic concepts of existing student retention models, more importantly, they must begin to realize that retention programs must be individually tailored to meet the specific needs of the student population their institution serves.

The purpose of the current study is to examine how well a set of variables representing demographic factors, academic factors, and social factors can predict and explain student retention at one small community college in the southeastern part of the United States. This study is intended to help administrators at the specific college develop strategies and programs to increase student retention. This study will also add to the existing literature on community college student retention.

CHAPTER III: METHOD

Chapter three describes the participants used in this study, the process by which the data were collected, the data set, and the procedure used to analyze the data.

Research Design

The current study was a quantitative, retrospective study. Data were collected from an existing college data-base for four different school years. Logistic regression analysis was used to establish whether or not a predetermined set of variables could be used to predict retention of first-time enrolled community college students from fall semester to the subsequent spring semester.

Logistic regression analysis, as described by George and Mallery (2000), is an extension of multiple regression. The basic concepts are the same as multiple regression-- “several variables are regressed onto another variable using one of several selection processes” (p. 289). Mertler and Vannatta (2010) described logistic regression as having the “same basic purpose as discriminant analysis—the classification of individuals into groups” (p. 289). Logistic regression differs from multiple regression in that “the value that is being predicted in logistic regression is actually a probability” (p. 289). Probabilities range from 0 to 1. In logistic regression, an equation is produced to predict the probability of whether an individual will fall into one of two categories. An advantage of using logistic regression over multiple regression or discriminant analysis is that logistic regression is more flexible than the other two methods since assumptions about the predictor variable distributions are not required. Additionally, different types of independent variables – continuous, discrete, and

dichotomous – can be analyzed (p. 290).

Logistic regression, a non-linear approach, is suitable for use in studies where the criterion variable, (the dependent variable), is not a continuous variable. Since the dependent variable in this study was categorical with only two probable outcomes, logistic regression was the preferred method to determine membership of the independent variables into one of two groups.

Independent Variables

The eight independent variables in this study were age, ethnicity, gender, receipt of financial aid, online course completion, completion of a remedial English course, completion of a remedial math course, and completion of a student orientation course (ACA 085, ACA 111, and ACA 122). The independent variables--age, ethnicity, and gender--are demographic variables generally available in student application records. These variables, referred to as student characteristics, were used to help identify community college populations that might benefit from early retention efforts. Additional independent variables, referred to in this study as academic variables, were online course completion and remedial course completion; both variables were operationally defined as receiving a grade of “D” or higher. Remedial course completion included remedial courses in both math and English. Receipt of financial aid was operationally defined as students receiving Pell Grants.

The last independent variable used in this study, completion of an ACA course (grade “D” or higher), was used to measure both academic and social integration factors related to student retention. Three ACA courses were used for this variable: ACA 085, ACA

111, and ACA 122. As outlined in the course descriptions for the three ACA courses, both academic skills and social factors are addressed in these semester-long courses, and the descriptions for these three ACA courses, per the WCC course catalog, follow:

- *ACA 085, Improving Study Skills* (2 contact hours/1 semester hour credit)

Prerequisite: None. Corequisite: None.

This course is designed to improve academic study skills and introduce resources that will complement developmental courses and engender success in college-level courses. Topics include basic study skills, memory techniques, note-taking strategies, test-taking techniques, library skills, personal improvement strategies, goal-setting, and learning resources. Upon completion, students should be able to apply learned techniques to improve performance in college-level classes. If a student places into DMA and DRE-level courses (regardless of the level), that student must take ACA 085.

- *ACA 111, College Student Success* (1 contact hour/1 semester hour credit)

Prerequisite: None. Corequisite: None.

This course introduces the college's physical, academic, and social environment, and promotes the personal development essential for success. Topics include campus facilities and resources; policies, procedures, and programs; study skills; and life management issues such as health, self-esteem, motivation, goal-setting, diversity, and communication. Upon completion, students should be able to function effectively in the college environment to meet their educational objectives. The course is also available through the Virtual Learning Community (VLC).

- *ACA 122, College Transfer* (1 contact hour/1 semester hour of transferable credit)

Prerequisite: None. Corequisite: None.

This course provides information and strategies necessary to develop clear academic and professional goals beyond the community college experience. Topics include the Comprehension Articulation Agreement (CAA), college culture, career exploration, gathering information on senior institutions, strategic planning, critical thinking, and communications skills for a successful academic transition. Upon completion, students should be able to develop an academic plan to transition successfully to senior institutions. This course has been approved to satisfy the CAA for transferability as a premajor and/or elective course requirement. (p. 87).

The dichotomous independent variables in this study, receiving financial aid, online course completion, remedial course completion, and completion of an ACA course were coded as follows: 0 = No, and 1 = Yes; gender was coded as 0 = female, and 1 = male. The categorical variable, ethnicity, was dummy-coded using five exhaustive and mutually exclusive dichotomous variables: 0 for White, 1 for Native American, 2 for Asian, 3 for Black, 4 for Other/Unknown/Multiple, and 5 for Hispanic. Correlations of independent variables were reviewed to determine evidence of multicollinearity among independent variables.

Correlations (point-biserial and phi) of predictor and response variables were also tested.

Dependent Variable

The dependent variable, or criterion variable, for this study was student retention, operationally defined as first-time students who returned the subsequent spring semester following their initial fall enrollment. The criterion variable was coded as 0 = dropping out, and 1 = continued enrollment.

Participants

The sample for this study was comprised of four cohorts of first-time, full-time students who initially enrolled in the fall semesters of 2009, 2010, 2011, and 2012 at Wayne Community College (WCC). These same students were then compared to enrollment statistics for the following spring semesters following their initial enrollment to determine which students were retained. The final sample for all four cohorts was collected from WCC's student database and consisted of 2965 students ($N = 2965$).

A small community college located in the southeastern part of the United States, WCC is located in Goldsboro, NC (Wayne County), approximately 50 miles east of North Carolina's capital city, Raleigh. The United States Census Bureau (USCB) reports the combined population of Goldsboro and Wayne County is 124,246 (USCB, 2010). The major source of income for Wayne County is agriculture (primarily tobacco); however, manufacturing of products such as furniture, textiles, and metal fabrications is also a local source of revenue. Additionally, Goldsboro has proudly housed a United States Air Force Base, Seymour Johnson Air Force Base (SJAFB) (named for a local Navy test pilot, Seymour

Johnson), since 1956.

In 1957, WCC was first established in Goldsboro, NC, for the purposes of providing vocational training to residents of Wayne County. Initially named the Goldsboro Industrial Education Center (IEC) and governed by the Goldsboro City Board of Education, like most early community colleges, IEC courses were offered at the local area high school. In 1960, construction of the first separate campus for the IEC began on the US 70 Bypass, an easily accessible location convenient for Goldsboro residents as well as the surrounding Wayne County residents. WCC first opened its doors to 47 students in the fall of 1962 after the first president, Dr. H.B. Monroe, was appointed in August of 1962. Goldsboro IEC became Wayne Technical Institute in 1964; however, as enrollment increased steadily over the next several years, reaching more than 500 students taking classes on campus and another 1500 enrolled in extension studies, the Wayne County Commissioners voted to provide the necessary financial backing for WCI to become a public community college, changing its name to Wayne Community College in November, 1967. First accredited by the Southern Association of Colleges and Schools (SACS) in 1970, WCC has been reaffirmed every subsequent review period since its initial accreditation.

WCC has now moved all of its operations to a 165-acre campus located on Wayne Memorial Drive in Goldsboro, NC, (which is still off of the US 70 Bypass) and now offers more than 70 educational programs. Based on information obtained from The National Center for Education Statistics, during the 2011-2012 school year WCC reported a full-time enrollment of 3822 students and a retention rate of 36% for full-time students and 39% for

part-time students. These retention rates are based on the percentage of students who began their studies fall semester of 2011 and returned the following fall semester, 2012.

Additionally, 32% of the student population was enrolled in at least one distance education course. The demographics reported for this community college include: 61% White, 27% Black, 7% Hispanic, 2% Asian, 1% American Indian, 1% two or more races, and 2% race/ethnicity unknown. Sixty percent of the total enrollment consists of females and 40% consists of males. Student age statistics reported for WCC in the fall semester of 2011 indicate 60% of students were age 24 and under while 40% were age 25 and over. The percentage of beginning students receiving any type of financial aid for the first time was reported to be 57%; fifty-five percent received financial aid in the form of a Pell Grant while 23% received either state or local government grants or scholarships. Two percent of students received institutional grants or scholarships and 10% received aid in the form of federal student loans. For tuition purposes, ninety-six percent of the students were considered in-state and 3% out-of-state. Fifty one percent of students enrolled at WCC during this same time period were part-time (less than 12 SH) while 49% were classified as full-time.

Procedure

Data Collection. The data used in this study were requested and obtained from the department of Research and Planning at WCC. The data provided were from a statewide data base of statistics compiled by the North Carolina Community College System office (NCCCS). The name of the data base the NCCCS uses is *Inform*. Personal student information was not included in the collected data to ensure anonymity of all student

participants. Data were compiled for four separate cohorts based on first-time enrollment statistics for the fall semesters of the academic years 2009, 2010, 2011, and 2012. Enrollment information for initial participants for subsequent spring semesters was also obtained to measure the dependent variable, retention.

Data Analysis. The sample of student data was prepared and analyzed using the Statistical Package for the Social Sciences (SPSS), Version 22. Descriptive statistics including means, standard deviations, and percentages, were developed for the sample. Two statistical methods were used to analyze the data: Chi-square analysis and logistic regression analysis. Because much of the literature suggests a strong relationship between completing an ACA course and student retention, Chi-square analysis, a measure of distribution, was used to test the significance of the relationship between student retention rates and ACA course completion for each of the four academic years used in this study (2009, 2010, 2011, 2012). Since the dependent variable in this study, retention, was categorical, a logistic regression analysis was used to examine relationships between student demographic variables (age, ethnicity, gender) and academic variables (online course completion and remedial course completion). Receipt of financial aid was also examined in relation to student retention. The research questions for the current study follow:

- **Research Question 1:** How well do age, ethnicity, gender, financial aid, online course completion, and remedial course completion predict student retention of first-year community college students?
- **Research Question 2:** Are there differences in retention rates of students completing

a first-semester, student success course as contrasted with other students who did not enroll in a student success course?

Limitations

The proposed research study is not without limitations. Because the data were collected from an existing data base, a causal relationship between the independent variables and the dependent variable cannot be inferred; logistic regression can only explain relationships between variables through correlations and probabilities. Additionally, because logistic regression relies on a goodness-of-fit test, the results of the analysis may yield little statistical power.

Another limitation of logistical regression is that distributional assumptions are not required. Mertler and Vannatta (2010) suggested that “discriminant analysis may be a stronger analysis technique” when all assumptions can be met (p. 293). However, logistic regression models, like multiple regression models, are both sensitive to multicollinearity among predictor variables and outliers.

Summary

The need to increase retention of students at community colleges has become a concerted effort among community college administrators and government leaders. Although there are numerous retention studies conducted on four-year college student populations, research of community college student retention is scarce. Bean & Metzner (1985) argued that because the age of four-year college students usually ranges from 17-24 years, little is

known about persistence among older, non-traditional students, most of whom attend community colleges.

Many variables have already been identified as predictors of retention and attrition rates at community colleges; however, many of the research studies previously conducted are outdated, suggesting a need for more current research on this topic. Existing studies also need to be replicated using different geographic locations and different student populations.

Astin (1993) and other student retention researchers have suggested individual institutions conduct their own studies to determine the needs of the student population served by their specific institutions. The current study is an institutional-specific study designed to assist the administration of one particular community college to further examine factors that can help to predict and explain student retention at this specific college (Craig and Ward, 2008). Additionally, this study will add to the current research of retention of community college student populations.

CHAPTER IV: RESULTS

The purpose of this chapter is to discuss the results of this study and to answer the research questions. A description of the sample is provided as well as tables that both represent and describe the statistical analyses used. Relevant findings will also be discussed.

Description of Sample

The sample used for this analysis was drawn from four, separate cohorts of newly enrolled students for the fall semesters of 2009, 2010, 2011, and 2012. The total sample size was 2945. Of the 2945 newly enrolled students, the majority of the students were female, 58%, while 42% were male. One percent of the sample did not provide information for gender. The sample was predominately White, Non-Hispanic (56%) followed by 32% Black; 6% Hispanic; 2% Other/Unknown/Multiple; and 1% Asian or Pacific Islander. Twenty seven students, or 1% of the sample, did not report ethnicity. Students ranged in age from 17 to 73. The Mean age of the sample was 26.04 and the Median age was 23, with a standard deviation of 8.27. Additionally, 65% of the sample were financial aid recipients in the form of a Pell Grant; 35% did not receive a Pell Grant.

The majority of the sample (80%) did not complete an online course. Remedial English and math course completion rates reported similar results—29% completed a remedial English course and 33% completed a remedial math course. Course completion rates for ACA courses were higher, with slightly more than half of the students (51%) completing an ACA course. Table 1 below shows the descriptive statistics for the students in the study group.

Table 1: Fall 2009 – 2012 Students, Descriptive Statistics

Variable	Explanation	<i>N</i>	%	Median	<i>M</i>	<i>SD</i>
Status	Freshman	2085	70%			
Status	Transfer student	880	30%			
Age	Age at entrance	2945	99%	23.0	26.04	8.27
Age	Missing	20	1%			
Gender	Females	1708	58%			
Gender	Males	1237	42%			
Gender	Missing	20	1%			
Ethnicity	American Indian/ Alaska Native	21	1%			
Ethnicity	Asian or Pacific Islander	44	1%			
Ethnicity	Black, Non-Hispanic	963	32%			
Ethnicity	Other/Unknown/Multiple	73	2%			
Ethnicity	White, Non-Hispanic	1654	56%			
Ethnicity	Missing	27	1%			
Ethnicity	Hispanic	183	6%			
Received Pell Grant	Yes	1942	65%			
Received Pell Grant	No	1023	35%			
Completed Online Course	No	2375	80%			
Completed Online Course	Yes	590	20%			
Completed Remedial Math	No	1994	67%			
Completed Remedial Math	Yes	971	33%			
Completed Remedial English	No	2106	71%			
Completed Remedial English	Yes	859	29%			
Completed ACA	No	1441	49%			
Completed ACA	Yes	1524	51%			
Returned in Spring	No	621	21%			
Returned in Spring	Yes	2344	79%			
Cohort	2009	717	24%			
Cohort	2010	752	25%			
Cohort	2011	734	25%			
Cohort	2012	762	26%			

N = 2965

Data Analysis

Research Question 1: How well do age, ethnicity, gender, financial aid, online course completion, and remedial course completion predict student retention of first-year community college students?

Correlations of Predictor Variables. A logistic regression model was developed to predict retention, a binary variable. All predictor variables listed in research question one were included and entered at the same time. After controlling for covariates, the predictor variables gender, ethnicity, age, traditional/nontraditional student, and cohort were not significant. Bivariate correlation coefficients, point-biserial and phi coefficients, were calculated to determine the association of student retention with a set of predictor variables. Point-biserial correlation coefficients were calculated to assess the relationship of retention with the continuous variable age; phi correlation coefficients were calculated to assess the relationship of retention with the other dichotomous variables. Correlations of predictor and response variables are provided in Tables 2 and 3. Table 2 provides results by cohort, and Table 3 provides results for all cohorts combined.

Completion of an ACA course was the strongest positive correlate with retention for all cohorts combined. The other positive correlates with retention for all cohorts combined were completion of remedial math, completion of remedial English, completion of an online course, receiving a Pell Grant and ethnicity. The significant negative correlate with retention for all cohorts combined was age which indicates that retention is higher among younger students than older students. Age was examined as both a continuous variable and then as a

dichotomous variable, dividing students into 1 of 2 designated groups based on age—traditional students (ages 24 and younger) and non-traditional students (ages 25 and older). The average age of students in the current study was 26.04 years (Median = 23.0 years), and ages ranged from 17 to 73 years. Below, Tables 2 and 3 provide results for correlations of predictors with retention.

Table 2: Correlations (r) of Retention with Predictors of Retention for First-Time Students, Fall 2009-2012, by Cohorts

	Cohort 2009	Cohort 2010	Cohort 2011	Cohort 2012
Age	-.009	-.002	-.137**	-.045
Gender	-.024	-.037	.065	-.029
Ethnicity	.114	.062	.107	.096
Received Pell Grant	.083*	0.023	.025	.032
Completed Online Course	.085*	.138**	.073*	.067
Completed Remedial Math	.258**	.224**	.230**	.150**
Completed Remedial English	.246**	.246**	.234**	.192**
Completed ACA Course	.296**	.317**	.285**	.221**

N = 2945, **p* < .05 (two-tailed), ***p* < .01 (two-tailed).

Table 3: Correlations of Retention and Predictors of Retention for Students, All Cohorts Combined

	<i>r</i>	<i>p</i>	<i>n</i>
Age	-.048	.009	2945
Gender	-.007	.706	2945
Ethnicity	.073	.008	2938
Received Pell Grant	.040	.031	2965
Completed Online Course	.090	.000	2965
Completed Remedial Math	.214	.000	2965
Completed Remedial English	.230	.000	2965
Completed ACA Course	.279	.000	2965
Cohort	.028	.501	2965

N = 2945

Multivariate Model. A multivariate logistic regression model was developed to predict the odds of student retention while controlling for relevant confounders such as student demographic variables. For all analyses, the level of significance was .05.

After controlling for covariates, the predictor variables gender, ethnicity, age, traditional/nontraditional student, and cohort were not significant. Receiving a financial aid (Pell Grant) was significant in the first fit of the regression model. When added to the final logistic regression model which compared financial aid to other variables, it was found to be insignificant. ($p = 0.061$). A subsequent logistic regression model was then developed excluding the variable, receiving financial aid. The results of the model are presented below in Table 4.

Table 4: Logistic Regression Model Predicting Retention: Fall to Spring All Cohorts

	B	S.E.	Wald	Df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
English	1.242	.158	62.093	1	.000	3.461	2.541	4.713
ACA	1.068	.109	95.973	1	.000	2.909	2.349	3.601
Online	.794	.136	34.224	1	.000	2.211	1.695	2.885
Math	.820	.135	36.671	1	.000	2.270	1.741	2.960
Constant	.321	.065	24.569	1	.000	1.378		

N= 2945, CI = Confidence Interval

Research Question 2: Are there differences in retention rates of students completing a first-semester, student success course as contrasted with other students who did not complete a student success course?

Chi-square analysis tested for the significance of the relationship between the

dichotomous outcome variable (did not return or returned) and completion of an ACA course for all four cohorts combined. A Pearson Chi-Square showed a significant association between completion of an orientation course and retention, $\chi^2 (1, N = 2965) = 230.667$; $p < .000$. A greater number of students who took the student orientation course (ACA) returned the following spring semester following their initial enrollment. Tables 5 and 6 below include analyses of the data.

Table 5: Chi-Square Test of Retention with ACA Completion, Cross Tabulation

		Retention		Total
		No	Yes	
ACA	No	470	971	1441
	Yes	151	1373	1524
Total		621	2344	2965

Table 6: Chi-Square Test of Retention with ACA Completion, Chi-Square Tests

	Value	Df	Asymp. Sig. (2- sided)
Pearson Chi- Square	230.667	1	.000
N of Valid Cases	2965		

Discussion of Findings

Multivariate logistic regression and Chi-square analysis were used to determine the predictive ability of a set of predetermined variables on student retention. The independent variables used in this study were age, ethnicity, gender, receiving financial aid, completion of

an online course, completion of a remedial English or math course, and completion of an ACA course. The study evaluated four cohorts of first-time enrolled students at WCC in the fall semesters of 2009, 2010, 2011, 2012. To predict retention, a binary variable, a logistic regression model was developed with all predictor variables included. Age, ethnicity, gender, receiving financial aid (in the form of a Pell grant), completion of an online course and the four separate cohorts (2009, 2010, 2011, 2012) were not statistically significant after controlling for covariates. A subsequent logistic regression model was then developed excluding these variables. The results of the model are presented in Table 4. The negative correlation, age, was significantly higher for the 2011 cohort (-.137). Further examination of the raw data revealed that although similar numbers of non-traditional aged students were in all four cohorts, more of the non-traditional aged students did not return spring semester 2010. Chi-square analysis was used to test the significance of completion of a student success course on retention, yielding a significant relationship ($p < .001$)

Retention rates for the sample indicated that 2344, or 79% of the students for all four cohorts, returned the subsequent spring semester while only 621, or just 21% of the total student sample, did not re-enroll the following spring semester. When examined separately, retention rates for the sample size of each cohort were: 2009 (24%), 2010 (25%), 2011 (25%), and 2012 (26%).

The multivariate logistic regression model's effect size, Nagelkerke R^2 , is .205; therefore, about 21% of the variance in the dependent variable is explained by the model. The odds ratios ($\text{Exp}(B)$) of the logistic regression model demonstrate the independent

variables with the strongest association with retention (ordered from highest to lowest odds ratios) are: completion of a remedial English course, completion of an ACA course, completion of a remedial math course, and completion of an online course.

CHAPTER V: DISCUSSION

This chapter includes a summary of the research results of the study. Implications for theory, limitations of the study, and implications for future research and practice are also discussed.

Summary of Research

The purpose of this quantitative, retrospective study was to determine if a particular set of variables could be used to predict and explain retention of community college students in one small community college in the southeastern part of the United States. The literature refers to this type of study as an “institutional-specific study” because it f o c u s e s on factors related to retention at one particular community college. (Caison, 2007; Craig & Ward, 2008; Patrick, 2001; Pike et al., 2011). Institutional specific studies are discussed in Chapter II.

Two research questions guided this study: 1) How well do age, ethnicity, gender, financial aid, online course completion, and remedial course completion predict student retention of first-year community college students?, and 2) Are there differences in retention rates of students completing a first-semester, student success course as contrasted with other students who do not complete a student success course? To answer these two questions, this study analyzed existing data obtained from the Research and Planning department at WCC. The participants in this study were first-time, full-time community college students, enrolled in the fall semesters of 2009, 2010, 2011, and 2012 at WCC. Using logistic regression analysis and Chi-square analysis, it was determined that factors related to retention were:

completion of a semester-long student success course, completion of a remedial English course, completion of a remedial math course, and completion of an online course. These findings are consistent with previous research reported in chapter two. Derby and Smith (2004) reported that taking a student orientation course increased retention of first-time, full-time community college students. Fike and Fike (2008) found passing a developmental math course, passing a developmental reading course, and taking an online course to be strong predictors of fall to spring retention of community college students.

The only significant negative correlate with retention for all four cohorts combined was age; younger students were more likely to return the subsequent spring semester following their initial fall enrollment. Fike and Fike (2008) reported that approximately 60% of college students age 25 and older attend community colleges as opposed to four-year colleges. Previously reviewed studies found student age to be a significant factor in retention of college students (Cohen & Brawer, 2006; Craig & Ward, 2010). Age could have a negative effect on student retention for several reasons. Durkin & Kircher (2010) reported that although older students are believed to be more mature and more motivated than students who have just graduated from high school, they often have additional responsibilities outside of school, such as family and jobs. Additionally, since there is a lapse between high school graduation and college entry, older students sometimes lose study skills and fall behind in technological skills necessary for college-level coursework.

Since age was found to be a significant factor in retention in this study, age was examined as both a continuous variable (ages ranged from 17-73) and then as a dichotomous

variable, dividing students into one of two designated groups based on a definition by Bean and Metzner (1985)—traditional students (ages 24 and younger) and non-traditional students (ages 25 and older). Barnett (2011) reported 46% of community college students were over the age of 24, which would classify them as non-traditional students. The most recent figures compiled by the AACC (2013) reported that the average age of community college students is 28 years. The average age of students in the current study was 26 years, which is slightly lower than the AACC reported figure.

The current study reports that of the 2965 participants, 79% of the combined cohorts were retained from fall semester to spring semester. The retention rate for full-time students at WCC for the 2011-2012 school year was 36%; therefore, the current study reports a much higher retention rate.

The demographic variables in this study that did not prove to be significant retention factors of first-time community college students were gender and ethnicity. Although older studies indicated females were more likely than males to be retained (Feldman, 1993; Voorhees, 1987), the current findings are congruent with more recent findings of Bailey et al. (2006).

Another notable finding of this study was that although financial aid (in the form of receiving a Pell Grant) was significant in the first fit of the regression model, when added to the final logistic regression model, which compared this variable to other variables, it was found to be insignificant. Most of the studies reviewed supported these findings with the exception of a study done by Fike and Fike (2008), which indicated that receiving financial

aid was a predictor of retention of community college students. However, the researchers acknowledged that, because there are so many types of financial aid available, additional studies of this variable are needed.

Implications for Theory

Tinto's Interactionist Theory of Retention was the theoretical basis for this study. Tinto (1975) posited that individuals initially enter academic institutions with a variety of attributes, precollege experiences, and family background characteristics, each of which has a direct and an indirect impact on their college success (p. 94). Tinto (1993) described college as an interactive system, comprised of "reciprocal parts, formal and informal, academic and social" (p. 118). Using Tinto's theory as a framework, this study examined demographic variables, academic variables, and social variables to identify predictors of first-year community college student retention.

Tinto (1993) posited that the interplay of students' interactions with the academic and social systems of a college affects their previous commitments. According to Berger et al. (2009), Tinto's theory "purports that a student's entry characteristics, coupled with his or her initial commitment to the institution and to graduation, influence student departure decisions" (p. 23) and that early institutional commitment as well as ongoing academic and social integration are determinants of student persistence.

To test Tinto's theory, several individual student attributes were examined in this study. Of the attributes examined, (age, ethnicity, and gender), the only variable that was found to be significant was age, which proved to be negatively correlated with student

retention. This supports Tinto's premise that student attributes can impact a student's decision to remain in college. As noted previously, one reason that age could be a negative correlate with retention may be because older students are more likely than younger students to have jobs and family responsibilities, creating both financial and time constraints that interfere with their ability to attend college.

Two other major constructs of Tinto's theory – academic and social integration – were also examined in this study. The independent variables in Research Question 1, *completion of a remedial English course, completion of a remedial math course, and completion of an online course*, represented academic constructs. Based on the course goals for the student success courses at WCC, the independent variable in Research Question 2, *completion of a college success course*, represented both academic and social integration constructs. Course goals for ACA 085, ACA 111, and ACA 122 included: improve academic study skills; introduce the college's physical, academic, and social environment; promote personal development; and provide information and strategies necessary to develop clear academic and professional goals beyond the community college experience. Since all four variables used to represent Tinto's constructs of academic and social integration were positively correlated with student retention (for all four cohorts in this study), this study supports Tinto's Interactionalist Theory.

Limitations

Limitations of the current study are addressed in this section. One limitation of this study is that the data were collected from a small community college in the Southeast;

therefore, the results of this study cannot be generalized to other community colleges in other geographic regions of the country. Factors such as college size and geographic location need to be taken into consideration before attempting to generalize these findings to all community college students. Students who attend small, rural community colleges differ from students who attend larger, inner-city community colleges. Additionally, the literature reported that larger institutions have higher dropout rates than do smaller institutions (Tinto, 1993).

A second limitation of this research study relates to the independent variable in Research Question Two, *completion of a student success course*. The data obtained and analyzed combined three different student success courses into this one variable. The three courses that defined this variable were completion of ACA 085, ACA 111, and ACA 122. Each of the three courses is intended for different purposes and for different student populations. More specifically, ACA 085 is a required course for students who placed into remedial English or math courses; ACA 111 is intended for students who are enrolled in a two-year degree program or who are undecided on a major; and ACA 122 is designed for students enrolled in the Associate of Arts or the Associate of Science curriculum who are planning to transfer to a four-year college or university. A more accurate examination of this variable as it relates to retention would be to assess retention with each of the three ACA courses as separate variables. It should also be noted that the ACA course taught at WCC is not identical to all ACA courses taught at other community colleges. Although this study concluded that first-time, full-time students taking an ACA course at WCC was associated with retention, these results cannot be generalized to other community colleges because

course content of other student success courses may differ.

A third limitation of this study is that additional variables, besides the variables used in this study, should also be considered when attempting to predict retention for such a diverse population as community college students. Other variables identified as predictors of student retention in the literature reviewed included: psychosocial variables (realistic self-appraisal, strong support systems, and long-range goals); psychological variables (coping strategies, locus of control, self-efficacy); and institutional variables (academic advising, faculty interaction, and counseling services) (Bean & Eaton, 2001; Kuh, 2009; Ting & Robinson, 1998; Tinto, 1993). Additional research is needed to further examine these variables as predictors of student retention.

A final limitation of this study is that because this is not an experimental design, a causal relationship between the predictor variables examined and student retention cannot be inferred. Relationships between the independent variables and the dependent variable in this study are reported as correlations and odds ratios.

Implications for Future Research

The need to increase retention of community college students has become a concerted effort among community college administrators and government leaders. Tinto (2012) suggests it is time for colleges to move beyond theory to action, to quit “blaming the victim” and instead to begin diverting their attention to developing an institutional model that “provides guidelines for the development of effective policies and programs that institutions can reasonably employ to enhance student persistence” (p. 6). Although student attributes

and external events that may influence students' decisions to leave college are important to know, efforts need to focus on what individual institutions can specifically do to ensure student success (p. 254).

Much of the research on student retention indicates a strong relationship between student involvement and persistence, yet community college leaders continue to struggle with finding ways to integrate students into their respective college environments. Hossler and Bean (1990) identified several programs related to student involvement that increased community college retention including academic advising, first-year seminars, summer orientation programs, early outreach programs, personal counseling services, cultural diversity programs, effective transfer programs, career exploration services, and learning communities. Community colleges need to collaborate and explore ways to implement these and other programs targeting student involvement.

Several excellent resources already exist and are available for community colleges seeking to improve student retention through student involvement. One such resource, the Community College Center for Student Engagement (CCCSE), provides a wealth of information based on sound, empirical research. The research methods used by the CCCSE are primarily surveys, which are extremely informative in providing student and faculty feedback of community college initiatives. Another invaluable resource is the National Resource Center for the First-Year Experience and Students in Transition (Toblowsky, 2008). Although initially founded for four-year colleges and universities, many of the same principles of retention can be applied to all students, including community college students.

Since community colleges enroll such a diverse student population, several retention researchers have suggested institutions conduct their own studies to better understand their individual student populations (Astin, 1993; Craig & Ward, 2008; Pike et al., 2011). Nora and Crisp (2012) suggested that institutions gather “and examine data on their individual students and their experiences” because many of the “factors pushing students forward or pulling students back become more localized in the experiences students have at a given institution” (p. 245). Since many of the factors that affect students’ decisions to leave college extend beyond the first semester (or first year) of initial enrollment, additional research needs to be done to identify variables that influence students’ later decisions to withdraw from college (Nora & Crisp, 2012; Pascarella & Terenzini, 1991, 2005).

There are two major uses for the current research study. One is that the community college from which the sample was drawn, WCC, can use these results to better understand the student population it serves. This study provides WCC with information regarding retention efforts already in place, such as remedial courses and ACA courses, and also provides demographic information of the population the college serves. Another use of this research study is for it to be replicated by other community colleges, focusing on their unique student populations. Although research on student persistence at four-year colleges is abundant, community college student retention studies have been scarce. Newer studies targeting community college populations would therefore be an important addition to the existing body of knowledge on student retention.

Conclusion

Community colleges play a vital role in preparing people for a changing society. In an increasingly diverse nation, riddled with high unemployment rates, community colleges are regarded as crucial for economic recovery to take place in the United States. Successful community college retention programs need to be identified and duplicated to increase institutional effectiveness, a key determining factor for educational funding.

As projected enrollment of community college students increases, individual institutions as well as state-wide community college systems, should be poised to adapt effective strategic planning initiatives. Hossler and Bean (1990) stated that student retention is both a fiscal problem for schools and a symbolic failure of an institution to achieve its purpose. Hagedorn (2012) argued that the current measure of retention is “misleading evidence of success and non-success” because many community college students enter college never planning to graduate, having “achieved their postsecondary goals by taking a course, a few courses, or transferring to another institution prior to graduation” (p. 91).

The current research study sought to identify factors related to student retention of community college students. The findings of this study confirm previous research findings that indicated developmental education, online courses, and student success courses had a positive effect on retention of first-time community college students. Thus, this study contributes to the current body of research previously conducted on community college student retention.

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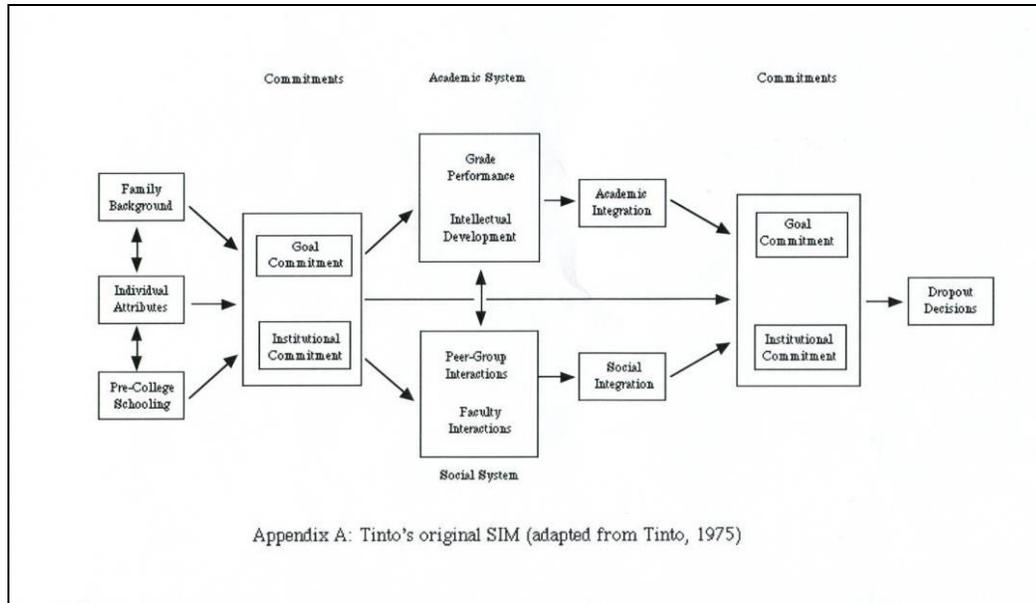
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APPENDICES

Appendix A: Tinto's Original SIM



Appendix B: Tinto's Revised Model of Student Attrition

