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Analysis of the Congruency between Educational Choices and Community College Student Degree Aspirations

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ANALYSIS OF THE CONGRUENCY BETWEEN EDUCATIONAL CHOICES AND COMMUNITY COLLEGE STUDENT DEGREE ASPIRATIONS

by

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ABSTRACT

This research explored variables that influence community college student degree aspirations and students purpose for enrolling and pursuing specific degree types. The study was conducted using secondary data for students pursuing Associate in Arts, Associate in Science, and Bachelor of Applied Science degrees at a single community college. A logistic regression test was used to test graduate and baccalaureate degree aspirations of the entire sample of students and separately by degree type. Significant predictors of degree aspirations included age, gender, credits enrolled in, participation in student groups, academic course planning, receipt of scholarship, and college GPA. In general, community college students had high degree aspirations. Younger students tended to be on the collegiate transfer track and older students tended to want to pursue baccalaureate degrees locally. In addition to having high degree aspirations, a large proportion of students attended the college for occupational purposes and created intermediate and long-term goals related to their academic aspirations. The findings of the research confirm findings of previous studies on college student degree aspirations, and add to the understanding of variables contribute to students' educational goals. Recommendations for practice and future research are presented.

This dissertation is dedicated to my family.

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CHAPTER ONE: INTRODUCTION

General Background

In reaction to local, regional, and state needs, the curriculum of community colleges has become more comprehensive over the more than 100-year history of these public institutions. The reputation of community colleges for innovation was founded in the development of programs offered to better the lives of the communities they served. Examples of these innovations include: Depression Era programs junior colleges created that helped lead the unemployed back to work and addressed local employer needs; the implementation of military training programs during WWII; expansion of open-door admission and developmental education programs with the wave of enrollments from the baby-boomer generation; and institutional and statewide articulation to increase opportunities of students (Witt, Wattenbarger, Gollattscheck, & Suppiger 1994). The spirit of the community college mission in the 21st Century is embodied in a statement written over five decades ago by the Truman Commission:

> *Just as there is no single mold into which children and youth should be fitted, so there is no mold into which schools, colleges, and systems of education should be fitted. Therefore, no single form of organization is presumed to be best for all education institutions or states. The dominant character of education organization in a democracy is flexibility, not rigidity. Uniformity, the fetish of totalitarianism, has no place in a democracy. Variation is our accepted pattern*. [emphasis in original] (1947c, pp. 2-3).

Flexibility and responsiveness has continued in the 21st Century as states have moved to authorize community college baccalaureate programs and the institutions have endeavored to provide access to the new degree programs. To illustrate this trend, Appendix A shows a list of community college baccalaureate degree-granting institutions by state. The all-encompassing approach to the curriculum has been a source of discussion within the community college literature in terms of the focus of the mission (Dougherty, 1991; Gleazer, 1980; Vaughan, 1984). With the advent of the community college baccalaureate degree, however, has come additional concerns of the blurring of purpose (Bailey & Morest, 2004; Dougherty & Townsend, 2006; Townsend & Wilson, 2006), and the risk of transformed institutional identity (Levin, 2004). The blurring of purpose in regard to utilization of degrees has increasingly occurred throughout the history of the community college. Whereas in the first half of the 20th Century researchers such as Eells (1942) and Koos (1923) clearly distinguished between the transfer and terminal functions of junior colleges, more recent authors and researchers have highlighted the tendency of students in workforce programs to continue toward higher degrees (Clark, 1980; Ignash & Kuton, 2005; Ignash & Townsend, 2001; Morest, 2006).

Open access and affordability of community colleges has given the institutions a reputation of being democracy's college (Coley, 2000) but at the same time have created a sense of continued social stratification of America's class-based system (Karabel, 1972, 1986). Throughout the first Century of the community college's existence, its leaders consistently emphasized occupational training for semi-professional careers as the

important function of the institution, although student enrollment was consistently greater in collegiate transfer programs (Meier, 2008). The increased development of articulation agreements in the final decades of the 20th Century and the expansion of the community college baccalaureate degree in the 21st Century may reflect a shift in the emphasis that community colleges leaders now have placed on the perceived importance of baccalaureate education. In Florida, community colleges have been quick to respond to the opportunity to develop community college baccalaureate degrees. Along with this has come a re-branding of the community colleges as colleges have begun to offer degrees that were once only available at four-year institutions. The institutions are now encouraging students to forgo the transfer function to complete a baccalaureate degree locally.

The decision to attend community college may be out of necessity for students because of low academic ability or inability to afford a four-year institution. However, there are also students who choose to attend a community college even when they are academically and financially capable of attending a university. Regardless of ability or financial capability, more traditional-age students in Florida have been choosing to attend the community college rather than a four-year institution. At the same time, high percentages of nontraditional age students have continued to enroll in community colleges. The purposes of enrollment for these types of students may be to gain admission to a baccalaureate program, enhance employment opportunities, or a combination of these. As Cohen, Brawer, and Kisker (2014) stated, "all education is general education" and "all education is potentially career enhancing" (p. 30).

Purpose of the Study

The purpose of this research was to explore influences on community college student degree aspirations. As the state of Florida pushed to increase access to baccalaureate programs for students at community colleges and to encourage workforce oriented students to continue on toward higher degrees, the educational goals of students attending one college was explored to determine if students' intentions aligned with the purposes of the degrees. In addition to exploring the influences of degree aspirations by degree type, the statistical model was used in an attempt to determine if academic achievement contributed to aspirations beyond the effects of demographics, external responsibilities, academic integration, and institutional support.

Statement of the Problem

Articulation of college credit, certificates, and degrees between and within institutions have been strategies in Florida to facilitate higher learning within the system of higher education (Florida College System [FCS], 2012a; Florida Department of Education [FLDOE], 2006). The statewide articulation agreements between community colleges and universities were created with the intention to enhance baccalaureate access for underrepresented groups (Bender, 1990). Although access may have been a justification for implementation of articulation policies, such policies may not increase the likelihood of transfer as much as increasing the odds of completing bachelor degrees for those that are able to transfer (Roksa, 2009). The statewide articulation agreement in Florida has been a 2 + 2 model that allows students who have earned a collegiate transfer associate in arts (AA) degree to be guaranteed admission to a university. As of 2012,

Florida was second only to California in awarding associates degrees, and nearly 80% of associate's degrees awarded in Florida were AA degrees (FCS, 2012c; Integrated Postsecondary Education Data System [IPEDS], 2009). Despite the large enrollment in AA degree programs and the established articulation agreements, Florida has been reported to be below the national average baccalaureate degrees awarded per 1,000 residents (Florida Council of 100, 2006; Pappas Consulting Group, 2007).

In an effort to increase baccalaureate degree production in the state, an applied workforce articulation agreement was developed in the early 2000s that allowed for collegiate workforce Associate in Science (AS) degrees to articulate with certain university Bachelor of Science (BS) and Bachelor of Applied Science (BAS) degrees (Florida Rule 6A-10.024). In addition to the establishment of these career ladder agreements, Florida has authorized community colleges to award baccalaureate degrees independent of universities in the state. At the time of the proposed study, students were able to enroll in collegiate workforce AS degrees to develop specific skills that could be helpful in gaining employment, and could also serve as a foundation for higher studies through articulated workforce baccalaureate degrees.

The unmet needs of Florida in careers that require baccalaureate degrees were reviewed in a 2005 FLDOE policy paper which identified three areas as high need and for which the development of baccalaureate degrees and access to the programs were critical. These high need areas included teacher education, nursing, and technologies. Clearly, individuals who have occupational aspirations to be K-12 teachers need to pursue baccalaureate degrees. Careers in nursing may need those degrees as well. It is

not as clear by the general term used in the report that technologies require baccalaureate degrees as opposed to a technically oriented associates degree. In 2005, these unmet needs were being partially fulfilled by only a few community colleges in Florida that were already authorized to offer baccalaureate degrees. The push to increase access to baccalaureate education led to the establishment of the Florida College System in 2008 and allowed for any community college in the system to develop and offer baccalaureate degrees in high demand areas (FCS Task Force, 2008).

Institutions within the FCS that have gained approval to confer baccalaureate degrees have been limited to offering BS and BAS degrees that address a specific workforce need. Bachelor of Science degrees at FCS institutions, particularly within teacher education programs, have typically been more closely aligned to university baccalaureate degrees. Within the FCS, Bachelor of Science in Education (BSE) degree programs have had an entrance requirement of an AA degree, but graduates with either associate degree have been able to be accepted into BAS degree programs. Given the applied workforce articulation of the AS degree with the BAS degree, this option has the potential to encourage workforce oriented students to continue their education. With the emphasis on direct workforce needs, the BAS serves a similar purpose to that of AS degrees.

The establishment of BAS degrees within community colleges may have unintended consequences, particularly as the popularity of the degrees expand. In regard to the increased transferability of workforce oriented AS degrees, Dougherty (2001) discussed the potential that these types of articulation agreements may have to create

inflation of credentials. As students pursue the applied workforce articulation options in greater numbers, the value of AS degrees is likely to become limited to a means of transferring to a higher degree. This inflation of credentials would seem to be even more applicable when considering community college AS and BAS degrees. The AS and the BAS degrees provide a direct connection to the workforce, and the same institutions have begun to offer both degrees. Students who complete collegiate workforce degrees may be forced to consider continuing their education to maintain the same financial benefit the shorter AS degree once had.

Table 1 shows the number of baccalaureate degrees awarded by FCS institutions from 2007-2013. BSE degrees increased 227%; Bachelor of Science in Nursing (BSN) degrees increased by 528%; and BAS/BS degrees increased by more than 900%. There were 3,084 total BAS degrees conferred in 2012-2013 with supervision and management degrees accounting for 1,903 of all BAS degrees. These types of BAS degrees seem particularly beneficial to working adults who are in pursuit of career advancement. However, a supervision or management baccalaureate degree may not provide the same benefit for those looking at entry-level positions within the workforce.

Table 1

Florida College System (FCS) Bachelor Degrees Awarded 2007-2013

Degree	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
BS Education	259	259	415	671	740	847
BS Nursing	123	151	261	512	655	773
BAS and other BS	315	632	926	1,546	2,584	3,389
Total	697	1,042	1,602	2,729	3,979	5,009

Sources: FCS Fact Books 2008-2013; FCS (2013e)

As of the Fall 2013 term, there were 59 BAS, 57 BSE, and 19 BSN programs offered at FCS institutions (FCS, 2014) and many more baccalaureate programs are projected to be created in future years. There is no doubt that the number of community college baccalaureate degrees being awarded in Florida will increase rapidly for some time to come, but it is not clear why BSE programs have lagged behind. The 2005 FLDOE report placed a sense of urgency on the need for trained teachers, yet students seem to be pursuing and completing BAS programs to a greater extent. Although the new degrees have given workforce-oriented students an option to pursue higher degrees with little loss of credits, it has also given collegiate transfer students an alternative to enrolling in a university to complete a baccalaureate degree.

Community college baccalaureate degrees in Florida have clearly attracted nontraditional age students who may have had dormant, but now re-emerging, baccalaureate aspirations (FCS, 2012b). What is not clear is if these students are pursuing these degrees primarily for occupational purposes. In addition, by forgoing a university transfer option; traditional age students who enroll in community college

baccalaureate programs may be sacrificing options for convenience. Finally, if traditional age students pursue the degrees in greater numbers, the community college baccalaureate degree may have the effect of continued social stratification through status of degree and institutions. Students and families that are more able to afford the transfer to a university will have more options for baccalaureate studies and greater potential to continue with even higher degrees.

Significance of the Study

The literature on college student degree aspirations is vast, but there has been a tendency of researchers to focus on traditional age students and to aggregate survey results into sectors of higher education in their analysis. There is a need for further understanding of the choice students make to attend community colleges and how they settle on specific majors as they pursue their educational and career goals. This research was conducted to explore the influences on community college students' degree aspirations to better understand what variables contribute to students' plans and what barriers students faced in pursuit of their dreams. The results of this research study may be helpful to the institution in determining how to enhance student services and academic support to help students in their academic journeys.

The research was intended to address a gap in the literature by reviewing academic goals of community college students who enroll in different associate degree and baccalaureate degree programs. Although these degrees serve distinct purposes in the higher education system in Florida, students may have enrolled in the programs for multiple reasons. Also addressed in the study was the gap in understanding that exists

about the variables that influence the degree aspirations of traditional and nontraditional age community college students.

Conceptual Framework

Carter's (2001) theoretical model of factors influencing college students' degree aspirations was used to guide this research. This model defines aspiration as an outcome that is affected by four types of variables including (a) pre-college characteristics, (b) initial aspirations, (c) institutional experiences and external-to-campus involvement, and (d) academic achievement (Carter, 2001). Carter (2001) developed and used this model to frame research on the degree aspirations of students at public two- and four-year institutions utilizing national datasets, the Beginning Postsecondary Students Longitudinal Study (BPS): 90/92 and Cooperative Institutional Research Program Freshman Survey (CIRP): 88/90. Carter's research has focused on comparing differences among White and African American college student degree aspirations.

Carter's theoretical model has it roots in sociological models of status attainment literature of Sewell, Haller, and Ohlendorf (1970), Sewell, Haller, and Portes (1969), and theories of contest vs. sponsored mobility of Turner (1960). Taking into account sociological variables is critical for studies of college student degree aspirations in that "factors influencing third year college student degree aspirations differ quite a bit for African Americans and White students. Therefore, students' racial/ethnic backgrounds must be taken into account when examining degree goals, as should students socioeconomic statuses" (Carter, 2001, p. 131). These sociological variables influence students' initial degree aspirations, decisions of college and major choice, and

understanding career and educational paths. In Carter's research, pre-college characteristics incorporated demographic variables, pre-college achievement, support from family and others, and knowledge of degree and career paths.

Literature on college choice emphasizes students decision to attend specific colleges among a number alternatives is based on individual's understanding of their own abilities, which are formed with influence of significant others (Sewel et al., 1969). The decision to attend a particular college is assumed to be the best option among potential choices (Kohn, Mansk, & Mundel, 1976). Carter (2001) noted that once the decision to attend a specific college was made, institutional experiences related to the type of institutions, the size, control and selectivity, and the perception of campus climate including financial aid and academic involvement became more salient. All of the institutional contextual variables in college can diminish, maintain, or enhance educational aspirations. An example given by Carter (2001) was that "the type of institution students' attend. . . affects the kind of financial assistance they can receive. The financial aid students receive. . . affect the students' involvement with faculty, staff, and students on campus" (p. 133).

External contexts relate to how much time students devote to external activities such as work and family. This is particularly applicable to students who attend community colleges as they are often older with families, work full- or part-time, and have greater financial responsibilities than full-time, traditional age students who attend four-year colleges. Within Carter's (2001) model, pre-college characteristics, initial aspirations and intellectual self-confidence, institutional characteristics, and external

contexts affect academic achievement in college. All of these factors contribute to students' ultimate degree aspirations.

Carter's (2001) theoretical framework was modified slightly due to the cross-sectional design of the current research rather than a longitudinal design. There is no appropriate way to measure aspirational level changes over time by asking students to report the level of aspirations they had at some previous time. Asking about aspirations at an earlier point in time may lead to a rationalization of failure or lowered degree aspiration in order to create a sense that the goal was met (Lewin, Dembo, Festinger, & Sears, 1944/1999). However, it may be possible to explore student degree aspirations based on their progress and achievement. Given that bachelor degree aspirations of traditional age community college students have been observed for between 78% and 90% of students at college entry (National Center for Education Statistics [NCES], 2011), comparing aspirations of students early in their collegiate experience with aspirations of students closer to degree completion may yield interesting results.

Although it was designed to test differences in degree aspirations for African American and White students, Carter's (2001) model was an appropriate model for this research as it is an exploratory design. The model includes a number of different variables, but it is not critical to have every variable included within each factor. Although Carter used it for her 2001 research, she noted, "Two variables that are important for understanding students' degree aspirations but were unmeasured in this study are campus climate and external-to-college contexts" (p. 133). In addition, the model has been used for subsequent research on college student degree aspirations and

was found to be useful and produced "consistencies between. . . findings" (Pascarella, Wolniak, Pierson, & Flowers, 2004).

Research Questions

Given that community colleges in Florida have been authorized to develop bachelor degrees that address specific workforce needs and provide place-bound, nontraditional students opportunities to pursue higher degrees, one aspect of this research was to determine if students' degree aspirations aligned with the purpose of the new degrees. In addition, many of these degrees articulate fully with workforce AS degrees, creating an opportunity for or necessity of AS degree students to consider the articulated workforce baccalaureate degree. More specifically, career-oriented students who pursue associate in science programs was studied to determine if they had aspirations and intentions to pursue baccalaureate degrees. Likewise, the degree aspirations of nontraditional age students who are more likely to be place-bound was examined. These students may pursue community college degrees as an end goal or as a means to advance toward even higher degrees. The research questions used to guide this research were as follows:

1. How do college student entry characteristics, external responsibilities, academic integration, institutional support, and academic achievement influence degree aspirations of community college students that are pursuing different types (AS, AA, Baccalaureate)?
2. Is there evidence that students' reasons for enrollment are aligned with the degrees they are pursuing and their ultimate educational goals?

3. To what extent does Carter's (2001) model help explain the factors that influence community college student degree aspirations?

Definition of Terms

Community college. Refers to public institutions that primarily offer associate degrees and certificates of less than two years, but may also offer limited number of baccalaureate degrees.

Community college baccalaureate degrees. Bachelor degrees that are conferred solely community college baccalaureate granting institutions.

University or four-year colleges. Refers to four-year institutions that confer bachelor and graduate degrees.

Collegiate transfer degrees. Refers to general associates degree programs at community colleges that lead to university transfer; the Associate in Arts degree is the collegiate transfer degree in Florida.

Collegiate workforce degrees. Refers to Associate in Science degrees offered by community colleges intended to prepare students to enter the workforce after two years of study.

Bachelor of Applied Science or Applied workforce baccalaureate degrees. Refers to bachelor degrees that are offered by community colleges. These degrees are designed to meet workforce needs of the communities and state.

Articulation. Refers to applicability of credit from certificate programs or degrees to higher degrees. The term also applies to awarding college credit for competency-based exams.

Florida College System (FCS). Refers to the 28 public community colleges in Florida; these institutions are now also referred to as state colleges.

Florida State University System (FSUS). Refers to the 12 public universities in Florida.

Traditional age students are students that are 18 to 24 years of age.

Non-traditional age students are students that are 25 and older.

Limitations

The results of this study had some limitations in its practical use. Two specific limitations included (a) the ability to infer the results to the general population of community college students in the American higher education system and within Florida, and (b) the lack of longitudinal data to follow up on the initial aspirations of students in the sample or population. The scope of the research was within one community college in Florida and was limited in the ability to infer to the entire population of community college students. However, the results could be useful to the institution in better understanding its matriculated students. In addition, the results of the study yielded valuable information about what types of students are likely to pursue bachelor's degrees as the college considered offering additional bachelor degree programs. Although the lack of longitudinal data was a concern, the intent of this study was to compare students at varying points within their educational paths.

Summary

Community colleges serve as critical point of access and opportunity for millions of students in the American higher education system. The open access and expanding mission of the colleges have brought them both praise and criticism in the literature of higher education. The institutions have been applauded for democratizing access to higher education (Bogue, 1950; Cohen & Brawer, 2008; Koos, 1925). At the same time they have been critiqued for lowering educational aspirations, limiting student attainment, and for the reproduction of socioeconomic status (Clark, 1960; Dougherty, 1994; Dougherty & Kienzl, 2006; Karabel, 1972). The community college has evolved throughout its history in reaction to local, state, and national needs and has most recently expanded its mission to include degrees that were once reserved for the university. As the importance of earning college degrees continues to increase, and baccalaureate attainment becomes more critical to individuals in their pursuit of entry-level positions, it is vital that colleges understand why students choose to attend and how their enrollment is related to their ultimate degree aspirations.

CHAPTER TWO: LITERATURE REVIEW

Introduction

This chapter provides a review of student enrollment and degree attainment in public two-and four-year institutions nationally and within Florida. It also includes a review of the literature related to college student choice. In particular, theoretical models on college choice are reviewed in relation to theoretical models on college student degree aspirations. The literature has similar roots, and the decision to act on college degree aspirations is inevitably tied to the decision to attend college. Furthermore, when making the decision about which college to attend, students need to consider the types of institutions that will help them accomplish their goals.

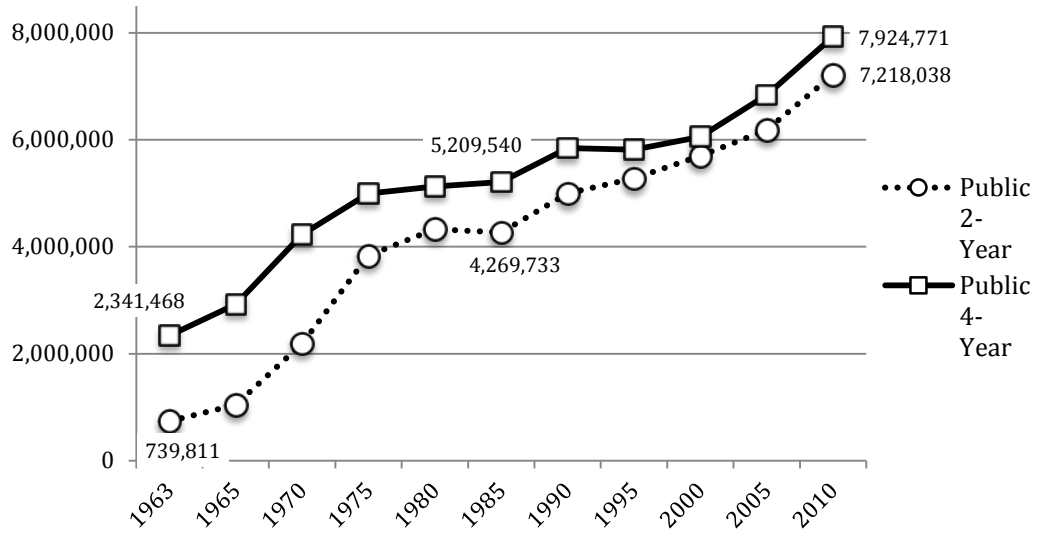
After reviewing the process of college choice, aspects of the community college mission that may influence students to attend community colleges and persist to attain their goals will be reviewed. Specifically, the emphasis that state systems and colleges put on the importance of baccalaureate education and how students benefit from and are encouraged by system-wide and institutional articulation will be reviewed. This leads to a review of contemporary literature on college student degree aspirations with particular emphasis on community college students. Finally, gaps within the literature that will be addressed in the current research will be discussed.

Community College Students

As an initial step to understanding the types of students who enroll in community colleges, this section contains a review of enrollment and degree attainment data in

American public higher education which includes (a) a review of national enrollment and attainment data and (b) a detailed description of the Florida higher education system. This type of high-level analysis will help illustrate how the choice to attend community colleges has become more common among all students and particularly for minority and nontraditional age students.

The number of students who enrolled in community colleges increased dramatically in the second half of the 20th Century. The increase was influenced by a number of variables including the wave of baby-boomers of college age in the 1960s, the sharp increase in access through expanding numbers of community colleges, and the passage of the Higher Education Act of 1965. The Higher Education Act of 1965 was critical in providing funding to students from all backgrounds and helped to ensure that students of all races were given the opportunity to attend college. As late as 1963, less than a quarter of all students in public higher education were community college students. By 1975, more than 43% of all students in public higher attended community colleges, and the percentage has increased slowly since that time. In 2010, community college students accounted for more than 47% of all students in public higher education. Figure 1 shows the fall enrollment numbers of students in public higher education from 1963-2010.



Note. Data for four-year institutions include graduate student enrollment. Data compiled from the 2011 Digest of Educational Statistics Table 199 (NCES, 2012).

Figure 1. Enrollment in Public Higher Education: 1963-2010

The data used for Figure 1 includes students in graduate school at public institutions. When considering undergraduate population only, the numbers of students at community colleges exceed those attending four-year public institutions. Community colleges also have a larger percentage of minority students, older students, and part time students. As shown in Table 2, enrollment numbers for the Fall 2011 term provide a snapshot of the national demographics of students in public two- and four-year institutions.

Table 2

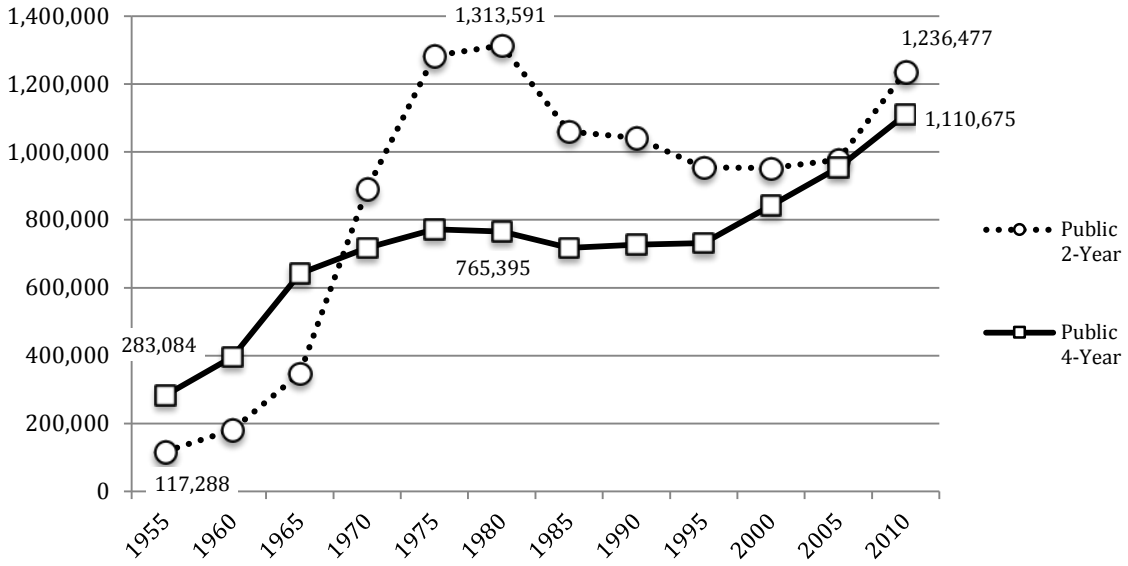
Enrollments in Public Institutions: Fall 2011

Students	Public 2-Year Frequency	%	Public 4-Year Frequency	%	Public Graduate Frequency	%
Total Enrolled	7,062,467		6,626,325		1,421,404	
Full Time	2,776,731	39.32	5,118,175	77.24	770,834	54.23
Part Time	4,285,736	60.68	1,508,150	22.76	650,570	45.77
Gender						
Females	4,035,120	57.13	3,598,184	54.30	820,656	57.74
Males	3,027,347	42.87	3,028,141	45.70	600,748	42.26
Ethnicity						
White	3,907,398	55.33	4,135,955	62.42	891,715	62.73
Black	1,081,446	15.31	799,578	12.07	132,322	9.31
Hispanic or Latino	1,330,061	18.83	845,169	12.75	100,562	7.07
Other Minority	651,052	9.22	646,797	9.76	116,098	8.17
Nonresident Alien	92,510	1.31	198,826	3.00	180,407	12.69
Age						
Under 18 Years Old	498,141	7.05	218,543	3.30	71	0.00
18-24 Years Old	3,707,654	52.50	5,019,209	75.75	353,271	24.85
25-39 Years Old	1,943,576	27.52	1,069,919	16.15	835,103	58.75
40 and Older	899,400	12.73	313,094	4.73	231,820	16.31
Age Unknown	13,696	0.19	5,560	0.08	1,139	0.08

Source. NCES 2012 online Tables 226, 228, and 268. Retrieved from nces.ed.gov/programs/digest/

Removing graduate students from the total enrollment allows a comparison of students who may be working toward similar goals. Taking this analysis one step further would be to consider only first time degree or certificate seeking students who are in public higher education. Although many students, particularly those at community colleges, may be working toward certificates, these types of college credit programs can

count toward associates and bachelor degrees. As shown in Figure 2, the impact of the community college on access for first time degree or certificate seeking students is clear. This highlights the expansion of the community college sector with the influx of college-age baby boomers. Whether by choice or necessity, by 1970, more first time degree or certificate-seeking students attended community colleges and this trend has continued into the 21st Century.



Note. Data compiled from the 2011 Digest of Educational Statistics Table 207 (NCES, 2012).

Figure 2. First Time Degree/Certificate Seeking Students at Public Institutions: 1955-2010

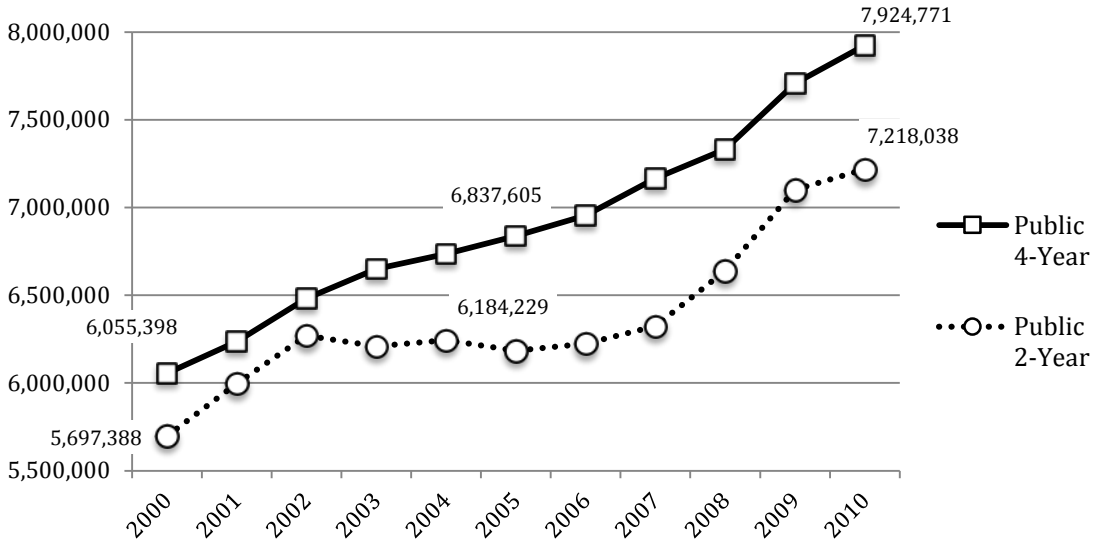
There is little research on why students choose to attend the community college, but there are clearly patterns of enrollment that seem to echo the statements of Kelly (1936) who said community colleges should be "warmed or chilled by the breezes that warm or chill a community" (p. 428). Although Kelly was discussing the functions of the

junior college in the first half of the 20th Century and the support of the community for the mission of the institution, the quote continues to be relevant to 21st Century institutions. Community colleges have become a safe-haven for individuals who transition out of high school, through phases of unemployment, and for those seeking to change careers and enhance technical skills in a flooded labor market.

Reviewing data from the Bureau of Labor Statistics and the NCES, Taylor, Fry, Velasco, and Dockterman (2010) noted that in Fall 2008, record rates of high school graduates enrolled immediately into postsecondary institutions. The high enrollment of college age students was influenced by the largest high school graduating class ever in 2008 and an unemployment rate of 21% for 16-19 year-olds (Taylor et al., 2010, pp. 4-5). In a policy report for the American Association of Community Colleges (AACC), Mullin and Phillippe (2009) noted that there was an 11.4% enrollment increase that was spurred by the recession that started in 2007. As individuals deal with unemployment, they may turn to community colleges for help. Mullin and Phillippe (2009) found, in their survey of AACC institutions, that predominant factors of student enrollment were the availability of workforce training, enhanced technical skills, and substantial cost savings for students. Mullin and Phillippe (2009) noted that the economic downturn had "a dramatic and unforeseen impact on community colleges" (p. 4). However, the notion that an economic downturn affects enrollment at the community college is not a new discovery. Pennington, McGinty, and Williams (2002) found that community college enrollment was positively correlated to unemployment and negatively correlated with indicators of a healthy economy such as gross domestic product and personal

consumption expenditures. In their research, they confirmed the findings of others including Betts and McFarland (1995) who found that both full-time and part-time community college student enrollment increases for recent high school graduates and adults were associated with a 1% increase in the unemployment rate.

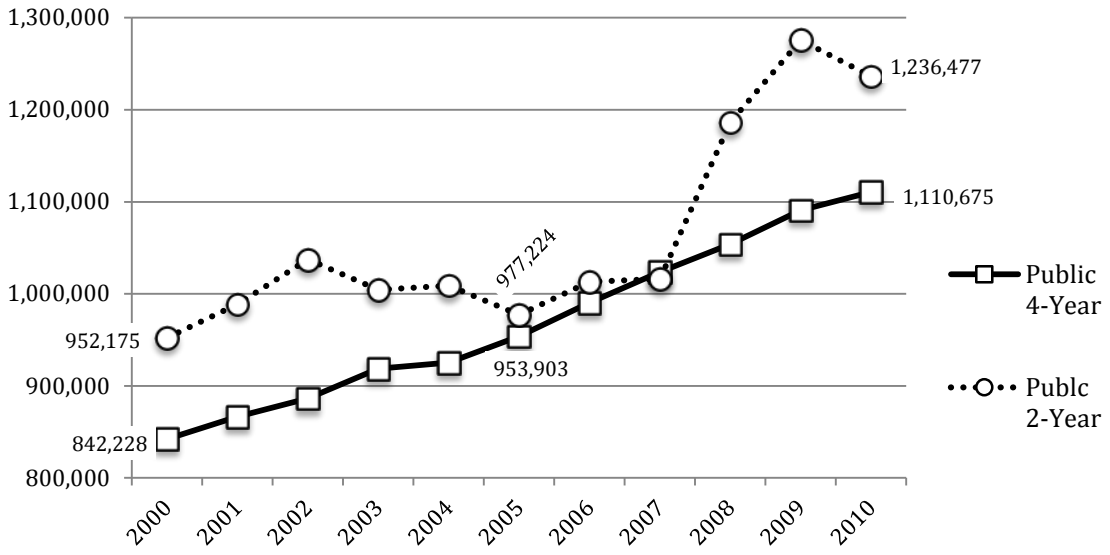
An examination of enrollment figures for the first decade of the 21st Century confirms the trend reported by these researchers in relation to economic cycles. Figures 3 and 4 show enrollment in public institutions from 2000-2010. The figures indicate clearly that two-year college enrollment is more variable than four-year enrollment as evidenced by sharper increases in community college enrollment during the two recessions in the decade (2001-2002 and 2007-2009).



Note. Data for four-year institutions include graduate student enrollment. Data compiled from the 2011 Digest of Educational Statistics Table 199 (NCES, 2012).

Figure 3. Total Fall Enrollment at Public Institutions: 2000-2010

Enrollment for first time degree seeking students in public institutions highlights the impact of economic downturns as well. As shown in Figure 4, first-time degree-seeking students at four-year institutions increased steadily, but two-year colleges varied significantly in this regard. These data seem to indicate that the population of students who choose to first attend the community college are influenced more by fluctuations in the health of the economy than are students in four-year institutions that have a more consistent stream of students.



Note. Data compiled from the 2011 Digest of Educational Statistics Table 207 (NCES, 2012).

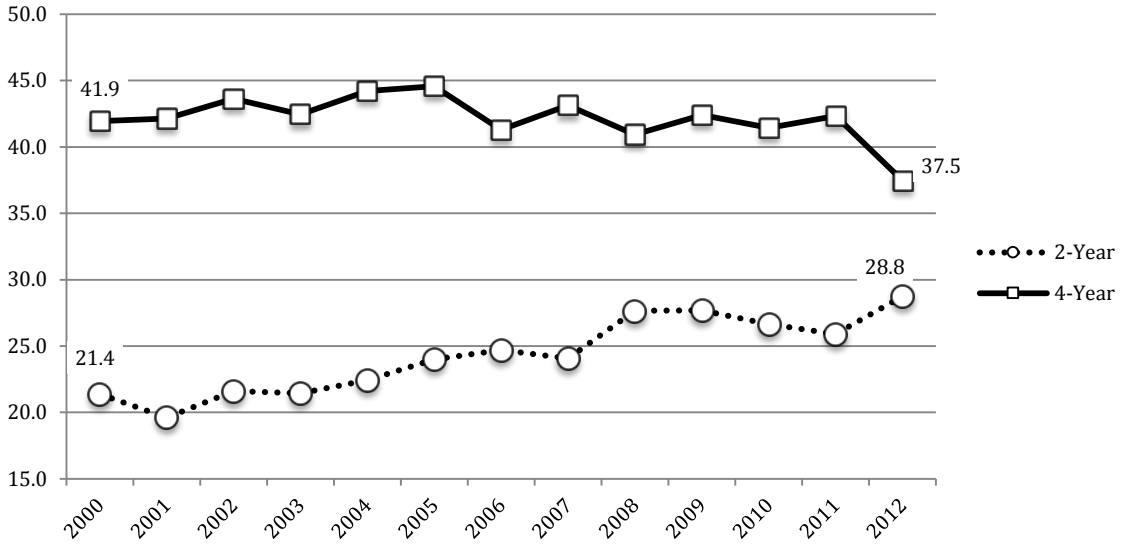
Figure 4. First-Time Degree-Seeking Students at Public Institutions: 2000-2010

Perhaps part of the reason that overall four-year public enrollment increased more consistently from 2000-2010 than community college enrollment was due to the academic goals of students in the college pipeline. Many students who begin their

college years at community colleges transfer to universities to complete their studies. Also, younger students have increasingly enrolled in the community college in greater numbers as well. This is a cost effective way to complete a large portion of undergraduate studies prior to moving on to the university. Additionally, many older students attend postsecondary education through enrollment at community colleges to update their technical skills. As the economy purged jobs in the last recession many adult students who delayed entrance to college, or started and never finished, enrolled in programs to enhance their employability (Mullin & Phillippe, 2009). Reviewing the degree aspirations of older students may show that although many attend for job skills enhancement, they may also be hoping to pursue baccalaureate education.

Although obtaining a precise estimate of national transfer rates from two- to four-year colleges is difficult because of inconsistent measures of student transfer, it is safe to assume that many students choose to attend the community college with intentions to transfer to a baccalaureate program. Transfer estimates may be reported differently in various studies, e.g., the total number of students that transfer, the total number of students with baccalaureate aspirations who transfer, or the number of students who transfer after earning a certain number of credits (Cohen, 2003, 2005; Dougherty & Kienzl, 2006; Wellman, 2002). Townsend and Wilson (2006) noted that nationally "transfer rates have fluctuated over time, but likely have never been above 33%" (p. 34). Cohen (2003) found that transfer rates for "comprehensive community college systems cluster around 25%. . . [and] the range between states is from 11 to 40%" (pp. 3-4).

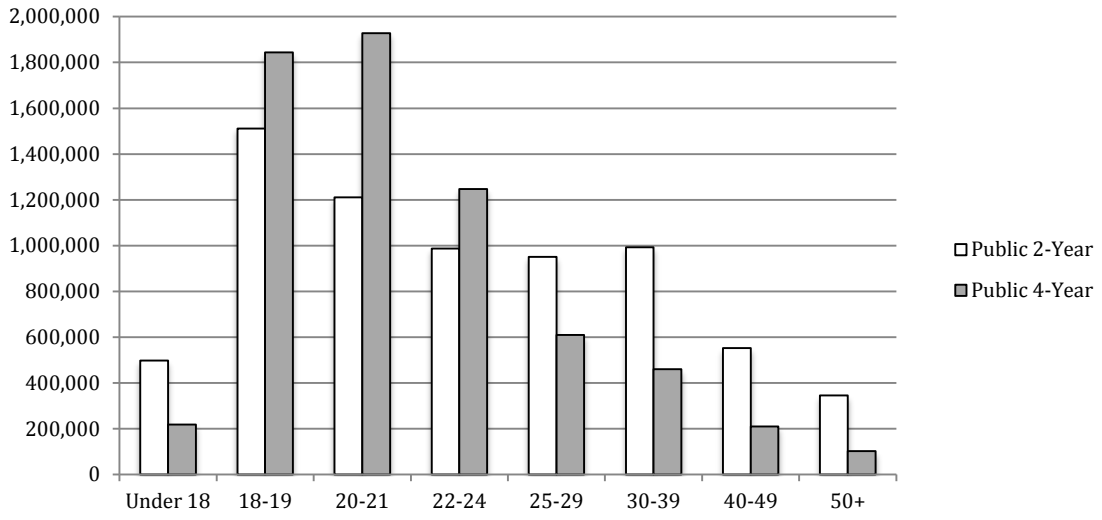
Researchers have shown that emphasis on the transfer function of community colleges declined during the 1970s and 1980s, only to rebound during the 1990s and into the 2000s (Dougherty & Kienzl, 2006; Townsend & Wilson, 2006). Along with the increased emphasis on the collegiate transfer function, the rate at which recent high school graduates age 16 to 24 who attend two-year colleges has increased. Through the 1980s and much of the 1990s, the rate of high school graduates attending two-year colleges hovered around 20% (NCES, 2013). However, in the 2000s, as this rate began to increase, the percentage of those beginning their college years at four-year institutions started to decrease. This is significant because traditional age high school graduates are the most likely to have baccalaureate aspirations and plan to transfer. Figure 5 shows the rate of recent high school graduates enrolled in two- and four-year higher education institutions.



Source. NCES Digest of Educational Statistics 2013 Table 302.10. Recent high school completers are students who are 16 to 24 years old who enroll within 12 months of completing high school or a GED. Retrieved from nces.ed.gov/programs/digest/

Figure 5. Percentage of High School Completers Attending Two- and Four-Year Institutions

As shown in Figure 6, according to NCES (2011), a similar percentage of all students age 18-19 attended public two-year institutions (11.04%), as attended public four-year institutions (13.47%). However, the percentage of students 20-24 years old at two-year institutions was just 16.05%. The percentage of the same age group at four-year institutions was, however, approximately 23.19% of all undergraduate students in public higher education. This shift in enrollment by age is logical when considering the number of students who matriculated at community colleges immediately after high school and the likelihood that a significant proportion of these students will transfer to universities.



Note. Data compiled from Digest of Educational Statistics 2012 online Table 226 (NCES, 2012). Retrieved from http://nces.ed.gov/programs/digest/2012menu_tables.asp

Figure 6. Undergraduate Enrollment by Age at Public Institutions: Fall 2011

Figure 6 shows undergraduate enrollment by age at public institutions for Fall 2011, and the impact that community colleges have on older students is apparent in this figure. In Fall 2011, almost 30% of all undergraduate students were 25 years or older; 20.77% attended two-year institutions, but only 10.10% attend four-year institutions.

National Trends of Community College Degree Attainment

Similar to the difficulty of analyzing transfer rates from two- to four-year colleges, reviewing data on associate degree attainment at community colleges is troublesome because of the utility of the degrees. In general, an Associate in Arts (AA) degree and an Associate in Science (AS) degree in Florida serve different purposes, but these degrees may not be as strictly defined in other states. Within the literature,

university parallel degrees or collegiate transfer degrees imply that a similar set of courses, if not the same courses, could be taken at a four-year institution. Although the state of Florida has defined the AA degree as a university parallel degree, other states may have more than one designated associate degree that serves this purpose. Obtaining a precise national number of university-parallel degrees conferred in any given year is difficult because of the variety of titles given to the general degree across the states. For example, the general associate degree in Wisconsin is called the Associate in Arts and Sciences, but in Florida it is called the Associate in Arts. Associate in Science degrees are considered to be more suitable to prepare students for the workforce and are sometimes referred to as occupational associate degrees. Additionally, though an Associate in Science degree may be more suitable for career placement, some states incorporate a full general education within the associate in science degrees as well.

The National Center for Education Statistics has compiled a list of associate degrees conferred by degree-granting institutions (NCES, 2013, Table 321.30) in more than 30 areas. This list has not, however, specified which degrees were university parallel or which were workforce degrees. Cohen et al. (2014) reviewed this NCES data, reporting the total number of associate degrees awarded in 2010-2011 as 942,327, 42% (*n* = 398,091) of which were labeled as liberal arts and sciences or general programs (p. 314). However, data presented in Table 321.30 of the 2013 Digest of Education Statistics shows only 306,670 (32.5%) associate degrees granted in the category called "liberal arts and sciences, general studies, and humanities" (NCES, 2013). Cohen et al. (2014) cited these two totals in their most recent edition but did not specify which degrees were

included in the total number or why there was a discrepancy between what were seemingly identical categories. The aggregated data on associate degree attainment nationally makes it difficult to determine, using enrollment, if students have baccalaureate goals or workforce goals.

Speaking more generally about associate degree attainment helps illustrate the sector's impact on higher education nationally and how the institutions are serving the communities and states in which they are located. In 2008-2009, two-year public institutions awarded 508,823 associate degrees (IPEDS, 2009). Degree attainment for White students has been higher than minority students, relative to their enrollment percentages. Although approximately 54% of two-year public college students were White; nearly 65% of the associate degrees awarded were to White students (IPEDS, 2009). Black and Hispanic students, though accounting for 13.59% and 15.49% of Fall 2008 enrollment, were awarded only 10.25% and 11.42% of the associate degrees in 2008-2009 (IPEDS, 2009). National associate degree attainment by race can be found in Table 3. Though enrollment of these two minority groups has increased, these data may indicate that the groups are struggling to gain ground on the percentage of degrees attained or that Black and Hispanic students may have alternative goals, thereby pursuing certificates and vocational training programs at a higher rate.

Table 3

Undergraduate Degrees at Two- and Four-Year Public Institutions: 2008-2009

Ethnicity	Associate Degrees at Public 2-Year				Baccalaureate Degrees at Public 4-Year			
	Men	Women	Total	%	Men	Women	Total	%
White	126,753	203,010	329,763	64.81	308,990	383,391	692,381	67.85
Black	15,997	36,141	52,138	10.25	30,527	57,470	87,997	8.62
Hispanic or Latino	20,819	37,278	58,097	11.42	32,116	50,432	82,548	8.09
Other Minority	13,399	19,897	33,296	6.54	38,093	46,036	84,129	8.24
Unknown	10,184	14,814	24,998	4.91	21,782	25,507	47,289	4.63
Nonresident alien	4,253	6,278	10,531	2.07	12,923	13,168	26,091	2.56
Total	191,405	317,418	508,823		444,431	576,004	1,020,435	

Note. Data compiled from IPEDS Compendium Table 23 Fall 2009.
Retrieved from http://nces.ed.gov/das/library/ipeds_com.asp

The same sort of discrepancy exists in public four-year undergraduate enrollment and baccalaureate degree attainment. White students accounted for less than 62% of enrollment in Fall 2008 but earned nearly 68% of the baccalaureate degrees conferred during 2008-2009 (IPEDS, 2009). For Fall 2008, the respective percentages of Black and Hispanic students enrolled were 11.56% and 10.57%, but the percentage of degrees awarded in 2008-2009 (IPEDS, 2009) was 8.62% for Black students and only 8.09% for Hispanic students. General observations regarding percentage enrolled and percentage of degrees awarded may not tell the whole story, but knowing the degree aspirations of students in relation to their enrollment patterns and degree attainment may help researchers, policy analysts, and colleges understand how students are utilizing these institutions and what change could be made to improve the outcomes for students.

Community College Students in Florida

At the time of the present study, the Florida College System (FCS) included 28 institutions that were open access. Although most were called state colleges, these were the community colleges that serve as a primary access point to higher education for the 65% of recent Florida high school graduates who enroll in postsecondary institutions (FCS, 2013b). Although these institutions have been authorized to develop baccalaureate programs, their primary mission has continued to be in providing associate degree education and access to short cycle collegiate and vocational workforce certificates. Similar to national enrollment, Florida community colleges serve a diverse group of students. In 2011, the percentage of part time students enrolled in community colleges in Florida (61%) was slightly above the national average (60%). A higher percentage of women were enrolled in Florida community colleges than the national average. Florida community colleges students were more racially diverse that the national average, and a larger percentage of traditional college age students were enrolled in FCS institutions than at community colleges nationally. Table 4 shows the demographics of Florida community college students in comparison with national enrollment data.

Table 4

Comparisons of National Enrollment and Florida College System (FCS) Institutions: Fall 2011

	FCS		National 2-Year	
Students	Total	%	Total	%
Total Enrollment	478,130		7,062,467	
Full Time	185,198	38.73	2,776,731	39.32
Part Time	292,932	61.27	4,285,736	60.68
Gender				
Females	283,073	59.20	4,035,120	57.13
Males	195,057	40.80	3,027,347	42.87
Ethnicity				
White	220,532	46.12	3,907,398	55.33
Black	86,451	18.08	1,081,446	15.31
Hispanic or Latino	114,149	23.87	1,330,061	18.83
Other Minority	20,011	4.19	651,052	9.22
Unknown[1]	30,582	6.40	--	--
Nonresident Alien	6,405	1.34	92,510	1.31
Age				
Under 18 Years Old	30,369	6.35	498,141	7.05
18-24 Years Old	265,347	55.50	3,707,654	52.50
25-39 Years Old	129,436	27.07	1,943,576	27.52
40 and Older	52,636	11.01	899,400	12.73
Age Unknown	342	0.07	13,696	0.19

Sources. FCS data from Table 1.3T, Table 1.7T FCS Fact Books 2012; National enrollment data from NCES Digest online Tables 226, 228, and 268. Retrieved from nces.ed.gov/programs/digest.
Note. Unknown numbers not reported nationally.

In considering enrollment at community colleges, reporting only fall enrollment obscures the reach of the institutions (Mullin, 2012). For 2011-2012, the total unduplicated headcount at FCS institutions was 879,948 students. The total enrollment in programs at FCS institutions during the 2011-2012 school year was 716,498 (FCS,

2013b, p. 10). Enrollment in the collegiate transfer associate in arts degree accounted for approximately 49% (n = 355,393) of all student enrollments in 2011-2012. Another 16% (n = 115,244) of enrollment was in collegiate workforce associate in science degree programs (FCS, 2013b).

The main purpose of the AA degree is to provide a general education foundation and free electives to prepare for transfer to the university. Historically AS degrees have been terminal degrees primarily used to prepare students for careers. However, in an effort to "facilitate baccalaureate access" (FLDOE, 2006, p. 3), Florida has moved toward more integration of AS degrees within baccalaureate programs. The state developed a statewide articulation agreement that has enabled students who attain AS degrees to transfer to university bachelor of applied science (BAS) degrees and certain bachelor of science degrees (BS) with little or no loss of credit.

Although there has been an effort to increase the transferability of AS degrees to universities in Florida, the outcomes have not met the efforts put into the development of the articulation agreements. Approximately 54% of all students at the junior and senior level enrolled in Florida State University System (FSUS) institutions were transfer students from the Florida College System in 2012 (FCS, 2013b). Approximately 42% of these upper division students earned a collegiate transfer AA degree at an FCS institution, 10% transferred without a degree, and only 2% of these students transferred with a collegiate workforce AS degree (FCS, 2013b). It is not clear why such a low percentage of collegiate workforce students were able to take advantage of AS to BS/BAS articulation agreements, considering the much larger percentage of student who earn AS

degrees. However, it may be due, in part, to limited options for the AS students to transfer to the university.

FCS baccalaureate degrees were developed, in part, to help address the difficulty in transfer and to assist the Florida Department of Education in facilitating higher learning. As of Fall 2013, there were at total of 59 BAS programs and 109 BS programs offered at 24 colleges in the FCS (FCS, 2014). This greatly expanded the opportunity of all associate degree students at FCS institutions. The expansion of baccalaureate programs in community colleges in Florida was also in reaction to the recognition that the state lagged behind in baccalaureate production nationally. In 2008-2009, Florida produced approximately 9% of all associate degrees in public higher education. Only California produced more at 14% (IPEDS, 2009, Table 54). In 2008-2009, Florida public institutions conferred 54,154 associate degrees but only 52,481 baccalaureate degrees, which represented 5.14% of those degrees in public higher education nationally. Thus, although Florida has been one of the top producers of associate and bachelor degrees nationally, it has been below the national average in terms of degrees awarded per 1,000 residents (Florida Council of 100, 2006; Pappas Consulting Group, 2007).

Florida Community College Student Degree Attainment

In terms of degree attainment at community colleges, Florida students enrolled in associate degree programs clearly have baccalaureate aspirations. As previously noted, Cohen et al. (2014) stated that nationally the focus on occupationally oriented associate degrees within higher education has continued as 58% of such degrees were awarded in 2010-2011. During the 2010-2011 school year in Florida, 52,317 collegiate transfer AA

degrees were awarded by community colleges compared to just 13,880 collegiate workforce AS degrees (FCS, 2012c). The number of general associate degrees awarded represented 79% of all associate degrees awarded, the primary purpose of which was to prepare students for transfer to the university. Students who complete their general AA degrees are acting on their aspirations in high numbers, as about 42% of students at state universities in upper division undergraduate coursework have attained a collegiate transfer degree from a Florida community college (FCS, 2013b). It remains to be seen if collegiate workforce AS degree students will take advantage of the increased opportunity to pursue baccalaureate degrees that are offered by community colleges. Table 5 summarizes all associate degrees awarded to students at FCS institutions during the 2011-2012 school year.

Table 5

Associate Degrees Awarded at Florida College System Institutions: 2011-2012

	Collegiate Workforce				Collegiate Transfer			
Ethnicity	Female	Male	Total	%	Female	Male	Total	%
White	5,616	3,043	8,659	57.91	17,871	12,428	30,299	48.39
Black	1,489	573	2,062	13.79	6,601	3,294	9,895	15.80
Hispanic or Latino	1,537	1,067	2,604	17.41	9,356	5,996	15,352	24.52
Other Minority	373	253	626	4.19	1,491	1,158	2,649	4.23
Unknown	-	-	717	4.80	-	-	3,268	5.22
Non Resident Alien	195	90	285	1.91	628	523	1,151	1.84
Total[a]			14,953	19.28			62,614	80.72

Sources. Table 5.4.1T, 5.4.4T, and 5.5.4T (FCS, 2013a).
Note. Collegiate workforce degrees include associate in science and associate in applied science degrees. Collegiate transfer degrees are Associate in Arts degrees.
[a]Total percentage = all associate degrees awarded in 2011-2012.

Although the numbers of degrees awarded has continued to grow, the completion rate at FCS institutions overall has remained low. The average completion rate within three years for full time, first-time-in-college students was between 34.4% and 36.7% for the 2006-07 and 2008-09 fall cohorts (FCS, 2013f). However, in reviewing baccalaureate student graduation rates for students who complete their degrees and transfer to universities, success, i.e., completion, was more pronounced. The average graduation rate within three years of AA transfers at the university has been approximately 60% since 1999 (FSUS, 2009). It is unclear whether this is a function of the institution or if transfer students are more capable of completing the degrees, or perhaps both.

Enrollment and Degree Attainment in Community Colleges

Percentages of students who enroll in community colleges in Florida are very similar to those enrolled nationally with females (59% in Florida vs. 57% nationally) and part-time (61% in Florida vs. 60% nationally) students. However, Florida's community colleges enroll a larger percentage of minority students (54% in Florida vs. 45% nationally) and traditional age students (55% in Florida vs. 52% nationally). Community college students in Florida also appear to have enrolled in collegiate transfer programs at higher rates than national figures. Community college students in collegiate transfer programs attend universities in high percentages in Florida. However, despite efforts to increase transferability of AS degrees, a relatively small percentage of collegiate workforce graduates transfer to the university. In this section of the literature review,

general trends of community college enrollment and student degree attainment are presented to provide a better understanding of why students choose to attend a community college and why students may pursue transfer at different rates.

Community College Student Enrollment Decisions

The decision to enroll in college is inextricably linked to college student degree aspirations because without the desire to attend college or to earn a degree, the decision of whether or not to enroll in college would not be necessary. Occupational aspirations are also related to college choice and the types of degrees students pursue. For example, an individual who decides to attend college and desires to be a musician is likely to enroll in a college that has a music program. The close relationship between the decision to enroll in college and college student degree aspirations is evident in development of similar theoretical framework stemming from the sociological models of status attainment. Because of this similarity, it is beneficial to review literature related to college and major choice.

The decision to attend a community college may not be why students persist until graduation. Intermediate goals of gaining employment or enhancing technical skills for a career may entice students to enroll in courses, but over time, they may desire to continue their educations. Some literature on community colleges suggests that many students will be necessarily encouraged to lower their aspirations to pursue a certificate or degree within their capacity to complete (Clark, 1960, 1980). However, students who initially work toward certificates that are applicable to associate degree level courses often find it financially beneficial to continue their studies to complete the full degree (Grubb, 2002).

Although a diverse group of students attend community colleges to pursue both academic and career goals, many of these students have similar degree aspirations. Career aspirations influence students' choices in attending college, choosing a specific college to attend, and pursuing a particular major.

College and Major Choice

Although the literature on college choice is vast, research on the decision to attend a community college has been limited. The decision to attend college and choice of a particular college to attend are influenced by a number of variables. For many students, there is no choice in their attending college; the expectations of significant others drive students to pursue a college degree. Students who put more effort into the decision of which college to attend are likely to choose an institution and program that aligns more with their personal goals and interests (Hossler, Braxton, & Coopersmith, 1989/2003). Sociological, economic, and college choice process have been used in the development of theoretical frameworks in the literature on college choice (Hossler et al., 1989). Though there are variations within economic and college choice process models, all of the models take into consideration basic questions such as: what are the costs and benefits of college attendance, and would attendance be worth the money and effort needed to attain the degree? Sociological models may not directly review economic influences of college, but the focus on status attainment is related to occupational outcomes of college. Hossler et al. identified the status attainment process and aspirations for college as sociological models of college choice. Sociological approaches from the status attainment literature, in particular Blau and Duncan (1967) and Sewell et al. (1969), have also been utilized for

the development of models of college student degree aspirations (for example, see Carter, 2001; Laanan, 2003; Wang; 2013).

Sociological Models of College Choice

One approach in the development of college choice models has been from a sociological perspective. The desire to attend college precedes the decision to attend, and student aspirations for college are influenced by family background, academic ability, and encouragement of significant others. The status attainment model developed by Blau and Duncan (1967) and expanded on by Sewell et al. (1969) and others serve as sociological models on student choice. Within sociological models of student choice of college, individuals develop their educational plans based on their own assessment of their ability and the expectations of significant others (Hossler et al. 1989).

Sewell et al. (1969) found that the influence of significant others contributes to educational and occupational attainment and influences college-going decisions. Understandably, educational attainment was found to have strong influence on occupational attainment. Studying high school seniors in Wisconsin, Sewell et al. (1969) found that individuals form educational aspirations based on their own perceptions and significant others' expressed perception of their abilities. In addition, aspirations were a mediating factor between a student's background, the influence of significant others, and educational attainment. Individuals who experienced positive encouragement with regard to their potential to reach academic and career goals are more likely to pursue and attain those goals. This encouragement developed a sense of confidence, and students took action in pursuit of these goals by choosing to go to college.

Hearn (1984) examined the extent to which academic, ascribed, and socioeconomic variables contributed to student attendance in postsecondary institutions. When controlling for academic variables, Hearn concluded that ascribed characteristics such as race and gender did not negatively contribute to student attendance at selective institutions. However, socioeconomic variables, such as parental income and number of siblings, did influence whether or not a student attended a selective institution. Hearn (1984) concluded that expansion of postsecondary opportunities did not necessarily translate into equity, particularly if there was "disproportionate channeling of the disadvantaged into the lower-status or lower-quality institutions and curricula" (p. 28). As economically disadvantaged students attend less selective institutions, they are then further disadvantaged by the hierarchical differentiation of status and quality that comes with attendance at more selective institutions. As Hearn (1984) stated, "The academically and socioeconomically 'rich' become richer. . . while the academically and socioeconomically 'poor' become poorer" (p. 28). This statement may have a drop of reality to it, but without the opportunity to pursue affordable education through community colleges, many individuals who are academically and socioeconomically poor have little hope for upward mobility.

Economic Models of College Choice

Aspects of sociological models of college choice have been incorporated into economic models of college choice. Although these models have been more focused on the costs and benefits of attending college, student background is taken into consideration when students make the decision to attend college. Financial considerations come into

play more as students decide to attend one particular college over a number of options. Many factors contribute to both the decision to go to college and which college to attend, but expected costs and benefits of attending college are common to economic models of college-going decisions (Hossler et al., 1989).

The focus of economic models is on the monetary benefits of the decision to go to college, but researchers have also taken into account variables such as student background, SES, and high school characteristics. Though these variables have been addressed in sociological models of college choice, the literature has also emphasized how institutions can influence student decisions and develop enrollment management techniques. Kohn et al. (1976) attempted to develop a model that could help forecast enrollment, predict college-going decisions, more specifically the choice that graduating high school seniors make to attend specific colleges when they have a number of options. The researchers were very candid about the difficulties they encountered developing sets of "feasible college alternatives" (p. 395) for students and estimations of the possible financial aid packages those colleges may have offered the students. However, they concluded that college administrators and prospective students influenced an individual student's enrollment. That is, students make enrollment decisions based on perceptions of a college being their best option; the institution and the students who enroll in it combine to impact the perception of environmental fit. Kohn et al. (1976) stated "Our specifications recognize that college is both an investment and a consumer good and that the taste for college may vary with individual background" (p. 392).

Models of choice in attending one college among a number of options take into account the same variables as college-going models, but institutional characteristics have been more closely examined in college-choice models. If students have the opportunity to choose between different colleges, they take into account a variety of attributes including admissions selectivity, size, location, and program offerings (Hossler et al., 1989). The risk of nonattendance, or attending one college instead of another, are considered in relation to the cost of the decision. Though there are monetary and non-monetary risks of college attendance, non-monetary considerations are more affiliated with the decision to attend. Monetary concerns come into play more when choosing between institutions (Hossler et al., 1989).

The College Choice Process

Models that combine economic and sociological aspects of college choice are frequently described as a longitudinal process by which individuals decide to attend a particular college from a number of options. College choice process models attempt to analyze the decision making process to increase the understanding of how students come to the decisions to attend college and choose a specific institution. Hossler et al. (1989) stated, "The importance of identifying constraints, therefore, is that they are variables over which public and institutional policy-makers can exert some control" (p. 15). Research on college choice process was developed in part to help institutions develop enrollment management and marketing strategies in order to influence students as they make their decisions. Describing the combined sociological and economic college choice process, Hossler et al. (1989) stated, "The combined models of college choice provide

useful information for the development of enrollment tactics. . . . and provide the means whereby strategies can be evaluated for projected efficiency and effectiveness" (p. 15).

Young and Reyes (1987) developed a consumer choice model of the process of college choice. According to these researchers, when the expected benefits of attendance exceed the cost, the decision to enroll is made. The process model combined economic and sociological variables to help explain the decision-making process. Individuals' perceptions of risk are shaped by their impressions about the cost and the likelihood that they will attain the degree after investing in college (Young & Reyes, 1987). The five stages of the model attempt to show that different factors could be more influential at different stages of the process. For example, sociological factors such as SES and the encouragement of significant others may influence a student's decision to attend college more than any financial considerations. Young and Reyes (1987) noted "If student financial aid is viewed as a part of monetary costs, it would not be expected to significantly affect early impressions about college, but is instead a greater factor as college decision alternatives narrow" (p. 47).

Chapman (1981) developed a model of student choice intended to aid colleges in developing recruiting strategies and help identify the influences of students' college choice. The proposed model and other market research on college choice attempted to identify institutional opportunities for intervention in a student's decision making process. Chapman (1981) found that family income had a direct impact on college choice in that it limited what students perceived to be their realistic options. Student characteristics and external influences contributed to a student's expectations and decision to attend college.

These characteristics included SES, past academic performances and educational aspirations.

Within a factor identified as external influences, Chapman's (1981) model included the influence of significant others, fixed college characteristics, and the institution's efforts to communicate with students. Special attention was paid to colleges' efforts to communicate with students which Chapman indicated was primarily through printed material. Educational aspirations were key in the decision to attend college, but choosing which college to attend was not reported to be influenced by printed materials. Rather, students chose the school based on cost, where their friends chose to attend, and the availability of desired programs (Chapman, 1981, p. 501). Though institutional options to communicate with prospective students have expanded since the early 1980s, Chapman provided an important lesson still applicable for the recruiting efforts of 21st Century community colleges. Shaping the image of the college as a low-cost option with quality programs that are connected to the present-day marketplace, or that can lead to a student's ultimate academic goals can be communicated through the various media outlets available to the institution.

Another market research model on the process of student college choice, proposed by Jackson (1982), combined sociological variables and economic constraints. The model has three phases in which students choose college among a number of options or no college. The phases in Jackson's model include: preference, exclusion, and evaluation. Degree aspirations are most closely related to the first phase in which students develop a preference to go to college based on family background, academic

experience, an understanding of one's options, and the perception of constraints (Jackson, 1982). Sociological aspects help form students' desires to attend college, and economic and geographic variables contribute to Jackson's exclusion phase. In the second phase of the model a student narrows choices to more viable options that the family can reasonably afford and are in a preferred location. Though financial aid is supposed to alleviate pressure on families to afford college, location can become a large factor in the expense of college.

After excluding unrealistic options, prospective students move on to the evaluation phase in which the narrow field of realistic options is reviewed and, presumably, the most appropriate college for the student is selected (Jackson, 1982). This selection of a particular college will take into consideration the quality of the institution and the programs that are offered. Jackson (1982) offered nine tactics that institutions and higher education systems could consider in influencing students to choose a particular college. These tactics include aspects of image and services that institutions provide and require marketing efforts to connect with potential students as well as broader policy approaches for higher education systems. Three of these tactics could be related to the evolving community college mission in the 21st Century: college offerings, college locations, and college quality.

The transformation of community colleges into baccalaureate granting institutions has the potential to influence students to enroll in college in greater numbers. Many nontraditional age students return to pursue community college baccalaureate degrees simply because they have greater access to the institutions. The community college in

America is ubiquitous, within driving distance to most of the population. Though there may not be a need to create new locations for community colleges, location of degree programs has the potential to increase access greatly. Another potential impact of the community college baccalaureate degree is that the perceived school quality may change. Whereas these colleges once offered strictly two-year programs, with an emphasis on short-term, career-focused programs, they have come to be institutions that offer programs that may be perceived as equal to university programs, not just the first two years. Community colleges have played an important role in providing students a route to a bachelor degree through the transfer curriculum, and more students have chosen to begin their college careers at a local college because of this potential.

Student Choice in Attending Community Colleges

In a qualitative study on college choice, Somers et al. (2006) identified six themes that influence students' decisions to attend a community college. The most commonly noted themes that emerged from the respondents in the focus groups were price and location (p. 62). The sample of students for the study was diverse, with 40% 22 years of age or older, 44% White, and 34% low income (as measured by receipt of Pell grant). Somers et al. (2006) recommended a model of community college choice with three main areas, "aspirations and encouragement, institutional characteristics, and finances" (p. 64). Somers et al. (2006) noted that aspirations and influence of significant others were factors that contributed to students' decisions to attend community colleges. Although students had been provided information about schools from official actors such as college

recruiters or high school guidance counselors, it was often the discussions they had with family and friends that truly influenced them to attend a particular college.

The institutional characteristics that influenced community college choice included small class sizes, more individual time with faculty, availability of support services, and convenience of location (Somers et al., 2006). The respondents in the study, particularly those who had previously attended a four-year institution, expressed that the overall experience at the community college was more positive; and this encouraged them to persist at the college. Somers et al. repeatedly noted that the cost that the students were taking into consideration was the sticker price of tuition and not necessarily the net price (tuition and fees less financial aid). The net price of four-year colleges may show that the institution is more affordable, but there would certainly be costs that would be difficult to factor into the net price such as relocation, cost of travel, and the possibility of not being able to continue working full time or having to find a different job in a new location.

The results of two studies of choice to attend community colleges in Canada highlighted some potential differences between American and Canadian institutions, particularly in terms of students' intentions to pursue higher degrees or to complete a two-year degree and move into the workforce. Boudarbat (2008) explored how potential earnings influenced the decision that community college students made regarding their majors. The research focused on the differences in potential earnings from the community college degrees as opposed to earnings potential of higher degrees to which

students could aspire. Boudarbat's results indicated that choice of major was highly influenced by anticipated earnings, particularly for students who were already working.

Researching the effects of articulation on college choice, Lang (2009) surveyed community college students who had applied to, and been accepted by, at least one university and one college in Ontario. He concluded that there was little influence on system-wide articulation and student choice to attend a college instead of a university. Three findings of this research are relevant to the current study: (a) students were more likely to transfer when programs were aligned more closely; (b) students were more likely to utilize the college to transfer when the college was connected to a university, in a university center, or part of a concurrent campus model; and (c) when a community college baccalaureate degrees were present at the college of choice, there was low interest in transfer.

Lang (2009) noted that there was little influence on the system-wide articulation agreement, and students were more likely to choose a college when it had the programs they were interested in pursuing. There was a propensity for students to choose a college that they "believed to be relevant to their career interests and of high quality" (Lang, p. 362), but the possibility of transfer was less influential in their decision making process. Lang found that students who indicated their intent to transfer from the college to the university were more likely to do so when programs were more closely aligned, stating: "Students do not transfer from institution to institution; they transfer from program to program" (p. 356).

Herein lies the trouble with Lang's (2009) research in terms of the effectiveness of articulation. Lang reported that there were very few general arts and science programs available in the Ontario colleges studied, and "Only 2.3% of all college students in Ontario were registered in general arts and science diploma programs" (p. 367). The students in this study appeared to be choosing the college because the programs led more directly to their career goals over the university transfer degree. Articulation agreements only make sense if curricula are aligned properly. The example provided by Lang was an articulated accounting degree from colleges to universities in Ontario, where 70% of students who transferred did so through the articulated program (p. 362).

Another important consideration in regard to articulated degrees was the relationship of the two different institutions. Lang (2009) found that approximately 60% of students who applied to a college/university applied to institutions that were a part of a concurrent model of articulation (p. 366). The concurrent model or university center model of articulation is one in which the university confers the baccalaureate in partnership with the community college and the "centers are located close to or on the community college campus" (Floyd, 2005, p. 33). This is significant for a couple reasons. First, students were utilizing the college as a strategy for admission to the university; and second, the location of the university program was situated in proximity to the students' lower level courses and likely to their homes. This appeared to indicate that when students had access to programs without the need to re-locate, they pursued those opportunities in greater numbers.

Lang (2009) found that some college students who stated they wanted to pursue a university degree were in programs "for which there is no articulation or other arrangement for transfer" (p. 369). These students were essentially creating a barrier to their degree aspirations by enrolling in career-focused programs. Although students in career-oriented programs can still pursue higher degrees, the costs of their education in terms of time, money, and wasted credits would be greater. The main purpose of improved articulation for these students would be to allow for more credits to be directly applicable to the higher degrees. This is the purpose for the community college baccalaureate degrees in Florida. By design, many bachelor degrees offered in FCS institutions have been required to articulate with specific associate in science degrees.

Lastly, one of findings in the research may cause some concern for higher education systems that are expanding community college baccalaureate programs. Lang (2009) noted that students in community colleges that offered applied baccalaureate degrees showed very low interest in transfer. This may cause concern because of the competition for students between colleges and universities. If universities see this expansion as a threat, they may reconsider the articulation agreements that are currently in place that guarantee admission depending on completion of a college degree.

In contrast to Lang's findings, Barreno and Traut (2012) found that transferability of courses was the most influential reason that students chose to attend a community college. The difference in the findings may be related to the difference in the functions of the college systems in Ontario and Texas. Lang (2009) noted that community colleges in Ontario were much more focused on career training as opposed to general arts and

sciences courses and transfer to the university. Barreno and Traut's (2012) research included students in psychology and American history courses only, two subjects that are typically part of a general studies program. Although Barreno and Traut (2012) differed from Lang (2009) in this regard, both stressed the importance of access to academic programs that aligned with student goals and campus location as considerations for students who attended a community college. Articulation of college programs will be discussed in greater detail later in this chapter.

Convenience of Location and the Prospect of Higher Earnings.

Two areas that are related to college student degree aspirations and the choice to attend a community college are the desire for students to earn a certificate or degree that can lead to more secure, better paying jobs and the necessity to pursue an education locally due to inability to relocate. All of the economic and college choice process models discuss the costs and benefits of attending college as part of the decision making process of prospective students. The place-bound student is often cited in justifying the expansion of community college baccalaureate programs (Bemmel, Floyd, & Bryan, 2009; Florida Statutes, 1007.33; Floyd, 2006; Russell, 2010).

Benefits of Community College Degrees.

Economic benefits of attending college are important considerations that students and their families take into account when deciding to go to college, which college to attend, and what major to pursue. Much research has been conducted on the private and public returns of college attendance (Bloom, Hartley, & Rosovksy, 2006; Damon &

Glewwe, 2011; Park, 2011). State systems sometimes use economic benefits to show the impact that education has in terms of student earning potential and taxpayer investments. The Florida College System has a Transparency and Accountability (FCS, n.d.) webpage dedicated to showing how the colleges contribute to the well-being of the state and its residents. Data provided on this webpage show how well FCS students perform in college and the rates of return that each college provides to students and taxpayers of the county in which they are located. The FCS has projected that the statewide average for student rate of return for completion of an associate degree in comparison to a high school diploma was 16.8% and the average taxpayer rate of return was about 9.4% (FCS, 2013d).

Marcotte, Bailey, Borkoski, and Kienzl (2005) studied the earning potential of students who attended a community college. Their research compared the accrued benefits of each additional semester of full time equivalent work in college. Marcotte et al. (2005) concluded that with the exception of men who attended the equivalent of just one FTE semester, there was substantial increase in earning for each FTE semester accumulated by men and women. Earnings for women who completed associate degrees were the greatest, more than twice that of men with associate degrees.

Grubb (2002) provided a comprehensive summary of studies conducted to examine earnings of students based on the completion of some college and those of graduates with associate or bachelor degrees. Much of the research used the National Longitudinal Survey (NLS) of the high school graduating class of 1972 or the NLS of youth who graduated from high school between 1976 and 1983. Grubb (2002) compared

earnings of community college students by major and found a significant earnings increase for students who completed associate degrees. In addition to comparing earnings to those of non-graduates, Grubb found certain associate in science degrees had more earnings potential than some baccalaureate degrees. Although baccalaureate degrees were more valuable on average than associate degrees, according to Grubb, "Men can earn more by getting an associate degree in engineering, public service or other vocational/technical subjects than they can from a baccalaureate in humanities" (p. 313). Associate degrees that led to academic transfer did not increase earnings significantly. This, however, was not an unexpected finding as these degrees were primarily for those pursuing baccalaureate degrees as opposed to those pursuing employment (Grubb, 2002).

Earnings potential is a concept that can be understood reasonably well by students as they consider college attendance, but researchers include non-economic benefits of college attendance as well. Belfield and Bailey (2011) reported earnings premiums and non-economic benefits associated with community college attendance, certificate and degree completion, and for students who transfer and complete higher degrees. Similar to other research on the benefits of college attendance (Bloom et al., 2006), Belfield and Bailey (2011) found non-economic benefits of attending a community college included better health, less dependence on welfare, and lower rates of criminal involvement. Belfield and Bailey noted the difficulty that comes with research on economic and other benefits of community college attendance in that much of the research depends on the survey data that takes into account years of schooling and completion of a baccalaureate but not completion of community college degrees or certificates. Community college

graduates may be categorized as part of a group of students who have some college, and this may not reveal the true impact of these types of degrees.

Belfield and Bailey (2011) discussed the democratization vs. diversion effects of the community college as related to potential earnings. They found evidence that even those who started at the community college, transferred, and finished a bachelor's degree may not earn as much as those who attended the four-year institution from the start. The conclusion was that "A student who 'should' have gone to a four-year college in his or her first year therefore loses out" (Belfield & Bailey, 2011, p. 56). Although this may be evident in the literature, the determination of who should go to a four-year college and who should not is difficult to justify and may ultimately be a choice of convenience or necessity rather than an ill-informed decision. Forgone future earnings are the negative consequence of choosing to attend a college that students are more able to afford. Though many students who initially matriculate at a community college could have done so at a four-year college instead, many students have external and financial responsibilities that make relocation and full time attendance difficult.

Place-bound Students and the Community College

Shields (2004) noted the lack of research on the definition of place-bound students and noted that researchers "treated the concept as given" (p. 354). Shields' (2004) definition of a place-bound student was someone who had the "perception of an inability to leave the immediate geographical area to attend college" (p. 356). Shields noted that there were some objective factors such as financial resources that make it difficult for students to relocate for college. Along with financial considerations, her

research also looked at social psychological factors that may have contributed to individuals being place bound such as an individual's locus of control, sense of attachment to family, and sense of attachment to place (Shields, 2004).

One frequently researched variable in the literature on higher education has been Rotter's locus of control or the perception that individuals believe they can control the outcomes of a situation that affects them. A high internal locus of control reflects individuals' perceptions that they can control events that affect them; whereas high external locus of control reflects individuals' beliefs that external or environmental forces control outcomes of a situation. Rotter (1990) defined locus of control as:

> The degree to which persons expect that a reinforcement or an outcome of their behavior is contingent on their own behavior or personal characteristics versus the degree to which persons expect that the reinforcement or outcome is a function of chance, luck, or fate, is under control of powerful others, or is simply unpredictable. (p. 489)

Shields (2004) found high external locus of control contributed to the perception of being place-bound as she expected. One of these external factors that caused individuals to feel place-bound was a sense of attachment to family. This attachment to family contributed to the perception of being place-bound more for women than it did for men. One last point taken from this research was that Shields (2004) unexpectedly found that the financial factor did not contribute significantly to the perception of being place-bound for the respondents in the study. This was very likely due to the sample of

students who participated in the research, who were all full-time students between the age of 18 and 21, and were unmarried.

By focusing on traditional age, full-time students at a university, Shields was clearly more concerned with the inaccurate perception of being place-bound than the factors that may truly prevent a student from relocating, e.g., owning a home or working full time. Working adults with homes, jobs, and families may have more objective barriers that accurately reflect their perceptions of being place-bound. Understanding how students with more external responsibilities utilize the institution in their path through higher education will help community colleges create programs and services that enhance student experience. The current study will attempt to contribute to the understanding of the decisions that place-bound students make to enroll in community colleges.

Enrollment Decisions and Institutional Influence

Decisions to enroll in colleges and pursue certain majors are influenced by individual experience before college, in college, and by their occupational aspirations as an outcome of college. Influence of significant others and individuals' perceptions of their own ability to succeed in college will form aspirations for college and degree attainment. The decision to attend a specific college is further influenced by financial considerations and external responsibilities. The research on college choice of attendance at community colleges has been limited, but a variety of reasons may influence students' decisions to attend a community college. Among the reasons evident in the literature, students choose to attend community colleges to enhance their occupational

opportunities, as a means to access higher degrees, and out of necessity for academic reasons. For students who cannot relocate to attend a college, convenience of location may have influence students' actions in pursuit of their academic goals.

Community colleges can influence the college decision process of students by showing the true value of the institution to students considering postsecondary enrollment. Access to educational opportunities that lead to higher degrees has been a consistent reason why students may enroll in the institutions from the inception. The collegiate transfer function continues to be the dominant function in terms of enrollment at many institutions. Throughout the history of the community college, there has been an emphasis by the institutions to provide access to occupational training that has direct connection to employment (Meier, 2008). The enrollment in short cycle programs for career enhancement is a factor that leads many students to enroll in the community colleges. From an institutional perspective, attracting students to short programs is important, but encouraging lifelong learning can strengthen colleges' abilities to provide services and programs to their communities and expand educational opportunities to all students. The discussion in this literature review has thus far been focused on reasons why students may choose to attend community colleges. The following section will provide further context for the research via a review of historical aspects of the community college that may influence community college student degree aspirations.

Influence of the Community College Mission on Student Degree Aspirations

Enrollment at community colleges may ebb and flow with economic cycles, and students may choose to attend the institutions for reasons unrelated to the health of the

economy. The degree to which these institutions influence decisions of students to attend is difficult to ascertain. Throughout the history of community colleges, however, the missions of these institutions have become all encompassing in terms of enrollment and the students they serve. Numerous researchers (Bailey & Morest, 2004; Dougherty & Townsend, 2006; Townsend & Wilson; Vaughan, 1984) have highlighted different aspects of the mission of community colleges. This section of the review addresses the development of the comprehensive mission of the community college and how access and articulation opportunities can contribute to decisions to enroll in the institutions and student persistence. Also discussed are the aspects of the junior college movement that contributed to the development of opportunities for all, a review of the impact of the Truman Commission report on the comprehensive mission, and a discussion of how aspirations may be shaped by access to higher education and articulation opportunities within community colleges of the 21st Century.

As the junior college movement of the first half of the 20th Century went from debate about control of the institutions to a broader goal of providing educational opportunities to all, a comprehensive approach to the curriculum became necessary. Educational opportunities, or the curriculum at community colleges, are what Meier (2012) referred to as the functional mission. The functional mission was expanded to reach the widest range of possible students, but it did not guarantee access to postsecondary education to all that could benefit. It was not until President Truman's Commission on Higher Education (1947), which called for access to postsecondary education opportunities for all, that there was shift in what Meier (2012) referred to as the

philosophical mission. After the commission's report was published, access, opportunity, and equity in higher education were slowly realized.

As they relate to the present research, the different aspects of the philosophical and functional missions are considered to be inseparable and are encompassed within the comprehensive mission. As Vaughan (2006) noted, "Without choice in program and course offerings, open access and equity lose much of their meaning" (p. 6).

Establishing the Goals of a New Institution

Although the first public junior college was not established until 1901, proposals for the establishment of two-year institutions to teach general education studies were initiated in the mid-19th Century by prominent educators, e.g., Tappan, Mitchell, and Folwell (Cohen & Brawer, 2008; Ratcliff, 1994). Although there were hundreds of four-year colleges in the early 20th Century, the junior college was established as a new sort of institution, "a nonbachelor's degree-granting college that typically offered both college preparatory and terminal vocational training programs" (Brint & Karabel, 1989, p. 23). The schools were often established as extensions of high schools through secondary school districts or as institutions that were sponsored by four-year colleges to offer general studies comparable to the first two years (Bogue, 1950; Cohen & Brawer, 2008).

The economic system that emerged from America's second industrial revolution created a need for technical innovation and occupational specialization that would begin to necessitate education beyond the secondary level for semi-professional workers (Meier, 2008). Although there was some debate about the functions of early junior colleges in the literature of the first half of the 20th Century, Meier (2008) has noted the

progress toward a more uniform interpretation of the early curriculum. The literature on the early junior college movement, in particular from leaders such as Koos (1925) and Eells (1942), has generally described two purposes of the curriculum of the junior colleges: to provide opportunity to transfer to a university and to round off the general studies of high school while enhancing vocational opportunities of graduates.

Much of the discussion of the junior college movement of the first half of the 20th Century related to the variety of control, support of the institutions, and their place within the American education system (Cohen & Brawer, 2008). Bogue (1950) noted that though one college may have been controlled by the city board of education and financially supported by a large private endowment, others were junior institutions or privately controlled senior institutions. Still others were independent junior college districts that collaborated with regional four-year institutions. Initially there were fewer concerns about the curriculum that the institutions should offer, but issues of control and placement within higher education were often in dispute (Bogue, 1950).

Although there were various beliefs about the main purpose of the early junior colleges, there were some common agreements. Perhaps most important was the belief that a democratic society demands well-educated people (Bogue, 1950). Another aspect of junior colleges that was not in dispute was the expectation that the new institutions would offer courses with the same rigor as four-year institutions and include a general education component to occupational studies (Bogue, 1950; Cohen & Brawer, 2008; Koos, 1925; Meier, 2008). If the institutions were able to offer the first two years of the

curriculum with the same rigor as four-year institutions, junior colleges could provide equal opportunity for higher education.

Development of the Comprehensive Community College

The early junior college movement was enhanced greatly by the establishment of a national association that would help unify the direction of the institutions. The establishment of the Association of American Junior Colleges (AAJC) was called for by a number of influential individuals within higher education including: George Zook, then a higher education specialist in the U.S. Bureau of Education; Philander Claxton, U.S. Commissioner of Education; James Reid, who became the first president; and Martha Wood, the first secretary of the AAJC (Witt et al., 1994, p.72). The founding of the AAJC in 1920 was in part to "establish a coherent institutional identity and compelling social purpose for the colleges" (Meier, 2012, p. 10). The establishment of the *Journal College Journal* in 1930 would provide a voice for the association and the junior college movement. Zook, Eells, Campbell, and Koos became national leaders of the junior college movement through their participation in the AAJC and their research on the member institutions. The message that these leaders would relay was that the junior college should play a vital role in educating high school graduates who did not have a need to pursue bachelor degrees (Witt et al., 1994). "Without their efforts American junior colleges might have developed a much narrower focus, depriving millions of the opportunity to improve their lives and communities" (Witt et al., 1994, p. 88).

Eells has been given credit for guiding the national dialog on the mission of the community college in the first half of the 20th Century through his writing and leadership

in the AAJC (Meier, 2008). Under the leadership of Eells, Kelly (1936), Hollinshead (1936), and Hayden (1939) published articles in the *Junior College Journal* that were early examples of what would become the comprehensive mission of the second half of the Century. Kelly (1936) believed that junior colleges' commitment to the community, in particular through vocational training, provided youth the opportunity for social mobility. Kelly (1936) referred to this as social reconstruction which encompasses increased cooperation among individuals in society, expanded civic education among youth and adults, increased leisure time, and lengthened school time.

Hollinshead (1936) had an article published in the *Junior College Journal* shortly after Kelly that had similar recommendations for the goals of the junior college. According to Hollinshead (1936), the junior college should meet community needs, promote social and civic intelligence, provide opportunities for adult education, be a cultural outlet for the community, and work closely with local high schools and other community organizations. Perhaps the most important aspect of the junior college for Hollinshead was that it went a long way in the democratization of higher education in America. Referring to Jefferson's idea that democracy will be safe only when widespread opportunity for education exists, Hollinshead (1936) took the notion one step further and stated "Education is safe in a democracy only as long as it is democratized" (p. 115). The opportunity cannot be reserved for a select few who are able to afford it and who are of the proper social class to participate in higher education. Hollinshead (1936) stated, "We must bridge the gap between scientific knowledge and popular prejudice. We cannot bridge the gap by formalizing education behind high walls" (p. 115).

Meier (2008) noted that Hayden's article in the *Junior College Journal* "had sweeping implications because it anticipated and summarized almost perfectly the general outlines of the postwar comprehensive mission" (p. 92). For Hayden, the junior college could help shape society and provide education for future leaders. The objectives of democracy could only be reached if junior colleges "become a community institution" (Hayden, 1939, p. 73). The importance of the junior college as an influencing factor on the community was critical for Hayden. Perhaps the most important aspect of this was adult education. "If we are to bring together all of the intelligence and reason we can to solve our problems, we must include the adults in our educational program" (Hayden, 1939, p.70). He proposed a number of different initiatives that junior colleges could undertake to connect with and enhance the community. These included community lecture series and education programs geared toward adults. With the support of Eells and the AAJC, Hayden's message of lifelong learning would become an integral part of the comprehensive community college mission of the second half of the 20th Century. "Education can no longer be conceived of as stopping when adulthood is reached. Thus considering education as a lifelong process is the most important function of the junior college as a community institution" (Hayden, 1939, p. 73).

The junior college seemed to be in an experimental phase in the early part of the 20th Century, but the comprehensive mission was stimulated by the Great Depression and World War II and further accelerated by postwar growth (Meier, 2008). The debate over where the junior college fit in the American education system faded as the role of the colleges became more critical to the American public. Adult education had found a place

in the junior college curriculum, and collegiate education continued to expand. Although the collegiate transfer function of the junior colleges never needed promotion, the national leadership developed themes of commitment to the community, career education, and lifelong learning. By 1947, the functional mission of the junior college had gradually expanded beyond the transfer function to curriculum designed to meet the needs of the community.

In addition to serving community needs, there was an emphasis put on terminal education that would provide high school graduates with programs that would lead to semi-professional careers. The emphasis on vocational education expanded in the second half of the 20th Century. Increasingly, there has been recognition by higher education systems that regardless of students' initial goals, they should be able to continue their education in pursuit of higher degrees. Higher education systems and institutions encouraging students to take advantage of articulation opportunities have negated the notion that some community college programs are terminal in nature. In this effort to encourage life-long education, state systems have expanded opportunity for students to earn credit through nontraditional means and articulation of credits to be applied to certificates and degrees.

The President's Commission on Higher Education

The ideals that became the comprehensive mission of the second half of the 20th Century were first described by Hollinshead (1936) and Kelly (1936), further emphasized by Hayden (1939), and became engrained in the American higher education system by the time of President Truman's commission on higher education in 1947. Truman's

commission incorporated ideas that were being advocated by national junior college leaders and emphasized that the community college mission should be expansive (Gleazer, 1994). The importance of the commission in establishing the community college mission for the second half of the 20th Century cannot be overstated. The commission described a number of desirable junior college elements that echoed the research and the growing trend towards the comprehensive nature of the institutions. These characteristics included being responsive to community needs, incorporating a variety of programs for a diverse student body, providing education for students to earn a living, preparing students for further education at colleges and universities, and providing "a comprehensive adult education program" (President's Commission, 1947c, p.7). The commission endorsed the work of the community colleges and legitimized its place in the American higher education system.

The commission was charged with reporting and making recommendations about the American higher education system, its objectives, methods and facilities in light of its social role (President's Commission, 1947a). The commission was chaired by George Zook, and included respected higher education leaders including some advocates of the community college such as Frederick J. Kelly, and Earl J. McGrath. After presenting extensive research on the need for higher education in America, the report posited that the social role of education was to insure liberty and equal opportunity and that the principle goals of higher education were to realize democracy in every phase of life, enhance international understanding, and to address social problems (President's Commission, 1947a, p. 5-8).

Among the issues addressed in the report was, who should be educated and how should they be educated. The report did not provide specific techniques on how to teach students. Rather, it declared that all who seek the opportunity should be able to benefit from postsecondary education and "Education at all levels should be available equally to every qualified person" (President's Commission, 1947b, p. 3). The commission's report was quite liberal in its recommendations and critical about major issues of racial and ethnic inequity:

> One of the gravest charges to which American society is subject is that of failing to provide a reasonable equality of educational opportunity for its youth. For the great majority of our boys and girls, the kind and amount of education they may hope to attain depends, not on their own abilities, but on the family or community into which they happened to be born or, worse still, on the color of their skin or the religion of their parents. (1947a, p. 27)

Along with the inequalities inherent in the higher education system of the early 20th Century, the commission addressed a number of other items, including the interrelationship of general and vocational education, the importance of counseling, how the community college relates to secondary and other postsecondary institutions, and the financing of higher education. The report described economic barriers to higher education and recommended that the 13th and 14th years of education, regardless of which institution provides the education, should be free. It was noted that even this step to make college affordable was not enough, as the cost of travel or relocation for students is so great that it would be too much for many Americans.

> By allowing the opportunity for higher education to depend so largely on the individuals economic status, we are not only denying to millions of young people the chance in life to which they are entitled; we are also depriving the Nation of a vast amount of potential leadership and potential social competence which it sorely needs. (President's Commission, 1947a, p. 29)

To address this issue, the commission called for a great expansion of community colleges to be "within reach of the largest possible proportion of qualified young people" (1947c, p. 9). The massive expansion would call for statewide planning in order to address the needs of the state in the most efficient manner so that institution size was manageable, the state could ensure colleges provide adequate general education, and the institutions could develop specific programs that addressed community needs.

While the commission described junior colleges as community colleges, it put a large emphasis on state control and organization. This represented a change from the establishment of the junior college which had more local influence than state control. To be sure, addressing the community needs was still the primary purpose, but institutions "must be organized to serve the interests of the whole State" (President's Commission, 1947c, p.15) and while the development of programs would be up to the institutions, "what each college includes in its curricula must be subject to State approval" (President's Commission, 1947c, p.15). The literature on the community college reflects the significance of the Truman Commission, and many of the recommendations that the committee made were implemented.

Bogue (1950) echoed the sentiment of the commission, by declaring that the name junior college did not adequately describe the institutions anymore and that community college was more appropriate as the colleges were community centered and community serving. The influence of the commission on the organization of higher education in America and on the expansion of the community colleges was critical. The community college mirrored the democratic ideals of America and emphasized in the report that everyone in society was worthy of the opportunity to achieve the highest possible level of development that they desired to accomplish.

Advocates like Bogue wanted all students to have access to the opportunities community colleges provided. They wanted free public education to be afforded to all Americans through the fourteenth year. As the demands at all levels of education increased, the role that community colleges would play became more critical (Cohen & Brawer, 2008; Fields, 1962). The impact of the expansion of enrollment and opening of colleges would play a significant role in increasing student aspirations for completing college degrees. Fields (1962) noted that the likelihood that individuals will pursue higher education is increased significantly when there is an accessible institution in the community in which the student lives, almost twice as likely as individuals that live in a community where there is no local institution (p. 13). Similarly, Cohen et al. (2014) found that when a junior college was established in a location that had "no publicly supported college, the proportion of high school graduates in that area who began college immediately increased, sometimes by as much as 50 percent" (p. 18).

Issues addressed in the commission's report are relevant to the current trend of institutions establishing community college baccalaureate degrees. When community colleges establish such degrees, they take into consideration the vocational and general portions of the curriculum to address the needs of the students and the local community. The importance of counseling in relation to students' ultimate goals is still critical. Addressing how the new programs impact the relationship of community colleges with other postsecondary institutions, particularly those in close proximity is another important aspect to consider in developing new bachelor degree programs. Part of the justification for the community college baccalaureate is that it is a more affordable route to the same type of degree and thus provides greater opportunity for students in terms of the financing of higher education (FCS, 2012a, p. 1).

The second half of the 20th Century brought about an increased emphasis in American society on the need for higher education. This period in the history of the community college was marked by a significant increase in student enrollment, expanding curriculum, and increased state control over the institutions. All of these increases have been attributed, at least in part, to the increased funding of institutions through federal aid programs. The impact of the G.I. Bill in providing educational opportunities for veterans, and later federal aid programs for all dramatically reshaped the landscape of higher education. U.S. Census data reflected the expansion. Between 1960 and 1970, enrollment in junior colleges more than tripled from 451,000 to 1,630,000, at a time when new community colleges were being opened at a pace of one per week (as cited in Brint & Karabel, 1989).

Is Access to Higher Education Enough?

Starting in the 1960s and increasing in the 1970s, there was a significant amount of research that illuminated the disparity of outcomes that students face in attending community colleges. Though first noted through the struggles of transfer students (Hills, 1965; Medsker, 1960), the literature turned toward the continuation of social stratification through community college attendance (Karabel, 1972; Tinto, 1975). Social stratification through programs at community colleges was related to Clark's (1960) idea of cooling out. Community colleges increasingly emphasized vocationally oriented programs and encouraged students, particularly those who may not be successful in transferring to a four-year degree, to lower their aspirations. Although the community college provided equal access to higher education, students with higher SES were more likely to persist, transfer, and earn a bachelor degree. Karabel (1972) noted, "This process does not contribute to equal opportunity" (p. 536). This trend of inequality in opportunity is notable in the literature on the community college with researchers such as Dougherty (1987), Karabel (1972), and Tinto (1975) contributing to this notion that the democratization of opportunity does not necessarily contribute to equality of outcomes. The following is a brief review of this trend.

Karabel (1972) argued that community colleges preserve the American meritocratic ideal. Though the institutions gave all an opportunity to participate in higher education, open access to these institutions also preserves principles of achievement. The open door of community colleges allows for more selective institutions to refuse access to those who do not meet their qualifications. The community college, in providing an

opportunity, may only present a perception of equity for those that start at these institutions. "Hailed as the 'democratizers of higher education,' community colleges are, in reality, a vital component of the class-based tracking system" (Karabel, 1972, p. 555). The large expansion of access to higher education has led to a form of tracking that continues to distribute groups into social classes that are similar to where they began. This distribution is caused by at least two things. First, students in lower socioeconomic groups are more prone to struggle in higher education and end up tracking into vocationally oriented programs. Second, though these vocational programs do provide students with greater opportunities for jobs, they also cause inflation of credentials. More affluent students pursue even higher degrees which causes lower degrees, once more valuable, to be worth less (Karabel, 1972).

Throughout the history of the community college, vocational training has been sponsored by those "whose social composition, outlook, and policy proposals are reflective of the interests of the more privileged strata of our society. Notably absent among those pressuring for more occupational training in the junior college have been the students themselves" (Karabel, 1972, p. 552). To improve the social mobility of community college students, Karabel made two suggestions, one being to shift the distribution of funds among higher education institutions to provide more to community colleges as opposed to universities. In this way, the redistribution of taxes would favor the lower socioeconomic classes instead of higher SES students who attend more expensive state universities (Karabel, 1972). The second suggestion made was to "transform the community college into a four-year institution" (Karabel, 1972, p. 557).

Though this would increase access to baccalaureate education even more, Karabel (1972) noted, "The new four-year institutions would still be at the bottom of the prestige hierarchy" (p. 557). The stratification of social classes and inflation of educational credentials would be likely to continue.

Another issue that had been previously given as a justification for the expansion of community colleges was that by opening a college, students in the local area were more likely to pursue higher degrees (Cohen & Brawer, 2008; Fields 1962). What was clear in the first half of the Century would be questioned in the second half of the century as researchers began exploring whether increased access to community colleges increased overall enrollment or just shifted enrollment to different institutions. Tinto (1975) explored the substitution effect that local junior colleges have on college attendance and found that this effect was prominent for students of lower social-status origins. In other words, students of equal academic ability would be more likely to substitute the local junior college for the four-year institution if they were from lower- and middle-class families. The process of substituting the junior college for attendance at a four-year institution may impact "the role of public junior colleges in equalizing educational opportunity" (Tinto, 1975, p. 273). Tinto came to this conclusion based on research that showed community colleges had a significant effect on reducing the probability of obtaining a four-year degree, and that this contributed to the increase in social stratification.

Compounding the negative impact of bachelor degree attainment for students whose first college courses began at community colleges were results from studies on

college student degree aspiration. Students attending community colleges would not only face more difficulty in attaining bachelor degrees, but they were more likely to lower their aspirations simply through attendance at the institution. Pascarella (1984), in his research on college student degree aspirations, found that college environment had a significant effect on aspirations, second only to initial aspirations. He posited that the less selective institutions were, the larger the impact on lowering aspirations by the second year of college. This was confirmed by later research of Whitaker and Pascarella (1994) which gave community college attendees only a glimmer of hope. Though the researchers recognized the likelihood of attaining a bachelor's degree was decreased by attendance at a community college, they found that students with equal attainment generally had equal benefits. Whitaker and Pascarella (1994) reported that when students "negotiate such structural obstacles as transfer to a four-year college and who stay apace of their four-year counterparts in degree completion, appear to compete on generally equal terms with the latter for the most desirable and best paying jobs" (p. 206). The difficulty of community college students to persist at this rate has been the largest obstacle toward achieving the equality of outcomes. Though this result may be seen as positive, Whitaker and Pascarella also found that when attainment was not controlled for, two-year college students suffered from significantly lower occupational status.

In comparing baccalaureate attainment of community college students to university students, researchers control for initial degree aspirations (Alfonso, 2006; Anderson, Sun, & Alfonso, 2006; Dougherty, 1991; Dougherty & Kienzl, 2006). Controlling for educational aspirations is important because community colleges serve a

diverse student body and provide more options that link students directly to careers without the need to pursue baccalaureate degrees or higher. Because of this, many students enter the community college with clear goals that can be attained through short-cycle vocational programs. Complicating the interpretation of results when aspirations are controlled for is that students often begin at the community colleges with multiple goals. Ultimately, students may want to earn baccalaureate degrees, but they start in a collegiate workforce program to secure job opportunities in a timely manner (Morest, 2006). Students may report that they plan to pursue a bachelor's degree but this may ultimately be a long-term plan, occurring many years after completing an associate degree. In researching aspirations, it may be important to understand the time frame in which students hope to enter a four-year program.

The challenges of transferring from the community college to a four-year institution were highlighted in Dougherty's (1991) research. Dougherty (1991) examined the literature on transfer student success from the community college to the university and declared the community colleges were at a crossroads in need for reform. Leading up to the time of the research, there had been a "rapid attenuation of transfer education throughout the 1960s and 1970s, as vocational education has risen to overshadow it" (Dougherty, 1991, p. 312). This situation created a need for community colleges to reconsider their role in helping baccalaureate aspirants succeed. The literature on the success of community college students in attaining baccalaureate degrees and the need for reform was driven mostly by the "perceived deterioration" (Dougherty, 1991, p. 313) of pre-transfer preparation at the community college. Dougherty (1991) found that

students starting at a community college were "significantly less likely" (p. 315) to earn bachelor degrees. He also concluded that there was a "quite sizable *institutional* effect" [emphasis in original] (p. 315). No doubt this contributed to the researcher's conclusion about the deterioration of preparation of students for transfer.

One particular statistic cited may reflect more than just lack of preparation for transfer, revealing the external factors that impact community college student success. Using NLS-72 data, Dougherty (1991) noted that of the baccalaureate aspirants, only 49.3% of community college students who completed two years continued to their junior and senior years of education compared with 96.2% of university native students (p. 317). This large difference may be more attributable to community college students needing to work more and being less able to relocate to attend a college. Dougherty's (1991) research was conducted using data from 1972 high school graduates with the final survey collection completed in 1986. At the time of this article and for the sample included in the study, there were limited choices for place-bound students to continue their education locally and many essentially concluded their studies at the associate's level.

Community colleges have significantly increased access to higher education for students since the mid-20th Century, but this access has been plagued by the difficulties of students who have been unsuccessful in transferring and fulfilling their baccalaureate aspirations. No doubt access is critically important for the diverse population attending community colleges, as noted by Bailey and Morest (2006), policies and programs designed to better prepare students for college and to more effectively impact student success once in college need to be researched. Karabel (1972) called attention to the

problem early on: "The critical question is not who gains access to higher education, but rather what happens to people once they get there. The distinction parallels the distinction between equal access. . . and equal outcomes or results" (p. 530). To help students attain equal outcomes, improve efficiency within the education system, and increase the baccalaureate-educated workforce, states developed transfer and articulation guidelines for postsecondary institutions. In addition to articulation agreements, states have increasingly moved higher degrees into the open access institutions.

Articulation of Degrees to Encourage Higher Degree Aspirations

Through the 1960s, there were few statewide articulation efforts, but during the 1970s states began to establish policies for articulation agreements (Roberston-Smith, 1990). At the end of the 20th Century, statewide policies encouraging the transfer function were seen as a strategy to increase equity for low-income and minority students who were increasingly dependent on the community college for access to higher education (Bender, 1990; Dougherty & Kienzl, 2006; Ignash & Townsend, 2001; Robertson-Smith, 1990). Legislative actions mandating statewide articulation were taken to "proactively reach out to underrepresented ethnic minority groups and assure access to and opportunity for completion of the baccalaureate degree, the gateway to the professions" (Bender, 1990, p. 169).

Robertson-Smith (1990) noted that articulation agreements benefit at-risk students in high school and college by providing students the opportunity to participate in vocational-technical programs that have increased relevance to workforce outcomes. In addition, logically sequenced courses with built-in stopping points allows students the

opportunity to complete short-cycle programs that will give them advantages in the workforce and the ability to continue their education at a later point without loss of credit. Examples of this are evident in collegiate workforce AS degrees in which the core courses often incorporate college credit certificates. Students may complete one or more certificates prior to completing the AS degree. Students also have the option to articulate vocational credit with college credit AS degrees.

During the 1980s, there was a shift in the development of articulation agreements from local to state level policymakers and states increasingly implemented legislation that communicated to "faculties an intolerance of perceived abuses to the interest of the student and taxpayer" (Bender, 1990, p. 167). Abuses of the taxpayer were due to issues of financing higher education indirectly through taxes and directly through tuition and fees to the college for themselves or dependents. From the perspective of state legislators, it is financially wasteful if students are completing significant portions of degrees at one institution, and they are unable to transfer all or most of the credit. Likewise, student frustration is inevitable if they are required to complete additional credit to satisfy the requirements at the new institution, particularly in cases where curricula, such as general education coursework, can be aligned between institutions. Some concerns that led to legislative action were alignment of common components such as general education requirements, the desire of states to reach out to underrepresented populations, and the demand for students who complete collegiate workforce degrees to continue to baccalaureate programs (Bender, 1990).

Although efforts to blur the lines between workforce and transfer programs have been made, articulation between institutions within the state of Florida has been strongest for students in collegiate transfer programs rather that collegiate workforce programs. However, with the development of the Florida College System and community college baccalaureate degrees, the importance of articulation of degrees with other institutions has increased.

Models of Articulation Among Community Colleges and Universities

Articulation agreements devised collaboratively between institutions or mandated statewide through legislation provide opportunities for successful community college students to continue their education in pursuit of a bachelor's degree. Three types of articulation agreements are common between community colleges and universities including the 2 + 2 articulation model, the university center model, and the university extension model (Floyd, 2006). A fourth, more recent trend, is the applied workforce articulation model which will be discussed in depth later in this chapter. These types of articulation agreements are integral to the functional mission of the community college and can contribute to increased degree aspirations of students.

The 2 + 2 articulation model allows for students who complete a two-year associate degree to continue at the university in a baccalaureate program (Floyd, 2006; Wellman, 2002). The typical community college degree that creates the foundation for transfer is known as the general studies degree, university parallel, or associate in arts degree. This degree typically has similar general education requirements as a bachelor's degree, and allows for free electives for students to customize their studies toward their

educational goals at the university. This is the most prevalent articulation model, but it has some drawbacks. Depending on where the community college is located in relation to the university, students wishing to take advantage of this option may have to relocate. Though this may not be an issue for traditional age students from families that are able to afford the relocation, it may be difficult for nontraditional age students with families of their own and non-academic responsibilities that prohibit them from relocation.

The university center model of articulation brings university coursework to the community college. Upper division courses are offered on community college campuses by a university, and the university confers the degrees. In many cases, students are able to complete their baccalaureate coursework without having to relocate. This has increased local access to place-bound students and created a partnership among institutions that share academic and physical resources. The university center model has been successful, particularly within the state of Florida. The expansion of the community college baccalaureate in Florida may eventually strain the relationships between institutions with shared resources as they compete for students.

In the university extension model, universities control the two-year colleges and although the institutions may offer a variety of degrees and certificates, their primary focus is on university transfer programs. A prime example of this is the University of Wisconsin (UW) System (n.d.), in which the two-year UW colleges have established articulation agreements with universities in the state. There is also a third tier to the Wisconsin higher education system which is not controlled by the universities. The

Wisconsin Technical College System does not offer traditional university parallel degrees but has established a number of articulation agreements with four-year colleges.

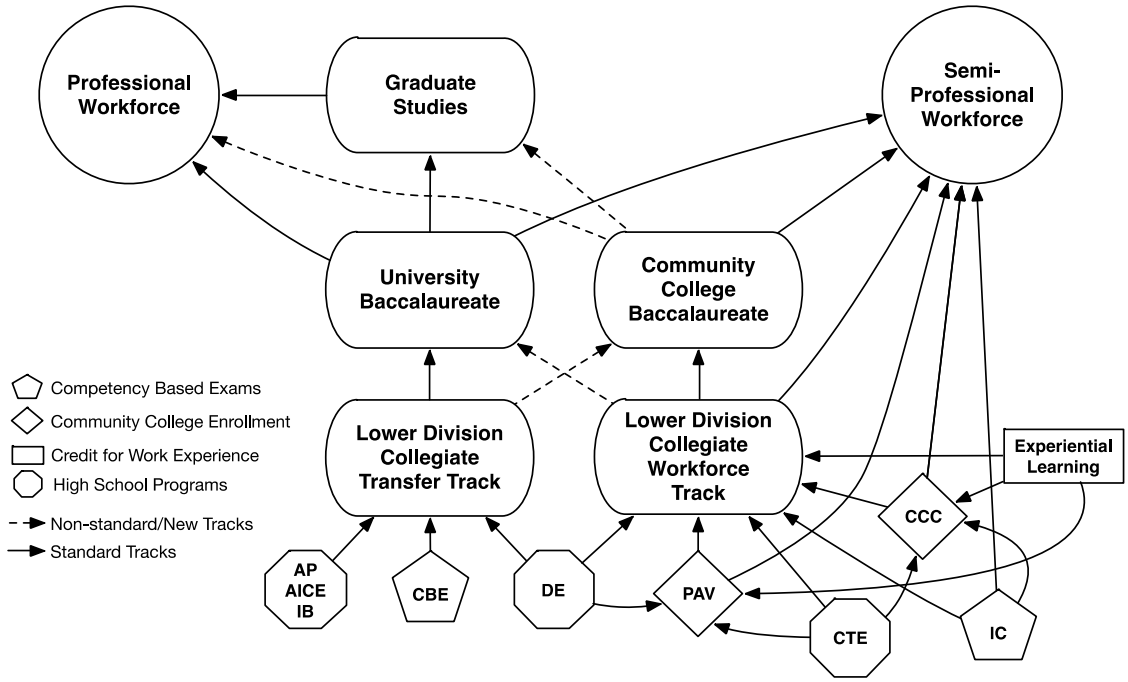
Models of Articulation With Community Colleges in Florida

Increasingly in the last two decades of the 20th Century, many states, including Florida, developed statewide articulation agreements for both the university parallel degree and workforce-oriented degrees (Ignash & Townsend, 2001; Wellman, 2002). Florida community colleges utilize three articulation models to encourage transfer and baccalaureate degree attainment. Institutions and students throughout the state use the 2 + 2 model and the university center model of articulation extensively. More recently the development of an applied workforce articulation model has been developed which includes articulation of (a) vocational certificates to college credit certificates, (b) college credit certificates with AS degrees, and (c) AS degrees with community college baccalaureate degrees and university BAS degrees. In addition to the articulation of entire degrees, the state of Florida has established a number of acceleration methods for students to earn credit. These acceleration methods include high school dual enrollment, credit-by-examination options, and industry certification options. Credit by examination and industry certifications are competency-based programs that allow students to get college credit for competencies they already have, either by taking an examination or proving current certification.

The sheer number of articulation options may seem overwhelming, but the arrangements are intended to create efficiency in transferring credit with little or no wasted effort and encourage students to continue on to higher degrees. Figure 7 shows

some of the higher education articulation options within the state of Florida between secondary schools, between and within postsecondary institutions, and between postsecondary institutions and industry. Represented are the various tracks of articulation within higher education in Florida. Along with associate degree articulation toward baccalaureate degrees, if students continue their education state and institutional articulation agreements allow for the awarding, or inclusion of college credit in longer certificates and associates degrees. Figure 7 depicts a general pattern indicative of state legislation, and institutions develop many collaborative agreements independent of state directives.

Clearly there has been effort to enhance student academic opportunities through agreements that award credits at the next level, regardless of which level students entered. (FLDOE, 2011). Ignash and Townsend (2001) developed principles of good state articulation policies based on their research on various aspects of statewide agreements between community colleges, four-year public, and four-year private institutions. Among the principles they proposed were equality among institutions providing the first two years, high degrees of faculty involvement in the agreements, comparable treatment of transfer and native students, accommodation of the completion of significant portions of coursework or entire degrees, inclusion of private and public institutions, and monitoring the progress of students after transfer (pp. 176-179). One last principle, which has been increasingly developed, is the articulation of degrees other than the traditional collegiate transfer degree, e.g., collegiate workforce associate in science degrees (Ignash & Townsend, 2001).



Note. Articulation options include Advanced Placement (AP), Advanced International Certificate of Education (AICE), and International Baccalaureate (IB); Competency Based Exams (CBE); Dual Enrollment (DE) in high school and college; Postsecondary Adult Vocational (PAV) programs; Carl D. Perkins Career and Technical Education (CTE); College Credit Certificates (CCC); Industry Certifications (IC); Examples of competency-based exams include CLEP, DSST, institutional exams, and industry certifications.

Figure 7. Higher Education Articulation and Transfer Tracks to the Workforce

Applied Workforce Articulation and the Community College Baccalaureate

Applied workforce articulation models are intended to create career pathways for students who matriculate initially in vocational programs, college credit certificate programs, or collegiate workforce AS degrees. This method of articulation converts vocational credit into college credit for students who have completed postsecondary adult vocational certificates and have enrolled in AS degrees at a community college in Florida. Additionally, students that initially enter short-cycle college credit certificate programs have the option to continue into AS degrees as the certificates are encompassed

within core requirements of collegiate workforce degrees. Likewise, students who complete a collegiate workforce AS degree have the option to continue to pursue a bachelor of applied science degree with little loss of credit.

Starting in 2000, Florida implemented career ladder agreements that guaranteed articulation of specific collegiate workforce associate degrees to transfer to university bachelor of science degree programs (Florida Rule 6A-10.024). In 2003, in addition to articulation of specific AS to BS degrees, the state Articulation Coordinating Committee approved articulation of any regionally accredited AS degree with bachelor of applied science (BAS) degrees offered by universities in Florida. While AS to BS/BAS articulation agreements have been limited, these arrangements have given collegiate workforce students a more direct link to baccalaureate education. The limited options for AS to BS articulation coupled with the slow development of BAS programs at Florida SUS institutions has resulted in a less than effective statewide articulation of workforce degrees. The Florida community college baccalaureate degree was developed in part to address this issue, and it has provided greater access for collegiate workforce students as the colleges have moved quickly to develop BS and BAS programs.

Troubles with student transfer have been cited as justification for the need to develop community college baccalaureate degrees in Florida (Pappas Consulting Group, 2007). Although the new programs have been geared toward high demand areas in the workforce such as teacher education and nursing, this expansion of the community college curriculum has enhanced institutions' stature with their stakeholders. It is understandable that leaders in the community college would want to pursue offering

baccalaureate degrees, particularly if it brings additional resources, increases the recognition of the students, and increases morale, "all things that enable colleges to be more successful at fulfilling its mission" (Skolnik, 2009, p. 148).

The growing trend of community college baccalaureate degrees in the United States can be attributed in part to the leadership of the Florida higher education system. Though Florida was not the first state to allow community colleges to confer bachelor degrees (see Appendix A), the implementation of a clear policy that allowed two-year public community colleges to offer baccalaureate degrees has led to a rapid increase in the number of programs offered and students enrolled. The first institution to offer the new degrees in Florida was St. Petersburg Junior College (now St. Petersburg College) in 2001 (FLDOE, 2006). As of October 2013, 24 of the 28 FCS institutions had been approved to offer baccalaureate degrees and had transitioned into state colleges (FLDOE, 2013).

The two primary reasons for the justification of the development of community college baccalaureate degrees in Florida were (a) to address critical needs of the state and (b) increase access to nontraditional age students. Critical needs of the state were identified as the need for trained teachers, nurses, and information technologies (FLDOE, 2005). At the time of the study, these needs were being addressed, in part, through local access to BS and BAS degrees at community colleges. The Florida Department of Education has defined the BAS as a baccalaureate program "designed to accommodate the unique demands for entry and advancement within specific workforce sectors" (FLDOE, 2006, p. 5). Common workforce sectors of the BAS degree include health

science administration, information technology, and organizational management (FLDOE, 2013).

The second reason for the justification of the development of community college baccalaureate degrees in Florida was to increase access to baccalaureate education for place-bound students. The availability of the baccalaureate degree has been particularly effective, at least, in terms of enrollment. Nontraditional age students who may have been unable to relocate to complete their studies due to family and work responsibilities have enrolled in the programs in significant numbers. The intent of the legislation allowing colleges to offer bachelor degree programs addressed the legislature's recognition that "Economic development needs and the educational needs of place-bound, nontraditional students have increased the demand for local access to baccalaureate degrees" (Florida §1007.33, (1)(a), 2013). Though the proportion of nontraditional age lower division students at community colleges in Florida was approximately 20% in 2009-2010 (FCS, 2011c), nontraditional age student enrollment in upper division baccalaureate courses was approximately 70% (FCS, 2012b).

The ratio of nontraditional age students in community college bachelor degree programs is perhaps an expected phenomenon. Evidence of the need for the degrees for these students to realize their educational goal has been reflected in recent research on transfer students. Wang (2012a) found that among baccalaureate aspirants who started at the community college, there was a significant negative effect on the likelihood of transfer for students who were married and for students who were parents. The likelihood of transfer was reduced by 20% if students were married, and approximately

33% if students had children (Wang, 2012a, p. 865). These are some of the students for which the community college baccalaureate degree is most beneficial.

Though the opportunity to pursue baccalaureate degrees through community colleges has increased, it is not clear that these new opportunities are entirely beneficial. Discussing the transferability of occupational AS degrees, Dougherty (2001) discussed the issue of "credential inflation" (p. 133). As associate in science degrees are articulated more fully with baccalaureate degrees and students pursue these options in greater number, the value of associate degrees may be reduced. Additionally, as more students attain baccalaureate degrees though collegiate workforce articulated AS degrees, "Middle and upper-class students are likely to respond by pursing still higher credentials in order to preserve their edge in the labor market" (Dougherty, 2001, p. 133). The two different degrees (AS and BAS) being offered at the community college create a layer of complexity when it comes to equal opportunity.

The admission requirement for BAS degrees is either an earned associate in arts or an associate in science degree. However, BAS degrees at Florida community colleges were designed to articulate fully with associate in science degrees and provide students with a more direct route to baccalaureate education. It is not clear what impact the increased BAS options within the state system will have over time on the value of the AS degree . The AS and BAS degrees serve the same purpose, that is, preparing students for employment in similar fields. As employers look to fill open positions, students with BAS degrees will have an edge over those with AS degrees. In addition, it is not totally clear that AS degree students aspire to baccalaureate degrees, but the expansion of BAS

degrees may force AS students to consider pursuing higher degrees. As the number of community college baccalaureate degrees in Florida expands, it will be important to consider how the degrees affect the students who have already completed associate degrees.

The transfer function encourages baccalaureate aspirants to begin their education at the community college. The implementation of the community college baccalaureate degree has served to encourage these students to forego the transfer function and remain at the community college to finish their four-year degrees. The development of the community college baccalaureate may increase the likelihood that place-bound students will take actions to realize their degree aspirations, but the questions about equal opportunity in transfer may take on different perspectives. The articulation agreements developed between community colleges and universities may be increasingly used by students who are more able to afford the change in institution, thereby designating the community college baccalaureate degree for particular groups of students.

Dougherty and Kienzl (2006) found that high SES students had significantly higher transfer rates (p. 479). The persistence of this issue in relation to transfer rates may create a perceived inequality of the community college baccalaureate due to the limited scope and workforce emphasis of the degrees being developed. Though students have access to these new bachelor degrees, the limited choice may diminish the meaning of open access and equity (Vaughan, 2006). Allowing institutions to offer higher level degrees and then limiting the variety may result in the perception of inequality that Hanson (2009) described as follows: "We maintain a system marked by double standards.

For the sons and daughters of the wealthy there are institutions committed to the civic arts and leadership. For the masses, we offer training in occupational fields" (p. 991).

Access, Opportunity, and Equity in Community Colleges of the 21st Century

The equity agenda highlighted by Bailey and Morest (2006) provide insight into the more general direction community colleges have taken at the beginning of the 21st Century. Although the comprehensive approach to the curriculum in community colleges has remained in place, there has been an increased emphasis on access to baccalaureate education. Bailey and Morest (2006) said, "As the value and importance of the baccalaureate degree increase, the effectiveness with which community colleges can prepare students for transfer and eventual completion of a four-year college diploma will become more salient and more controversial" (pp. 3-4). The equity agenda emphasizes the role that community colleges play to increase the success of students who aspire to earn bachelor's degrees.

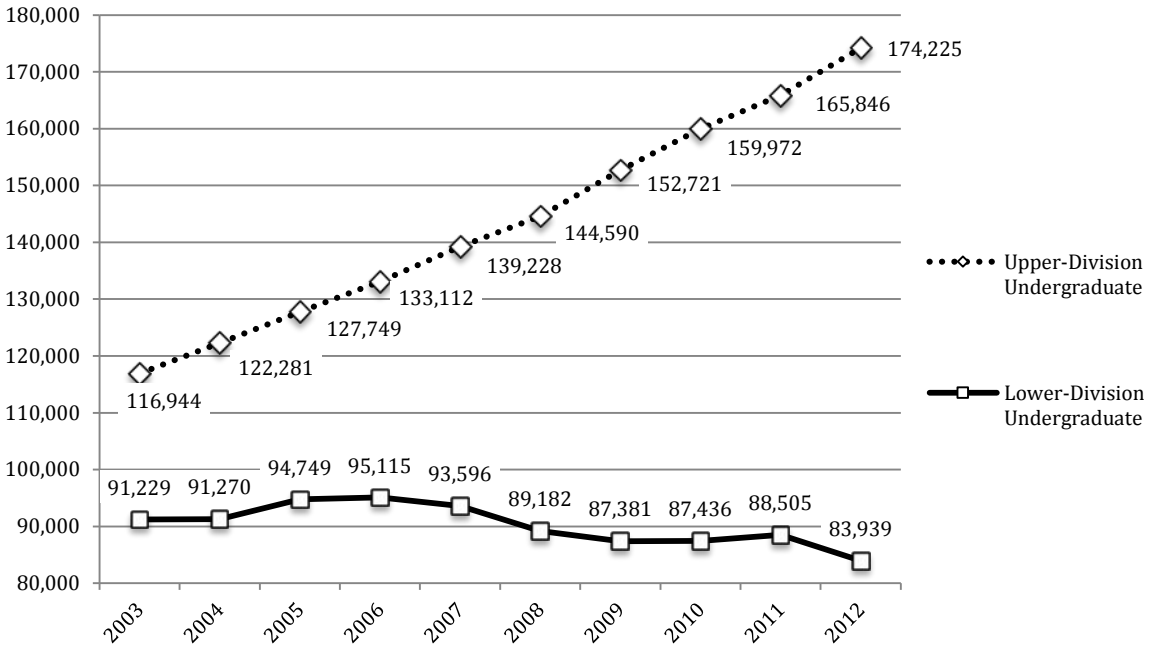
Bailey and Morest (2006) provided examples of the current challenges that community colleges face, including declining state funding, increased accountability measures, industry-based certifications, for-profit higher education, distance education, and the vocationalization of community colleges. The argument that vocationalization is a threat to the equity agenda again shows how baccalaureate-focused the community college mission has become. The diversion of students into vocational programs has been a reoccurring theme in the literature on community colleges since scholars began writing about the institutions, although these researchers have different perspectives on the need to divert versus the need to provide opportunity for some programs that will lead

to economic opportunities (Clark, 1960; Eells, 1939; Gleazer, 1994; Zook, 1922). The effects of the blurring of terminal and transfer functions may be twofold: one effect is to increase the possibility that students in collegiate workforce programs will be able to continue with their education; and the second could be a more conspicuous version of cooling student aspirations.

Morest (2006) cautioned that the mission of equity for community college students was threatened because of the increased emphasis on baccalaureate attainment and the increased dependence on students to pay their own tuition. The increased cost of tuition at universities has created a situation in which community colleges are seeing increased proportions of traditional college age students opt for less expensive educational alternatives. Morest (2006) noted that between "1993 and 2001, the proportion of public two-year students between the ages of 18 and 24 grew by 7%, so that now more than half (54%) of the students fall into this age range" (p. 30). This trend was practically identical in the first decade of the 21st Century at FCS institutions. From 1999 to 2009 the proportion of students 24 years and younger at FCS institution in the lower division increased by nearly 8%, rising to 54.6% (FCS, 2011c, p. 4).

More evidence of this threat to the equity agenda can be viewed in the enrollment figures for community colleges and universities in Florida. Between 2003 and 2012, the proportion of lower division students enrolled at state universities dropped from approximately 44% to less than 33% (Florida SUS, n.d). There was nearly a 49% increase in upper division students between 2003 and 2012, bringing the proportion of upper divisions students to more than 67% of undergraduates at state universities (FSUS,

n.d.). Figure 8 shows the shift in proportion of upper and lower division enrollment at state universities in Florida.



Note. Lower division students are freshman and sophomores; upper division students are junior and seniors at a Florida public university. Data derived from degrees and enrollment information in the Florida State University System Interactive University Data System (n.d.)

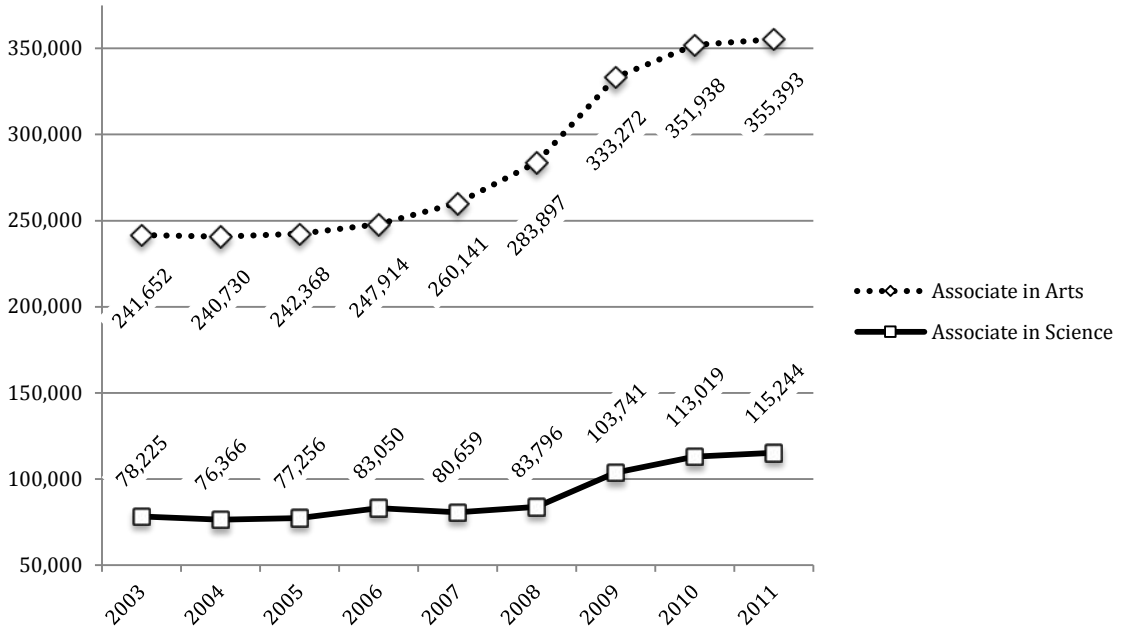
Figure 8. Fall Term Undergraduate Enrollment at State Universities in Florida by Level: 2003-2012

For a number of reasons, not all students who are enrolled in FCS institution associate degree programs would be able to begin their educations at state universities. However, the dramatic increase in students in associate degree programs coupled with the decrease in enrollment in the lower division and increase in upper division at state universities indicates that students are increasingly opting to begin their college life at the

community college. Financial reasons may play a big part in the shift of the traditional age student proportion to community colleges. Although there has been an increase in tuition and fees at all public colleges and universities in Florida, 2013-2014 tuition at community colleges is close to half of the average at state universities (FCS, 2013c). Students are taking on more of the burden of financing their education and "also take full responsibility for determining how they will use the institutions" (Morest, 2006, p. 31).

Along with the decrease in the enrollment of lower division students at state universities, there has been a dramatic increase in enrollment at community colleges within collegiate workforce and collegiate transfer degrees. Between 2003 and 2011, enrollment in associate in arts and associate in science programs increased by more than 47% at FCS institutions.

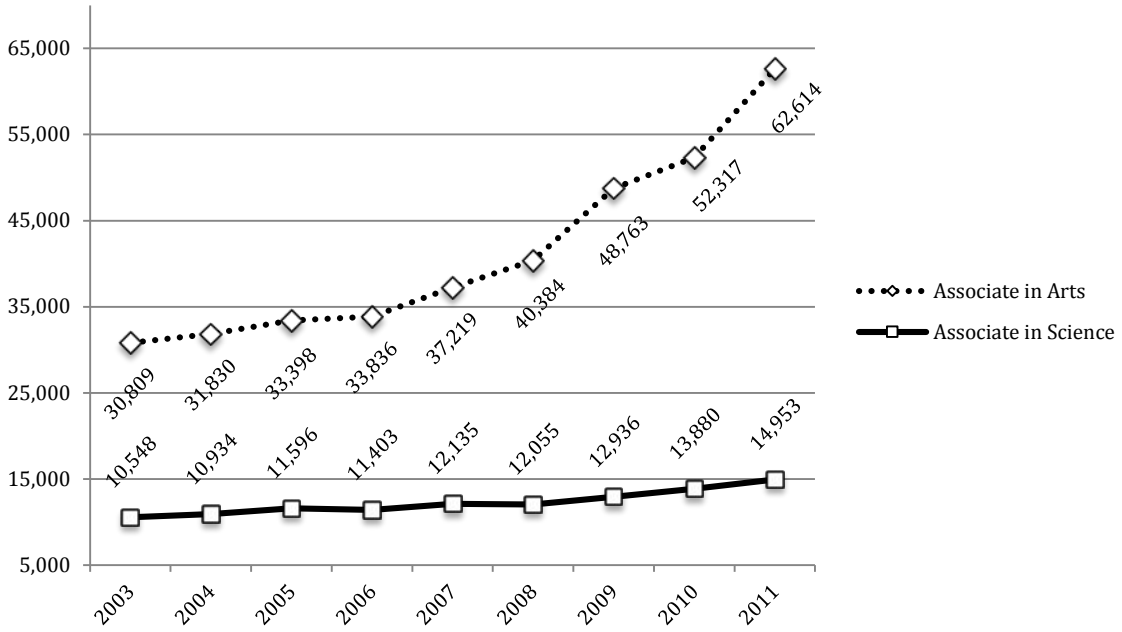
The data presented in Figure 9 presents the total enrollment in associate in science and associate in arts degrees between 2003 and 2011. Although enrollment in workforce and transfer programs increased at about the same rate, the number of degrees conferred for collegiate workforce programs increased by approximately 42%. Collegiate transfer program degrees more than doubled between 2003 and 2011. What these data do not show is how many students changed majors because of graduation or changed their plans after discussing goals with academic advisors.



Note. Students may have enrolled in more than one program. Source: Florida College System Fact Books (2005-2013)

Figure 9. Associate Degree Program Enrollment at FCS Institutions: 2003-2011

Figure 10 shows the number of associate degrees awarded between 2003-2012 at FCS institutions. It is not clear whether the dramatic difference in degree completion between programs is because of attrition within workforce programs or significant number of students changing to the collegiate transfer programs prior to completing the workforce degree. In addition, students who complete workforce AS degrees can continue on to complete the collegiate transfer degree. If students who complete an AS degree are continuing on to complete AA degrees, there may be some concern about the effectiveness of the career ladder articulation agreements in Florida.



Source. Florida College System Fact Books (2005-2013).

Figure 10. Associate Degrees Awarded at FCS Institutions: 2003-2011

The Influence of Institutional Capacity on Student Degree Aspirations

Increased accessibility to bachelor degree programs may impact students' desires to earn higher degrees. When junior colleges were being established in the first part of the 20th Century, the creation of a new institution had a notable impact on individuals as they acted on degree aspirations by enrolling in the colleges. Fields (1962) observed that high school graduates within the geographical area of the new institutions were almost twice as likely to attend college as individuals who lived in a community where there was no local institution. Similarly, offering higher degrees may encourage higher degree aspirations and motivate students to enroll in baccalaureate programs now being offered at the community college. Koos (1923) claimed it was more appropriate for junior

colleges to offer a variety of vocational programs and career training than it was for universities. University students could not be "induced to enter such [vocational] curricula if offered, because of the loss of caste in aspiring to less than the highest [degree] available and aimed at by other students in the same institution" (Koos, 1923, *p* 23). Although Koos's assertion was that students would only aspire to the highest degree offered by the university, this logic, in his mind did not apply to junior college students. There are students who utilize community colleges to complete programs that are not the highest degrees that are offered, but it remains to be seen if the inclusion of a higher degree than has ever been offered at a community college will influence student aspirations in this manner.

This new institutional capacity may impact student enrollment at universities through what Tinto called the substitution effect. Tinto (1975) found that even if students were capable of attending the university, students in close proximity to community colleges would substitute the local institution for attendance at the university. Access to bachelor degree programs at community colleges may divert some students away from the university to complete a bachelor's degree whether or not they were capable of more traditional transfer and perhaps to the detriment of their ultimate educational goals. Should students want to utilize this new route to graduate education, their decision to pursue a bachelor's degree at a community college may negatively affect their chances of matriculation.

Researchers have shown that students attending a community college are less likely to transfer and complete a bachelor's degree (Alfonso, 2006; Dougherty, 1991;

Dougherty & Kienzl, 2006). It will be interesting to see if moving the degree to the institution will mediate the negative effects on bachelor degree attainment and if the difficulties associated with transfer experienced by students linger when students attempt to transition to graduate studies at a university after completing a community college baccalaureate degree.

One last impact of this new institutional capacity relates to dormant aspirations of place-bound students. Approximately 70% of students in state college baccalaureate programs in 2010-2011 were age 26 and older (FCS, 2012b). These students may have completed associate degrees many years prior and are just now gaining access to baccalaureate programs that allow them to act on those aspirations. The new degree may rekindle their aspirations and spur the development of their action goals to complete a baccalaureate degree. The influence of institutional context has been noted to contribute to college student degree aspirations, and community college attendance has been found to correlate with lower-level students' degree aspirations (Carter, 1999, 2001). As more options become available to community college students to continue on toward higher degrees, it will be interesting to see how student degree aspirations are influenced.

Research on College Student Degree Aspirations

The study of college student degree aspirations in higher education has been closely linked with the literature on educational and occupational attainment starting in the 1960s. Theories on status attainment by researchers such as Blau and Duncan (1967) and Sewell et al. (1969) have been frequently cited and used as a conceptual framework for research on student degree aspirations (Carter, 2001; Laanan, 2003). Status

attainment links social origins to occupational goals. Individuals who come from higher social origins will ultimately aspire to higher status occupations and receive encouragement from others with social origins relative to themselves (Blau & Duncan, 1967; Laanan, 2003). Criticism of the status attainment model developed by Blau and Duncan include the ultimate dependence on father's occupational prestige and lack social psychological variables that may mediate the impact of social status such as self-concept, expectations, and experience of success or failure (Sewell et al., 1969).

A general attainment model was an extension of the occupational and status attainment literature "in which attainment is assumed to be preceded chronologically and causally by aspirations and plans" (Hearn, 1987, p. 122). Initial aspirations of students have been shown to have a significant effect on later educational plans and degree attainment (Astin, 1993; Carter, 2001; Hearn, 1987; Pascarella, 1984; Walpole, 2003; Wang, 2013). Studying attainment along with degree aspiration is a logical connection in that individuals must first want or dream to accomplish their goals before achieving them. Aspirational level setting is also impacted by individual success and expectations based on previous experience. For example, research on first-time-in-college students has shown that those students who performed better in high school had higher degree aspirations in college (Adelman, 2006; Laanan, 2003).

Researchers focusing on college student degree aspirations have used surveys to gauge students' hopes, wishes, or plans with regard to their education. National longitudinal surveys such as the Beginning Postsecondary Students Longitudinal Study (BPS), the Education Longitudinal Study (ELS) from National Center for Education

Statistics, and the Cooperative Institutional Research Program (CIRP) Freshman Survey (previously known as the Student Information Form) and its follow up surveys from UCLA's Higher Education Research Institute have been used for research on college student aspirations (Carter, 2001; Dougherty & Kienzl, 2006; Laanan, 2003; Wang, 2013). Measures used in the literature include "aspirations, educational plans, intentions, wishes, satisfaction, and expectations" (Carter, 2001, p. 13), and researchers have explored various factors that impact "the highest degree students want to earn; the highest degree students realistically expect to attain; the degree to which students intend or are determined to attain their degree goals; and obstacles that may interfere with students realizing their goals" (Carter, 2001, p. 13). Researchers have taken a sociological approach to exploring variables that influence college student degree aspirations, often taking into consideration demographics, SES, and previous academic achievement along with other variables of interest to the studies.

The benefit of using national datasets to conduct research on degree aspirations includes the detail of the surveys in regard to demographics, ability to review trends within a sector of higher education nationally, and the ability to determine how aspirations impact student attainment over time. However, when conducting research between sectors such as the comparison of the effects of degree aspirations for students at four-year colleges and community colleges, data analyses can be difficult due to the various academic goals of students attending the different institutions. Researchers attempt to control for initial student degree aspirations when analyzing data from the different sectors. Doing this will allow researchers to look at students who are aiming for

similar goals, but it may not provide a clear picture as to how community college students utilize the institution on the way to completing their ultimate education goals.

For example, a 2011 NCES report showed that regardless of students' initial programs when they first enroll, a large percentage of students aspire to baccalaureate and graduate degrees. Data from this report show that approximately half of all students that enroll in certificate degree programs aspire to earn a baccalaureate degree or higher, and that almost 85% of students that enrolling in associate degree programs aspire to earn baccalaureate degrees or higher (NCES, 2011, Table 1-B). Investigating associate degree-seeking students as a group, however, still does not tell the whole story given the variety of degrees and the purposes that these degrees serve. Although most of the NCES research reviewed for this report did not account for differences in degree programs for community college students (exception being Kujawa, 2013), valuable lessons can be learned from reviewing the literature on degree aspirations for students attending any sector of higher education.

Carter's 2001 research into the degree aspirations of African American and White college students served as an excellent resource for a review of the literature on college student degree aspirations. In her study, she provided a comprehensive list and review of aspirations studies from the late 1960s through the end of the 20th Century. The following section contains a review of Carter's theoretical model and literature relevant to factors in the model on college student degree aspirations.

Theoretical Model for College Student Degree Aspirations

Carter (2001) expanded on her previous study (Carter, 1999) to examine the impact of pre-college characteristics, in-college experiences, and institution type on the aspirations of African American students as compared to White students. Carter's (2001) model of factors influencing college student degree aspirations has four conceptual groupings including: (a) pre-college characteristics, (b) initial degree aspirations and goals, (c) institution characteristics and external-to-campus involvement, and (d) academic achievement. For her 2001 study, Carter explored these factors as measured by two different instruments (BPS: 90/92 and CIRP: 88/90) and examined how differences impacted the levels of aspirations for beginning students at non-profit public four-year and two-year institutions. By examining the two datasets, it was possible to identify elements in each dataset and their differing contributions to degree aspirations.

Within the conceptual framework, the following pre-college characteristics were considered: the demographics of students, pre-college academic achievement, support from family and others, and knowledge of degrees and career paths. Initial aspirations and goals included intellectual self-confidence, institutional choice, degree aspirations, and career goals. The factor described as institutional characteristics and external-to-campus involvement reviewed had three components: (a) the structural characteristics of the institution such as size, control, and selectivity; (b) institutional contexts such as financial aid, campus climate and student involvement; and (c) external contexts including employers and family (Carter, 2001). Finally, college GPA represented academic achievement in Carter's 2001 research.

In her 2001 research, Carter explored how the ideas of merit and ascription influenced student degree aspirations, institutional characteristics, and experiences that were unique to African American students in higher education. Aspects of merit related to socialization and the idea that students control their destiny by the actions they take. Ascription related to ideas of social allocation and constraints on individual success based on social characteristics. Institutional environments can impact degree aspirations and have the potential to limit student attainment depending on the students' characteristics and their ability to integrate into the culture of the institution.

Carter (2001) concluded that African American and White students had comparable initial degree aspirations, but the correlation of initial and third-year aspirations were much lower for African American students. The lower correlation of third-year degree aspirations for African Americans provided evidence that institutional characteristics and social experiences had strong influences on degree aspirations. That being said, initial degree aspirations were still found to be a strong predictor of later aspirations. The design of Carter's study allowed for the researcher to compare responses that were similar using two different national surveys. She found that the two datasets had different variables that contributed to students' aspirations.

Although Carter was able to answer her research question as to how different instruments measure similar independent variables in relation to a similar dependent variable, the results of the separate regression analyses were not intended to be comparable to each other. In addition to the difference in wording of the similar survey items that were on each instrument, two completely different populations completed the

surveys. Carter (2001) noted that "The CIRP samples were more traditional-age (attending college a year or two after high school graduation), more HBCU attendees among the African American students, and CIRP student tended to have more postsecondary institutional choices that the students in BPS" (p. 120). Regardless of the differences in population, Carter examined the similar items on each survey and each dataset separately to come to a number of conclusions. "The use of both data sets (and therefore both samples) informs the understanding of degree aspirations that the use of only one data set cannot" (Carter, 2001, p. 121).

Within the BPS and the CIRP data, Carter (2001) found that, overall, the percentage of students who aspired to earn a baccalaureate degree or higher decreased from the precollege measure to the third year measure. Carter first reviewed the base regression model, which included items that were similar to each dataset. She found initial educational plans were the only significant predictors of degree aspirations for both Black and White students across the two different datasets (Carter, 2001, p. 86). The lack of similar predictor variables and some cases of variables having different directional pull may be attributable to the different populations that responded to the survey. This could also be a function of the wording and responses of the survey items.

In reviewing the full regression model for the BPS and CIRP datasets, which included the base model and all the remaining variables, the strongest predictor for Black and White students on third year degree aspirations was students' initial aspirations. Other strong positive predictor variables within the BPS data for both Black and White students included mother's educational attainment, attending a four-year institution, and

attending larger institutions (Carter, 2001). Results from the full regression model for the CIRP data showed only initial educational plans, and students who attended their second choice school had significant influence on both Black and White student degree aspirations (Carter, 2001, p. 107).

Interestingly, the CIRP analysis showed attending the school that was their second choice became a significant predictor of student degree aspirations in the full model. The second choice variable was a significant predictor for Black and White students in the full model when other significant variables such as participating in work study, having increased peer contact, and stronger GPA were included in the model. This would suggest that as students become more integrated into the institution and have success, they in turn have higher degree aspirations. Additional results of this research are incorporated in the following discussion of Carter's theoretical model as it relates to the proposed research.

Carter's theoretical model of factors influencing college students' degree aspirations has been utilized as a framework for other research (Pascarella et al., 2004) and is the revised conceptual framework used within the present research. That Pascarella et al. (2004) found similar outcomes to the variables within the framework utilizing data from the National Study of Student Learning is an indication of the resilience of the theoretical model. The researchers noted, "nontrivial differences in the samples" (Pascarella et al., 2004, p. 313). They also found "general, if not total, consistencies between our findings and those of Carter" (Pascarella et al., 2004, p. 313). The following section contains a review or literature related to each of the factors within

Carter's framework. Basic information about the articles reviewed for this section is included in Appendix B.

Pre-college Student Characteristics

In her research, Carter (2001) used demographic variables as a base model to review student degree aspirations. Carter's analyzed how initial aspirations, institutional characteristics and external-to-campus involvement, and academic achievement in college influenced student degree aspirations above and beyond the influence of pre-college characteristics. All of the research reviewed took into account a number of pre-college, most notably demographic characteristics of race (Alexander, Boznick, & Entwisle, 2008; Antonio, 2004; Carter, 1999; Pascarella, Wolniak, & Pierson, 2003; Pascarella et al., 2004) and socioeconomic status (Laanan, 2003; McCarron & Inkelas, 2006; Walpole, 2003; Wang, 2013) were found to be significant contributors to degree aspirations. The role of parental education, the influence of significant others, gender, and age also contributed to the understanding of degree aspirations.

Race and Ethnicity

Race has been a frequently studied variable in the literature on higher education in general. Though it was not the major focus of all the degree aspirations studies reviewed here, all of the articles included the variable within their statistical models. Along with Carter's previously reviewed 2001 research, three articles focused on how race or ethnicity impacts the development of educational aspirations (Alexander et al., 2008; Carter, 1999; Pascarella et al. 2004). These researchers found that African American

students had higher initial degree aspirations and they maintained degree aspirations longer than White students. Many other researchers reported some findings about race.

In recognition of the positive impact of degree aspirations on attainment and the gap in achievement of African American students, Carter (1999) set out to determine if there were differences in the aspirations of African American and White students. Carter (1999) analyzed data from the BPS: 90/92 national surveys gathered from a final sample of 347 African American and 3,720 White students from public and private of two- and four-year institutions. The results of a regression analysis confirmed that initial aspirations were predictors of aspirations measured at a later time period, but there were differences among White and African American students. African American students had significantly higher initial and third-year degree aspirations.

Pascarella et al. (2004) studied end-of-third-year college student degree aspirations at 18 different four-year institutions. This longitudinal study sought to identify significant differences in graduate degree aspirations between African American, Hispanic, and White students. Using Carter's framework, Pascarella et al. (2004), explored variables that had conditional effects for the various subgroups in their research. To accomplish this, Pascarella et al. (2004) first ran a regression model with the entire sample and then ran the same test separately for African American, Hispanic, and White students. In comparing the results of the three separate tests, the researchers were able to identify different conditional variables that significantly impacted college student graduate degree aspirations.

The results of the combined regression analysis indicated that respondents significantly lowered their graduate degree aspirations (Pascarella et al., 2004). However, the researchers were able to differentiate between the subgroups and concluded that African American and Hispanic students' were significantly more likely than White students to maintain graduate degree aspirations through the first three years of college. Pascarella et al. (2004) stated, "The odds that African American and Hispanic students were planning on earning a graduate degree were more than twice as high as their White counterparts" (p. 307). Within the combined sample, African Americans were 2.4 times more likely, and Hispanic students were 2.2 times more likely to have plans to attend graduate school than White students at the end of their third year.

Alexander et al. (2008) used longitudinal data for a study of the bachelor degree aspirations of low-income, primarily minority youths in Baltimore. The research was conducted to examine the educational expectations of 790 students at three points: when they were seniors in high school, at age 22, and at age 28. Compared to national samples, students in this research have relatively low degree aspirations. Alexander et al. reported that only 48% of students expected to complete a baccalaureate degree. In reporting on other research conducted around this same time period, NCES (2011) indicated that bachelor degree aspirations exceeded 80% for 18-year-olds. Confirming the research of Carter (2001) and Pascarella et al. (2004), Alexander et al. (2008) found that African American students had significantly higher degree aspirations than White students when measured at age 22 and age 28.

Socioeconomic Status

Another common variable reviewed in the research on college student degree aspirations is socioeconomic status. Within the literature there is evidence that higher SES contributes positively to college student degree aspirations (McCarron & Inkelas, 2006; Pascarella et al., 2003; Pascarella et al., 2004; Walpole, 2003; Wang, 2013). Walpole studied the impact of SES on student degree aspirations, degree attainment, and subsequent income levels. Her article was included in the aspirations studies reviewed for this research, because aspirations were a key component of her research questions and the dependent variable, graduate school attendance, related to respondents' ultimate educational goals.

Walpole (2003) found that 52% of high SES students had attended graduate school but only 36% of low SES students attended graduate school in 1994. Furthermore, the data indicated that 29% of high SES students had earned a master's degree or higher and approximately 15% of low SES students earned a master's degree or higher. Although there was a sharp difference in the attainment and attendance patterns of high and low SES students in graduate schools, the percentage of high SES students planning on attending graduate school was approximately 74% compared with 65% of low SES students. These data seem to indicate that although students plan on attending, or aspire to attend graduate school in similar percentages, attainment and attendance for students with high SES has outpaced low SES students.

The role of significant others

Sociological models of degree aspiration and student college choice have been used to determine the influence of significant others in regard to encouraging students to enroll in college. According to Carter (2001), parental education has been found to contribute significantly to higher degree aspirations. The role of significant others can be powerful, and the encouragement they provide is based on their understanding of the students' academic abilities, motivations, and desires (Sewel et al., 1969). The role that parents play in shaping degree aspirations seems particularly evident in the literature on degree aspirations.

Part of this influence on degree aspirations is no doubt attributable to parent experience within higher education. Carter (2001) found that students have higher degree aspirations when their mothers have more experience in higher education. Additionally, Laanan (2003) found that higher levels of father's and mother's education contributed to two-year college student degree aspirations. Wang (2013) found that parental expectations indirectly influenced degree aspirations for students in their sophomore year in college by having a direct influence on their initial degree aspirations, and initial degree aspirations were significant predictors of later degree aspirations.

McCarron and Inkelas (2006) explored the influence of parental involvement on college student degree aspirations beyond the influences of demography and academic performance. The researchers used degree aspirations for students in 1990 when they were sophomores in high school and considered the differences in aspirations and college attainment eight years beyond high school graduation (McCarron & Inkelas, 2006). The

regression tests explained a modest amount of the variance in degree aspirations. However, parental involvement was found to make significant contributions to the model for both first-generation students and non-first-generation students.

Behnke, Piercy, and Diversi (2004) studied the aspirations of Latino immigrant families, interviewing 10 sets of parents and their oldest child to determine "to what extent aspirations transfer within families, and how parents foster the aspirations of their youth" (p. 18). In their qualitative study, Behnke et al. found that parents' aspirations for their own education seemed to align closely with their youth's aspirations. However, parents generally had higher aspirations for their youths than did the youths.

Antonio (2004) studied degree aspirations in relation to the influence of peer-group characteristics at a university in California. Antonio (2004) noted that other research has been conducted on the influence of peer groups, but the focus had been on institution-wide student characteristics rather than individual students' actual friends. Antonio (2004) reviewed the effects of peer group socialization utilizing Weidman's (1989) model of socialization in college to determine if there was an impact of a student's friendship groups, on their own perception of intellectual self-confidence, and on their degree aspirations. The characteristics of the group, including the group's composite level of intellectual self-confidence, degree aspirations and the ethnic diversity of the group, were considered in the analysis. Antonio (2004) found that a group's self-confidence and degree aspirations had opposite effects on white students and students of color. Likewise, the diversity of friendship groups also had opposite effects. "For white students, those who have a higher degree of diversity in their friendship group tend to be

less self-confident and have lower educational aspirations. . . . For students of color, diversity is associated with enhanced self-confidence and aspirations" (Antonio, 2004, p. 459).

Gender and age

Though gender and age were taken into account for the literature reviewed, the impact of these variables was reported less often. Alexander et al. (2008) found that females had higher degree aspirations as they age, and this was a significant predictor of aspiring to earn a bachelor degree by the age of 28. Laanan (2003) also found that females at community colleges had higher degree aspirations, but the impact of age was reported sparingly. This could have been because a lot of the research focused on first-time, full time students. Although Alexander et al. (2008) found otherwise, more often there was indication that age contributed negatively to college student degree aspirations (Carter, 1999; Laanan, 2003; Pascarella et al., 2004).

Initial Degree Aspirations

The strongest predictor of degree aspirations measured at some point after college matriculation have been found to be initial degree aspirations. Approximately half of the researchers, whose articles were reviewed, noted the significant impact of initial degree aspirations on later aspirations. However, aspiration levels measured at different times for different groups of students did not always correlate highly. In both BPS and CIRP datasets, Carter (2001) found that initial aspirations and third year aspirations for African Americans had a lower correlation than did the aspiration levels for White students. This

indicated "It is more difficult to predict third year degree aspirations for African Americans students than for White students" (p. 70). In other words, there were more African Americans who raised and lowered their aspiration levels between the two measurements.

In two recent studies, Pascarella and associates reported significant influence of initial degree aspirations. Pascarella et al. (2004) found that the strongest predictor of graduate degree plans after three years of college for Black, Hispanic, and White students was pre-college plans for a graduate degree. Overall, students who had pre-college plans to attend graduate school were more than 12 times as likely to have graduate degree plans at the end of their third year. Pascarella et al. (2003) found that pre-college degree plans were a significant predictor of end-of-first-year degree plans.

Clark's (1960) cooling out theory was used in two studies to investigate how well students maintained degree aspirations over time (Alexander et al., 2008; Conway, 2010). Alexander et al. (2008) explored how degree aspirations changed over time in relation to students' sociodemographic resources, their academic resources, and postsecondary experience. The researchers hypothesized that students with lower family income and initially high degree aspirations would lower their aspirations over time; and that students with higher family income and initially lower aspirations would increase their degree aspirations over time. Although the patterns of warming and cooling of aspirations were as the researchers expected, the majority of students maintained steady aspirations at least through age 22. One more surprise finding was evidence that community colleges helped hold aspirations steady in that, "Almost two-thirds of the high intensity two-year college

enrollees held steady at age 22 and more than 40% still expected bachelor's degree at age 28" (Alexander et al., 2008, p. 381).

Conway (2010) studied student aspirations as defined by degree type. Her research used Clark's cooling out process as a framework and to determine if the process still occurred. She found that among students who initially declared a collegiate transfer major, 34% of all students later changed their major to a terminal degree and, therefore, cooled their degree aspirations. The results of this study were difficult to interpret, as the dependence on the changing the major to determine student aspirations seemed presumptive. Intermediate goals of students that Conway labeled as cooled out may be lower than initial aspirations, but it is unclear that a student's switching from a collegiate transfer to a collegiate workforce degree means that a student no longer desires to earn a higher degree.

Walpole (2003) reported the following significant factors that positively impacted graduate school attendance for both high and low SES: college GPA, having intrinsically oriented reasons for attending college, and intermediate degree aspirations and plans to attend graduate school. Interestingly, Walpole (2003) reported that although intermediate degree aspirations were significant predictors of graduate school attendance, initial degree aspirations for low SES students did not significantly impact graduate school attendance. This may indicate that college environments impacted degree aspirations for these students.

Institutional Characteristics/External-to-campus Involvement.

A number of the studies reviewed were conducted to compare differences in two- and four-year college student degree aspirations (Alexander et al. 2008; Carter, 1999, 2001; Leigh & Gill, 2004; McCarron & Inkelas, 2006). This type of comparison can be troublesome because of the variety of short-cycle certificate programs and workforce degrees that students enroll in at the community college. Even if samples are controlled for by initial aspirations, comparing community college students to four-year college students without regard for their degree type can mask some important issues. For example, students who pursue college credit certificates that indicate they want to earn a bachelor's degree or higher may be thinking far off in the future. Likewise, students may change their educational plans after attending or completing a certificate program. However, the findings of the researchers generally coalesced around lower aspirations for students who attended community colleges.

Institutional characteristics

Carter (1999) found that two institutional characteristics, attendance at large institutions and at four-year institutions, impacted degree aspirations of all the students in the sample. In addition to these two elements, African American students were more likely to have higher degree aspirations if they attended postsecondary institutions with higher percentages of African American enrollment. Carter's results of her 1999 research indicated lower degree aspirations for students who attended community college compared with students at four-year institutions. Carter (1999) concluded that characteristics of institutions can constrain or develop student degree aspirations, and that

it is important to consider these institutional elements when designing programs to increase student success in college.

Leigh and Gill (2004) tested for changes in aspirations in two-year and four-year college students and found that overall approximately half of the students who responded changed their aspirations over the three-year time period. The researchers concluded that once students enrolled in colleges, they generally increased their educational aspirations. This was true for community college students and four-year college students who had increases of 37.7% and 34.6% respectively. Leigh and Gill found, however, that a larger percentage of community college students (23.1%) also lowered their degree aspirations than did four-year college students (19.9%).

Laanan (2003) compared the aspirations of two-year college students at public vs. private institutions to better understand the factors that may impact aspirations of students at the two types of institutions. Laanan (2003) framed his study using Blau and Duncan's (1967) status attainment theory and Weidman's (1989) theory of socialization in college. There was some evidence in the sample that students from higher SES had higher aspirations, although factors such as admission requirements and parents educational level were also related to SES and contributed to the higher aspirations. Laanan (2003) found that more than half of the students aspired to baccalaureate degrees, and about 35% aspired to graduate degrees.

Laanan reviewed data collected through the CIRP survey, Student Information Form (current version of this survey is The Freshman Survey) and identified the dependent variable as "highest degree aspirations planned" (p. 502). The instrument had

two items that measured aspirations, highest degree planned at "*this* institution" and highest "degree planned *overall*" (emphasis in original) (p. 512). Although the researcher identified several factors that had a significant relationship to student degree aspirations, the model could explain 15% of the total variance in degree aspirations. Perhaps this is because large sample sizes (more than 13,000 responses in this study) tend to show significance even when there are small differences overall.

Pascarella et al. (2003) studied end-of-first-year community college student degree aspirations for students at five different community colleges. In their research, they explored variables that significantly altered students' educational plans over the first year, and whether the factors that influenced changes were general or conditional (Pascarella et al., 2003). The final sample consisted of 285 students who participated in the initial (1992) and follow up (1993) surveys (p. 302). Pascarella et al. (2003) found that factors influencing the total sample (general effects) were different than those influencing degree aspirations of subpopulations within the sample (conditional effects). The results indicated that utilizing a single model of degree aspirations for all students, between- and within-institutions, masked some variables' significant effect on subpopulations, i.e., race and gender.

Pascarella et al. (2003) performed two different hierarchical regression tests, an ordinary least squares for estimated influence on highest degree aspirations (1 = no degree through 6 = doctoral or equivalent), and a logistic regression that explored the influence on community college students' baccalaureate degree aspirations or higher. Three variables had a significant impact on baccalaureate degree aspirations. Pre-college

degree plans and the average pre-college degree plans of students who attended community colleges were positive influences on baccalaureate aspirations. The third significant variable was the number of mathematics courses taken which was found to have a negative impact on degree aspirations.

The researchers also investigated conditional effects on certain variables by using a set of cross product terms to compare race, gender, and pre-college plans for differences in how the variable influenced degree aspirations. Conditional effects were found for variables that were not significant contributors to degree aspirations in the regression model. For example, completion of term papers was found to be non-significant in the regression models. When, however, the influence on degree aspirations was considered separately for race, there was a significant negative impact on students of color and a significant positive influence on white students. Likewise, mathematics courses completed were found to be a significant negative influence on degree aspirations in the full regression model; but when considered separately for gender, it appeared to only have a negative influence on females (Pascarella et al., 2003, p. 309).

Academic involvement and integration

According to Tinto (2012) academic involvement, or engagement, differs from integration. Integration implies an internalization of the "values and norms of a community" but "engagement implies no such internalization" (Tinto, 2012, chapter 5 notes, note 1). However, as students become more involved in programs at the college and with peers, faculty, and staff, it may be more likely they will integrate the values of the institution with their own. The proposed research utilizes academic integration as a

construct that includes students' engagement in activities on campus, interaction with peers and faculty, time and effort dedicated to schoolwork, and time spent on campus outside of class.

In several of the studies reviewed, interaction with faculty was found to be important to the cultivation and maintenance of college student degree aspirations. Walpole (2003) reported a number of integration variables that were significant predictors of graduate school attendance for low SES students, including working on professor's research, interacting with faculty outside of class, participating in collegiate sports, and earning a higher GPA. Carter (1999) found that interaction with faculty outside of class was a significant predictor of African American student degree aspirations. Given that Carter's (1999) research focused on students within their first two years of postsecondary education, it follows that the designed or encouraged interaction takes place early in students' academic careers.

In studying community college student degree aspirations, Wang (2012b) found that interaction with faculty outside of class on academic matters influenced the likelihood that students would maintain degree aspirations of a baccalaureate degree or higher. In another study utilizing the same dataset, Wang (2013) observed that motivation contributed to students' initial degree aspirations and increased their interaction with faculty and academic advisors. Confirming her earlier study, Wang (2013) noted that motivation was also linked to the increased likelihood "to utilize the internet and library resources to obtain necessary academic resources to enhance their chances of success" (Wang, 2013, p. 30).

Pascarella et al. (2004) found some conditional effects by race related to academic integration that had a positive impact on degree aspirations. A significant relationship was found for Hispanic students who reported more time spent studying but not for Black or White students. There were significant negative influences on degree aspirations for African American and Hispanic students who took technical and pre-professional courses, but that was not true for White students. There was also a significant negative association with degree aspirations for Hispanic and White students who took more mathematics courses, but this did not hold for African American students. Finally, there were mixed findings in regard to living on campus. Living on campus was found to have a significant negative influence on degree aspirations for African American students, a significant positive influence for White students, and only slight negative influence for Hispanic students.

External contexts, encouragement, and motivation.

Success depends on commitment to educational expectations and the encouragement of significant others, and the institutional support students receive can help them stay committed to their goals. According to Kujawa (2013), educational aspirations are malleable. Instead of focusing solely on outcomes of programs, institutions can focus on how to encourage students to aspire to completion of their degree and steps that follow. Kujawa studied how educational aspirations can be warmed by the addition of new articulation possibilities. She found that, by completing an associate in applied science (AAS) degree, participants in her study became more enthusiastic about going further with their education. She stated "Completing the AAS

first allowed for challenging their existing view of education, becoming engaged in their learning, and gaining confidence in their academic abilities" (p. 363). Some things institutions can do to encourage student degree aspirations include providing information on degree programs to which students can transfer after completion and focusing on classroom delivery methods that engage student learning (Kujawa, 2013).

Wang (2013) studied how baccalaureate expectations of college students at the end of their sophomore year were impacted by a variety of independent and mediating variables, in particular, parental expectations and students' motivational beliefs. She explored factors that contribute to changes in traditional age student degree aspirations, using data from the Educational Longitudinal Study (ELS) of 2002. The sample of students Wang studied were high school sophomores when they first responded to the survey in 2002; they responded again in 2004 and then in 2006 when they were sophomores in college. Considering this population, parental influences were likely to be a strong factor in pursing a college degree. Wang (2013) found that motivation was linked to higher initial degree aspirations and increased interaction with faculty and academic advisors. Motivation was also linked to the increased likelihood "to utilize the internet and library resources to obtain necessary academic resources to enhance their chances of success" (Wang, 2013, p. 30).

As Jalomo Jr. (2001) noted, community colleges are a "mosaic of first-year students from diverse backgrounds, with varied academic preparation and multiple educational goals" (p. 262). When considering the diverse student body of the community college it may not be just parental expectations that influence students'

degree aspirations, but external forces such as the expectations and support of family or the need to secure higher paying job.

Leigh and Gill (2004) discussed the benefit of the survey items used in their research to measure community college student degree aspirations. They used two aspirational questions from the National Longitudinal Survey of Youth (NLSY79): (a) "What is the highest grade or year in school. . . you would *like* to complete?"; and, (b) "As things stand now, what is the highest grade. . . you think you will *actually* complete?" (Leigh & Gill, 2004, p.96). The questions phrased in this manner had the potential to highlight potential barriers to attaining their goals.

Two other external forces identified in the quantitative research literature that have been noted as having some influence on college student degree aspirations were having children and being married. Carter (2001) found that having children had a significant negative influence on degree aspirations; and Wang (2012b) similarly found that being married had a significant negative influence on degree aspirations. Finally, in a qualitative research study of Latino immigrant families, Behnke et al. (2004) concluded that both parents and youths believed there were significant barriers to their educational aspirations such as lack of time to study due to work, lack of knowledge about educational paths, lack of ability to speak English, and perceived racial discrimination in the school system.

Academic achievement in college.

With the exception of findings in two studies, college GPA was not reported to be influential on college student degree aspirations. Carter (2001) observed that GPA was a

significant predictor of third-year college student degree aspirations for African Americans, but not for White students. Walpole (2003) noted the influence of GPA on the likelihood of graduate school attendance. The absence of college GPA within the statistical models, may be more reflective of the national datasets used in the research which may not always have contained the variable needed (Carter, 2001, p. 57). Other indications of academic achievement or struggles are the amount of credit earned, the need to take remedial coursework, or simply persisting to the third year in an institution to respond to a survey. Wang (2012b) found a significant negative influence of taking remedial reading courses on degree aspirations. Pascarella et al. (2004) found a significant positive influence in earning more credits for African American student degree aspirations.

Leigh and Gill (2004) determined that students with above-average academic ability (measured by the Armed Services Vocational Aptitude Battery) who enrolled in any postsecondary institution had higher degree aspirations compared to those with below average academic ability. Attendance at community colleges was found to be associated with slightly higher degree aspirations, but there was a slight decrease in the educational aspirations of high ability students who started at four-year colleges (Leigh & Gill, 2004). Although both results for changes in aspirations for high ability student were insignificant, this was given as evidence that community colleges did not cool out all students' aspirations. Perhaps the most critical finding was that for students of low academic ability, attendance at four-year colleges had significant positive effects on their

degree aspirations. In contrast, community college attendance had a non-significant influence on aspirations of students with low academic ability.

Being admitted into a college is an achievement that can be life changing, and first-generation college students have the chance to substantially change their families and futures as they take advantage of the opportunity for social mobility. In comparing aspirations and attainment for first-generation students, results presented by McCarron and Inkelas (2006) were revealing. The researchers reported that of the students who aspired to earn a bachelor's degree in 1990, approximately 38% attained the degree eight years after high school (p. 542). Students who aspired to a master's degree or higher were less likely to achieve the goals to which they aspired, as only 5.6% of students completed the master's degree eight years after high school (p. 542). However, a higher percentage of students (44%) who aspired to earn a master's degree had earned a bachelor degree eight years after graduation.

Review of College Student Degree Aspirations

Much of the research on college student degree aspirations has utilized national data sets administered to traditional age college students. Although this is an effective way to acquire a large sample size for quantitative research, the use of these surveys to compare students across sectors may not be the most appropriate way to study community college student degree aspirations due to the variety of reasons students attend the colleges. Research on college student degree aspirations has consistently focused on the relationship of initial aspirations and aspirations measured a later time (Alexander et al. 2008; Carter, 2001; Pascarella et al., 2003; Pascarella et al., 2004), the

likelihood that minorities report higher aspirations and maintain higher aspirations over time (Alexander et al. 2008; Carter, 2001; Pascarella et al., 2004), and the positive influence of significant others on initial aspirations (Antonio, 2004; Carter, 2001; McCarron & Inkelas, 2006).

There were some inconsistencies and conditional effects found in the research reviewed for the present study, including the influence of institutional characteristics. In particular, Carter (2001) found the influence of attending a community college to have negative impact on college student degree aspirations. Leigh and Gill (2004) disagreed, finding a positive influence. Interaction with faculty was found to have greater influence on minority students than White students (Carter, 1999; Pascarella et al, 2004). Academic achievement was also inconsistently reported with mixed results. GPA was found to be a significant predictor for degree aspirations of third-year students for African Americans, but not for White students (Carter, 2001). Credits earned were found to be a positive predictor of degree aspirations (Pascarella et al. 2004), but taking remedial courses had a negative influence on degree aspirations (Wang, 2012b).

Gaps in the Literature on College Student Degree Aspirations

The literature on college student degree aspirations has focused on quantitative analysis of national surveys. In utilizing the national surveys, researchers have frequently studied traditional age, first-time-in-college students. In addition, quantitative researchers have compared students who have similar degree aspirations, by aggregating all students within sectors of higher education who state they plan to attain a certain degree. There has been little differentiation between students' immediate and long-term

goals. By simply comparing all students who hope to earn bachelor's degree to each other, research between sectors and between institutions can be clouded by the differences in degree type and purposes of enrollment. There is a need to conduct more in depth research to compare students who have similar short-term goals.

By examining data from a single institution, with students who are in different types of associate degree programs, the researcher in the present study will attempt to address a gap in the literature on college student degree aspirations that has been overlooked, i.e., why students enroll in these programs and how their enrollment will help them accomplish their academic and career goals. In addition to investigating why students enroll in certain degrees, this research will be focused on another gap in the college student degree aspiration literature by reviewing the educational plans of non-traditional age students. The research will contribute to the literature of college student degree aspirations by exploring the characteristics of students who enroll in different degree types, the influence of academic integration and external forces that shape these students' aspirations, and how academic achievement of community college students may contribute to the desire to continue to higher degrees.

Summary

Over time, students have chosen to attend community colleges in higher numbers. It is critical that community colleges develop a better understanding of why these students choose to attend the institutions. By having a better understanding of the short-term goals and long-term aspirations of students, community colleges will be able to help them attain the degrees that will best suit them in their careers and lives. Many

community college students may enroll as a strategy to access baccalaureate education through articulation agreements. The options for baccalaureate education have now expanded for community college students as the institutions have now begun to offer baccalaureate degrees in high demand workforce areas. By focusing on applied workforce baccalaureate degrees, the systems may be de-valuing other degrees that students have earned. This credential inflation may be forcing students who hope to complete short-cycle programs to consider continuing their education to have an equal chance at careers that once only required associate degree-level training. However, it is not clear that these new degrees will ultimately help students reach their fullest potential. It remains to be seen if this new institutional capacity creates new opportunities or simply continues social stratification.

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

Introduction

College student degree aspirations have been found to be strong predictors of degree attainment (Walpole, 2003; Whitaker & Pascarella, 1994). At the same time, there is evidence that even after accounting for initial degree aspirations, community college attendance reduces the likelihood of attaining a baccalaureate degree (Alfonso, 2006). From an institutional perspective, college student degree aspirations are important to study in that by knowing the academic goals of students, institutions better understand why students choose to attend a community college. Understanding the reasons for student attendance is critical for institutions as they focus efforts on creating and enhancing programs that encourage students to maintain their aspirations and continue to strive to achieve their goals.

Context of Study

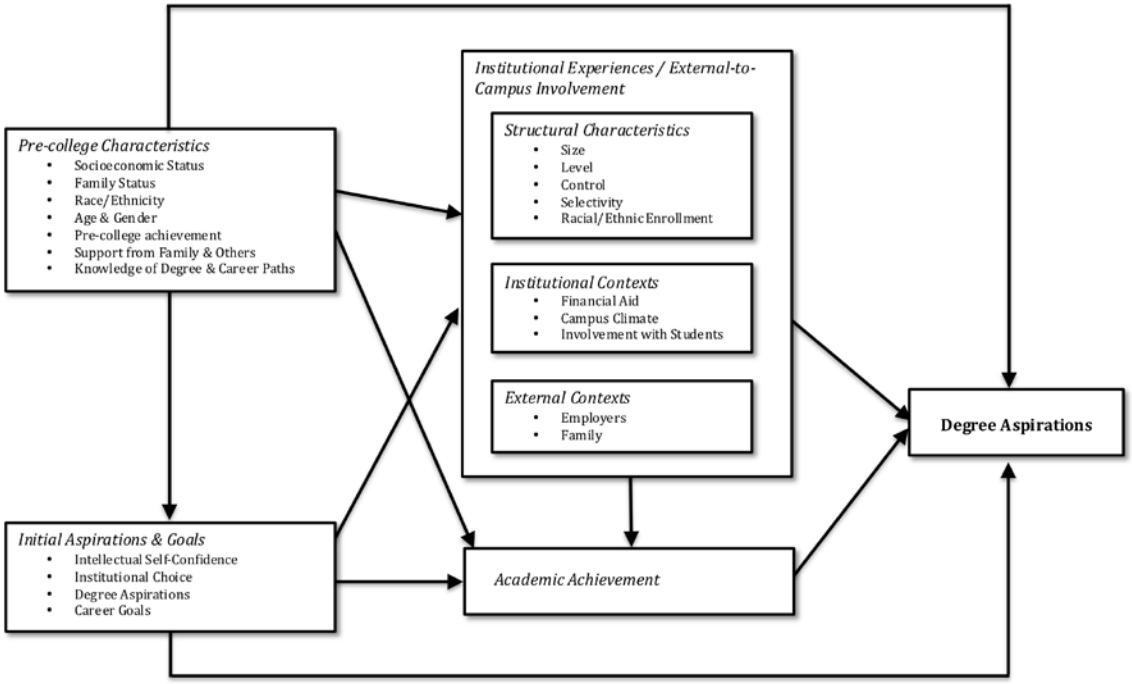
This research was conducted using secondary data from a state college, formerly a Florida community college, that had been authorized to offer baccalaureate degrees. Conducting this research using data from a state college allowed the comparison of a great variety of students in terms of demographics, academic history, and external responsibilities. By taking students' chosen degree type, age, external responsibilities, and their college academic achievement into consideration, the research provided insight into how students utilized the institution in their pathways toward their educational goals. Students who pursue more collegiate workforce programs typically have similar degree

aspirations as those students in collegiate transfer programs and ultimately benefit from expanded opportunities to achieve higher degrees.

The sample for the research was students seeking associate or baccalaureate degrees at a state college in Florida who answered an institutional survey of student engagement. Students pursuing an associate degree were considered due to their potential likelihood to either proceed directly to baccalaureate studies, in the case of the collegiate transfer student, or pursue a baccalaureate through a collegiate workforce articulated degree. As considerable effort has been invested in developing articulation agreements and state college baccalaureate degrees to incorporate workforce AS degree credits more effectively, determining whether the aspirations of these students align with the goals of the institutions and the state was of interest. Another aspect of this research considered the degree aspirations of nontraditional age students. The community college serves a diverse student population. By reaching beyond traditional age students, a more comprehensive understanding of the various goals of the students that attended the institution was obtained.

Description of Variables and Measures

Carter's (2001) theoretical framework for college student degree aspirations provided a set of variables to review in relation to the dependent variable. The independent variables that formed the factors in Carter's framework include (a) pre-college characteristics, (b) initial aspirations and goals, (c) institutional experiences and external-to-campus involvement, and (d) academic achievement. Figure 11 presents Carter's Theoretical Model of Factors Influencing College Students' Degree Aspirations.



Note. From *A dream deferred? Examining the degree aspirations of African American and white college students.* (p. 132), by D. F. Carter, 2001, New York, NY: RoutledgeFalmer. Copyright [2001] by Taylor and Francis Group LLC Books. Reprinted with permission.

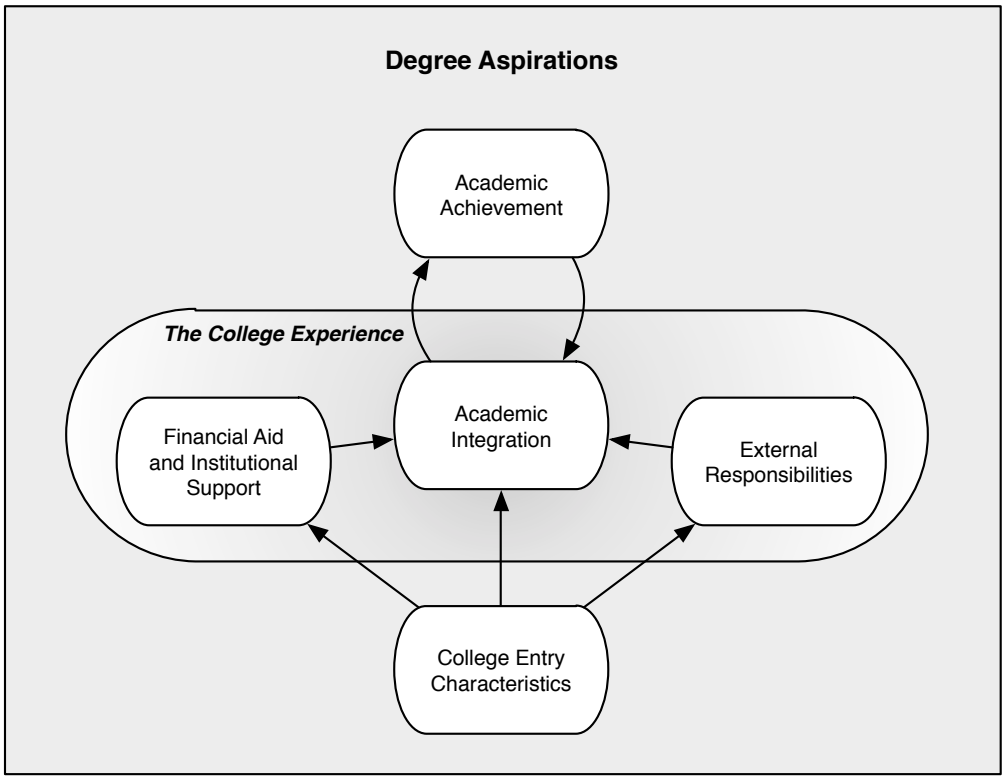
Figure 11. Theoretical Model of Factors Influencing College Students' Degree Aspirations

Although terminology may vary across studies, these factors are common within the literature on college student degree aspirations (Antonio, 2004; Laanan, 2003; Pascarella et al., 2004; Wang, 2013). The framework was used as a basis to develop a revised model to accommodate the diverse student characteristics affiliated with the community college and the recognition that many of the respondents may be long out of high school. The only aspects of Carter's (2001) framework that were not addressed in this research were students' degree aspirations over time in relation to their initial

aspirations. This variable is important to consider, but lack of longitudinal data prohibited its inclusion. However, the degree aspirations of students with a varying amount of accumulated credits were explored to determine if aspirations between student groups changed early compared to late in their educational careers. The revised framework designed for this research is presented in Figure 12. A list of the variables addressed on the institutional survey and a final list of variables used for the research appears in Appendix C. The subsequent sections present the modified framework, along with descriptions of variables that are included within the model and their relationship to the factors in Carter's (2001) framework.

Revised Theoretical Model of College Student Degree Aspirations

The model for community college student degree aspirations displayed in Figure 12 consists of five factors. Appendix D contains a tabular display of the revised model linking Carter's (2001) model and the variables that are applicable to factors within each model. Although Figure 12 has no arrows connecting any of these factors to degree aspirations, it is assumed that all factors influence student degree aspirations. Academic integration is the dedication students have for their studies. Persistence through higher education takes considerable effort and can be affected by institutional support and external responsibilities. Academic integration leads to students' academic achievement. Academic achievement is assumed to be a result of and a contributor to academic integration. Academic achievement will lead to degree attainment.



Note. © 2014 Mark Quathamer

Figure 12. Revised Model of College Student Degree Aspirations

Dependent Variable

The dependent variable for this research was the highest degree aspirations of students pursuing associate or baccalaureate degrees within the community college. There is considerable variation in the literature for the definition of this dependent variable. College student degree aspirations have been referred to as plans, hopes, intentions, likes, and expectations; operational definitions of the dependent variable frequently differ from what the survey item asks (for examples, see Appendix B). Descriptive statistics of all the variables have been reported with an indication if there are

any significant differences in the mean scores for the students seeking different degrees and for students depending on age groups.

To answer Research Question 1, a binary logistic regression was used. The statistical procedure was run multiple times for associate degree students who aspired to baccalaureate degrees or higher and for associate and baccalaureate degree students who aspired to graduate studies. For the first iteration of the test, the dependent variable was coded as 0 for bachelor's degree or less and 1 for a master's degree or higher. For the second iteration of the statistical procedure, the dependent variable was coded 0 for associate's degree and 1 for bachelor's degree or higher. The predictor variables within the logistic regression were reviewed to determine if they influenced student degree aspirations.

The dependent variable was examined while controlling for student degree type (AS, AA, or baccalaureate) to determine if there were conditional effects that influenced community college student graduate degree aspirations. A conditional effect implies that the influence of a variable in magnitude or direction depends on specific characteristics of the students being considered (Pascarella & Terenzini, 2005). This research was conducted to explore how the influence of independent variables on degree aspirations may differ based on chosen major. Although a choice of major may not be an individual characteristic, it is assumed that student characteristics contributed to the decision to pursue these action goals.

Independent Variables

The independent variables addressed in this research are grouped into five factors. Carter's (2001) original framework included four overall factors. The factor labeled institutional experiences/external-to-campus involvement includes three separate components: (a) structural characteristics of the institution, (b) institutional contexts, and (c) external contexts. The five factor groupings for the model created for the present study ignore the characteristics of the institution, as all the respondents were from the same college. This does not imply that the characteristics of the college do not impact student integration. However, because it was a single institution study, there was no need to incorporate this into the statistical analysis. Descriptions of the conceptual groupings of the independent variables are presented in the following sections.

College Entry Characteristics

The factor labeled college entry characteristics includes the demographic variables of age, gender, and race/ethnicity. Carter's (2001) model had two college entry factors, pre-college characteristics and initial aspirations and goals. Variables included in Carter's (2001) pre-college grouping include student demographics, secondary academic achievement, and knowledge of career paths. The secondary data used for this research included only one measure of degree aspirations and it was the dependent variable. The revised model for this research incorporated previous postsecondary academic achievement, which was included in the academic achievement grouping.

The College Experience

Within Carter's (2001) model, the factor labeled institutional experiences/external-to-campus involvement included (a) structural characteristics of institutions, (b) institutional contexts, and (c) external contexts. Structural characteristics are an important component of her framework, as she explored differences in degree aspirations for students at a variety of institutions. As this research was conducted at a single institution, the structural characteristics were not explored. Institutional contexts and external contexts were considered in this research within the variable group in the model identified as "the college experience." This grouping is comprised of external responsibilities, academic integration, and financial aid and institutional support.

External Responsibilities

Variables that address external responsibilities reflect the forces that students must balance with time dedicated to studying and attending college. Community college students are often nontraditional age students with families, jobs, and financial obligations that place demands on their time. This research was conducted to explore what impact, if any, these forces had on college student degree aspirations. Variables that were included in the conceptual grouping for the current study included (a) marital status, (b) number of dependent children the student has, (c) if the student is a homeowner, and (d) the number of hours students work during an average week.

Academic Integration

Academic integration is related to Carter's (2001) grouping labeled institutional context. Within the institutional context grouping, Carter (2001) included campus climate and involvement with students. The conceptual grouping of academic integration in the current study included variables related to (a) intensity of enrollment, (b) time spent on academic activities and college student groups, (c) interaction with faculty and academic advisors, (d) confidence in completing degree, (e) students' stated purposes for enrolling, and (f) the degree to which students actively plan for future semesters. Academic integration is a more suitable term to use in this context because community college students may not be highly involved with on-campus activities; furthermore, fewer chances for involvement exist for these students than for traditional students at four-year institutions. Although community college students may not be as involved in activities, they can certainly be more or less dedicated to their academic goals, depending on institutional support and external responsibilities. Increased academic integration is the result of desire to learn and efforts dedicated to achieve one's academic goals.

Financial Aid and Institutional Support

A request for basic information about whether a student receives any loans, grants, or scholarships to be included in the data was submitted. Financial aid and other monetary support for students' education are intended to contribute to the likelihood that students will be able to dedicate more time to their studies and be less concerned about financing their education. Other forms of institutional support are provided through

student services such as tutoring, counseling, career services. However, this research only considered the financial aid that students may have received.

Academic Achievement.

Within the current model, academic achievement was assumed to not only impact student aspirations, but also to be a result of students' desires to attain their goals. The arrows leading from integration to achievement and from achievement to integration in Figure 12 represent this reciprocal relationship. Measures of achievement include (a) amount of college credits earned, (b) college GPA, (c) number of transfer credits, and (d) degree attainment. Lewin et al. (1944) stated, "Goal setting is related to the question of what goal will emerge or become dominant after another goal has been reached or not reached" (p. 180). Though the survey used in the study queried students about their long-term academic goals, success in accomplishing intermediate goals can encourage students to persist to their long-term goals. Success from week to week, term-to-term, or even earning an associate degree that leads to baccalaureate enrollment can be considered short-term goals. Whether students consciously set goals for the current semester, or the next algebra test, their success or failure in accomplishing these short-term goals can impact student confidence, motivation, and aspirations.

Data Collection and Analysis

The analysis utilized secondary data from an institutional survey given to students over the summer term of 2014. A request was submitted to access survey responses and to have these responses linked to student academic and demographic data. Appendix C

contains a list of all survey and institutional variables included in the final analysis and the survey items reviewed for this research. These data were de-identified prior to receipt by the researcher and kept on a password-protected computer.

Determining internal consistency of a survey with tests such as Cronbach's alpha is important when grouping Likert-type items into a scaled score. However, the responses to this survey do not represent scale scores and were reviewed independently to determine their influence on the dependent variable. Prior to conducting analyses for the research questions, descriptive statistics of the data have been presented, and any significant differences in mean scores were reported and considered in completing the dissertation.

Research Questions

A hierarchical binary logistic regression was used to answer Research Question 1. This type of statistical analysis is suitable to the research because the outcome measurement was coded dichotomously. In addition, logistic regression can be suitable for relatively small sample sizes, (n = 100 or 50), with minimum observation-to-predictor ratio of 10 to 1 (Peng, Lee, & Ingersoll, 2002a). In other words, a regression model that includes 10 predictor variables should have a sample size of at least 100. The total number of respondents to the institutional survey was 867. Appendix C contains a list of all variables used in the full sample test for the study. In order to remain within the appropriate predictor to observation ratio, it was necessary to remove some of the independent variables when the test was run for students separately by degree type.

Research Question 1

How do college student entry characteristics, external responsibilities, academic integration, institutional support, and academic achievement influence degree aspirations of community college students that are pursuing different types (AS, AA, Baccalaureate)?

The logistic regression model was run multiple times for a review of students, first in associate degree programs, and a second time for students in associate and baccalaureate degree programs. The dependent variable for the first test was graduate degree aspirations and baccalaureate degree aspirations for the second test. For both iterations of the statistical test, the independent variables were entered in a hierarchical fashion with demographic variables entered as the first block; variables related to the college experience entered as the second block; and academic achievement entered as the final block within the full model.

Entering the predictor variables in a hierarchical manner highlights the usefulness of the conceptual model for comparison to previous research utilizing the same model. The interpretation of the results were reported as probabilities that a student has aspirations to baccalaureate or graduate studies given an increase in the independent variables in the model. By examining the regression analysis separately for the different degree types it was possible to determine if independent variables influence degree aspirations between the groups in a different manner.

Research Question 2

Is there evidence that students' reasons for enrollment align well with the degree they are pursuing and their ultimate educational goals?

Community colleges in Florida have been authorized to develop specific workforce oriented baccalaureate degrees. The process by which colleges are authorized includes providing direct evidence that the new degrees meet a workforce need within the community. Given that the degrees are designed with specific intent to address workforce needs, the assumption of this research was that students with workforce-oriented intentions enroll in these types of programs. In other words, it was expected that students pursuing a community college baccalaureate would state more often that their primary reason for attendance is job related, e.g., get a job or enhance skills for career. The incorporation of AS degrees through the applied workforce articulation model has provided students in workforce associate degree programs a more direct route to baccalaureate education. These are the students that the new community college baccalaureate degrees are intended to reach. Reviewing their educational goals may help the institution in developing future programs and determine the success of the current programs.

Along with the statistical analysis for Research Question 1, descriptive statistical analysis of some specific variables was performed to determine if the primary reason for attendance and the programs in which students enrolled led directly to their goals. These variables included the students' degree types, their degree aspirations, and their primary reasons for attendance. By reviewing these data, it would be possible to determine how students utilize the institutions within their educational pathways in a manner that aligns

with the purposes of the degrees they are pursuing. In addition, this information may show which students plan to substitute enrollment in baccalaureate programs at the community college instead of transferring to the university.

Research Question 3

To what extent does Carter's model help explain the factors that influence community college student degree aspirations?

After analyzing the data for Research Question 1, the researcher reviewed the results in relation to Carter's (2001) model on college student degree aspirations within her research. Using Carter's framework, Pascarella et al. (2004) were able to conclude that the model was applicable with a different data set using similar grouping variables (Black, Hispanic, and White students). Further consistencies within the model can help validate the conceptual groupings even further and have the potential to show that the model can be used with different grouping variables (degree type).

Authorization to Conduct the Study

A request to utilize secondary data to complete this research was submitted to the University of Central Florida's Institutional Review Board (IRB). The UCF IRB determined that the research did not constitute human research and the request was approved May 22, 2014. After obtaining UCF IRB approval to proceed with the research, a description of the study, a request to use the institutional data, and assurance of proper treatment of the data was submitted through the state college's IRB. The request to use the data to complete this research was approved on August 11, 2014. The UCF and state college IRB approval letters are included in Appendix E.

Originality Score

The University of Central Florida, College of Graduate Studies requires all students completing a dissertation proposal to submit their work through Turnitin.com to assure originality of the work (University of Central Florida, 2012). The dissertation chair is responsible for establishing a benchmark originality score; my chair, Dr. J. Thomas Owens has determined that an originality score not to exceed 10% similarity is acceptable. At initial submission, this dissertation received a score of 18%. After the removal of matches of less than 1%, the score was reduced to 3%.

CHAPTER FOUR: DATA ANALYSIS AND FINDINGS

Introduction

Degree aspirations are strong predictors of degree attainment (Carter, 2001; Wang, 2009) and it is important that institutions gain understanding of student goals. Although research has been conducted on national data sets comparing university students to community college students, much of the research has been high-level analyses with traditional age students. The analysis for this study provided up-close perspective of students with different degree-types at a community college. Associate degrees at the community college have historically had a clear purpose related to the workforce or to upper level studies at the university.

This chapter presents the analyses of data, which provided insight into the intentions of students who have chosen to pursue three different degree types at a community college. The researcher identified variables that influence students to aspire to earn baccalaureate and graduate degrees and how these variables contribute differently to students in different degree programs. All statistical analyses were performed using IBM SPSS Statistics, version 22. The analyses provided a basis for the discussion and recommendations that are presented in Chapter 5.

Overview of the Data

After being approved to proceed with the research by the UCF IRB and authorized to utilize the secondary data by the State College IRB (see Appendix E), a request was submitted to the institution's Data Request System for survey responses to

the college's survey of student engagement along with matched institutional data. After the secondary data were de-identified, the file with all respondents was provided to the researcher. A total of 939 students submitted responses to the institutional survey. To be included in the final sample and the analysis for this study, students must have provided a response to the dependent variable question, "What is your highest educational goal?" As this research was concerned with baccalaureate and graduate degree aspirations, students who had previously earned bachelor's or master's degrees were also excluded from the final analysis. Finally, only students who were seeking one of three different degree types, Associate in Arts (AA), Associate in Science (AS), and Bachelor of Applied Science (BAS), were included. Limiting the final sample using these parameters reduced the total to 867 students.

The final sample was similar in terms of demographics to the entire enrollment of the college. However, the sample did include a greater proportion of women and non-traditional age students than the general population of the college. Table 6 shows the demographics of the survey respondents and of the entire population of students who enrolled in the college during the Fall 2013 term.

Table 6

Demographics of Respondents in Comparison to Total College Enrollment

	Survey Respondents		College Enrollment	
Students	N	Percentage	N^	Percentage
Total	867		16,711	
Enrollment Status				
Full-time	301	34.7	5,849	35.0
Part-time	566	65.3	10,862	65.0
Gender				
Female	635	73.2	9,692	58.0
Male	232	26.8	7,019	42.0
Ethnicity				
White	597	68.9	11,698	70.0
Black	112	12.9	1,838	11.0
Hispanic	87	10.0	1,671	10.0
Multi	37	4.3	501	3.0
Other	34	3.9	1,003	6.0
Age				
Under 18	48	5.5	-	-
18-24	296	34.1	11,029	66.0
25-39	280	32.3	5,682	34.0#
40 and Older	243	28.0	-	-

Source: Institutional survey and data. ^College total for Fall 2013 from NCES College Navigator (nces.ed.gov/collegenavigator). Percentage of students under 18 was not available. # = percentage of students 25 and older.

Overall the mean score for the degree aspirations response was 3.54 for AA students, 3.07 for AS students, and 3.31 for BAS students. Approximately 85% of AA students aspired to a baccalaureate degree, and 52% aspired to earn a graduate degree. Approximately 70% of AS students aspired to earn a baccalaureate degree, whereas approximately 32% had aspirations for graduate studies. For BAS degree students, 61%

aspired to earn a baccalaureate degree, and approximately 39% aspired to graduate studies. Table 7 provides information on the dependent variable for this study.

Table 7

Highest Educational Goal for Associate of Arts (AA), Associate of Science (AS), and Bachelor of Applied Science (BAS) Students

	AA		AS		BAS	
Aspirations	*n*	%	*n*	%	*n*	%
Associate's Degree	92	15.1	64	30.6	-	-
Bachelor's Degree	200	32.8	78	37.3	30	61.2
Master's Degree	183	30.0	42	20.1	15	30.6
Doctoral Degree	134	22.0	25	12.0	4	8.2
Total *n*	609		209		49	
Mean*	3.54		3.07		3.31	

Note. Doctoral degree includes professional degrees such as JD and MD; *Mean score of degree aspirations on a scale from 2-5.

This cursory review of degree aspirations may show different percentages of students who aspired to higher degrees depending on the degrees they were pursuing. It is useful, however, to consider what variables may contribute to students' different goals. Understanding how a number of different variables relate to educational goals can help the college develop and enhance programs that may encourage students maintain their aspirations through to degree attainment. The results of the statistical analyses used to help answer the research questions of this study follow.

Research Question 1

How do college student entry characteristics, external responsibilities, academic integration, institutional support, and academic achievement influence degree aspirations of community college students that are pursuing different types (AS, AA, Baccalaureate)?

Because of the small number of BAS students who responded to the survey, modifications in the approach to the analyses of data for Research Question 1 were necessary. As only 49 BAS students responded to the survey, it would not be practical to utilize a logistic regression test for these students alone. However, including all students in the analysis and using degree type as an independent variable allowed for the incorporation of BAS students while also exploring the influence of the three different degrees. A total of seven logistic regression tests were run for Research Question 1, four of which tested graduate degree aspirations and three of which tested baccalaureate degree aspirations.

First, the statistical procedure was run for the dependent variable, aspirations to pursue graduate studies, using all respondents to the institutional survey. Degree type (AA, AS, and BAS) was used as an independent predictor variable. After the entire sample was analyzed, all associate degree students were reviewed with degree type as a predictor variable. All associate degree students were tested again with the dependent variable aspirations for a baccalaureate degree, followed by separate logistic regression tests for the AA and AS degree types for each of the outcome variables. The degree aspirations for these two groups of students were analyzed separately to determine if there were any conditional effects for the predictor variables of interest. Table 8 provides

a summary of the tests run for the first research question, the dependent variable definition, and the appendix that contains the full results of the test.

Table 8

Reference Table of Logistic Regression Tests for Research Question 1

Test Number	Sample	Dependent Variable	Appendix Table
1	All associate and bachelor students	0 = baccalaureate or lower 1 = masters or higher	Table G1
2	All associate degree students	0 = baccalaureate or lower 1 = masters or higher	Table G2
3	All associate degree students	0 = associate degree 1 = baccalaureate or higher	Table G3
4	Associate in Science degree students	0 = baccalaureate or lower 1 = masters or higher	Table H1
5	Associate in Arts degree students	0 = baccalaureate or lower 1 = masters or higher	Table H2
6	Associate in Science degree students	0 = associate degree 1 = baccalaureate or higher	Table H3
7	Associate in Arts degree students	0 = associate degree 1 = baccalaureate or higher	Table H4

The predictor variables were entered into the tests in a hierarchical approach using the entry method, all variables within each block at one time. Each of the seven tests included three blocks (1) demographics, (2) college experience variables, and (3) the full model, which included all the variables. The variable grouping for each block follows the revised conceptual model (see Figure 12) for the research. Table 9 shows the blocks of the regression and the conceptual groupings of variables. All variables used within each block are found in Table C1 of Appendix C.

Table 9

Blocks and Conceptual Grouping of Variables within Logistic Regression Tests

Regression Block	Conceptual Grouping
Block 1 Demographics	College Entry Characteristics
Block 2 The College Experience	External Responsibilities Academic Integration Financial Aid
Block 3 Full Model	Academic Achievement

Data Analysis for Research Question 1

For the first two iterations of the test, which included all respondents and then all associate degree students, degree type was used as a predictor variable. Aspirations for graduate studies was used as the dependent variable. Grouping all students together for these first iterations of the statistical procedure and had two benefits: (a) it allowed for analysis of a valid dependent variable for all students and (b) it allowed for a review of a greater amount of predictor variables for all degree types.

The scale of valid responses to the dependent variable was different for associate degree students and baccalaureate degree students in that, students who were pursuing a bachelor's degree should not have had a response of associate degree for their highest educational goal. This response was invalid because students who were pursuing a BAS degree must have earned an associate's degree previously to be admitted to the program. Coding the dependent variable was: 0 = bachelor's degree or lower and 1 = master's degree or higher which adjusted for this scale difference within the full sample.

The 49 BAS students who provided valid responses to the dependent variable were not reviewed separately. Had the test only been performed on these students, the number of predictor variables used in the logistic regression would have needed to be reduced significantly to ensure that the model was not over fit. A logistic regression procedure should have at least a 10 to 1 ratio of observations to predictor variables (Peng, So, Stage, & St. John, 2002b). Peduzzi, Conncato, Kemper, Holford, and Feinstein (1996) recommended that the 10 to 1 ratio be in relation to the smaller proportion of the outcome variable. Using a small ratio of observation to predictor variables can cause high standard errors of the regression coefficient, large 95% confidence intervals of the odds ratio for predictor variables, and render the procedure unreliable.

The smaller number of respondents (n = 392) of the full sample (n = 867) noted that their highest educational goal was a graduate degree. The number of predictor variables was limited to 34, under the recommended 10 to 1 ratio. This number of predictor variables was also acceptable for the associate degree students when graduate aspirations were examined. This sample had n = 384 responses to the smaller outcome of the binary dependent variable. However, the number of predictor variables was necessarily reduced for the regression tests measuring the dependent variable, associate vs. bachelor or higher, which was used for final iteration of the full associate's degree sample. The reduction of predictor variables is further explained prior to a description of the associate degree sample results.

Prior to running the final logistic regression tests, the data were reviewed to ensure that the assumptions of the logistic regression test were met. These included

testing for (a) noncollinearity; (b) linearity of continuous variables with the log odds of the dependent variable; and an (c) absence of outliers. After an initial logistic regression test was run, predictor variables were reviewed for high multicollinearity, which causes large standard errors of the log odds (Garson, 2013). Although an OLS regression procedure is useful for testing relationships of many variables to a continuous dependent variable, it can also be used to review the collinearity diagnostics within the statistical procedures. A review of the collinearity diagnostics separately for graduate aspirations and baccalaureate aspirations revealed that all predictor variables had tolerance levels of greater than 0.10, and all variance inflation factors were between 1.0 and 2.0. Collinearity diagnostics can be found in Appendix F.

For logistic regression, continuous variables are assumed to be linear with the log odds of the dependent variable (Garson, 2013). To review this assumption, Garson recommended a Box-Tidwell test of linearity. First, interaction terms which were the product of each continuous independent variable and the natural log of the variable (cv*ln(cv)) were computed within SPSS. Then the logistic procedure was run with all predictor variables and the interaction terms to check for significance of the log odds of the dependent variable with the interaction term. With only one exception, all interaction variables were found to produce non-significant dependent variable coefficients. The one exception was for the variable, age, for the full sample and for the associate degree type sample when graduate degree aspirations were tested. This interaction variable did not create a significant coefficient when the dependent variable was baccalaureate aspirations for the full associate student sample. However, the linearity assumption was violated

with age entered as a continuous variable. Thus, following Garson (2013), the independent variable was converted to age ranges for the final logistic regression tests. Results of the Box-Tidwell test are found in Appendix F.

The data were checked for outliers and influential points as recommended by Garson (2013) using Cook's distance values, leverage values, and DfBeta values. Although Cook's values showed one instance greater than 1.0, all the leverage values were between 0.01 and 0.26, under the recommended 0.50, and only one DfBeta value was above the recommended 1.0 (Garson, 2013). Because just two values fell outside these typical ranges and there were no outliers of standardized residuals (within ±2.58 standard deviations or $\alpha = .01$), all the data with a valid response to the dependent variables were retained for the regression analyses. These tests for influential points and outliers are found in Appendix F. The following section contains a review of the full sample statistical analyses followed by the results of the analyses performed for associate degree students grouped by degree type.

Full Sample and all Associate Degree Students

Four variables that were initially requested for review were not included in the final analysis. Two of the variables were classified as institutional data. They included marital status and indication of work-study, both of which had unrealistic low numbers of students, $n = 0$ and $n = 1$, respectively, and were not considered reliable. The other two variables not included were institutional survey data, i.e., number of hours students work on schoolwork and students' confidence in completing their degrees. Although these variables were not included in the final analysis, the secondary data provided to the

researcher included an indication of whether the student received the GI Bill to finance education and was incorporated into the results of the analysis. In order to increase the observation to predictor variable ratio, a number of response items for categorical predictors were collapsed to two or three categories. Careful consideration of the contraction of responses was taken to ensure fidelity of the original responses. This reduced the standard error of the regression coefficient for some predictor variables and allowed for more suitable estimations of the odds ratio.

Regression analysis for graduate aspirations of full sample

Logistic regression analysis for the full sample was conducted to determine if graduate degree aspiration, master's or higher vs. baccalaureate or lower, could be predicted by the variables related to college entry characteristics, external responsibilities, academic integration, institutional support, and academic achievement. Good model fit was evidenced by non-statistically significant results of the Hosmer and Lemeshow test, ($\chi^2 = 13.167$, $df = 8$, $p = .106$) and a large effect size when interpreted using Cohen's (1988) effect size (ES) indices for translated R^2 values (0.02 = small; 0.13 = medium; 0.26 = large). The effect size was determined using the Nagelkerke R^2 value (0.283).

These results suggested that the variables were suitable for the logistic regression test, and the magnitude of the significant predictors and the outcome variable was large. Other measures of good fit include the improvement of the hit rate and the proportional reduction in error (PRE) (Garson, 2013). The hit rate is the proportion of predictions the model accurately classified. The chance hit rate is the proportion of predictions the null model accurately classified. For the null model, or block zero, the logistic regression

procedure in SPSS was used to analyze the outcome variable and assumed 100% of the outcome would fall into the larger of the two options. Table 10 shows the hit rate of the null model and the full model for the first iteration of the logistic regression.

Table 10

Classification Table: Logistic Regression for Graduate Aspirations of Full Sample

	Null Model Predicted Classifications			Full Model Predicted Classifications		
Observed	Baccalaureate or lower	Master's or Higher	% Correct	Baccalaureate or lower	Master's or Higher	% Correct
Baccalaureate or Lower	456	0	100.0	335	121	73.5
Master's or Higher	394	0	0	128	266	67.5
Hit Rate			53.6			70.7

Reviewing the improvement of the hit rate from the null model to the full model also provided evidence of good model fit. According to Garson (2013), a good model fit would increase the chance hit rate by 25%. The chance hit rate for this model was 53.6%; therefore the improvement criterion would be (0.536*1.25) or 67.1%. The PRE of the model was found by determining the percentage of the increase of the final hit rate when compared to the chance hit rate.

$$PRE = \frac{(Full\ model\ hit\ rate - Chance\ hit\ rate)}{Chance\ hit\ rate} = \frac{(0.707 - 0.536)}{0.536} = 0.319 \quad (1)$$

The full model correctly classified about 71% (an improvement greater than 25%) of the degree aspirations for students in the sample, and the large PRE (31.9%) provided further evidence that the data were well suited for the model. Each block of the hierarchical model contributed to the predictive capacity beyond the null. The model summary, Hosmer and Lemeshow test, and classification results are shown in Table 11.

Table 11

Model Summary of Logistic Regression for Graduate Aspirations of Full Sample

	Model Summary			Hosmer and Lemeshow Test			Classification
Block	-2 Log Likelihood	Cox & Snell R^2	Nagelkerke R^2	χ^2	*df*	Sig.	% Correct
0	-	-	-	-	-	-	53.6
1	1128.2	.052	.070	6.779	7	.452	56.8
2	987.7	.197	.263	9.267	8	.320	70.1
3	971.4	.212	.283	13.167	8	.106	70.7

Note. The null model classification percentage was based on assumption of 100% baccalaureate or lower and used no predictor variables.

Following is a review of the variables grouped in each of the components of the theoretical framework. Full results of the logistic regression test are found in Table G1 of Appendix G.

College entry characteristics

Due to a violation of an assumption of linearity, the continuous variable, age, was divided into four groupings (under 18 years old,18-24 years old, 25-39 years old, and 40 and older). The 18-24 year-old group was used as the reference group for the categorical variable. The categorical variable, race, was reduced to a binary variable, 0 = White and

1 = Minority. Gender was also included in the college entry characteristics grouping. The results of the test showed that age and gender had significant but diminishing influence on the dependent variable for each block in the model. By the third block and full model, there was no significant impact on the dependent variable. This is not an unusual occurrence, as each block of the hierarchical regression introduces additional predictors that may contribute to the outcome of the dependent variable, thereby reducing influence of other independent variables.

When college entry characteristics were taken alone in the model, age was a significant predictor between 18-24 year-olds and the 40 and older group (B = -0.864, Wald = 22.349, df = 1, $p < .01$). The odds ratio for this group suggested that traditional age college students were 2.37 times more likely to aspire to a graduate degree. There was also evidence that students under the age of 18 were significantly more likely (B = 0.944, Wald = 7.052, df = 1, $p < .01$) to aspire to graduate studies than traditional age students. Students in the under 18 group were 2.57 times more likely to aspire to graduate degrees.

Male students were more likely to have higher degree aspirations within the first block of the model as well (B = 0.341, Wald = 4.548, df = 1, $p < .05$). Although these significant values were present, the first block of the model had a small effect size (Nagelkerke R^2 = 0.07). These results indicate that although significance was found, the relationship between demographics and graduate degree aspirations was small.

Both age group and gender were significant within the second block of the model which incorporated variables within the external responsibilities, academic integration,

and institutional support variable groupings. However, for the age variable, in the second block there was a significant difference only for the 18-24 year-old and the under 18 year-old groups ($B = 0.821$, Wald = 3.928, $df = 1$, $p < .05$).

Race, using the broad categories of White and Minority, was not a significant predictor of whether a student would aspire to a graduate degree. This was not, however, unexpected. Though Carter (2001) found no significant different between African Americans and White students in their initial degree aspirations for one of the two datasets she used, she did find African Americans were more likely to maintain their degree aspirations at a later point when compared with White students. To further explore this phenomenon, chi-square tests of association were performed to determine if there was an association with graduate degree aspirations and the number of credits White, Black, and Hispanic students had earned. First, a variable called Semester FTE was created to group students into relative numbers of full-time equivalent semesters completed. The chi-square test showed no significant association between race and degree aspirations for any of the semester FTE groupings. No significant difference was found in the degree aspirations of Black, Hispanic, and White students when controlling for the number of FTE semesters. The chi-square tests results are shown in Table 12. The observed counts, row percentages, and standardized residuals for each semester FTE grouping are presented in Appendix I.

Table 12

Chi-square Test of Association Values and Significance Levels for Graduate Aspirations of Black, Hispanic, and White Students by Semester FTE

Semester FTE	χ^2	*p*
1st Semester	0.515	.773
2nd Semester	0.112	.945
3rd Semester	2.125	.346
4th Semester	1.650	.438
5th Semester or later	2.645	.267

Note. All tests have 2 degrees of freedom.

External responsibilities variables

Among the variables included in the conceptual grouping, external responsibilities, are indications of whether students had dependents, if they were homeowners, and if they had part- or full-time jobs. Within this research, the variables were included as a means to determine if students who may be less likely to relocate to pursue higher degrees than those offered at the state college had different educational goals than the full sample. Having dependents, being a homeowner, and working full time are assumed to create a more place-bound student because of the difficulty of relocating temporarily to complete a degree. All of the variables produced insignificant influence on the outcome variable, indicating that students who had dependents, own a home, and work part- or full-time were just as likely to aspire to graduate degrees as the rest of the sample.

Academic integration variables

The variables within the academic integration grouping included degree type, credits enrolled in during the semester, time spent on campus outside of class, participation in student groups, interaction with faculty, interaction with advisors, primary reason for attendance, and an indication of planning courses a semester or more in advance. For this conceptual grouping, which was added in the second block of the model, just four of the variables produced significant influence on the outcome variable. Students who enrolled in more credits during the semester in which they answered the survey were significantly more likely ($B = 0.048$, Wald = 4.846, $df = 1$, $p < .05$) to indicate graduate degree goals. The odds that a student would aspire to graduate degrees were increased 1.05 times for every additional credit a student took. This variable was not significant within the full model.

Participation in at least one student group was another significant predictor of graduate degree aspirations. This variable was significant with the second block ($B = 0.635$, Wald = 9.173, $df = 1$, $p < .01$) and the third block ($B = 0.586$, Wald = 7.484, $df = 1$, $p < .01$). Students who had participated in college sponsored groups were 1.8 times more likely to aspire to graduate studies.

The responses to the survey item, "What is your primary reason for attending this institution?" included: (1) to complete a program to help me get a job, (2) enhance skills for my current job, (3) transfer to another institution, (4) prepare for higher degree at this institution, and (5) other. The responses to this item were expected to be strong predictors of degree aspirations. Students who had educational goals of an associate

degree were expected to have responses that were occupational rather than academic (transfer or prepare for higher degree). The variable was found to have significant influence on higher degree aspirations when the reference group (to help get a job) was compared to students who had the more academic responses. Those who responded that their primary reason for attendance was to enhance skills for current job did not show a significant difference from the reference group. Table 13 shows the influence of reason for attendance on the outcome variable in the final block of the model. The odds that students reported graduate degree aspirations were between 2.6 to 4.62 times more likely than students in the reference group (get a job response) when they responded for academic or other reasons.

Table 13

Reason for Attendance and Logistic Regression Predictor Variables for Graduate Degree Aspirations of Associate and Baccalaureate Degree Students

Primary Reason for Attending	*B*	S.E.	Wald	*df*	Odds Ratio
Get job, enhance skills for current job	-0.570	0.462	1.520	1	0.566
Get job, transfer	1.530^	0.236	42.107	1	4.620
Get job, prepare for higher degree at this institution	1.050^	0.236	19.737	1	2.859
Get job, other	0.959^	0.309	9.621	1	2.610

Note. Significance level ^ $p < .01$

The last variable within the academic integration grouping that had a significant influence on degree aspirations was educational planning by semester. The question asked if students planned courses one semester in advance, multiple semesters in advance, if they choose courses once registration opened, or if they had not put effort into planning their courses at all. The response items were coded as 0 = no planning vs. 1 = planning at least one semester in advance. Students who responded that they planned their courses at least one semester in advance were found to be 1.5 times more likely to aspire to graduate degrees than students who did not plan courses ahead. This variable had a significant influence on degree aspirations in both the second block (B = 0.457, Wald = 6.431, df = 1, $p < .05$) and final block (B = 0.420, Wald = 5.135, df = 1, $p < .05$) of the hierarchical test.

Financial support variables

The variables in the financial support grouping provide an indication of whether the student received a scholarship, grant, loan, or GI Bill funding; and all were coded 0 = no, 1 = yes. An indication that students received a scholarship was the only variable that had significant influence on the outcome variable within block two (B = -0.566, Wald = 4.995, df = 1, $p < .05$) and the full model (B = -0.588, Wald = 5.158, df = 1, $p < .05$). These negative significant predictors imply that the odds that a student who received a scholarship would aspire to a graduate degree were 1.76 to 1.8 times less than students who did not receive a scholarship.

Academic achievement variables

The final block added to the model was academic achievement, which included GPA, total credits earned, total credits transferred, and the highest degree a student earned as of the end of the semester in which the survey was taken. Although this group of variables added to the overall predictive capacity of the model and had two variables that showed significant influence, the improvement in total correct classifications increased by just 0.6%. The two variables that showed significance were GPA (B = 0.341, Wald = 5.987, df = 1, $p < .05$) and highest degree earned (B = -1.396, Wald = 4.646, df = 1, $p < .05$) when the reference type, has not completed high school, was compared to students who have earned a short-cycle postsecondary certificate (college credit or vocational credit). For each unit increase in GPA, students were 1.4 times more likely to aspire to a graduate degree. The odds of a student who had earned a certificate would aspire to a graduate degree was about 4 times less than students still in high school.

Regression analysis for graduate aspirations of all associate degree students

A logistic regression analysis for all associate degree students was conducted to determine if graduate degree aspiration (master's or higher vs. baccalaureate or lower) could be predicted by the variables related to college entry characteristics, external responsibilities, academic integration, institutional support, and academic achievement. Good model fit was evidenced by non-statistically significant results of the Hosmer and Lemeshow test, (χ^2 = 15.23, df = 8, p = .06) and a large effect size when interpreted using

Cohen's (1988) ES indices for translated R^2 values (0.02 = small; 0.13 = medium; 0.26 = large). The effect size was determined using the Nagelkerke $R^2 = 0.295$.

These results suggested that the variables were suitable for the logistic regression test and magnitude of the significant predictors, and the outcome variable was large. Other measures of good fit included the improvement of the hit rate, and the proportional reduction in error (PRE) (Garson, 2013). Table 14 shows the hit rate of the null model and the full model for the associate degree sample.

Table 14

Classification Table of the Logistic Regression for Graduate Aspirations of the Associate Degree Sample

	Null Model Predicted Classifications			Full Model Predicted Classifications		
Observed	Baccalaureate or lower	Master's or Higher	% Correct	Baccalaureate or lower	Master's or Higher	% Correct
Baccalaureate or Lower	426	0	100	307	119	72.1
Master's or Higher	375	0	0	113	262	69.9
Hit Rate			53.2			71.0

Reviewing the improvement of the hit rate from the null model to the full model also provided evidence of good model fit. The chance hit rate for this model was 53.2%; therefore, the improvement criterion would be (0.532*1.25) or 66.5%. The PRE was found by determining the percentage of the increase of the final hit rate when compared with the chance hit rate.

$$PRE = \frac{(Full\ model\ hit\ rate - Chance\ hit\ rate)}{Chance\ hit\ rate} = \frac{(0.71 - 0.532)}{0.532} = .336 \quad (2)$$

The full model correctly classified approximately 71% (an improvement greater than 25%) of the degree aspirations for students in the sample and the large PRE (33.6%) provided further evidence that the data were well suited for the model. Each block of the hierarchical model contributed to the predictive capacity beyond the null (block 0). The model summary, Hosmer and Lemeshow test, and classification results are shown in Table 15.

Table 15

Model Summary of Logistic Regression for Graduate Aspirations of All Associate Degree Students

	Model Summary			Hosmer and Lemeshow Test			Classification
Block	-2 Log Likelihood	Cox & Snell R^2	Nagelkerke R^2	χ^2	*df*	Sig.	% Correct
0	-	-	-	-	-	-	53.2
1	1061.7	.055	.074	5.586	7	.556	57.9
2	924.98	.203	.272	8.396	8	.396	70.2
3	907.34	.221	.295	15.231	8	.055	71.0

Note. The null model classification percentage was based on assumption of 100% baccalaureate or lower and used no predictor variables.

There was very little difference in the variables that had significance in the full sample and sample with all associate degree students. This was expected as there were so few BAS degree students (49) included in the first test. In addition, the variables that became significant predictors in the all-associate students model were borderline

significant (p = .051 or p = .050) within the full sample. Of the three variables that were significant in the all-associate student model, but not in the full sample model, two were within the age grouping variable and the third was degree type. The following is a review of the variables grouped in each of the components of the theoretical framework. Full results of the logistic regression test for the graduate aspirations of all associate degree students are found in Table G2 of Appendix G.

College entry characteristics

Within the first block, the reference age group of 18-24 year-olds were significantly more likely to aspire to graduate degree than the 25-39 year-old group (B = -0.365, Wald = 4.880, df = 1, p < .05). This was a change from the first block of the full sample model, where no difference was shown between these age groups. The odds that a traditional age student would aspire to graduate studies were 1.44 greater than for the 25-39 year-old group. As with the full model, 18-24 year-olds were significantly more likely to aspire to graduate studies than the 40 and older group (B = -0.903, Wald = 22.177, df = 1, p < .01) and significantly less likely to aspire to graduate studies than the under 18 years old group (B = 0.930, Wald = 6.822, df = 1, p < .01). The odds that an 18-24 year-old would have graduate aspirations were 2.5 times more than for the 40 years and older group and 2.5 times less than the under 18 group. The effect size for the first block in the associate degree model was also relatively small (R^2 = 0.074).

In the second block, age again was only significant variable between the 18-24 year-olds and the under 18 year-olds with the latter group having greater odds of aspiring to a graduate degree. However, unlike the full sample group, in the last block of the

model, there was a significant difference in degree aspirations between the 18-24 year-old group and the 40 years and older group (B = -0.583, Wald = 3.947, df = 1, $p < .05$). The odds that an 18-24 year-old would aspire to a graduate degree was about 1.79 times higher than for the 40 and older group in the full model.

Gender was found to have significant influence on degree aspirations within the first (B = 0.360, Wald = 4.830, df = 1, $p < .05$) and second block (B = 0.392, Wald = 4.256, df = 1, $p < .05$), but not the full model. As in the full sample model, male students were 1.4 times more likely to have graduate aspirations within the first and second block than female students. Within the final block, however, gender did not show significant influence on degree aspirations.

External responsibilities variables

The variables within the external responsibilities grouping again showed no significant influence on the outcome variable. There was no difference in degree aspirations for students in associate degree programs based on whether they had dependents, owned a home, or whether they worked full- or part-time.

Academic integration variables

With one exception, the same academic integration variables influenced graduate degree aspirations of the all associates degree group and the full sample. The variable, credits taken this semester, was significant (B = 0.05, Wald = 4.97, df = 1, $p < .05$) for the second block. The odds a student would aspire to a graduate degree increased by 1.05

times for every additional credit students took. Once again, semester credits were not significant predictors of graduate degree aspirations in the third block of the model.

Students who participated in academic groups were significantly more likely to aspire to a graduate degree in both the second ($B = 0.605$, Wald = 7.646, $df = 1$, $p < .01$) and the final block ($B = 0.55$, Wald = 6.081, $df = 1$, $p < .05$) of the model. The odds that students would aspire to a graduate degree increased by 1.73 times if they participated in at least one student group.

The strongest predictors of graduate degree aspirations for the associate student model was again the students stated primary reason for attendance. Students with an occupational focus were less likely to aspire to graduate degrees than students that stated they wanted to transfer to another institution or prepare for a higher degree at the same institution. Table 16 shows the influence of reason for attending on the outcome variable in the final block of the model

The one predictor variable that became a significant in the third block of the model was degree type ($B = -0.454$, Wald = 3.963, $df = 1$, $p < .05$). The odds a student enrolled in an AS degree program would aspire to a graduate degree were 1.58 times less than for a student enrolled in an AA degree program.

Table 16

Reasons for Attendance and Logistic Regression Predictor Variables for Graduate Degree Aspirations of Associate Degree Students

Primary Reason for Attending	*B*	S.E.	Wald	*df*	Odds Ratio
Get job, enhance skills for current job	-0.847	0.592	2.049	1	0.429
Get job, transfer	1.513^	0.241	39.313	1	4.540
Get job, prepare for higher degree at this institution	1.116^	0.244	20.840	1	3.051
Get job, other	0.797*	0.328	5.921	1	2.220

* $p < .05$; ^ $p < .01$

Financial support variables

The variables within the financial support grouping had nearly the same influence for the associate degree sample as it did for the full sample. Only receipt of scholarship was found to have significant influence on graduate degree aspirations in the second block (B = -0.662, Wald = 6.320, df = 1, $p < .05$) and the full model (B = -0.686, Wald = 6.456, df = 1, $p < .05$). The odds students would aspire to a graduate degree were nearly two times less if they were receiving a scholarship than if they were not. There was no significant influence on graduate aspirations based on whether or not students received a loan, grant, or GI Bill funding.

Academic achievement variables

The final block of the regression analysis included the following academic achievement variables: GPA, credits earned, credits transferred, and the highest degree

the students earned by the end of the semester in which they took the survey. The associate degree sample again was almost identical to the full sample of students with only GPA and highest degree influencing graduate aspirations. The odds that a student would aspire to earn a graduate degree increased about 1.43 times for every unit of increase in GPA.

Students who had earned a postsecondary certificate were significantly less likely (B = -1.401, Wald = 4.605, df = 1, $p < .05$) than students still in high school to aspire to earn a graduate degree. The odds that students would aspire to a graduate degree was about 4 times less if they had earned a certificate than if they were still in high school.

Regression analysis for baccalaureate aspirations of all associate degree students

In order to run a logistic regression test for all associate degree students using the outcome variable coded as 0 = associate degree, 1 = baccalaureate or higher, it was necessary to reduce the amount of predictor variables in the model. A smaller proportion of students aspired to an associate degree than students who aspired to a baccalaureate or higher. As shown in Table 7, 152 students stated their highest educational goal was an associate degree. Thus, following the 10 to 1 observations to predictor ratio proposed by Peduzzi et al. (1996), the total number of predictor variables was reduced to 15.

To reduce the number of predictor variables, two of the categorical predictors were reduced by folding in categories within the each variable. Age was reduced to three categories, <= 24, 25-39, >= 40, which created two predictor variables using the <= 24 category as the reference. Reason for attending was collapsed into four categories and

three predictor variables. The reference category became all students who indicated their primary reason for attendance was to help get a job or to enhance skills for current job. The remaining predictor variables included in this model were chosen based on whether they showed significant influence on degree aspirations in either of the first two iterations of the test. The full list of predictor variables and the results of this iteration of the logistic regression are contained in Table G3 of Appendix G.

A logistic regression analysis for all associate degree students was conducted to determine if baccalaureate degree aspiration (bachelors or higher vs. associate degree) could be predicted by the variables related to college entry characteristics, academic integration, institutional support, and academic achievement. Good model fit was evidenced by non-statistically significant results of the Hosmer and Lemeshow test, (χ^2 = 10.01, df = 8, p = .26) and a medium effect size when interpreted using Cohen's (1988) ES indices for translated R^2 values (0.02 = small; 0.13 = medium; 0.26 = large). The effect size was determined using the Nagelkerke R^2 value (0.169).

These results again suggested that the variables were suitable for the logistic regression test, and significance in the model had a medium effect on the predictive capacity of the outcome variable. The model appeared to have good overall fit and a medium effect on the outcome variable. Overall, however, the model did not increase the predictive capacity beyond the null. For the null model, or block zero, the logistic regression procedure in SPSS analyzes the outcome variable and assumes 100% of the outcome will fall into the larger of the two options. For this model, 653 students indicated that they aspired to a baccalaureate or higher, 155 students indicated associate

degree aspirations. Table 17 shows the hit rate of the null model and the full model for the associate degree sample.

Table 17

Classification Table of the Logistic Regression for Baccalaureate Aspirations of the Associate Degree Sample

	Null Model Predicted Classifications			Full Model Predicted Classifications		
Observed	Baccalaureate or lower	Master's or Higher	% Correct	Baccalaureate or lower	Master's or Higher	% Correct
Baccalaureate or Lower	0	155	0	11	144	7.1
Master's or Higher	0	633	100	11	642	98.3
Hit Rate			80.8			80.8

Reviewing the improvement of the hit rate from the null model to the full model also provided evidence that the variables in the model were not effective at proportional reduction of error. According to Garson (2013), a good model fit would increase the chance hit rate by 25%. The chance hit rate for this model was 80.8%; therefore, the improvement criterion would be (0.808*1.25) or 101%. The PRE was found by determining the percentage of the increase of the hit rate when comparing the null model to the full model.

$$PRE = \frac{(Full\ model\ hit\ rate - Chance\ hit\ rate)}{Chance\ hit\ rate} = \frac{(0.808 - 0.808)}{0.808} = 0.0 \quad (3)$$

The full model correctly classified 80.8% of the degree aspirations for students in the sample. However, there was no increase in the hit rate of the full model and the PRE

of zero (0.0%) meant that the error did not change after all the variables were included in the model. Although each additional block showed at least two significant predictor variables, the hit rate of correct predictions did not improve. The model summary, Hosmer and Lemeshow test, and classification results are shown in Table 18.

Table 18

Model Summary of Logistic Regression for Baccalaureate Aspirations of All Associate Degree Students

	Model Summary			Hosmer and Lemeshow Test			Classification
Block	-2 Log Likelihood	Cox & Snell R^2	Nagelkerke R^2	χ^2	*df*	Sig.	% Correct
0	-	-	-	-	-	-	80.8
1	773.55	.020	.032	3.22	4	.522	80.8
2	701.462	.104	.167	5.58	8	.694	80.7
3	693.362	.113	.181	3.483	7	.901	80.8

Note. The null model classification percentage was based on assumption of 100% masters or higher and used no predictor variables.

The lack of improvement to the model can be attributed to the large proportion of students who had baccalaureate intentions or higher compared to associate aspirations--the more lopsided the outcome variable, the more difficult for a model to show improvement on the null (Garson, 2013). Though there was no improvement to the overall model, the significant variables within the model were almost identical in scope and direction to the test for graduate aspirations. The one variables that showed stronger influence on baccalaureate aspirations than graduate aspirations was the degree type variable. When testing baccalaureate aspirations Degree type was a significant predictor in block one (B = -0.571, Wald = 7.075, df = 1, $p < .01$) and block two (B = -0.569, Wald

= 6.739, $df = 1$, $p < .01$). The degree type variable was only significant for the final block in the test of graduate aspirations.

Due to the lack of influence of the model and the similarity in significant variables, full analysis of the logistic regression test for baccalaureate aspirations was not completed. However, full results of the logistic regression test are presented in Table G3 of Appendix G.

Regression Analysis for Associate Students by Degree Types

Reviewing the logistic regression results separately by degree type enabled a review for conditional effects within the model. Conditional effects occur when a variable is influential in scope and/or direction for one group of students as opposed to another group of students. To test the degree aspirations of AA and AS degree students separately, it was again necessary to reduce the total number of predictor variables to stay close to the 10 to 1 observation to predictor ratio recommended by Peduzzi et al. (1996). The 10 to 1 ratio was computed for the AA student sample which had the smallest outcome variable for students who aspired to an associate degree only ($n = 92$). This allowed for inclusion of nine predictor variables.

The reduction of variables was based on significance within the larger sample tests and one more reduction of a categorical variable. The categorical variable, highest degree earned, was reduced to a binary variable with students who had earned an associate degree compared to the reference category, no associate degree earned. The inclusion of nine predictor variables was of more concern for the AS student sample, as the smallest outcome variable tested was for students who aspired to an associate degree

only (n = 64). However, after careful review of the final predictor variables included in the logistic regression tests, the lower observation to predictor ratio did not create large standard errors of the log odds or extreme confidence intervals of the odds ratios for the AS student sample. Thus, all nine were included in the final tests.

Regression analysis for graduate aspirations by associate degree type

Logistic regression analysis for the associate degree types sample (AS and AA) were conducted to determine if graduate degree aspiration (master's or higher vs. baccalaureate or lower) could be predicted by the variables related to college entry characteristics, academic integration, and academic achievement. Following is a review of the goodness of fit indices for the AS and AA samples followed by a review of the conditional effects between the samples.

Graduate aspirations of the Associate in Science degree sample

Reviewing graduate aspirations for the AS student sample first, good model fit was evidenced by non-statistically significant results of the Hosmer and Lemeshow test, (χ^2 = 5.895, df = 8, p = .66) and a large effect size when interpreted using Cohen's (1988) ES indices for translated R^2 values (0.02 = small; 0.13 = medium; 0.26 = large). The effect size was determined using the Nagelkerke R^2 value (0.293). These results suggested that the variables were suitable for the logistic regression test and magnitude of the significant predictors, and the outcome variable was large. Other measures of good fit include the improvement of the hit rate, and the proportional reduction in error (PRE)

(Garson, 2013). Table 19 shows the chance hit rate and the final hit rate for the AS degree model.

Table 19

Classification Table of the Logistic Regression for Graduate Aspirations of the Associate in Science Degree Student Sample

	Null Model Predicted Classifications			Full Model Predicted Classifications		
Observed	Baccalaureate or lower	Master's or Higher	% Correct	Baccalaureate or lower	Master's or Higher	% Correct
Baccalaureate or Lower	140	0	100	120	20	85.7
Master's or Higher	66	0	0	34	32	48.5
Hit Rate			68.0			73.8

Reviewing the improvement of the chance hit rate from the null model to the full model did not provide evidence of good model fit. According to Garson (2013) a good model fit would increase the hit rate by 25% beyond the chance hit rate. The chance hit rate for this model was 68.0%; therefore, the improvement criterion would be (0.680*1.25) or 85.0%. The PRE of the model was found by determining the percentage of the increase of the final hit rate when comparing the chance hit rate.

$$PRE = \frac{(Full\ model\ hit\ rate - Chance\ hit\ rate)}{Chance\ hit\ rate} = \frac{(0.738 - 0.680)}{0.680} = 0.086 \quad (4)$$

The full model correctly classified 73.8% of the degree aspirations for students in the sample, but the PRE was only 8.6%. The improvement on the chance hit rate did not provide further evidence that the model was able to efficiently predict degree aspirations. One other more lenient hit rate estimate discussed by Garson (2013) was the proportional chance (PC) rate. Garson noted "the PC rate is the sum of the squared dependent marginals when marginals are expressed as percentages" (location 1327). Reviewing the improvement on the hit rate using this equation yielded the following:

$$PC = 0.680^2 + 0.320^2 = 0.565 \quad (5)$$

Therefore the improvement criterion level (0.565*1.25) was 70.6%. Reviewing the improvement in hit rate utilizing the PC rate indicated that the model was useful to predict graduate aspirations of AS degree students. Although the first block did not add to the predictive capacity of the null model, the second and third block of the hierarchical model contributed to the predictive capacity beyond the null. The model summary, Hosmer and Lemeshow test, and classification results are shown in Table 20.

Table 20

Model Summary of Logistic Regression for Graduate Aspirations of Associate of Science Degree Student Sample

	Model Summary			Hosmer and Lemeshow Test			Classification
Block	-2 Log Likelihood	Cox & Snell R^2	Nagelkerke R^2	χ^2	*df*	Sig.	% Correct
0	-	-	-	-	-	-	68.0
1	253.56	.023	.032	0.814	4	.937	68.0
2	213.26	.197	.275	11.394	7	.122	70.9
3	210.04	.209	.293	5.595	8	.659	73.8

Note. The null model classification percentage was based on assumption of 100% baccalaureate or lower and used no predictor variables.

After a review of the AA degree sample's goodness of fit measures, the conditional effects of the AS and AA samples were reviewed. Full results of the AS sample logistic regression test are displayed in Table H1 of Appendix H.

Graduate aspirations of the Associate in Arts degree sample

Reviewing graduate aspirations of the AA student sample, good model fit was evidenced by non-statistically significant results of the Hosmer and Lemeshow test, (χ^2 = 10.662, *df* = 8, *p* = .222) and a medium effect size when interpreted using Cohen's (1988) ES indices for translated R^2 values (0.02 = small; 0.13 = medium; 0.26 = large). The effect size was determined using the Nagelkerke R^2 value (0.181). These results suggested that the variables were suitable for the logistic regression test. The significance in the model, however, had only a moderate effect on the predictive capacity of the outcome variable. Other measures of good fit included the improvement of the hit rate, and the proportional reduction in error (PRE) (Garson, 2013). Table 21 shows the chance hit rate and the final hit rate for the AA degree model.

Table 21

Classification Table of the Logistic Regression for Graduate Aspirations of the Associate in Arts Degree Student Sample

	Null Model Predicted Classifications			Full Model Predicted Classifications		
Observed	Baccalaureate or lower	Master's or Higher	% Correct	Baccalaureate or lower	Master's or Higher	% Correct
Baccalaureate or Lower	0	292	0	173	119	59.2
Master's or Higher	0	312	100	88	224	71.8
Hit Rate			51.7			65.7

Reviewing the improvement of the chance hit rate from the null model to the full model provided evidence of good model fit. According to Garson (2013), a good model fit would increase the hit rate by 25% beyond the chance hit rate. The chance hit rate for this model was 51.7%; therefore, the improvement criterion would be (0.517*1.25) or 64.6%. The PRE of the model was found by determining the percentage of the increase of the final hit rate when comparing the chance hit rate.

$$PRE = \frac{(Full\ model\ hit\ rate - Chance\ hit\ rate)}{Chance\ hit\ rate} = \frac{(0.657 - 0.517)}{0.517} = 0.272 \quad (6)$$

The full model correctly classified 65.7% of the degree aspirations for students in the sample, greater than a 25% increase in hit rate. The PRE was 27.2%, which suggested that the model was able to efficiently predict graduate vs. baccalaureate or lower degree aspirations of the AA student sample. Although the first block did not add

to the predictive capacity of the null model, the second and third block of the hierarchical model contributed to the predictive capacity beyond the null. The model summary, Hosmer and Lemeshow test, and classification results are shown in Table 22.

Table 22

Model Summary of Logistic Regression for *Graduate Aspirations of Associate of Arts Degree Student Sample*

	Model Summary			Hosmer and Lemeshow Test			Classification
Block	-2 Log Likelihood	Cox & Snell R^2	Nagelkerke R^2	χ^2	*df*	Sig.	% Correct
0	-	-	-	-	-	-	51.7
1	809.21	.044	.059	6.494	4	.165	57.9
2	748.39	.136	.181	13.593	8	.093	66.1
3	748.36	.136	.181	10.662	8	.222	65.7

Note. The null model classification percentage was based on assumption of 100% masters or higher and used no predictor variables.

Following is a review of the conditional effects of AS and AA students. The full results of the logistic regression test for the AA student degree sample are found in Table H2 of Appendix H.

Comparison of graduate aspirations of the AS and AA student

The variables included in the AS and AA student samples were all found to be significant predictors of degree aspirations in the full and the all-associate student samples when reviewing graduate aspirations. Within the conditional effects test, two of these predictor variables, planning courses in advance and highest degree earned, became non-significant. The comparison of the youngest and oldest age groups yielded significant influence for all three blocks in the model. Although the first block within the AA sample showed the most influence on age in terms of significance ($p < .01$ vs. $p <$

.05), the odds that a student would aspire to graduate studies within the AS sample became stronger in the second and third blocks. Table 23 shows the significance levels and odds ratios for students under 25 and over 39 within both the AS and AA model.

Table 23

Influence of Age on Graduate Degree Aspirations for Associate of Science (AS) and Associate of Arts (AA) Students

	Block 1		Block 2		Block 3	
Sample(variable)	*B*	Inv. odds	*B*	Inv. odds	*B*	Inv. odds
AS (<25, 25-39)	-0.503	1.653	-0.736	2.088	-0.799	2.222
AA (<25, 25-39)	-0.297	1.346	-0.106	1.112	-0.107	1.112
AS (<25, 40+)	-0.860*	2.364	-1.275*	3.584	-1.239*	3.488
AA (<25, 40+)	-0.953^	2.591	-0.573*	1.773	-0.569*	1.767

Note. Dependent Variable: 0 = baccalaureate or lower; 1 = master's or higher
*$p < .05$; ^ $p < .01$

As shown in Table 24, age had more influence on degree aspirations for students in collegiate workforce AS degrees, particularly when comparing the oldest group (40 years and older) with the youngest group (24 years and younger). When all variables were put into the regression test, students 24 and younger were almost 3.5 times more likely to aspire to a graduate degree if they were in the AS student group and about 1.8 times more likely if they were in the AA student group than students 40 and older.

For students in the AA group, gender was found to have significant influence on graduate aspirations, but the variable was non-significant within the AS group. Within the first block of the AA sample, males were significantly ($B = 0.543$, Wald = 7.443, $df = 1$, $p < .01$) more likely to aspire to a graduate degree than females. The significant

influence of gender within the AA group held throughout the three blocks within the model; and although it was strongest in the first block, the effect size was relatively small (R^2 = 0.059). Table 24 shows the influence of gender on graduate degree aspirations between the students in different degree types.

Table 24

Influence of Gender on Graduate Degree Aspirations for Associate of Science (AS) and Associate of Arts (AA) Students

	Block 1		Block 2		Block 3	
Sample(variable)	*B*	Odds Ratio	*B*	Odds Ratio	*B*	Odds Ratio
AS (F, M)	0.330	1.391	0.294	1.342	0.257	1.293
AA (F, M)	0.543^	1.722	0.436*	1.547	0.439*	1.551

Note. Dependent Variable: 0 = baccalaureate or lower; 1 = master's or higher
*$p < .05$; ^ $p < .01$

Another predictor variable that had conditional effects between the two samples was participation in student groups. For the AS student group, participation in at least one student group was significant in block two (B = 1.092, Wald = 7.519, df = 1, $p < .01$) and in the final block (B = 1.026, Wald = 6.412, df = 1, $p < .05$). The odds that students in the AS student sample would aspire to a graduate degree if they participated in at least one student group increased by 2.79 times. There was no significant influence of participation in student groups within the AA student sample. Table 25 shows the influence of participation in a student group for students within the AS and AA groups.

Table 25

Influence of Participation in One or More Student Groups on Graduate Degree Aspirations for Associate of Science (AS) and Associate of Arts (AA) Students

	Block 2		Block 3	
Sample(variable)	*B*	Odds Ratio	*B*	Odds Ratio
AS (none, 1+)	1.092^	2.982	1.026*	2.789
AA (none, 1+)	0.410	1.506	0.412	1.510

Note. Dependent Variable: 0 = baccalaureate or lower; 1 = master's or higher
*$p < .05$; ^ $p < .01$

Finally, the primary reason for attendance variable showed significance within the AS and AA group models. However, though only two options compared to the reference group showed significance for the AS degree group, all three pairs were significant in the AA student group. The pair that differed between the two groups was in the comparison of the reference category (help get job/enhance skills for current job) and the students who responded "other" for the survey item. A total of 18 AS students and 63 AA students provided "other" responses. What these responses meant was not clear, but there was evidence that it was significantly different depending on students' group. Table 26 shows the influence of primary reason for attendance on the graduate aspirations of students within the AS and AA student groups.

Table 26

Influence of Primary Reason for Attendance on Graduate Degree Aspirations for Associate of Science (AS) and Associate of Arts (AA) Students

	Block 2		Block 3	
Sample(variable)	*B*	Odds Ratio	*B*	Odds Ratio
AS (job/skls, trnsfr)	1.893^	6.636	1.743^	5.715
AA (job/skls,trnsfr)	1.712^	5.538	1.716^	5.560
AS (job/skls, high deg)	1.474^	4.366	1.480^	4.393
AA (job/skls, high deg)	1.020^	2.774	1.022^	2.778
AS (job/skls, other)	0.330	1.391	0.223	1.250
AA (job/skls, other)	1.010^	2.747	1.014^	1.458

Note. Dependent Variable: 0 = baccalaureate or lower; 1 = master's or higher
*$p < .05$; ^ $p < .01$

Regression analysis for baccalaureate aspirations by associate degree type

The logistic regression tests for baccalaureate aspirations of associate degree students by degree type had the same complications as the full associate sample. Ultimately, the model was found to be ineffective in predicting baccalaureate degree aspirations of Associate in Science and Associate in Arts degree students beyond the null model. The final regression tests are included in Tables H3 and H4 of Appendix H. Following is a review of the models of good fit.

Baccalaureate aspirations of the Associate in Science degree sample.

A logistic regression analysis for Associate in Science degree students was conducted to determine if baccalaureate degree aspiration (bachelors or higher vs. associate degree) could be predicted by the variables related to college entry characteristics, academic integration, and academic achievement. Good model fit was evidenced by non-statistically significant results of the Hosmer and Lemeshow test, (χ^2 =

3.26, *df* = 7, *p* = .86) and a medium effect size when interpreted using Cohen's (1988) ES indices for translated R^2 values (0.02 = small; 0.13 = medium; 0.26 = large). The effect size was determined using the Nagelkerke R^2 value (0.165). These results suggested that the variables were suitable for the logistic regression test, and significance in the model had a medium effect on the predictive capacity of the outcome variable. Although the model appeared to have good overall fit, and had a medium effect on the outcome variable, overall, the model did not increase the predictive capacity beyond the null. Table 27 shows the hit rate of the null model and the full model for the associate degree sample.

Table 27

Classification Table of the Logistic Regression for Baccalaureate Aspirations for the Associate in Science Degree Sample

	Null Model Predicted Classifications			Full Model Predicted Classifications		
Observed	Associate	Baccalaureate or higher	% Correct	Associate	Baccalaureate or higher	% Correct
Associate degree	0	63	0	13	50	20.6
Baccalaureate or higher	0	143	100	12	131	91.6
Hit Rate			69.4			69.9

Reviewing the improvement of the hit rate from the null model to the full model also provided evidence that the variables in the model were not effective at proportional reduction of error. According to Garson (2013), a good model fit would increase the chance hit rate by 25%. The chance hit rate for this model was 69.4%; therefore, the improvement criterion would be (0.694*1.25) or 86.8%. The PRE was found by

determining the percentage of the increase of the hit rate when comparing the null model to the full model.

$$PRE = \frac{(Full\ model\ hit\ rate - Chance\ hit\ rate)}{Chance\ hit\ rate} = \frac{(0.699 - 0.694)}{0.694} = 0.007 \quad (7)$$

The full model correctly classified about 69.9% of the degree aspirations for students in the sample. However, the small increase in the hit rate from the null to the full model and the small PRE (0.70%) provided little evidence that the model was suitable to help predict baccalaureate degree aspirations. The model summary, Hosmer and Lemeshow test, and classification results are shown in Table 28.

Table 28

Model Summary of Logistic Regression for Baccalaureate Aspirations of Associate in Science Degree Students

	Model Summary			Hosmer and Lemeshow Test			Classification
Block	-2 Log Likelihood	Cox & Snell R^2	Nagelkerke R^2	χ^2	*df*	Sig.	% Correct
0	-	-	-	-	-	-	69.4
1	284.12	.027	.038	0.029	4	.999	69.4
2	228.46	.115	.163	5.614	8	.690	70.4
3	228.15	.117	.165	3.262	7	.860	69.9

Note. The null model classification percentage was based on assumption of 100% baccalaureate or higher and used no predictor variables.

The lack of improvement to the model can be attributed to the large proportion of students who had baccalaureate intentions or higher compared to associate aspirations.

Garson (2013) observed that the more lopsided the outcome variable, the more difficult it was for a model to show improvement on the null.

Baccalaureate aspirations of the Associate in Arts degree sample.

A logistic regression analysis for Associate in Arts degree students was conducted to determine if baccalaureate degree aspiration (bachelors or higher vs. associate degree) could be predicted by the variables related to college entry characteristics, academic integration, and academic achievement. Good model fit was evidenced by non-statistically significant results of the Hosmer and Lemeshow test, ($\chi^2 = 8.120$, $df = 8$, $p = .422$) and a large effect size when interpreted using Cohen's (1988) ES indices for translated R^2 values (0.02 = small; 0.13 = medium; 0.26 = large). The effect size was determined using the Nagelkerke R^2 value (0.133). These results suggested that the variables were suitable for the logistic regression test, and significance in the model had a medium effect on the predictive capacity of the outcome variable. The model appeared to have good overall fit and had a medium effect on the outcome variable. Overall, however, the model had no effect on the predictive capacity beyond the null. Table 29 shows the hit rate of the null model and the full model for the associate degree sample.

Table 29

Classification Table of the Logistic Regression for Baccalaureate Aspirations for the Associate in Arts Degree Sample

	Null Model Predicted Classifications			Full Model Predicted Classifications		
Observed	Associate	Baccalaureate or higher	% Correct	Associate	Baccalaureate or higher	% Correct
Associate degree	0	92	0	0	92	0.0
Baccalaureate or higher	0	512	100	0	512	100
Hit Rate			84.8			84.8

Reviewing the improvement of the hit rate from the null model to the full model also provided evidence that the variables in the model were not effective at proportional reduction of error. According to Garson (2013), a good model fit would increase the chance hit rate by 25%. The chance hit rate for this model was 84.8%; therefore, the improvement criterion was (0.848*1.25) or 106.0%. The PRE was found by determining the percentage of the increase of the hit rate when comparing the null model to the full model.

$$PRE = \frac{(Full\ model\ hit\ rate - Chance\ hit\ rate)}{Chance\ hit\ rate} = \frac{(0.848 - 0.848)}{0.848} = 0.0 \quad (8)$$

The full model correctly classified 84.8% of the degree aspirations for students in the sample. However, the small lack of any increase in the hit rate from the null to the full model and the PRE = 0.0% provided little evidence that the model was suitable to

help predict baccalaureate degree aspirations. The model summary, Hosmer and Lemeshow test, and classification results are shown in Table 30.

Table 30

Model Summary of Logistic Regression for Baccalaureate Aspirations of Associate in Science Degree Students

	Model Summary			Hosmer and Lemeshow Test			Classification
Block	-2 Log Likelihood	Cox & Snell R^2	Nagelkerke R^2	χ^2	*df*	Sig.	% Correct
0	-	-	-	-	-	-	84.8
1	505.36	.017	.029	2.460	3	.482	84.8
2	467.60	.076	.133	2.359	8	.968	84.8
3	467.42	.076	.133	8.120	8	.422	84.8

Note. The null model classification percentage was based on assumption of 100% baccalaureate or higher and used no predictor variables.

The lack of improvement to the model can be attributed in part to the large proportion of students who had baccalaureate intentions or higher compared to associate aspirations, i.e., the more lopsided the outcome variable, the more difficult for a model to show improvement on the null (Garson, 2013). Although the model did not help predict baccalaureate aspirations beyond the null, some variables were found to have conditional effects between the two groups. Reviewing these variables can help practitioners better understand the types of students who pursue these degrees and inform practice or policy. Students 40 and older in the AS degree sample were significantly less likely (B = -1.066, Wald = 4.214, df = 1, $p < .05$) to have baccalaureate degree aspirations than students in the youngest age group. Students in the younger than 25 group were 2.91 times more likely to have baccalaureate aspirations than the oldest group.

Comparison of baccalaureate aspirations of AS and AA students

There were a number of variables that showed conditional effects between AS and AA student degree types. Among those that were significant for one group, but not for the other was age, gender, primary reason for attendance, and planning courses in advance. Table 31 shows the conditional effects within the tests for baccalaureate aspirations by degree type. The following is a brief description of the variables that showed conditional effects between the degree types.

Age was significance predictor of baccalaureate degree aspirations for AS students, when comparing the reference group to the oldest group. However, age was not a significant predictor of baccalaureate degree aspirations within the AA degree sample. Gender was found to be significant within the AA degree sample ($B = 0.691$, Wald = 4.193, $df = 1$, $p < .05$). Male students in the AA degree program were nearly two times more likely to aspire to a baccalaureate degree than female students. Gender was not a significant predictor of baccalaureate aspiration within the AS degree group.

Another variable that had conditional significance between the degree types was, students' stated primary reason for attendance was showed conditional effects when comparing baccalaureate aspirations of AS and AA degree types. The difference between the groups was for the response; earn a higher degree at this institution. When comparing students who stated that their primary reason for attendance was to prepare for a higher degree at this institution to the reference group, students who stated their primary reason for attendance was to get a job or to enhance skills for current job, AS student showed no difference between the responses. However, AA students that stated

their primary reason for attendance was to prepare for a higher degree at this institution were significantly more likely ($B = 0.830$, Wald = 7.512, $df = 1$, $p < .01$) to aspire to a baccalaureate degree.

Finally planning courses at least one semester ahead was a significant predictor of baccalaureate aspirations for students in the AS degree group ($B = 0.889$, Wald = 6.205, $df = 1$, $p < .05$). Students who were more active in planning their courses were 2.43 times more likely to aspire to a baccalaureate degree. Course planning was not found to be a significant predictor of baccalaureate aspirations within the AA student group.

Table 31

Variables with Conditional Effects on Baccalaureate Degree Aspirations for Associate of Science (AS) and Associate of Arts (AA) Students

	Block 1		Block 2		Block 3	
Sample (variable)	*B*	Odds	*B*	Odds	*B*	Odds
AS Age (<25, 40+)	-0.790	.454	-0.433*	2.967+	-1.067*	2.907+
AA Age (<25, 40+)	-0.448	.639	0.075	1.078	0.064	1.067
AS Gender (F, M)	0.497	1.644	0.582	1.790	0.559	1.749
AA Gender (F, M)	0.832*	2.298	0.702*	2.018	0.691*	1.996
AS Reason for Attend (job/skills, High deg)	-	-	0.532	1.703	0.520	1.681
AA Reason for Attend (job/skills, High deg)	-	-	0.834^	2.302	0.830^	2.293
AS Plan courses (no, least 1 sem in advance)	-	-	0.914*	2.495	0.889*	2.433
AA Plan courses (no, least 1 sem in advance)	-	-	0.208	1.231	0.200	1.221

Note. Dependent Variable: 0 = associate degree; 1 = baccalaureate or higher
+Inverse odds shown for significant negative influence of age groups
*$p < .05$; ^ $p < .01$

Research Question 2

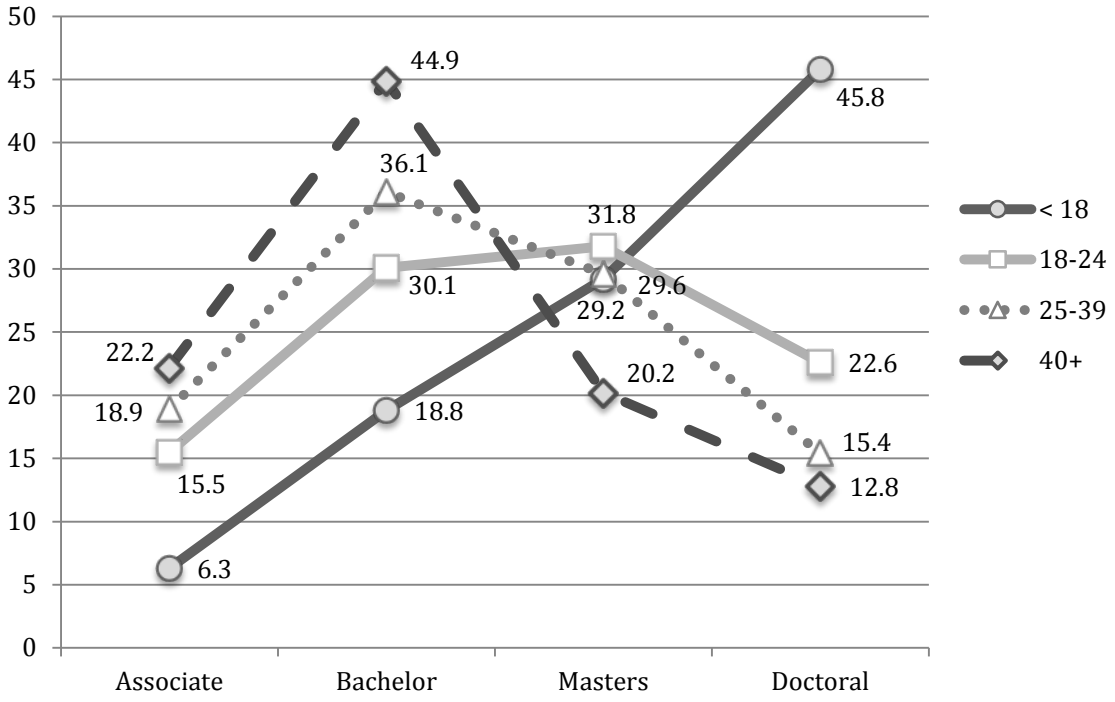
Is there evidence that students' reasons for enrollment align well with the degree they are pursuing and their ultimate educational goals?

The variables of interest for this research question were age, current degree type, primary reason for attendance, and educational goals of the students. The purpose of this analysis was to determine the extent to which students pursue their educational goals through established articulation methods such as the collegiate transfer degree, or through new or non-standard articulation methods. The collegiate workforce articulation model in which students pursue an AS degree to transfer to the university or to a community college baccalaureate degree were examples of new or non-standard tracks. Additionally, students who were pursuing a community college baccalaureate and stated they intended to pursue graduate studies were following a non-standard track. Finally, AA students who aspire to baccalaureate degrees that are offered by community colleges are now pursuing a new route to these degrees. Research Question 2 addressed students' educational goals and their plans to attain those goals. To provide analysis to respond to this research question, descriptive statistics were used to review the students' degree type, stated reason for attendance, and their highest educational goal.

Data Analysis for Research Question 2

Although the majority of students in all age groups had baccalaureate degree aspirations or higher, educational goals of students under 18 were clearly the loftiest. Understanding degree aspirations for students in different age groups can provide insight as to how students enroll in programs that can ultimately lead to their educational goals.

Figure 13 shows the dramatic difference between the degree aspirations of students by age group.



Note. Sample sizes for the different groups: n = 48 for under 18 year-olds; n = 296 for 18-24 year-olds; n = 280 for 25-39 year-olds; n = 243 for students 40 years and older.

Figure 13. Highest Educational Goals by Age Group

The percentage of students that aspired to at least a bachelor's degree ranged from 78% for students 40 and older to 94% for students under 18 years old. Though there were high percentages of students in each age group that aspired to baccalaureate degrees or higher, the reasons for enrollment show greater differences between response items. Table 32 shows the primary reason for attendance reported by students in the entire sample.

Table 32

Primary Reason for Attendance by Age Group

Primary Reason	Under 18		18-24		25-39		40 or Older	
	n	%	*n*	%	*n*	%	*n*	%
Get Job or enhance skills	3	6.3	66	22.3	101	36.2	91	37.6
Transfer to another institution	31	64.6	158	53.4	81	29.0	33	13.6
Higher degree at this institution	3	6.3	53	17.9	79	28.3	77	31.8
Other	11	22.9	19	6.4	18	6.5	41	16.9
Total[a]	48	5.5	296	34.2	279	32.3	242	28.0

Note. Two missing cases.
[a]Total percentage is based on full sample

More than 36% (*n* = 101, *n* = 91) of students in the 25-39 year-old age group and the 40 or older age group stated that their primary reason for attendance was to get a job or enhance their skills for their current job. Just 22% (*n* = 66) of traditional age students reported this as their primary reason. More than 53% (*n* = 168) of traditional age students noted that their primary reason for attending was to transfer to another institution. Only 29% (*n* = 81) of students in the 25-39 year-old age group stated the same reason, and less than 14% (*n* = 33) of students 40 or older had this as their primary reason. Approximately 18% (*n* = 53) of students 18-24 years old stated that their primary reason for attendance was to pursue a higher degree at the institution they were attending when they answered the survey. Approximately 28% (*n* = 79) of the students in the 25-39 year-old group and 32% (*n* = 77) of the 40 or older group indicated that their primary reason for attendance was to pursue a higher degree at the same institution.

Associate in Arts Students.

As shown in Table 33, more than 42% (*n* = 258) of AA students with baccalaureate and graduate aspirations were planning to pursue the standard collegiate transfer articulation track (for transfer tracks, see Figure 7). Traditional age students accounted for the largest percentage of respondents who indicated their primary reason for attending was to transfer to another institution. More than 54% (*n* = 138) of all AA students age 18-24 were clearly following the collegiate transfer track. Students in the 25-39 year-old age group who had collegiate transfer plans accounted for about 37% (*n* = 64) of the age group and only about 19% (*n* = 26) of students in the 40 or older age group had plans to transfer.

More than 26% (*n* = 53) of AA students with baccalaureate aspirations were planning on pursuing a community college baccalaureate degree. About 61% (*n* = 36) of these students were non-traditional age. Although the primary purpose of the AA degree in Florida is to prepare student for a baccalaureate degree, more than 28% (*n* = 57) of students with baccalaureate aspirations stated that their primary reason for attendance was to help get a job or enhance their skills for their current job. With the exception of students under 18, nearly identical proportions of students with baccalaureate aspirations in each age group responded in this manner. These types of responses may indicate that these students had educational goals that support intermediate and/or long-term occupational goals.

Table 33

Associate of Arts Student Degree Aspirations and Primary Reason for Attendance

Primary Reason	Under 18	18-24	25-39	40+	*n*	%
Aspire to graduate degree						
Get job or enhance skills	1	13	7	9	30	9.5
Transfer to another institution	25	100	46	17	188	59.3
Higher degree at this institution	1	22	31	15	69	21.8
Other	9	8	4	9	30	9.5
Aspire to baccalaureate degree						
Get job or enhance skills	0	15	21	21	57	28.5
Transfer to another institution	5	38	18	9	70	35.0
Higher degree at this institution	2	15	14	22	53	26.5
Other	1	7	4	8	20	10.0
Aspire to associate degree						
Get job or enhance skills	1	14	9	14	38	41.3
Transfer to another institution	1	11	5	0	17	18.5
Higher degree at this institution	0	9	8	6	23	25.0
Other	1	3	4	6	14	15.2
Grand Total	47	255	171	136	609	

More than 18% (n = 17) of students reported that their highest education goal was an associate degree and also indicated that their primary reason for attendance was to either transfer to another institution or to pursue a higher degree at the same institution. These data are difficult to interpret as they could indicate that these AA degree students (a) were truly planning on transferring to another institution to complete the same level degree, (b) that they may be hoping to pursue a limited access associate degree and were temporarily categorized as AA degree students, or (c) that they had plans to complete the associate degree and hope to transfer, but may not have finalized their decision to do so.

Yet another possibility is that the respondent interpreted the question in a manner that was not intended by the survey designers.

Although nearly 50% (n = 302) of all respondents were younger than 25, these students accounted for more than 66% (n = 125) of the students who aspired to a graduate degree and planned on transferring to a university. Nearly 22% (n = 69) of all students who aspired to a graduate degree also indicated that they had plans to pursue a higher degree at the community college. These students appeared to be planning on pursuing the new track to graduate studies through the community college baccalaureate degree.

Associate in Science Students

As shown in Table 34, nearly 39% (n = 26) of AS students with graduate aspirations stated that their primary reason for attending was to pursue a higher degree at the institution they were attending. These students were planning on pursuing the new collegiate workforce articulation models (for transfer tracks, see Figure 7). Almost 27% (n = 18) of AS degree students with graduate aspirations were planning on transferring and about 30% (n = 20) stated their primary reason for attendance was occupational. More than 77% (n = 51) of the students with baccalaureate and graduate aspirations pursuing collegiate workforce articulation tracks were nontraditional age students.

More than 32% (n = 67) of AS students with baccalaureate and graduate aspirations stated that their primary reason for attending was to help get a job or enhance their skills for their current job. Once again, this indicates that students had educational goals that may support intermediate and/or long-term occupational goals. These students

were in a program designed to lead directly to the workforce, but they also expressed a desire to continue on to higher educational goals.

Table 34

Associate of Science Student Degree Aspirations and Primary Reason for Attendance

Primary Reason	Under 18	18-24	25-39	40+	*n*	%
Aspire to graduate degree						
Get job or enhance skills	0	7	10	3	20	29.9
Transfer to another institution	0	7	7	4	18	26.9
Higher degree at this institution	0	3	12	11	26	38.8
Other	0	7	10	3	20	4.5
Aspire to baccalaureate degree						
Get job or enhance skills	1	7	25	14	47	61.0
Transfer to another institution	0	2	4	1	7	9.1
Higher degree at this institution	0	3	6	6	15	19.5
Other	0	0	2	6	8	10.4
Aspire to associate degree						
Get job or enhance skills	0	8	18	13	39	61.9
Transfer to another institution	0	0	1	1	2	3.2
Higher degree at this institution	0	1	6	8	15	23.8
Other	0	0	1	6	7	11.1
Grand Total	1	39	93	74	207	

Note. Two missing cases.

Overall nontraditional age students accounted for a little more than 80% (*n* = 167) of the entire sample. Proportionally compared to the AS degree sample, two responses were weighted more heavily with nontraditional age students. Approximately 85% (*n* = 35) of students with baccalaureate or graduate degree aspirations who planned on pursuing the community college baccalaureate degree were nontraditional age students.

In addition, 83% (*n* = 39) of AS students with baccalaureate degree aspirations reported their primary reason for attendance was to get a job or enhance skills for their current job were nontraditional age students.

Bachelor of Applied Science Students

The degree aspirations and reason for attendance were perhaps most clearly aligned in the BAS student sample. Approximately 41% (*n* = 20) of all BAS students had baccalaureate aspirations and reported that their primary reason for attendance was to get a job or enhance their skills for their current job. This is the intent of the BAS degree, to provide a direct connection to the workforce. Almost 39% (*n* = 19) of all BAS Students had graduate degree aspirations. Should these students attain their highest educational goal, they would be following a new track toward graduate studies and the professional workforce. Due to the small sample of BAS students no further observations have been discussed. Table 35 shows BAS students' primary reason for attendance, degree aspirations, and age ranges.

Table 35

Bachelor of Applied Science Student Degree Aspirations and Primary Reason for Attendance

Primary Reason	18-24	25-39	40+	*n*	%
Aspire to graduate degree					
Get job or enhance skills	0	5	5	10	52.6
Transfer to another institution	0	0	1	1	5.3
Higher degree at this institution	0	1	1	2	10.5
Other	0	2	4	6	31.6
Aspire to baccalaureate degree					
Get job or enhance skills	2	6	12	20	66.7
Transfer to another institution	0	0	0	0	0.0
Higher degree at this institution	0	1	8	9	30.0
Other	0	0	1	1	3.3
Total	2	15	32	49	

Research Question 3

To what extent does Carter's model help explain the factors that influence community college student degree aspirations?

In order to address Research Question 3, an analysis of the findings from the logistic regression model in comparison to two other research studies was performed. In Carter's (2001) theoretical model, which was used as a basis for this research, Carter reviewed how factors within the model she developed helped explain the degree aspirations of African American and White Students. Pascarella et al. (2004) used Carter's model with a different set of data to review graduate aspirations of African American, White, and Hispanic students. The findings of Pascarella et al. were relatively consistent with the findings of Carter even though different datasets and combinations of variables were used in their research. The following section contains a review of how the

revised theoretical model in this study contributed to the predictive capacity of community college student degree aspirations and a comparison of the findings from this study with those of Carter (2001) and Pascarella et al. (2004).

Data Analysis for Research Question 3

Although the model used for this research was an outgrowth of Carter's (2001) model, there were differences in the statistical procedures used for implementation of the variables and the independent variables used within the research. The main procedural differences between this study and Carter's was that she used an OLS regression technique and conducted the tests using race as a grouping category. The OLS procedure is similar to the logistic regression in that both procedures allow for the exploration of how multiple predictor variables influence the outcome variable. Thus, it is possible to compare variables across studies to determine if they have similar influence on degree aspirations. However, both groups from Carter's study need to be considered when determining if results of the test were similar to those in the current study. The students in both samples of Carter's research (BPS and CIRP) were traditional college age, from four- and two-year institutions. Carter used a random sample of White students, so the final sample was comprised of approximately equal proportions of Black and White students from each dataset.

Pascarella et al. (2004) used a logistic regression to test for graduate aspirations of students at four-year institutions. The test was not completed in a hierarchical manner; all variables were entered at the same time for the research. The students were primarily traditional age, and the final sample was made up of 73% White, 15% Black, and 12%

Hispanic students. Pascarella et al. (2004) first ran the statistical procedure for the entire group, then separately by race. For comparison purposes, Pascarella et al.'s combined sample was reviewed against the combined associate degree sample for the current research.

The R^2 in Carter's research increased with each block of variables reported in the BPS and CIRP samples with a final $R^2 = 0.38$ and $R^2 = 0.61$ (BPS); $R^2 = 0.40$ and $R^2 = 0.35$ (CIRP) for African American and White students in each dataset respectively. This indicated that between 38 and 61% of the variance was accounted for by the variables within the models. Pascarella et al. (2004) reported the percentage of classifications that were correct, but the pseudo R^2 values, the proportional reduction of error (PRE), and the percentages classified accurately by the null model were not reported. The combined sample had a hit rate of approximately 83%. Although the high classification rate was positive, having an idea about how the model contributed to the null would be useful in determining how well the model helps predict graduate aspirations.

Within the present research, the predictive capacity of baccalaureate aspirations using the revised model was not substantially increased for any of the groups reviewed and had no influence when predicting baccalaureate aspirations of AA degree students. Of all the versions of the logistic procedure completed for Research Question 1, the model contributed the most to the predictive capacity for graduate aspirations for all associate degree students. The null model for the AA student group correctly classified degree aspirations only 53% of the time. The full model of the logistic procedure for the same group yielded 71% accuracy in classifications of graduate aspirations. The PRE

was nearly 34% when all the variables were entered into the test. Because the model that reviewed graduate aspirations for all the associate students combined added the most predictive capacity to the null model, this iteration of the test was used to compare to the other two studies.

Although all three studies used Carter's theoretical model as a starting point, only the current research and Carter used a hierarchical regression model to explore the conceptual groupings. The study by Pascarella et al. (2004) entered all the variables in at one time and reported on the variables with reference to the conceptual group. By entering the variables in separate groups it is possible to see how the different portions of the conceptual model influence degree aspirations.

Carter's (2001) model used four blocks in the hierarchical procedure: (a) pre-college characteristics; (b) initial degree aspirations; (c) initial orientations/expectations and institutional characteristics; and (d) financial support, involvement, and academic achievement. The current research used only three levels within the hierarchical model. The first level of the current research was approximately equivalent to level one of Carter's research. Level two of the current research used variables related to external responsibilities, student involvement, and financial support. The final block of the current research used academic achievement apart from all other conceptual groupings. By entering only academic achievement variables, the final block of the full model showed how these variables contribute beyond all previous blocks entered.

The differences in the datasets, grouping variables, and variables within each conceptual grouping presented a challenge when comparing results between the current

research and the two other studies. The revised model was helpful in understanding graduate degree aspirations of students pursuing different degrees at a community college. Following is a review of common variables contained in the current study and two studies that used the original theoretical model.

Carter's (2001) research used data from the BPS and CIRP longitudinal studies. The population of students was primarily traditional age students at two- and four-year institutions. There were seven common variables in the two datasets and the data used for the current research. The variables in common included age, gender, number of hours worked each week, faculty contact, peer contact, scholarships received, and loans taken. Each dataset had one additional variable in common with the data used in this study. The BPS data included number of dependents, and the CIRP dataset included college GPA. Pascarella et al. (2004) used the National Study of Student Learning (NSSL) data for students who were in their third year at four-year institutions. The variables in common with the current research included age, gender, work hours, peer contact, college GPA, and credits completed.

Table 36 shows the common variables among the three different studies and four different datasets. The table shows significantly positive or negative predictor variables among the different studies. The first two columns represent Carter's (2001) research with the BPS and CIRP data. These tests were grouped by race (Black and White), noted along with significant variables. The third column contains Pascarella et al.'s (2004) graduate aspirations of the combined sample of students in the NSSL dataset. The last column represents findings from the graduate aspirations of all associate degree students

in the current research. All significance levels were taken from the full models of the tests.

Table 36

Comparison of Common Predictors of Degree Aspirations Among Three Different Studies

Variable	Carter (2001) BPS	Carter (2001) CIRP	Pascarella (2004) NSSL	Quathamer (2014) Associate Sample
Being older	Pos B, Neg W	Non	Neg	Neg
Being female	Non	Non	Neg	Non
Having children	Neg B	NA	NA	Non
Hours working	Non	Neg W	Non	Non
Faculty contact	Pos B	Non	NA	Non
Peer contact	Non	Pos B	Non	Pos
Scholarship	Non	Neg B	NA	Neg
Loan	Non	Non	NA	Non
GPA	NA	Pos B	Non	Pos
Credits completed	NA	NA	Non	Non

Note. Pos = significant positive influence; Neg = significant negative influence; Non = non-significant; NA = not addressed in research. Within Carter's models, B = Black students and W = White students. Pascarella et al. (2004) results from the combined sample of all students' graduate aspirations; Quathamer (2014) reviewed graduate aspirations for all associate degree students. All results were reported from the full models for each test and dataset.

Although the samples for the three studies were quite different, the variables reviewed that were common to all the tests were generally in agreement. There were four instances in which significance was not found in the current sample but was found in another dataset. However, at most, only one dataset was different from the non-significant finding of the current study and three of the four were different for only one of the groups within those tests. For example, having children was found to have negative influence on degree aspirations of Black students in the BPS dataset, but it was non-

significant for White students within the dataset as well as all the students in the other three datasets.

There were four variables that had significant influence on degree aspirations within the current research. In all four cases, at least one other test showed significance and had the same direction (positive or negative). With the exception of the age variable, there was directional agreement for all the significant variables between the four different datasets reviewed. Carter's (2001) model showed that age had an opposite influence on Black and White students. The NSSL combined dataset and the data for the current research had a high percentage of White student responses. Being older was found to have a negative influence on the degree aspirations of White students in the BPS data and negative overall for the entire NSSL set as well as the data used in the current study.

In three of the four tests, the gender variable was found to be non-significant, and whereas in the test using NSSL data, gender was found to have a significant negative influence on degree aspirations. Only the CIRP data analysis showed significant negative influence of increased work hours on degree aspirations of White students. Faculty contact was only found to have significant positive influence on Black students within the BPS dataset. However, this variable was non-significant in the CIRP data and the current research.

Peer contact was defined as participation in student groups in the current research and as a factor of several variables within the CIRP data. Participation in student clubs had the highest factor loading for the CIRP variable peer contact. In other words, student clubs accounted for the most influence within the peer contact factor for the CIRP data.

Peer contact was found to be a significantly positive contributor in both the CIRP data (Black students only) and the current research.

The final variable common to the different studies that was found to be a significant positive influence on degree aspirations was college GPA. This variable was entered within the last block for each of the hierarchical models and was able to contribute to the model beyond all the variables within the previous blocks. However, in Carter's research, academic achievement was combined with institutional support variables. The current research used only academic achievement in the final block.

In summary, all four of the significant variables found to be significant within the current research were also found to be significant within at least one other dataset. Two of the non-significant findings within this research had no contradictions within the other datasets. For the most part, significant findings from all the datasets had directional agreement.

CHAPTER FIVE: DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

Introduction

This chapter presents a discussion of the findings from the data analysis for all of research questions followed by a review of the implications of the findings on practice and policy. Reflection on how this research contributed to the literature on community colleges, the students who attend, and suggestions for future research on student degree aspirations are also presented.

The three research questions in this study were designed to investigate how students' educational goals were influenced by their background, their college experience, and their academic achievement. Research Question 1 was exploratory in design, using a conceptual framework to determine which variables influenced community college student degree aspirations. Research Question 2 enabled a more direct look at how students utilize the community college in their paths to their educational goals. Research Question 3 called for a review of the findings of the current study and a comparison to other research that utilized the same conceptual framework and similar analytical approaches.

The following discussion of the findings of the study have been organized around the three research questions which guided the study. By and large, the findings of the research indicated that students desire to pursue baccalaureate degrees. The importance of earning a baccalaureate seemed to weigh heavily on the students who responded to the institutional survey. Although the goals of these students were relatively clear, the

institution would benefit from reviewing the outcomes of the research to determine how best to encourage and maintain student degree aspirations through to degree attainment. Generally, the population comprised of two groups of students: those who seem likely to want to pursue community college baccalaureate degrees and those who have more traditional intentions to transfer to reach their educational goals.

Discussion of Findings

Research Question 1

How do college student entry characteristics, external responsibilities, academic integration, institutional support, and academic achievement influence degree aspirations of community college students that are pursuing different types (AS, AA, Baccalaureate)?

The logistic regression tests used for data analysis to respond to this research question enabled a perspective on how a large number of variables influenced the dependent variable, degree aspirations. The overall model was able to improve the predictive capacity of graduate aspirations relatively well. However, in predicting baccalaureate aspirations, the model was not able to contribute much beyond the null. This is due to the lopsided outcome variable, baccalaureate aspirations. Nearly 81% (n = 662) of all students pursuing associate degrees had aspirations for at least a baccalaureate degree and only about 19% (n = 156) stated that their highest educational goal was an associate degree. This is similar to the findings of an NCES (2011) report which noted that nearly 85% of all students in associate degree programs aspire to earn a baccalaureate or higher.

The null model of the logistic regression assumed that 100% of the outcome variables would fall into the larger of the two categories. Thus, for baccalaureate aspirations in the current study, the null model assumed that students aspired to baccalaureate degrees, and correctly identified almost 81% of the students. Although some predictor variables still showed significance when baccalaureate aspirations were tested, with the outcome variable so lopsided it was more difficult for the model to add to the predictive capacity. Garson (2013) noted that though the predictor variables can reflect significance in these sorts of cases, the variables do not help predict the outcome when compared to simple guessing. Although the model did not improve estimates of baccalaureate aspirations, it could still be useful in reviewing the types of students that aspire to associate degrees vs. baccalaureate degrees.

In order to clarify the report of findings for Research Question 1, Table 37 was created to show the various iterations of the logistic regression test, the sample, and the outcome variable definitions. Appendices G and H contain tables displaying the full results of the analyses.

Table 37

Reference Table of Logistic Regression Tests for Research Question 1

Test Number	Sample	Dependent Variable	Appendix Table
1	All associate and bachelor students	0 = baccalaureate or lower 1 = masters or higher	Table G1
2	All associate degree students	0 = baccalaureate or lower 1 = masters or higher	Table G2
3	All associate degree students	0 = associate degree 1 = baccalaureate or higher	Table G3
4	Associate in Science degree students	0 = baccalaureate or lower 1 = masters or higher	Table H1
5	Associate in Arts degree students	0 = baccalaureate or lower 1 = masters or higher	Table H2
6	Associate in Science degree students	0 = associate degree 1 = baccalaureate or higher	Table H3
7	Associate in Arts degree students	0 = associate degree 1 = baccalaureate or higher	Table H4

College entry characteristics

The college entry characteristics included age, gender, and race. Age and gender were found to have significant influence on degree aspirations within each of the tests. For the full sample of students in all degree programs (Test 1) and in the all associate degree sample (Test 2), it was apparent that traditional college-age students were more likely to aspire to graduate degrees than students 40 years and older. Additionally, students who were under 18 were more likely to aspire to graduate degrees than the 18-24 year-old group. These findings confirm earlier research (Alexander et al., 2008; Carter, 1999; Laanon, 2003; Pascarella et al., 2004) indicating that as students get older, their degree aspirations generally get lower. For logistic regression Tests 3-6, the age reference category, students under 25, were more likely to aspire to graduate and

baccalaureate degrees than the oldest group (40 and older). However, for Test 7, age was not found to be a significant predictor of baccalaureate degree aspirations.

The conditional effect of age by degree type for the outcome variable, baccalaureate aspirations, may highlight a few potential conclusions. First, for older students, these results seem to indicate that they had more direct alignment of their degree enrollment and their educational goals, particularly for the tests by degree type (Tests 4-7). If the purpose of the degree was to help with occupational opportunities, older students were less likely to aspire to degrees that were outside of the established articulation tracks.

For example, in Test 4, AS degree students in the oldest group were approximately 3.5 times less likely to have graduate aspirations than the youngest group. The difference for AA degree students in the oldest group (Test 5) was that they were only 1.8 times less likely to have graduate aspirations than the reference group. Test 6 and 7 also showed a smaller difference in degree aspirations between these two groups of students. AS students in the oldest group were close to 2.9 times less likely to have baccalaureate aspirations than the youngest group in Test 6. Test 7 showed no difference in baccalaureate aspirations between AA students in the youngest and oldest groups.

The opposite may be true of younger students who enroll in associate degree programs. These students showed a propensity to aspire to degrees that were outside the standard articulation tracks. Younger students in AS degree programs were significantly more likely to have graduate and baccalaureate aspirations than those students in the oldest group. Although the AS degree is not the most direct path to graduate studies,

younger students enrolled in these programs still expressed a desire to take this path. Their degree aspirations suggest that they may be better off enrolling in the collegiate transfer program, but their reasons for enrolling in the collegiate workforce degree may be to accomplish more immediate goals of employment along the way to their highest educational goals.

Gender was also found to have significant influence on degree aspirations for most of the tests. For the different iterations of the logistic regression tests, male students were more likely to have stated that their highest educational goals were graduate degrees (Tests 1, 2, and 5) and baccalaureate degrees (Tests 3 and 7). Tests 4 and 6 showed no significant influence of gender on degree aspirations. These tested the degree aspirations of AS students. In addition to showing no difference in the degree aspirations of students by gender, students in the AS degree sample (Tests 4 and 6) had lower aspirations in general; nearly 31% of AS students aspired to an associate degree, and approximately 69% aspired to a baccalaureate degree or higher. Only 15% of the students in the AA degree program aspired to an associate degree and nearly 85% aspired to a baccalaureate degree or higher. These percentages indicate that although AS degree students may enroll in programs that are more directly related to their educational goals, there was still a high percentage of students in these programs who aspired to higher degrees. Should AS degree students follow their higher aspirations, they would follow non-standard tracks to the baccalaureate degree.

Race was not found to have a significant influence on degree aspirations. This result was not entirely surprising, as Laanan (2003) had mixed results regarding race and

degree aspirations. Within the first block of Laanan's regression model, race was not a significant influence on degree aspirations, but within the full mode it became significant ($p < .05$). Carter (2001) only found the mean difference between degree aspirations of White and African American student to be significant for one of the two datasets used. However, Carter also found that African American students were significantly more likely to maintain degree aspirations. Although this research was not able to test degree aspirations at different times, the results of the Chi-square analysis that tested degree aspirations of Black, Hispanic, White students with varying amount of credits earned showed no significant difference (see Appendix I).

External responsibilities

No variables were found to have a significant influence on degree aspirations within the external responsibilities grouping. The variables within this group that were tested included an indication as to whether students had dependents, were homeowners, and whether they worked part-time, full-time, or not at all. The non-significant findings indicate that regardless of the students' responses to the external responsibilities items on the survey, they had similar degree aspirations. These results differ from those of Carter (1999) who found that the number of children students had and the number of hours worked each week were significant negative contributors to degree aspirations. Pascarella et al. (2004) also found work responsibilities to be a negative contributor to degree aspirations of African American students. The difference may be attributable to the sample of students for this research compared to the sample used in Pascarella et al. and Carter's research. Both of these studies used more traditional age students at four-

year institutions. As Cohen et al. (2014) noted "community college students often struggle to fit required courses, tutoring, and other educational activities into schedules constrained by part- or full- time jobs, family commitments, child-rearing responsibilities, long commutes, or other obligations" (p. 53). These more "traditional" community college students have external responsibilities, that may impact their ability to persist and attain their goals, but do not constrain their educational aspirations.

Academic integration

A number of academic integration variables were found to be significant predictors of graduate and baccalaureate degree aspirations. Among those influential variables were two that had conditional effects on students within different degree types. First, in a review of the full sample and full associate degree sample tests for graduate aspirations (Test 1 and 2), nearly the same variables between the first two tests were found to have the same influence on degree aspirations. The only exception was the influence student degree type had on graduate degree aspirations of the associate degree sample (Test 2). The reference group in Test 2 for degree type was AA degree students. Students who were pursuing an AS degree were significantly less likely to state that their educational goal was a graduate degree. Students in the AA degree were 1.6 times more likely to have graduate degree aspirations.

The other variables in Tests 1 and 2 that were found to be significant predictors of degree aspirations for the full model within the academic integration group were participation in student groups, academic reasons for attendance, and planning courses at least one semester in advance. Within the full sample, students who participated in at

least one student group were more likely to aspire to graduate degrees. This finding is consistent with that of Carter (2001), but other studies have found similar variables to be non-significant (Antonio, 2004; Pascarella et al., 2004). Turning to the tests by degree-type, participation in student groups was found to be a significant predictor of graduate aspirations for students in AS degree programs (Test 4) but non-significant for all other iterations of the test. This indicates that AS students involved in student groups were approximately 2.8 times more likely to aspire to graduate degrees than students in the AA degree program. A critical follow-up point for these students would be in tracking their persistence as they attain their AS degrees and determining if they do go on to baccalaureate and graduate studies. The institution may benefit from working with these students directly, as they may be the type of student that would pursue the new articulation track AS to community college baccalaureate degree.

The survey item that asked for students' primary reason for attendance was the most consistently positive predictor of degree aspirations. This was an expected outcome of this variable, as the reasons for attendance response options are so closely aligned with educational goals. Regardless, the information can be used by the institution to help steer students to resources that will help them get the most from their attendance, whether it is aid in job searches or in navigating transfer to another institution. One particular response that may be more critical for the institution to review is the response from students who stated their highest educational goals were to earn a baccalaureate or graduate degree and also had as their primary reason for attendance to prepare for a

higher degree at community college. These are the students who hope and intend to pursue the community college baccalaureate degree and a new route to graduate studies.

When compared to the reference category, get a job or enhance skills for current job, intention to transfer was a significant predictor of degree aspirations for all the tests. However, to pursue a higher degree at this institution was non-significant in predicting baccalaureate degree aspirations of students pursuing the AS degree (Test 6). This is a bit concerning, because the community college baccalaureate degree has been designed to articulate fully with the AS degree. Preparing for a higher degree at this institution was found to be a significant predictor of baccalaureate aspirations of students in the AA degree program. This may be an indication that students are utilizing the non-standard articulation tracks. In addition, this may indicate that students in the collegiate transfer program plan to substitute attendance at the community college for attendance at the university.

Planning courses at least one semester in advance was found to be a significant predictor of graduate and baccalaureate degree aspirations for the full samples (Tests 1, 2, and 3). Students who planned their courses at least one semester ahead of time were approximately 1.5 times more likely to aspire to graduate study and 1.6 times more likely to aspire to baccalaureate degrees. Although this variable was significant in the full tests, it was non- significant for all other tests with the exception of baccalaureate aspirations for students in AS degree programs (Test 6). This information can be useful to the institution in scheduling courses that are offered in future semesters. It is important, particularly for AS degree programs, that the course offerings align with student planning

as the courses required to earn the degree are generally more prescriptive than those in the AA degree program.

The academic integration variables that were not significant within the full group were time spent on campus, interaction with faculty, and interaction with academic advisors. The non-significant influence of interaction with faculty was inconsistent with previous findings on student degree aspirations (Carter, 1999, 2001; Wang, 2012). However, the non-significant influence of interaction with academic advisors on degree aspirations was consistent with Wang's (2012) findings.

Financial support

The financial support variables were only included in the full models (Tests 1, 2, and 3), and only one of the means of financial support was found to have significant influence on degree aspirations. Students who received scholarships were less likely to aspire to a graduate degree than those who did not receive a scholarship. For the full sample (Test 1), students were approximately 1.8 times less likely to aspire to graduate studies. Students in the associate degree sample who were receiving scholarships were nearly two times less likely to aspire to graduate studies (Test 2). Finally, when testing the scholarship variable on baccalaureate aspirations (Test 3), there was no significant influence on degree aspirations. These findings, though initially surprising, were consistent with Carter's (2001) findings for students in the CIRP dataset. No other researchers reviewed for this study found scholarships to be a significant influence on degree aspirations. When considering the associate degree sample, and that scholarships were a negative predictor of graduate aspirations and non-significant for baccalaureate

aspirations, it may be useful to carefully review the types of students who received the scholarships and why. The results, as presented here, seem inconclusive as to the influence of scholarship on degree aspirations.

Academic achievement

The academic achievement variables used in the current research included college GPA, credits earned, credits transferred, and highest degree earned. College GPA was found to be a significant predictor of graduate aspirations for Tests 1 and 2. However, GPA was not found to be a significant predictor of baccalaureate aspirations of the associate degree sample (Test 3). These findings are somewhat consistent with those of Carter (2001) for the CIRP dataset and Pascarella et al. (2004). Those researchers found in their studies that GPA was a significant positive predictor for African American students but not for Hispanic or White students. Pascarella et al. (2004) found credit hours earned to be a significant influence on African American student degree aspirations, but not those of Hispanic or White students. These findings were not wholly consistent with the findings of this study as credits completed and transfer credits were found to be non-significant.

Highest degree earned was the final variable reviewed in the academic achievement grouping. For the full samples (Test 1, 2, and 3) students who had earned a postsecondary certificate were more than four times less likely than students still in high school to have graduate aspirations. They were also nearly four times less likely to aspire to a baccalaureate degree. This result may reflect the type of student who typically earns a postsecondary certificate. These short cycle programs are generally geared toward

enhancing skills for employment. The certificate programs also typically articulate fully with associate in science degrees. These students may be a critical population for the institution to encourage, as they have already expanded their aspirations from short cycle certificates to an associate degree. These students may be influenced to continue on to baccalaureate degrees at the completion of their associate degrees.

For the conditional tests (4-7), the variable was reduced to 0 = had not earned an associate degree and 1 = has an earned associate (as of the end of the semester the survey was taken). The recoding of the variable was necessary to reduce the total observation to a predictor ratio. This enabled a comparison of results with those of Kujawa (2013) who found that as students got closer to and earned associate degrees, their aspirations were warmed, and they desired to earn higher degrees. The results of the tests by degree type were not consistent with those of Kujawa. None of the tests yielded significance when reviewing highest degree earned.

Research Question 2

Is there evidence that students' reasons for enrollment align well with the degree they are pursuing and their ultimate educational goals?

In order to determine if students' primary reason for attending aligned with their ultimate educational goals, it is necessary to explain how reasons for enrollment may align with the degree they are pursuing. The three degrees types addressed in this research were the collegiate transfer Associate in Arts degree, the collegiate workforce Associate in Science degree, and the community college Bachelor of Applied Science degree. The students participating in the research had all chosen to attend the community

college for various reasons, but these three degrees serve distinct purposes. This is not to say that they only lead to singular outcomes, but the design of the degrees lead more efficiently towards certain educational and occupational goals.

The primary purpose of the AA degree is to provide students a general education foundation and lead them toward baccalaureate degrees. Historically, the AS degree has led directly to the workforce and was not a usual route to a baccalaureate degree. However, more and more, a path to the baccalaureate has been blazed from the AS degree through articulation of degrees between institutions and within institutions offering applied baccalaureate degrees. The BAS has been developed to connect directly to the workforce and is intended to provide working adults with opportunities to earn advanced degrees locally.

Whether students truly understand these purposes or desire to enroll in a degree program following the usual path may not be possible to answer based on the findings of the present study. However, reviewing students by age, current degree type, stated primary reason for attendance, and highest educational goals, may contribute some insight as to how students utilize the community colleges in their paths through the higher education system. With this knowledge, institutions and systems can make informed decisions on program expansion. A review of the variables of interest for each degree type follows.

Associate in Arts students

Generally, students in the AA degree program stated that their primary reason for attendance was to transfer to another institution. These students were clearly on the

collegiate transfer articulation track. However, nearly 9% (n = 53) of students who had baccalaureate aspirations and about 11% (n = 69) who had graduate aspirations also stated that they were planning on pursuing a higher degree within the community college. Although the BAS was designed to provide workforce-oriented students more direct access to higher degrees, it has also given AA degree students additional options to pursue a baccalaureate degree locally. The concern here may be that students who aspire to graduate studies are taking a non-standard track. At the time of this study, there had been little research conducted on how well served community college baccalaureate degree recipients are when they seek admission into graduate programs. However, there is evidence that articulation agreements have been established between at least one community college and a state university (see Florida State University, n.d.).

Having completed specific baccalaureate degrees is not always what qualifies students for admission into graduate programs. An earned bachelor's degree from a regionally accredited institution, reasonably good GPA, and satisfactory GRE scores may be sufficient for many graduate programs. However, if students are focused on pursuing graduate studies, a university degree may be more suitable to prepare them for the rigor of a master's degree program. The limited options that students have when they remain at a community college to complete a baccalaureate degree may put them at a disadvantage once they are admitted into the graduate program of their choice. Students who complete an AA degree, remain at a community college, and plan on pursuing a graduate degree may be substituting convenience of location for choice among degree programs available to them at a university.

Though the AA degree is the foundation for baccalaureate studies, students are frequently concerned with getting a job or enhancing their skills for the job they have. In the sample of students reviewed for this study, more than 20% (n = 125) of all AA students stated that their primary reason for attendance was for occupational purposes. It may seem contradictory for students who were pursuing an AA degree and aspired to graduate or baccalaureate degrees to state that their primary reason for attending the community college was occupational. This may indicate, however, that occupational and education aspirations are inseparable. Individuals do not attend college to "round off" the general education they received in high school or purely for intrinsic reasons; they are motivated to attend college in order to get a job or career. When considering their majors, the question may not be what interests a student, but what kind of jobs the programs lead to and how well those jobs pay.

Associate in Science students

More than 37% (n = 77) of students in the AS degree aspired to a baccalaureate degree, 32% (n = 67) aspired to a graduate degree, and about 30% (n = 63) stated their educational goal was an associate degree. Despite their high degree aspirations, students in the AS degree were primarily concerned with occupational outcomes of the degree they were pursuing. More than 51% (n = 106) of all AS students stated that their primary reason for attendance was to get a job or enhance their skills for their current job. The high percentage of students who aspired to a baccalaureate degree or higher and who had occupational reasons for attendance was a good indication that students had established long and short-term goals. Regardless of their degree aspirations, occupational outcomes

of the degree was the most prominent reason for all AS students, including nearly 62% (n = 39) of with associate degree aspirations, 61% (n = 47) of students with baccalaureate degree aspirations, and about 30% (n = 20) of students with graduate aspirations.

The students that aspired to an associate degree and reported that they were primarily interested in occupational outcomes have aligned their aspirations with their educational goals and their reasons for attending the college. The large percentage of AS students with baccalaureate aspirations who stated their primary purpose for attendance was occupational are the students who may benefit most from the community college baccalaureate. Nearly 83% (n = 39) of AS degree students who aspired to a baccalaureate degree and stated their primary reason for attendance as occupational were non-traditional aged students. This age group has historically been well served by community colleges and is likely to enroll in the community college baccalaureate degree. There were 20 students in the AS degree program who stated that their primary reason for attendance was occupational, but they also aspired to a graduate degree. This may indicate again that these students have made the decision to first focus on career and then to consider their highest educational goal. It also indicates that they plan on taking a non-standard track to graduate studies.

Non-traditional age students in the AS degree sample accounted for more than 87% (n = 49) of the students who stated they were planning on pursuing a higher degree at the community college. Almost 24% (n = 15) of students who aspired to an associate degree were also interested in pursuing the community college baccalaureate degree. More than 19% (n = 15) of students with baccalaureate aspirations and 39% (n = 26) of

students with graduate aspirations were planning on pursuing the community college baccalaureate degree. Interest in the community college baccalaureate degree among the students who responded to this survey appears to be substantial.

Bachelor of Applied Science students

Although there was a small sample of students who responded to the institutional survey, a few observations can be made in regard to their educational goals and primary reason for attendance. Among the three degree types, the BAS students seemed to have the most aligned educational aspirations and reason for attending. Approximately 41% (n = 20) of all BAS students were enrolled in the degree that would accomplish their highest educational goal and also help them with their occupational goals. BAS degrees were designed to connect to the workforce by applying the skills and knowledge of the program through an internship or capstone course.

Almost 39% (n = 19) of the BAS students aspired to graduate studies. Here again, students were taking a non-standard track to graduate studies. Although 39% of all BAS students aspired to graduate studies, more than 52% (n = 10) of the students with graduate aspirations stated that their primary reason for attendance was to get a job or enhance skills for their current position. This indicates that students typically have multiple goals when deciding to attend college and that, generally, occupational goals take precedence.

Research Question 3

To what extent does Carter's model help explain the factors that influence community college student degree aspirations?

In comparison to research that used the same theoretical framework, analysis of the data for Research Question 3 showed that the findings for the similar variables of the current study were consistent with those of Carter (2001) and Pascarella et al. (2004). However, comparisons of all of the findings were difficult due to the number of predictor variables that were used in each study that were not common. In addition, the various approaches to the regression procedures used in each study added another level of complexity to the comparison. Carter's (2001) conceptual framework established groups of variables that contributed to degree aspirations and allowed for flexibility in the number of variables included in each group. The groupings of variables within the framework should be consistent in subsequent research. It is not necessary to have identical variables that were used in the original research. This was the case with the two research studies used for comparison in responding to Research Question 3.

Carter (2001) established her framework and used it to compare degree aspirations of African American and White students at different points in their educational paths. Her research used two national datasets, the Beginning Postsecondary Students Longitudinal Study (BPS): 90/92 and Cooperative Institutional Research Program freshman survey and follow up (CIRP): 88/90. She also used an OLS regression procedure to determine how the variables influenced degree aspirations of the two different groups separately. She was able to investigate how different institutional characteristics influenced degree aspirations, as both the BPS and CIRP data included students at two- and four-year institutions.

Pascarella et al. (2004) used the National Study of Student Learning (NSSL) dataset to study degree aspirations of African American, Hispanic and White students. Pascarella et al. used a logistic regression procedure to see how the variables affected the degree aspirations of the whole sample and each group of students separately. Although a different data set and statistical procedure was used in the present research to review aspirations of students, the two studies yielded generally consistent results. Although the NSSL sample was from four-year institutions only, Pascarella et al. (2004) were able to review how some institutional characteristics influenced degree aspirations as the sample included students at HBCUs. They also used the pre-college percentage of students who were planning to obtain a graduate degree as an institutional characteristic.

There were three main differences in the current study when comparing methodological approaches to those of Carter (2001) and Pascarella et al. (2004). These included the sample of students, the grouping variable, and inability to compare earlier aspirations with later aspirations. Although the sample for the current study was much smaller than those of the two comparison studies and encompassed students within a single institution, the conceptual framework helped determine how variables influence degree aspirations. Although the samples were quite different, the revised conceptual framework was able to significantly increase the predictive capacity for graduate degree aspiration beyond the chance or null model. Therefore, it would seem that the framework and statistical procedures would be transferable to a different population of students.

In addition to the smaller sample, the students were grouped according to degree type rather than by race. Race was considered as a predictor variable but was not a

significant predictor of degree aspirations. This was contradictory to the results of the two comparison studies. Pascarella et al. (2004) used race as a predictor variable for the entire sample and found that African American and Hispanic students were more likely to have graduate degree aspirations than White students. Carter (2001) found that the mean scores for degree aspirations between African American and White student were significantly different in the BPS sample but not within the CIRP sample. Both Carter and Pascarella et al. reported that White students were less likely to maintain their degree aspirations over time than the minority comparison groups.

To compensate for the lack of longitudinal results within the current study, a chi-square test of association was conducted to review how African American, Hispanic, and White students' degree aspirations compared when considering the number of credits earned. The goal of this test was to determine if degree aspirations were consistent among students early and late in their educational programs at the community college. The results showed no significant difference between the degree aspirations of African American, Hispanic, and White students based on the number of FTE semesters they had completed at the college.

Use of the revised conceptual framework

The revised conceptual framework (see Figure 12), based on Carter's (2001) research on college student degree aspirations, was an effective exploratory tool to study community college student graduate degree aspirations. However, the framework did not add to the predictive capacity of the null model when baccalaureate aspirations were reviewed. This was likely due to the lopsided outcome variable when baccalaureate

aspirations were tested. Nearly 85% (n = 517) of all AA degree students aspired to at least a baccalaureate degree. More than 69% (n = 145) of all AS degree students aspired to at least a baccalaureate degree. Increasing the predictive capacity beyond the null becomes difficult when proportions of the outcome variable are so unbalanced.

One of the main differences in the revised framework when compared to the original was that academic achievement was assumed to be influential beyond all other variables within the model, i.e., as students achieve more academically (higher GPA, more credits accumulated, earned degrees, etc.) they would be likely to have higher degree aspirations. In order to test this, academic variables were entered into the hierarchical logistic regression last, and without variables from other conceptual groupings. This allowed for a review of how academic achievement variables contributed to the model beyond all other variables within the framework. The results of this showed that GPA was a significant predictor of graduate degree aspirations. However, it was not a significant predictor of baccalaureate degree aspirations. In addition, credits and degrees earned were not found to be a significant predictor of degree aspirations.

Although the framework did a reasonably good job of determining significant predictors of graduate degree aspirations for the full samples of students, it was less efficient in predicting degree aspirations when students were separated by degree type. This was likely due to the sample size rather than the conceptual groupings. In addition, when reviewing the students separately by degree type, it was necessary to reduce the number of predictor variables and to collapse some of the categorical variables into

binary variables. In making these changes, some conceptual groupings were ultimately removed altogether, and others had minimal variables included. The result of these variable reductions was that the complete picture may not have been seen through the tests that were conducted by degree type.

A review of the revised conceptual framework revealed that the external responsibilities grouping did not yield significant predictor variables. Although no significant predictors were found, running the logistic regression test without the external responsibilities reduced the predictive capacity of the full sample model by nearly 3%. In addition, the non-significant influence of this group led to a finding that age, number of dependents, and homeowner status did not lower degree aspirations when taken into consideration with other variables within the model. Given the increase in predictive capacity, large effect size of the full model, and similar findings among shared variables with other studies that utilized a similar framework, the conceptual model as it was revised for this research was determined to be suitable for exploring degree aspirations of community college students.

Implications and Recommendations for Practice and Policy

The research conducted for this study may be useful to institutions as the expansion of the community college baccalaureate degree continues. Though the findings presented in this study add to the research on college student degree aspirations and the community college baccalaureate degree, much more investigation into these areas can be added. Following is a discussion as to ways in which this dissertation can inform practice and policy regarding community college students.

This research provided evidence that a large proportion of associate degree students attending community colleges desired to continue baccalaureate studies locally. Although this research was conducted to investigate students' aspirations to pursue higher degrees and was not concerned with student attainment, encouraging students to maintain high degree aspirations is critical to keeping them motivated to complete their degrees. High degree aspirations have been found to have strong influence on degree attainment and enrollment in graduate studies (Astin, 1993; Walpole, 2003, Wang, 2009). Additionally, there has been evidence that institutions may be able to influence changing student degree aspirations over time (Astin, 1993; Carter, 2001). The institution may benefit from reviewing the findings of this study in order to help encourage students to maintain and develop higher degree aspirations.

Based on this research study, the following three recommendations for institutional practice and policy are offered: (a) encourage student participation in academic groups; (b) establish course planning requirements for students, and (c) carefully develop and market community college baccalaureate degree programs.

Two of the major findings of this research were that students who participate in academic groups were significantly more likely to have higher degree aspirations than those who did not, and students that planned their courses out one or more semesters in advance were more likely to have higher degree aspirations. Participation in student groups has previously been found to be a significant predictor of higher degree aspirations (Carter, 2001) and a significant predictor of baccalaureate attainment (Wang, 2009). In this research, it was most influential for students in the AS degree program.

This is important to community colleges, as students in AS degree programs comprise a target population for future enrollment in BAS degree programs. Providing support to student groups to expand and incorporate students within the bachelor degree programs that have been established may be a good way to encourage students to persist to completion of degrees within the institution.

Another significant finding of this research was that students who planned their courses at least one semester in advance of enrollment were more likely to have higher degree aspirations. These results seem to indicate that when students have a clearer understanding of the requirements of the degree they are pursuing, they are more likely to aspire to higher degrees. Institutional intervention in terms of helping students plan their courses in advance is not only possible but is also a logical step for community colleges to take. The institution could even consider requiring students to submit a plan of study via their student enrollment system. Academic advisors could be tasked with reviewing course plans and making suggestions based on students' educational goals. This conversation should begin at orientation. Throughout the history of the community college, the institution has acted as a bridge to higher goals, whether they are academic or occupational, and students should be made aware of how they can utilize the college to attain their goals. Providing a clear path toward students' current degrees and information on what is needed to progress to the next level is critical to student success.

In regard to the third recommendation, institutions need to be careful and intentional in the way they develop and market new community college baccalaureate degrees. As the community college enrolls and graduates more baccalaureate degree

students, it needs to be careful to follow up with alumni, employers, and institutions to which students eventually matriculate. Establishing the new degrees was a major step, and the college needs to ensure it is delivering the intended outcomes for students. A successful program needs a robust student enrollment. This will occur if students are confident that the degree will assist them in achieving their occupational and educational aspirations.

A large proportion of surveyed students who indicated they intended to enter a community college baccalaureate degree program also noted that their highest educational goals were master's degrees or higher. Although the intention of BAS degrees may be a connection to the workforce, the college should consider ways to help BAS students who desire to pursue higher degrees to be ready to do so. It would be beneficial for the college to reach out to graduate schools that may be particularly suitable matches for certain established baccalaureate degree programs, and work toward articulation agreements. The community college should consider including specific requirements in degree programs that would encourage formal agreements with university graduate schools. Such agreements would not guarantee admission to programs; rather, students would have a clear understanding of the requirements for the graduate degree(s) that they may consider. As an example, incorporating advanced research projects within the baccalaureate degree would improve the preparedness of students for master's level research projects.

Finally, as this research has shown, a large proportion of students were planning on pursuing community college baccalaureate degrees. The institution may benefit from

reviewing the types of students who indicated their desire to enroll in the new degree programs in order to develop marketing strategies that will reach more students with similar characteristics. Targeted marketing of degrees to students who are likely to respond to the effort may prove beneficial to the college in terms of higher enrollment within the degree programs. Many of the students in this sample, and in community college baccalaureate programs in Florida, are non-traditional age students who work and attend part-time. Within this research, younger students tended to be in the AA degree program and were more likely to indicate intentions to transfer to a university. Non-traditional age students within the AS degree program were likely to indicate that they intended to pursue a community college baccalaureate degree. However, more than 18% (n = 31) of students 25 and older in the AS degree program stated their primary reason for attendance was for occupational purposes and that their highest educational goal was an associate degree. These are the students who the institution may be able to encourage to continue on to higher degrees by providing them with information about students who typically enroll in the BAS degrees and giving them a clear understanding of how the degree will benefit them.

Suggestions for Future Research

Two areas future research on the community college may benefit from addressing are further exploration of community college student degree aspirations and a review of the types of community college baccalaureate degrees offered and which students choose to pursue these degrees.

Research on Community College Student Degree Aspirations

There is a need for more qualitative research on community college student degree aspirations. In all, only one study (Kujawa, 2013) of the eight studies on community college student degree aspirations between 1999 and 2013 that were reviewed in detail for this research (see Appendix B) used a qualitative research design. Further quantitative research may also be needed, but with qualitative design, student aspirations can be given a voice. The path that community college students take to their ultimate educational goal cannot be completely explained and understood using statistical analyses of data and the resultant inferences or predictions.

Additionally, only Kujawa (2013) took into account the new role that community colleges are taking on, specifically, offering baccalaureate degrees. Quantitative and qualitative studies are needed to explore how this new function is influencing community college student degree aspirations. Ideally, research would include measures of degree aspirations at an institution before offering community college baccalaureate degrees and after they have been established.

The Community College Baccalaureate Degree

It is also important that research be conducted to explore student intentions to substitute enrollment in a university degree program for enrollment in a community college baccalaureate degree program. The question of who chooses the community college baccalaureate degree program rather than the university may depend on the programs available at the local community college. However, determining why students decide to stay local rather than transfer to the university for a baccalaureate is important

to understand as well. The encouragement of students to pursue the community college baccalaureate degree may be seen as a new form of cooling out high aspirations (Clark, 1960). Are these students forgoing alternatives for the convenience of the local degree? Are certain populations of students pursuing the community college baccalaureate degree in higher proportions than would be expected? Though community colleges have been credited with democratizing access to higher education (Cohen & Brawer, 2008), they have also been criticized for SES reproduction (Karabel, 1972). Do community college baccalaureate degrees offer a route to the professional workforce and to graduate studies equal to that of university baccalaureate degrees?

Access to baccalaureate degrees through the community college may seem to increase equity, but without choice in degree programs this equity may be diminished (Vaughan, 2006). Does equal access mean that community colleges should be limited to baccalaureate degrees that are workforce oriented? If an institution could provide evidence of student demand for a liberal arts degree at the local community college, they should not necessarily be denied the opportunity to provide these types of degrees.

As more students choose to enroll in the community college directly after completing high school, but students with financial means may be more likely to pursue the transfer track and students who may not be as easily able to afford a university degree may be more likely to pursue a community college baccalaureate degree. Historically, there has been concern of a stratification of disadvantaged students into vocationally oriented AS programs with a promise of higher earnings (Hanson, 2009; Karabel, 1972; Pincus, 1980). Institutions are now promising that the community college baccalaureate

programs available to students will provide direct access to the workforce. However, there may be cause for real concern if the promise of mobility turns out to be unsuccessful in raising equity of workforce outcomes. Close attention needs to be paid to the outcomes of community college baccalaureate degree programs in terms of true earnings compared to students with AS degrees and comparable university baccalaureate degree. Justification of the expansion of community college baccalaureate degree programs has been to increase access to baccalaureate studies, but will it result in a further stratification of the population into a workforce track and university transfer tracks? Research on enrollment patterns for students within community college baccalaureate degree programs is critical to answering these sorts of questions.

Summary

The emphasis of the need for baccalaureate education is higher than ever. The Florida College System has taken on an expanded role of increased access to baccalaureate degrees. Not only do the community (now state) colleges provide a bridge to the university baccalaureate degree, but they also offer the degree independently of universities. The institution has responded to the calls of the state to provide access to programs that address critical needs of the workforce; local employers who demand higher educated employees; and the requests of students who desire to attain these degrees locally.

Although access to the baccalaureate has expanded within the community college, the question regarding how the new programs impact the comprehensive mission of the colleges continues to be debated. The institutions continue to provide the first two years

of university degree programs and offer postsecondary training for the workforce through short cycle certificates, associate degrees, and applied baccalaureate degrees. Most importantly, these institutions remain open to all students with high school degrees. Justification for the community college baccalaureate degree has been to meet workforce needs, and many students may choose to go to college purely in order to increase their prospects of career advancement. However, it is critical that higher education systems review how the inclusion of applied baccalaureate degrees influences enrollment patterns and contributes to the equity agenda of the community college.

The findings from this research provide evidence that students at the community college generally have high aspirations and that a sizable proportion of students desire to continue on to their highest educational goals locally. Among the variables that were found influential to community college student degree aspirations were participation in student groups and planning courses more than a semester in advance. The institution would benefit from encouraging students to participate in student groups and planning courses in advance. Two negative influences on degree aspirations for this group were age group and receipt of scholarship. The institution has the opportunity to act to help encourage these groups of student and can easily identify who they are through the student database. Although age was significant within the first block of the model, the variable had small effect size and significance diminished and disappeared in the second and third blocks.

Finally, although external responsibilities variables were non-significant in the current research, the results support the general direction that the FCS is headed with the

expansion of community college baccalaureate degrees. Students who are unable or unwilling to uproot their families, sell their homes, and leave their jobs to pursue baccalaureate degrees at a regional university should have opportunity to pursue these degrees locally.

It is important for institutions to be familiar with the students who attend the college. In order to better serve the students who attend, community colleges need to conduct a regular review of who is enrolling, why they have chosen to enroll at the college, and what their educational goals are. In creating new degree programs, careful consideration of community needs and student aspirations are necessary. Flexibility of each college to develop programs that can help students reach their educational goals and address the needs of the community is critical to help create equal access and equality of outcomes of a community college education.

APPENDIX A: COMMUNITY COLLEGE BACCALAUREATE DEGREES BY STATE

Public Institutions with Community College Baccalaureate Degrees by State

State	Number	Institutions	Year First Authorized
Arkansas	1	University of Arkansas at Fort Smith	1998
Colorado	1	Colorado Mountain College	2010
Florida	24	Broward College, Chipola College, College of Central Florida, Daytona State College, Eastern Florida State College, Florida Gateway College, Florida State College at Jacksonville, Florida Southwestern State College, Gulf Coast State College, Indian River State College, Lake Sumter State College, Miami-Dade College, Northwest Florida State College, Pasco-Hernando College, Palm Beach State College, Pensacola State College, Polk State College, Santa Fe College, St. Johns River State College, St. Petersburg College, Seminole State College, South Florida State College, State College of Florida Manatee-Sarasota, Valencia College	2001
Georgia	12	Abraham Baldwin Agricultural College, Atlanta Metropolitan State College, Bainbridge State College[a], Coastal Georgia College, Dalton State College, Darton State College, East Georgia State College, Georgia Highlands College[a], Georgia Perimeter College[a], Gordon State College, Middle Georgia State College[a*], South Georgia State College	1996
Hawaii	1	Maui Community College	2005
Indiana	1	Vincennes University[b]	2004
Louisiana	1	LSU Alexandria	2001
Michigan [c]	5	Lake Michigan College, Jackson College, Northwestern Michigan College, Alpena Community College, Schoolcraft	2012
Nevada	2	Great Basin College, College of Southern Nevada	2004
New Mexico	1	Northern New Mexico CC	2004
New York	4	SUNY College of Tech at Alfred, SUNY College of Tech at Canton, SUNY College of Tech at Delhi, SUNY Morrisville State College	1975
North Dakota	2	Bismark State College, Sitting Bull College	2004
Oklahoma	2	OSU Okmulgee, OSU Oklahoma City	2004
Texas	3	Midland College, Brazosport College, South Texas College	2003
Vermont	1	Vermont Technical College	1993
Washington	10	Bellevue CC, Centralia College, Columbia Basin College, Green River CC, Lake Washington, North Seattle CC, Olympic College, Peninsula College, Seattle Central CC, South Seattle CC	2005
West Virginia	1	WVU Parksburg	1991
Wisconsin	6	UW Baraboo/Sauk County, UW Barron County, UW Marshfield/Wood County, UW Richland, UW Rock County, UW Waukesha	2011

State	Number	Institutions	Year First Authorized

Note. This is a list of public colleges that started as two-year, associate degree-granting institutions by state. Colleges that transitioned from community colleges to four-year colleges and later expanded to include graduate degrees are not included in the count. The listing is organized by year the state first authorized the community college to award baccalaureate degrees and still maintain the community college character.

These findings are through Fall 2013. [a] Georgia recently authorized all USG Colleges to confer baccalaureate degrees, not all of the colleges have begun offering four-year degrees. [a*] Middle Georgia college was established as a four-year institution and has recently merged with, Macon State College which was established as a community college and transitioned to a four-year institution in 1996. The newly formed institution is expected to have graduate degrees within a few years. [b] Vincennes University was established as a four-year institution in 1801; from 1889 until 2004 it was a two-year college. [c] As of this research, Michigan had authorized all 28 colleges to award specific, limited number of bachelor degrees (Michigan HB 4496, 2012). While no community college had implemented the new degrees, according to CCBA (2013) five colleges were planning baccalaureate degrees.

Sources: American Association of State Colleges and Universities (2010), Community College Baccalaureate Association (2013), FLDOE (2013), Floyd and Walker (2009), Russell (2010), state department of education websites, and verified at institution websites.

APPENDIX B: COLLEGE STUDENT DEGREE ASPIRATIONS 1999-2013

Research on College Student Degree Aspirations from 1999-2013

Authors	Research Questions / Methodology	Sample	Dependent Variable(s)	Instrument and Response Items	Conceptual Framework
Alexander, Bozick, & Entwisle (2008) *Warming up, cooling out, or holding steady? Persistence and change in educational expectations after high school*	**1)** Our first research objective was to document change and stability in the expectation of obtaining a four-year degree up to a decade beyond high school. (p. 373); **2)** Our second research objective was to understand the conditions under which expectations change or persist in young adulthood using Turner's (1960) and Clark's (1960) ideas to inform our research (p.373) **Methodology: Quantitative; multinomial logistic regression**	Stratified random sample of 790 entering first graders in fall 1982; final sample responses at all three time points (12th grade, age 22, and age 28) *n* = 378 who initially had bachelor degree expectations; *n* = 412 who did not have bachelor degree expectations	Degree expectations	**BSS: 82 Beginning School Study,** from Baltimore public school system**; In 12th Grade**: How far do you think you will go in school? Leave before finishing high school; finish high school; get a GED; less than two years of college; two or more years of college; finish college (four year degree); more than college (MD or PhD). **At age 22 and age 28**: Similar question, answers 1 = does not expect to complete a four-year degree; 2 = expects to complete a four-year degree or higher; 3 = already completed a four-year degree	Turner (1960) Contest vs. sponsored mobility; Clark (1960) Cooling out function
Antonio (2004) *The influence of friendships on intellectual self confidence and educational aspirations*	**1)** To what extent does the interpersonal environment created by the academic abilities and aspirations of the friendship group affect intellectual self-confidence and degree aspirations in college? **2)** What role, if any, does the racial diversity of students' best friends affect the development of intellectual self-confidence and degree aspirations? (p. 452); **Methodology: Quantitative; blocked multiple regression**	*n* = 426; final sample of 677 respondents (31%) of a sample of 2222 students, who had been surveyed as freshman, reduced by those supplying valid friendship group information	Degree aspirations	**CIRP: 94** Please indicate the highest degree you intend to obtain. 1 = no degree; 2 = vocational certificate; 3 = Associates degree; 4 = Bachelor's degree; 5 = Master's degree; 6 = Ph.D. or advanced professional degree	Weideman (1989) Model of socialization in college
Behnke, Piercy, & Diversi (2004) *Educational and occupational aspirations of Latino youth and their parents*	To what extent aspirations transfer within families, and how parents foster the aspirations of their youth (p. 18). What are the educational and occupational aspirations of youth and parents; How well do parents' know the aspirations of the youth; and What are the barriers to attainment (pp. 29-30)? **Methodology: Qualitative**	Ten families whose children participated in an after school program.	Educational and occupational aspirations	The parents and oldest child were interviewed regarding (a) parents' educational aspirations for children and themselves; (b) the youth's educational and occupational aspirations; (c) parent's perception of their support for the child's educational and occupational aspirations; and (d) the Latino parent's needs to attain the aspiration the have set for themselves	Bandura (1986) notion of observational learning; Ogbu (1981, 1992) Cultural-ecological perspective

Authors	Research Questions / Methodology	Sample	Dependent Variable(s)	Instrument and Response Items	Conceptual Framework
Carter (1999) *The impact of institutional choice on African-American and White students degree aspirations*	**1)** Do educational aspirations differ significantly for African-American and white college students? **2)** What impact does socioeconomic status (SES) have on the educational aspirations of college students? **3)** What impact do institutional characteristics and experiences have on the aspirations of college students? (p. 18) **Methodology: Quantitative; regression analysis**	African American and White students from non-profit, two- and four-year institutions. African American *n* = 347; White *n* = 3,720	Degree aspirations	**BPS: 90/92** Considering all practical constraints, what is highest level of education you expect to complete? 1 = two years or less of college or vocational education; 2 = two or more years of college including an associates degree; 3 = bachelor's degree; 4 = master's degree or equivalent; 5 = M.D., D.D.S., L.L.B., or doctorate.	Status attainment models developed in the early 1970s and Weidman (1989) Model of socialization in college
Carter (2001) *A dream deferred? Examining degree aspirations of African American and White college students*	**1)** Do educational aspirations differ significantly for African American and White Students? Does this change over time? **2)** What impact does socioeconomic status have on the education aspirations of college students - are the effects of SES lessen by particularly institution environments, or does SES have effects that persist despite the influence of institutional characteristics? **3)** How do institutional characteristics, college involvement, achievement, and student pre-college characteristics affect students' aspirations? Do the same variables affect the racial ethnic groups differently? Or do the significant predictors vary by group? **4)** In what ways do institutional characteristics, college involvement, and educational achievement mediate the effects of SES and initial goals and expectations? **5)** Are the effects of the independent variable the same when the measures of the dependent variable. In other words, are the relationship between the independent variables and educational aspirations and expectations in one data set the same as those between the independent variables and educational aspirations and expectations in another data set? (p. 49) **Methodology: Quantitative; T-tests, Chi-square tests, and OLS regression**	Two and four year public institutions from the BPS: 90/92, *n* = 335 African American students, *n* = 357 White Students. CIRP: 88/90, *n* = 266 African American students, *n* = 283 White Students	**BPS:** Educational expectations; **CIRP:** Educational plans	**BPS: 90/92** Considering all practical constraints, what is highest level of education you expect to complete? 1 = two years or less of college or vocational education; 2 = two or more years of college including an associates degree; 3 = bachelor's degree; 4 = master's degree or equivalent; 5 = M.D., D.D.S., L.L.B., or doctorate. **CIRP: 88/90** Please indicate the highest degree you intend to obtain. 1 = no degree; 2 = vocational certificate; 3 = Associates degree; 4 = Bachelor's degree; 5 = Master's degree; 6 = Ph.D. or advanced professional degree	Developed a conceptual framework based on: Sewell, Haller, & Ohendorf, (1970); Sewell, Haller, & Portes, (1969); Turner (1960) Contest vs. sponsored mobility

Authors	Research Questions / Methodology	Sample	Dependent Variable(s)	Instrument and Response Items	Conceptual Framework
Conway (2010) *Educational aspirations in an urban community college: Difference between immigrant and native student groups*	**1)** What are the academic aspirations of students enrolled in an urban community college, and how do these aspirations differ among student groups? **2)** Do the educational aspirations of some student groups change while enrolled in an urban community college (i.e., cooling out or not cooling out as evidenced by program change), and do different factors predict program change for different student groups? **Methodology: Quantitative; blocked multiple regression**	Traditional age students at a Northeastern community college *n* = 1,667	Students major, or degree type (transfer vs. terminal)	**ACT Form 2000** and **Admissions data** for independent variables. **Student transcripts** for dependent variable. DV was a dichotomous measure of Major; coded 0 for a change from transfer degree to terminal degree; 1 for no change or change to transfer degree	Clark (1960) Cooling out function
Kujawa (2013) *AAS to BAS pathway: Heating up educational aspirations of CTE students*	**1)** How do students who earn an AAS and then transfer to complete a BAS make meaning of their journey? **2)** How do students describe the experience of having their educational aspirations heated up? (p. 358) **Methodology: Qualitative**	Eight men completed in-depth interviews	Degree aspirations	Defined by five constructs that emerged from the interviews with participants about the experiences that led them to change their education plans from associates attainment to baccalaureate attainment.	Bourdieau (1977) Cultural reproduction theory
Lannan (2003) *Degree aspirations of two-year college students*	**1)** What are the background characteristics and high school experiences of two-year college students? **2)** How do students differ in terms of their highest academic degree aspirations by institutional control (i.e., public versus private)? **3)** What are the unique effects of variables such as background characteristics, high school experiences, and attitudes on students' highest degree aspirations? 4) How do these social and psychological factors differ for students by institutional control? (p. 501); **Methodology: Quantitative; blocked multiple regression**	More than 13,000 FTIC, Full Time students from Public and Private two-year colleges	Degree aspirations	**CIRP: 96** Please indicate the highest degree you intend to obtain. 1 = no degree; 2 = vocational certificate; 3 = Associates degree; 4 = Bachelor's degree; 5 = Master's degree; 6 = Ph.D. or advanced professional degree	Blau & Duncan (1967) Status attainment theory; Weideman (1989) Model of socialization in college

Authors	Research Questions / Methodology	Sample	Dependent Variable(s)	Instrument and Response Items	Conceptual Framework
Leigh & Gill (2004) *The effect of community colleges on changing students' educational aspirations*	We investigate in this paper whether a difference exists in the effects of two-year and four-year colleges on educational aspirations. **Methodology: Quantitative; OLS regression**	Of the initial sample size, 12,686, the students that were 14-18 years old that were yet to enroll in college and reported desired level of schooling in 1979 and 1982; *n* = 5,111	Highest level of education: like and expect	**NLSY: 79 1)** What is the highest grade or year of school, that is elementary school, high school, college, or graduate school you would *like* to complete? **2)** As things now stand, what is the highest grade or year you think you will *actually* complete? (Leigh & Gill, 2004, p. 96)	Kane & Rouse (1999) Test of community college diversion effect
McCarron & Inkelas (2006) *The gap between educational aspirations and attainment for first year college students and the role of parental involvement*	**1)** Does parental involvement influence the educational aspirations of first-generation students as compared to non-first-generation students? **2)** Do the educational aspirations of first-generation students differ from their actual educational attainments? **3)** Is there a difference in educational attainment for first-generation students by gender, race/ethnicity, and SES? (p. 534-535) **Methodology: Quantitative; blocked multiple regression**	Of the 12,144 students in the final sample, *n* = 1,879 first-generation students at two and four year colleges in 1994. Comparison group of *n* = 1,879 non-first generation students was selected at random. (total *n* = 3,758)	Educational aspirations in 1990; and Educational attainment in 2000	**NELS: 88** (first follow up in 1990) As things stand now, how far in school do you think you will get? Nine response categories were re-coded 1 = less than bachelor's degree; 2 = finish bachelor's degree; 3 = finish master's degree; 4 = finish PhD or professional degree	none specified; the impact of parental involvement and encouragement on degree aspirations of first-generation students
Pascarella, Wolniak, & Pierson, (2003) *Influences on community college students' educational plans*	**First,** it sought to identify those background, institutional, and college experience variables that significantly influence first-year changes in community college students' educational degree plans. **Second,** it estimated the extent to which the factors influencing first-year changes in degree plans were general or conditional. (p. 302) **Methodology: Quantitative**	Of the original sample of 500 participating community college students, 285 participated in the spring 1993 (p. 303)	Plans for bachelor's degree	**NSSL: 92** What is the highest academic degree that you intend to obtain in your lifetime? 1 = none, 2 = vocational certificate, 3 = associate degree, 4 = bachelor's degree, 5 = master's degree, 6 = doctoral or professional degree	Clark (1960, 1980) Cooling out function

Authors	Research Questions / Methodology	Sample	Dependent Variable(s)	Instrument and Response Items	Conceptual Framework
Pascarella, Wolniak, Pierson, & Flowers (2004) *The role of race in the development of plans for graduate school*	**First,** it sought to determine if there were significant net differences among African American, Hispanic, and White students in graduate degree plans after three years of college. **Second,** our analyses focused in particular on the extent to which end-of-third-year plans for a graduate degree were uniquely influenced by a wider range of student academic and nonacademic experiences than have typically been considered in the existing evidence. **Finally,** and most importantly, the study tested for the presence of significant "conditional effects". That is, were the factors that influenced plans for a graduate degree after three years significantly different for African American, Hispanic, and White undergraduates? (p. 302) **Methodology: Quantitative; logistic regression**	Students from 18 different institutions that responded to all three phases of the survey. *n* = 1,089	Plans for a graduate degree on end of third year response (1995)	**NSSL: 92** What is the highest academic degree that you intend to obtain in your lifetime? 1 = none, 2 = vocational certificate, 3 = associate degree, 4 = bachelor's degree, 5 = master's degree, 6 = doctoral or professional degree	Carter (1999, 2001, 2002) theoretical model of college student degree aspirations
Walpole (2003) *Socioeconomic status and college: How SES affects college experiences and outcomes*	**1)** What are the similarities and differences in the college activities of low and high SES students? **2)** What are low SES students' 1994 income levels, educational attainments, and educational aspirations compared to those of their high SES Peers? **3)** What effects of the college environment on graduate school attendance? (*p* 52) **Methodology: Quantitative; stepwise logistic regression**	Of the total respondents from 209 four-year institutions (12,376), sample was restricted to high and low SES, final sample *n* = 4,892	Graduate school attendance	**CIRP: 85/89/94** for independent variables; dependent variable, respondents attended graduate school in or prior to 1994	Bourdieu (1977) cultural capital and habitus; Astin (1991) IEO model
Wang (2012b) *Stability of educational expectations among baccalaureate aspirants beginning at community colleges*	"This study explores factors predicting the stability of educational expectations among recent baccalaureate-aspiring high school graduates attending community colleges" (p. 29) **Methodology: Quantitative; logistic regression**	Of a the total 12,500 student responses, *n* = 2,100 respondents who responded in 2004 and 2006 the students were high school sophomores in 2002 who attended community college as their first postsecondary institution and had expectations of a baccalaureate degree or higher in 2004	Baccalaureate expectations in 2006	**ELS: 02/04/06** Whether respondent expected to earn a bachelor degree or above in 2006	"This study's conceptual framework is guided by existing literature and previously discussed conceptual lenses" (p. 305); Lenses noted: status attainment models, Sewell et al. (1970); social capital, Coleman (1988); Social cognitive career theory, Lent & Brown (2006)

Authors	Research Questions / Methodology	Sample	Dependent Variable(s)	Instrument and Response Items	Conceptual Framework
Wang (2013) *Baccalaureate expectations of community college students: Socio-demographic, motivational, and contextual influences*	This study investigates socio-demographic, motivational, and postsecondary contextual factors underlying community college students' baccalaureate expectations (p. 4). **Methodology: Quantitative; structural equation modeling**	Of a the total 12,500 student responses, *n* = 3,157 respondents who responded in 2004 and 2006 the students were high school sophomores in 2002	Baccalaureate expectations in 2006	**ELS: 02/04/06** Whether respondent expected to earn a bachelor degree or above in 2006	Developed conceptual framework based on Sewell, Haller, & Portes, (1969) status attainment model; Coleman (1988) social capital theory; Braxton, Hirschy, & McClendon (2004)/Braxton & Hirschy (2005) college persistence literature

Note. This appendix contains a listing of articles from literature on college student degree aspirations from higher education journals between 1999 and 2013. Most of the studies were quantitative in design and use longitudinal survey data. The column labeled dependent variable is considered the operational definition or author defined dependent variable. In reviewing these studies, the operational definition frequently varied from the survey instrument.

APPENDIX C: VARIABLES USED IN STUDY, INSTITUTIONAL SURVEY ITEMS, AND SURVEY RESPONSE OPTIONS

Table C1: Final Variable Coding Schemes for Survey and Institutional Data for the Full Sample Regression Tests

Grouping Variable		
I	Degree Type	Associate in Science, Associate in Arts, Baccalaureate
Dependent Variable		**Variable Description**
Degree Aspirations		
S	Highest educational goal	1 = associate degree; 2 = baccalaureate degree; 3 = graduate degree
Independent Variables		**Variable Description**
College Entry Characteristics		
I	Age	Continuous; (range)
I	Gender	0 = Female; 1 = Male
I	Race/ethnicity	0 = White; 1 = Minority
External Responsibilities		
S	Number of dependents	0 = no dependents; 1 = one or more dependents
S	Homeowner	0 = no; 1 = yes
S	Hours of work each week	0 = no work; 1 = part-time work; 2 = full-time work
Academic Integration		
I	Degree Type	0 = Associate in Arts, 1 = Associate in Science, 2 = Baccalaureate
I	Credits enrolled in this semester	Continuous variable (range)
S	Time spent on campus outside of class each week	0 = Less than 1 hour; 1 = 1-2 hours; 2 = 3-4 hours; 3 = 5-9 hours; 4 = 10 hours each week
S	Participation in student groups	0 = none; 1 = one or more student groups
S	Interaction with faculty	0 = never; 1 = once or more per term
S	Interaction with academic advisor	0 = never; 1 = once or more per term
S	Primary Reason for attendance	0 = get a job; 1 = enhance skills for current job; 2 = transfer; 3 = higher degree at this institution; 4 = other
S	Educational planning	0 = no course planning; 1 = course plans one or more semesters in advance
Financial Aid and Institutional support		
I	Scholarships	0 = no; 1 = yes
I	Grants	0 = no; 1 = yes
I	Loans	0 = no; 1 = yes
I	GI Bill	0 = no; 1 = yes
Academic Achievement		
I	College GPA at this college	Continuous variable
I	College credits earned at this institution	Continuous variable
I	Credits transferred	Continuous variable
I	Highest degree earned	0 = still in high school; 1 = HS diploma; 2 = college certificate; 3 = associate degree

I = Institutional data; S = Survey data; for categorical variables, 0 = reference category.

Table C2: Items and Responses to Institutional Survey

Variable	Question	Response 1	Response 2	Response 3	Response 4	Response 5
SWRKHRS*	In a normal week during the semester, how much time do you spend on schoolwork?	Less than 1 hour	1-2 hours	3-4 hours	5-9 hours	10 hours or more
TONCAMP	In a normal week during the semester, how much time do you spend on campus outside of class?	Less than 1 hour	1-2 hours	3-4 hours	5-9 hours	10 hours or more
STUGRPS	Have you participated in any college-sponsored student groups? In the space provided list the groups with which you participate.	I have participated in 1 group	I have participated in 2 groups	I have participated in 3 groups	I have participated in 4 or more groups	I have not participated in any groups
INTFACU	How often do you meet with faculty outside of regularly scheduled class?	Never	1-3 times each semester	4-6 times each semester	7-9 times each semester	10 or more times each semester
INTADVI	How often do you meet with academic advisors each semester?	Never	1 time each semester	2 times each semester	3 times each semester	4 or more times each semester
NDEPEND	Indicate the number of people (children, relatives, etc.) for whom you are a caregiver.	One	Two	Three	Four or more	None
HOMEOWN	What is your residential status?	I live with my parents	I am in transitional housing	I rent a home/apartment	I am a homeowner	--
WORKHRS	How many hours each week do you work for pay?	I am not currently working	1 to 9 hours each week	10 to 19 hours each week	20 to 39 hours each week	40 or more hours each week

Variable	Question	Response 1	Response 2	Response 3	Response 4	Response 5
EDUGOAL	What is your highest educational goal?	Certificate	Associate's degree	Bachelor's degree	Master's degree	Doctoral degree (PhD, JD, MD, etc.)
PRATTND	What is your primary reason for attending this institution?	Complete a program that will help me get a job	Enhance skills for my current job	Transfer to another institution	Prepare for higher degree at EFSC	Other
EDUPLAN	In planning your educational path, which of the following do you typically do?	This is my first semester and I have no academic plans yet	I usually choose courses when registration begins	I usually plan courses one semester in advance	I have planned my courses all the way through graduation	I have no plan
DEGCONF*	How confident are you that you will complete the degree you are currently pursuing?	I am not confident; I do not think I can complete it	Little confidence; I am not certain I will earn a degree	Confident; I think I can complete the degree	Very confident; I know that I will complete the degree	--

* Amount of time spent on school work (SWRKHRS) and confidence in completing degree (DEGCONF) were not included in the regression analyses.

Note. This appendix provides information on the secondary data provided by the institution to the researcher. Table C1 contains a list of the final variables used within the full sample regression analyses. The coding on the table indicates whether the data are institution or survey data and provides an indication of the reference category for categorical variables (those marked with a zero). Table C2 are the survey items and responses.

APPENDIX D: VARIABLE MAPPING AMONG FRAMEWORKS

Variable Mapping Between Carter's (2001) and the Revised Framework

Variable	C Factor[1]	*R* Factor[2]	RQ[3]	Survey Question/Institutional Data
Degree Type		GV	1, 2	Institutional Data
Degree Aspirations	DV	DV	1, 2	What is your highest educational goal?
Age	PC	CEC	1, 2	Institutional Data
Gender	PC	CEC	1, 2	Institutional Data
Race/Ethnicity	GV	CEC	1, 2	Institutional Data
Marital Status	PC	ER	1, 2	Institutional Data
Parental Status	PC	ER	1, 2	For how many children or people are you a caregiver?
Residential Status		ER	1, 2	What is your residential status?
Number of hours worked each week	EC	ER	1, 2	How many hours each week you work for pay?
Confidence completing current program		AI	1	How confident are you that you will complete the degree you are currently pursuing?
Credits Enrolled in this semester	IC	AI	1	Institutional Data
Time Spent on Schoolwork	IC	AI	1	In a normal week during the semester, how much time do you spend on schoolwork?
Time on Campus outside of class	IC	AI	1	In a normal week during the semester, how much time do you spend on campus outside of class?
Academic Social Groups	IC	AI	1	Have you participated in any college sponsored student groups?
Faculty Interaction	IC	AI	1	How often do you meet with faculty outside of regularly scheduled class?
Academic Advisor interaction	IC	AI	1	How often do you meet with academic advisors each semester?
Primary Reason for Attendance		AI	1, 2	What is your primary reason for attendance at this institution?
Educational Planning		AI	1	In planning you educational path, which of the following do you typically do?
Scholarship	FA	FA	1	Institutional Data
Grants	FA	FA	1	Institutional Data
Loans	FA	FA	1	Institutional Data
Work study	FA	FA	1	Institutional Data
GPA - College	AA	AA	1	Institutional Data
CC Earned	AA	AA	1	Institutional Data
Transfer Credits	AA	AA	1	Institutional Data
Highest Degree Earned	AA	AA	1,2	Institutional Data

Notes: [1]For independent variables that align with the factors within Carter's model (C Factor): AA = Academic Achievement; DV = Dependent Variable; EC = External Contexts; FA = Financial Aid; IC = Internal Contexts; PC = Pre-College Characteristics.
[2]For independent variables that align with the factors within the revised model (*R* Factors): AA = Academic Achievement; AI = Academic Integration; CEC = College entry Characteristics; DV = Dependent Variable; ER = External Responsibilities; FA = Financial Aid; GV = Grouping Variable
[3]RQ = indication of which variables will be used for which research question.
Note. This appendix shows how the variables align with the factors within Carter's (2001) framework, the revised framework, the research question(s) the variable will be used for, and the question used to collect data on independent variables collected via institutional survey.

APPENDIX E: INSTITUTIONAL REVIEW BOARD APPROVAL

University of Central Florida Institutional Review Board
Office of Research & Commercialization
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Telephone: 407-823-2901, 407-882-2012 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

From : **UCF Institutional Review Board #1**
FWA00000351, IRB00001138

To : **Mark Quathamer**

Date : **May 22, 2014**

Dear Researcher:

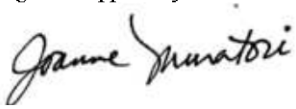
On 5/22/2014 the IRB determined that the following proposed activity is not human research as defined by DHHS regulations at 45 CFR 46 or FDA regulations at 21 CFR 50/56:

Type of Review:	Not Human Research Determination
Project Title:	Analysis of the congruency between educational choices and community college student degree aspirations
Investigator:	Mark Quathamer
IRB ID:	SBE-14-10326
Funding Agency:	
Grant Title:	
Research ID:	n/a

University of Central Florida IRB review and approval is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are to be made and there are questions about whether these activities are research involving human subjects, please contact the IRB office to discuss the proposed changes.

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

Signature applied by Joanne Muratori on 05/22/2014 03:18:25 PM EDT



IRB Coordinator

Eastern Florida State College
Institutional Review Board
Dr. Ethel S. Newman, Chair, IRB
1519 Clearlake Road
Cocoa, Florida, 32922
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www.easternflorida.edu

Notice of Expedited Review Status

From: Eastern Florida State College Institutional Review Board

To: Mark Quathamer

Date: August 11, 2014

IRB Number: EFSC 14-002

Study Title: "Analysis of the congruency between educational choices and community college student degree aspirations"

Dear Mr. Quathamer:

Your research proposal was reviewed and **approved** by the IRB Chairperson. Per federal regulations, 45 CFR 46.110 [Expedited Review] and CFR 46.101(b) [Exempt], your proposed study has been determined to involve no more than minimal risk for human subjects and is exempt. Federal regulations define minimal risk to mean that the probability and magnitude of harm are no more than would be expected in the daily life of a normal, healthy person. Your proposed study does not allow subjects to be identified, the research will be conducted in an educational setting, involving normal educational practices and will include the use of survey procedures; this supports the Exempt status.

Procedural changes or amendments must be reported to the IRB, and no changes may be made without IRB approval except to eliminate apparent immediate hazards.

This submission is approved for one year from the above date. If data collection continues past this date, a request for Continuing Review must be made.

APPENDIX F: TESTS OF ASSUMPTIONS FOR LOGISTIC REGRESSION PROCEDURE

Table F1Tolerance and Variance of Influence Factors

Model	Predictor Variable	Collinearity Statistics	
		Tolerance	VIF
1	Age	0.992	1.008
	Gender	0.992	1.008
	Race/Ethnicity	0.987	1.013
2	Age	0.596	1.677
	Gender	0.919	1.088
	Race/Ethnicity	0.968	1.033
	Dependents	0.728	1.374
	Home owner	0.656	1.525
	Work Intensity	0.827	1.209
	Degree type	0.773	1.294
	Semester credits	0.763	1.311
	Confidence	0.962	1.039
	Time on campus outside of class	0.782	1.279
	Student groups	0.867	1.153
	Interaction with faculty	0.837	1.195
	Interaction with advisor	0.940	1.064
	Primary reason for attending	0.859	1.164
	Scholarship	0.883	1.132
	Grant	0.800	1.250
	Loan	0.792	1.262
	GI Bill	0.934	1.071
3	Age	0.561	1.784
	Gender	0.915	1.093
	Race/Ethnicity	0.954	1.048
	Dependents	0.722	1.385
	Home owner	0.638	1.567
	Work intensity	0.814	1.228
	Degree type	0.624	1.603
	Semester Credits	0.731	1.367
	Confidence	0.948	1.055
	Time on campus outside of class	0.774	1.292
	Student Groups	0.849	1.177
	Interaction with Faculty	0.832	1.201
	Interaction with Advisor	0.935	1.069
	Primary reason for attending	0.842	1.188
	Scholarship	0.854	1.172
	Grant	0.786	1.272
	Loan	0.786	1.272

Model	Predictor Variable	Collinearity Statistics	
		Tolerance	VIF
	GI Bill	0.880	1.137
	GPA	0.903	1.108
	Credits earned	0.489	2.045
	Transfer hours	0.726	1.377
	Highest Degree	0.550	1.817

a. Dependent Variable: Masters or Higher

Table F2 Box Tidwell Test of Linearity Full Sample, Graduate Aspirations

Variable	B	S.E.	Wald	*df*	Sig.	Exp(B)
AGE	0.656	0.256	6.562	1.000	.010	1.926
LogAge	-0.145	0.056	6.820	1.000	.009	0.865
SEX(1)	0.315	0.193	2.665	1.000	.103	1.371
RACEDUM(1)	0.177	0.178	0.998	1.000	.318	1.194
DEPENDUM(1)	-0.291	0.201	2.107	1.000	.147	0.747
HOMEOWNDUM(1)	-0.430	0.230	3.504	1.000	.061	0.651
WORKHRS2			1.368	2.000	.505	
WORKHRS2(1)	0.219	0.202	1.173	1.000	.279	1.245
WORKHRS2(2)	0.191	0.231	0.682	1.000	.409	1.210
DGREETYPE2			3.337	2.000	.188	
DGREETYPE2(1)	-0.377	0.230	2.692	1.000	.101	0.686
DGREETYPE2(2)	0.103	0.429	0.058	1.000	.810	1.108
SEMCRED	-0.210	0.146	2.056	1.000	.152	0.811
LogSemCred	0.086	0.049	3.097	1.000	.078	1.089
DEGCONF2(1)	0.892	0.628	2.018	1.000	.155	2.440
TONCAMP			8.210	4.000	.084	
TONCAMP(1)	-0.156	0.216	0.522	1.000	.470	0.855
TONCAMP(2)	0.156	0.236	0.434	1.000	.510	1.168
TONCAMP(3)	0.616	0.355	3.012	1.000	.083	1.851
TONCAMP(4)	0.744	0.396	3.536	1.000	.060	2.104
STUGRPS2(1)	0.635	0.219	8.415	1.000	.004	1.887
INTFACU2(1)	-0.118	0.177	0.443	1.000	.505	0.889
INTADVI2(1)	0.041	0.227	0.033	1.000	.856	1.042
PRATTND			55.394	4.000	.000	
PRATTND(1)	-0.549	0.465	1.389	1.000	.239	0.578
PRATTND(2)	1.622	0.243	44.486	1.000	.000	5.065
PRATTND(3)	1.049	0.242	18.852	1.000	.000	2.856
PRATTND(4)	1.101	0.318	12.013	1.000	.001	3.007
EDUPLAN2(1)	0.357	0.188	3.616	1.000	.057	1.429
SCHOL(1)	-0.566	0.266	4.518	1.000	.034	0.568

Variable	B	S.E.	Wald	*df*	Sig.	Exp(B)
GRANT(1)	-0.009	0.187	0.002	1.000	.961	0.991
LOAN(1)	0.231	0.193	1.430	1.000	.232	1.260
GIBILL(1)	-0.696	0.433	2.585	1.000	.108	0.499
INSTGPA	-1.216	1.444	0.708	1.000	.400	0.296
LogGPA	0.762	0.709	1.154	1.000	.283	2.143
INSTHRS	-0.036	0.043	0.700	1.000	.403	0.965
LogCredEarned	0.008	0.009	0.916	1.000	.339	1.008
XFRHRS	-0.055	0.036	2.401	1.000	.121	0.946
LogTransfer	0.014	0.009	2.764	1.000	.096	1.015
HDEGREE			12.967	4.000	.011	
HDEGREE(1)	-1.196	0.419	8.139	1.000	.004	0.302
HDEGREE(2)	-1.784	0.517	11.918	1.000	.001	0.168
HDEGREE(3)	-1.564	0.628	6.204	1.000	.013	0.209
HDEGREE(4)	-1.088	0.476	5.220	1.000	.022	0.337
Constant	-4.405	2.605	2.861	1.000	.091	0.012

Table F3 Box Tidwell Test of Linearity Associates Sample, Graduate Aspirations

Variable	B	S.E.	Wald	*df*	Sig.	Exp(B)
AGE	.582	.269	4.675	1	.031	1.790
LogAge	-.129	.059	4.875	1	.027	.879
SEX(1)	.348	.198	3.087	1	.079	1.417
RACEDUM(1)	.222	.183	1.475	1	.225	1.249
DEPENDUM(1)	-.306	.209	2.155	1	.142	.736
HOMEOWNDUM(1)	-.472	.242	3.811	1	.051	.624
WORKHRS2			1.443	2	.486	
WORKHRS2(1)	.240	.206	1.349	1	.245	1.271
WORKHRS2(2)	.170	.238	.515	1	.473	1.186
DGREETYPE2(1)	-.418	.236	3.138	1	.077	.658
SEMCRED	-.186	.148	1.588	1	.208	.830
LogSemCred	.078	.049	2.541	1	.111	1.081
DEGCONF2(1)	.840	.632	1.767	1	.184	2.316
TONCAMP			7.480	4	.113	
TONCAMP(1)	-.098	.222	.197	1	.657	.906
TONCAMP(2)	.145	.241	.361	1	.548	1.156
TONCAMP(3)	.593	.373	2.530	1	.112	1.810
TONCAMP(4)	.857	.417	4.217	1	.040	2.356
STUGRPS2(1)	.619	.228	7.338	1	.007	1.857
INTFACU2(1)	-.103	.182	.319	1	.572	.902
INTADVI2(1)	-.033	.238	.020	1	.888	.967
PRATTND			51.957	4	.000	
PRATTND(1)	-.814	.590	1.904	1	.168	.443
PRATTND(2)	1.598	.248	41.431	1	.000	4.942
PRATTND(3)	1.100	.250	19.384	1	.000	3.005
PRATTND(4)	.947	.337	7.878	1	.005	2.577
EDUPLAN2(1)	.349	.192	3.299	1	.069	1.418
SCHOL(1)	-.670	.277	5.871	1	.015	.512
GRANT(1)	.060	.194	.096	1	.757	1.062
LOAN(1)	.228	.202	1.273	1	.259	1.256

Variable	B	S.E.	Wald	*df*	Sig.	Exp(B)
GIBILL(1)	-.793	.438	3.279	1	.070	.452
INSTGPA	-1.129	1.454	.603	1	.437	.323
LogGPA	.731	.715	1.046	1	.306	2.078
INSTHRS	-.050	.049	1.019	1	.313	.951
LogCredEarned	.012	.010	1.262	1	.261	1.012
XFRHRS	-.043	.037	1.355	1	.244	.958
LogTransfer	.013	.009	1.899	1	.168	1.013
HDEGREE			12.662	4	.013	
HDEGREE(1)	-1.200	.426	7.946	1	.005	.301
HDEGREE(2)	-1.785	.522	11.680	1	.001	.168
HDEGREE(3)	-1.656	.666	6.182	1	.013	.191
HDEGREE(4)	-1.118	.483	5.358	1	.021	.327
Constant	-3.940	2.671	2.177	1	.140	.019

Table F4 Analysis of Cook's Influential Statistics

Cases	Position	Case Number	Value
Highest	1	784	1.0726
	2	217	0.4907
	3	64	0.4351
	4	665	0.3976
	5	246	0.3483
Lowest	1	703	0.0003
	2	393	0.0004
	3	309	0.0006
	4	441	0.0007
	5	241	0.0007

Table F5 Cook's Influence Statistics, Leverage Value, Normalized Residual and *Df*Beta Values for All Predictor Variables in the Full Sample Models

Variable	N	Min	Max	Mean	Std. Deviation
Analog of Cook's influence statistics	846	0.0003	1.0726	0.0491	0.0677
Leverage value	846	0.0117	0.2642	0.0461	0.0248
Normalized residual	846	-3.1721	3.3182	-0.0050	0.9936
*DF*BETA for constant	846	-0.7276	1.9231	0.0003	0.0947
*DF*BETA for AGERANGE(1)	846	-0.0353	0.0294	0.0000	0.0086
*DF*BETA for AGERANGE(2)	846	-0.0441	0.0358	0.0000	0.0099
*DF*BETA for AGERANGE(3)	846	-0.1429	0.2543	0.0000	0.0234
*DF*BETA for SEX(1)	846	-0.0308	0.0275	0.0000	0.0068
*DF*BETA for RACEDUM(1)	846	-0.0195	0.0290	0.0000	0.0064
*DF*BETA for DEPENDUM	846	-0.0342	0.0244	0.0000	0.0071
*DF*BETA for HOMEOWNDUM	846	-0.0283	0.0371	0.0000	0.0081
*DF*BETA for WORKHRS2	846	-0.0124	0.0135	0.0000	0.0039
*DF*BETA for DGREETYPE2	846	-0.0273	0.0352	0.0000	0.0064
*DF*BETA for SEMCRED	846	-0.0320	0.0408	0.0000	0.0052
*DF*BETA for LogSemCred	846	-0.0152	0.0101	0.0000	0.0017
*DF*BETA for DEGCONF2(1)	846	-0.3296	0.1842	0.0000	0.0223
*DF*BETA for TONCAMP(1)	846	-0.0273	0.0334	0.0000	0.0077
*DF*BETA for TONCAMP(2)	846	-0.0452	0.0400	0.0000	0.0088
*DF*BETA for TONCAMP(3)	846	-0.1047	0.0743	0.0000	0.0128
*DF*BETA for TONCAMP(4)	846	-0.1013	0.0979	0.0000	0.0142
*DF*BETA for STUGRPS2(1)	846	-0.0369	0.0307	0.0000	0.0081
*DF*BETA for INTFACU2(1)	846	-0.0180	0.0247	0.0000	0.0063
*DF*BETA for INTADVI2(1)	846	-0.0334	0.0393	0.0000	0.0081
*DF*BETA for PRATTND(1)	846	-0.1077	0.1625	0.0000	0.0167
*DF*BETA for PRATTND(2)	846	-0.0445	0.0281	0.0000	0.0087
*DF*BETA for PRATTND(3)	846	-0.0330	0.0216	0.0000	0.0086
*DF*BETA for PRATTND(4)	846	-0.0563	0.0425	0.0000	0.0112
*DF*BETA for EDUPLAN2(1)	846	-0.0300	0.0231	0.0000	0.0067
*DF*BETA for SCHOL(1)	846	-0.0409	0.0673	0.0000	0.0099
*DF*BETA for GRANT(1)	846	-0.0225	0.0234	0.0000	0.0068
*DF*BETA for LOAN(1)	846	-0.0275	0.0217	0.0000	0.0067
*DF*BETA for GIBILL(1)	846	-0.1140	0.1342	0.0000	0.0168
*DF*BETA for INSTGPA	846	-1.4505	0.5108	-0.0003	0.0680
*DF*BETA for LogGPA	846	-0.2444	0.6928	0.0001	0.0329
*DF*BETA for INSTHRS	846	-0.0069	0.0166	0.0000	0.0015
*DF*BETA for LogCredEarned	846	-0.0037	0.0015	0.0000	0.0003
*DF*BETA for XFRHRS	846	-0.0081	0.0148	0.0000	0.0013

Variable	N	Min	Max	Mean	Std. Deviation
*DF*BETA for LogTransfer	846	-0.0040	0.0022	0.0000	0.0003
*DF*BETA for HDEGREE(1)	846	-0.1385	0.2531	0.0000	0.0200
*DF*BETA for HDEGREE(2)	846	-0.1469	0.2639	0.0000	0.0231
*DF*BETA for HDEGREE(3)	846	-0.1494	0.2825	0.0000	0.0264
*DF*BETA for HDEGREE(4)	846	-0.1449	0.2693	0.0000	0.0218
Valid N (listwise)	846				

Note. These tables are provided as reference to the tests of assumption for the logistic regression procedures in Chapter 4.

APPENDIX G: REGRESSION RESULTS FOR FULL SAMPLES

Table G1 Hierarchical Regression Analysis of Graduate Aspirations for Associate's and Bachelor's Students

	Block 1- Demographics				Block 2 - College Experience				Block 3 - Full Model			
Predictor Variables	*B*	Sig.	Odds Ratio	Inv Odds	*B*	Sig.	Odds Ratio	Inv Odds	*B*	Sig.	Odds Ratio	Inv Odds
College Entry Characteristics												
Age (18-24, 25-39)	-0.33	.052	0.72		0.00	.988	1.00		-0.07	.765	0.93	
Age (18-24, 40+)	-0.86^	.000	0.42	2.37	-0.45	.096	0.64		-0.55	.052	0.58	
Age (18-24, under 18)	0.94^	.008	2.57		0.82*	.047	2.27		0.16	.802	1.17	
Gender (F, M)	0.34*	.033	1.41		0.38*	.042	1.46		0.34	.071	1.41	
Race (White, Minority)	0.18	.248	1.19		0.14	.404	1.15		0.19	.272	1.21	
External Responsibilities												
Dependents (0, 1 or more)					-0.14	.445	0.87		-0.10	.603	0.90	
Homeowner (No, Yes)					-0.27	.220	0.76		-0.35	.119	0.70	
Work hours (None, PT)					0.11	.571	1.12		0.19	.350	1.20	
Work hours (None, FT)					0.23	.286	1.26		0.26	.237	1.30	
Academic Integration												
Degree Type (AA, AS)					-0.34	.105	0.71		-0.44	.050	0.64	
Degree Type (AA, BAS)					0.48	.186	1.62		0.09	.819	1.10	
Credits this sem (unit = 1 credit)					0.05*	.028	1.05		0.03	.152	1.03	
Time on Campus (<1, 1-2)					-0.22	.298	0.81		-0.21	.330	0.81	
Time on Campus (<1, 3-4)					0.14	.554	1.15		0.16	.483	1.18	
Time on Campus (<1, 5-9)					0.62	.067	1.87		0.68	.050	1.98	
Time on Campus (<1, 10+)					0.62	.101	1.85		0.61	.110	1.85	
Prt. in stdnt grps (None, 1/more)					0.64^	.002	1.89		0.59^	.006	1.80	
Int w/fac (Nvr, once/more term)					-0.11	.507	0.89		-0.09	.596	0.91	
Int w/adv (Nvr, once/more term)					-0.03	.9003	0.97		-0.02	.927	0.98	
Reason for att (Get job, enh skls)					-0.62	.172	0.54		-0.57	.218	0.57	
Reason for att (Get job, transfer)					1.60^	.000	4.95		1.53^	.000	4.62	
Reason for att (Get job, high dg)					0.98^	.000	2.68		1.05^	.000	2.86	
Reason for att (Get job, other)					0.92^	.002	2.51		0.96^	.002	2.61	
Plan courses (No, 1+ sems adv)					0.46*	.011	1.58		0.42*	.023	1.52	

Predictor Variables	Block 1- Demographics				Block 2 - College Experience				Block 3 - Full Model			
	B	Sig.	Odds Ratio	Inv Odds	*B*	Sig.	Odds Ratio	Inv Odds	*B*	Sig.	Odds Ratio	Inv Odds
Financial Support												
Scholarship (No, Yes)					-0.57*	.025	0.57	1.76	-0.59*	.023	0.56	1.80
Grant (No, Yes)					-0.05	.762	0.95		0.01	.964	1.01	
Loan (No, Yes)					0.22	.246	1.24		0.26	.160	1.30	
GI Bill (No, Yes)					-0.58	.152	0.56		-0.66	.117	0.52	
Academic Achievement												
GPA (unit = .01)									0.34*	.014	1.41	
Credit hours earned (unit = 1)									0.01	.203	1.01	
Transfer hours (unit = 1)									0.00	.420	1.00	
Highest degree (in HS, HS Dip)									-0.68	.230	0.51	
Highest degree (in HS, PS cert)									-1.40*	.031	0.25	4.03
Highest degree (in HS, AS Deg)									-0.98	.174	0.37	
Highest degree (in HS, AA Deg)									-0.57	.348	0.56	
Model Statistics	χ^2	*df*	Sig.		χ^2	*df*	Sig.		χ^2	*df*	Sig.	
Block	45.61	5	0.000		140.5	23	0.000		16.274	7	0.023	
Model	45.61	5	0.000		186.1	28	0.000		202.38	34	0.000	
Model Summary	-2LL	Cox & Snell	Nagel. R^2		-2LL	Cox & Snell	Nagel. R^2		-2LL	Cox & Snell	Nagel. R^2	
	1128.2	0.052	0.070		987.7	0.197	0.263		971.43	0.212	0.283	
Hosmer & Lemeshow Test	χ^2	*df*	Sig.		χ^2	*df*	Sig.		χ^2	*df*	Sig.	
	6.77	7	0.452		9.267	8	0.320		13.167	8	0.106	
Classification Table (0 = Bacc/less vs.1 = grad deg)	0	1	Overall		0	1	Overall		0	1	Overall	
Incorrect Classification *n*	117	250	367		123	131	254		121	128	249	
Correct Classification *n*	339	144	483		333	263	596		335	266	601	
Correct Classification	74.3%	36.5%	56.8%		73.0%	66.8%	70.1%		73.5%	67.5%	70.7%	

Predictor Variables	Block 1- Demographics				Block 2 - College Experience				Block 3 - Full Model			
	B	Sig.	Odds Ratio	Inv Odds	*B*	Sig.	Odds Ratio	Inv Odds	*B*	Sig.	Odds Ratio	Inv Odds

Notes: Total sample 867; 17 with missing cases; 850 included in analysis. Each predictor variable has reference categories or units in parentheses. Inverse odds are reported for significant negative Log odds values.
Significance levels: * < .05; ^ < .01.

Table G2 Hierarchical Regression Analysis of Graduate Aspirations for All Associate Degree Students

	Block 1- Demographics				Block 2 - College Experience				Block 3 - Full Model			
Predictor Variables	*B*	Sig.	Odds Ratio	Inv Odds	*B*	Sig.	Odds Ratio	Inv Odds	*B*	Sig.	Odds Ratio	Inv Odds
College Entry Characteristics												
Age (18-24, 25-39)	-0.37*	.034	0.69	1.44	-0.02	.939	0.98		-0.12	.625	0.89	
Age (18-24, 40+)	-0.90^	.000	0.41	2.47	-0.43	.124	0.65		-0.58*	.047	0.56	1.79
Age (18-24, under 18)	0.93^	.009	2.53		0.86*	.040	2.36		0.22	.731	1.25	
Gender (F, M)	0.36*	.028	1.43		0.39*	.039	1.48		0.36	.063	1.43	
Race (White, Minority)	0.23	.149	1.25		0.19	.283	1.21		0.24	.191	1.27	
External Responsibilities												
Dependents (0, 1 or more)					-0.18	.346	0.83		-0.12	.536	0.88	
Homeowner (No, Yes)					-0.28	.224	0.76		-0.37	.114	0.69	
Work hours (None, PT)					0.11	.567	1.12		0.20	.319	1.22	
Work hours (None, FT)					0.22	.336	1.24		0.24	.304	1.27	
Academic Integration												
Degree Type (AA, AS)					-0.34	.110	0.72		-0.45*	.047	0.64	1.58
Credits this sem (unit = 1 credit)					0.05*	.026	1.05		0.03	.157	1.03	
Time on Campus (<1, 1-2)					-0.16	.461	0.85		-0.13	.540	0.87	
Time on Campus (<1, 3-4)					0.12	.624	1.12		0.16	.510	1.17	
Time on Campus (<1, 5-9)					0.63	.080	1.87		0.67	.068	1.95	
Time on Campus (<1, 10+)					0.70	.073	2.02		0.74	.069	2.09	
Prt. in stdnt grps (None, 1/more)					0.60^	.006	1.83		0.55*	.014	1.73	
Int w/fac (Nvr, once/more term)					-0.09	.597	0.91		-0.08	.656	0.92	
Int w/adv (Nvr, once/more term)					-0.10	.670	0.91		-0.09	.684	0.91	
Reason for att (Get job, enh skls)					-0.93	.110	0.39		-0.85	.152	0.43	
Reason for att (Get job, transfer)					1.58^	.000	4.84		1.51^	.000	4.54	
Reason for att (Get job, high dg)					1.04^	.000	2.82		1.12^	.000	3.05	
Reason for att (Get job, other)					0.77*	.016	2.16		0.80*	.015	2.22	
Plan courses (No, 1+ sems adv)					0.46*	.013	1.59		0.41*	.030	1.51	

Predictor Variables	Block 1- Demographics				Block 2 - College Experience				Block 3 - Full Model			
	B	Sig.	Odds Ratio	Inv Odds	*B*	Sig.	Odds Ratio	Inv Odds	*B*	Sig.	Odds Ratio	Inv Odds
Financial Support												
Scholarship (No, Yes)					-0.66*	.012	0.52	1.94	-0.69*	.011	0.50	1.98
Grant (No, Yes)					-0.01	.977	0.99		0.08	.680	1.08	
Loan (No, Yes)					0.18	.342	1.20		0.25	.199	1.29	
GI Bill (No, Yes)					-0.59	.144	0.55		-0.75	.076	0.47	
Academic Achievement												
GPA (unit = .01)									0.36*	.012	1.43	
Credit hours earned (unit = 1)									0.01	.178	1.01	
Transfer hours (unit = 1)									0.01	.143	1.01	
Highest degree (in HS, HS Dip)									-0.68	.230	0.50	
Highest degree (in HS, PS cert)									-1.40*	.032	0.25	4.07
Highest degree (in HS, AS Deg)									-1.07	.157	0.34	
Highest degree (in HS, AA Deg)									-0.58	.350	0.56	
Model Statistics	χ^2	*df*	Sig.		χ^2	*df*	Sig.		χ^2	*df*	Sig.	
Block	45.45	5	.000		136.74	22	.000		17.64	7	.014	
Model	45.45	5	.000		182.19	27	.000		199.83	34	.000	
Model Summary	-2LL	Cox & Snell	Nagel. R^2		-2LL	Cox & Snell	Nagel. R^2		-2LL	Cox & Snell	Nagel. R^2	
	1061.7	0.055	0.074		924.98	0.203	0.272		907.34	0.221	0.30	
Hosmer & Lemeshow Test	χ^2	*df*	Sig.		χ^2	*df*	Sig.		χ^2	*df*	Sig.	
	5.86	7	.556		8.40	8	.396		15.23	8	.055	
Classification Table (0 = Bacc/less vs.1 = grad deg)	0	1	Overall		0	1	Overall		0	1	Overall	
Incorrect Classification *n*	86	251	337		119	120	239		119	113	232	
Correct Classification *n*	340	124	464		307	255	562		307	262	569	
Correct Classification	79.8%	33.1%	57.9%		72.1%	68.0%	70.2%		72.1%	69.9%	71.0%	

Predictor Variables	Block 1- Demographics				Block 2 - College Experience				Block 3 - Full Model			
	B	Sig.	Odds Ratio	Inv Odds	*B*	Sig.	Odds Ratio	Inv Odds	*B*	Sig.	Odds Ratio	Inv Odds

Notes: Total sample 818; 17 with missing cases; 801 included in analysis. Each predictor variable has reference categories or units in parentheses. Inverse odds are reported for significant negative Log odds values.
Significance levels: * < .05; ^ < .01.

Table G3 Hierarchical Regression Analysis of Baccalaureate Aspirations for All Associates

	Block 1- Demographics				Block 2 - College Experience				Block 3 - Full Model			
Predictor Variables	*B*	Sig.	Odds Ratio	Inv Odds	*B*	Sig.	Odds Ratio	Inv Odds	*B*	Sig.	Odds Ratio	Inv Odds
College Entry Characteristics												
Age (<25, 25-39)	-0.38	.080	0.68		0.05	.845	1.049		0.12	.647	1.124	
Age (<25, 40+)	-0.76^	.001	0.47	2.14	-0.22	.387	.806		-0.17	.527	.846	
Gender (F, M)	0.50*	.021	1.66		0.58*	.013	1.794		0.56*	.019	1.747	
Academic Integration												
Degree Type (AA, AS)					-0.57^	.008	.565	1.77	-0.57^	.009	.566	1.77
Credits this sem (unit = 1 credit)					0.02	.334	1.024		0.02	.429	1.020	
Prt. in stdnt grps (None, 1/more)					0.31	.245	1.370		0.32	.239	1.383	
Reason for att (Job/Skls, transfr)					1.64^	.000	5.173		1.56^	.000	4.747	
Reason for att (Job/Skls, high d)					0.65^	.006	1.914		0.66^	.005	1.941	
Reason for att (Job/Skls, other)					0.27	.372	1.311		0.18	.551	1.203	
Plan courses (No, 1+ sems adv)					0.43*	.036	1.539		0.43*	.038	1.545	
Financial Support												
Scholarship (No, Yes)					0.10	.755	1.110		0.15	.661	1.160	
Academic Achievement												
GPA (unit = .01)									0.10	.527	1.104	
Highest degree (in HS, HS Dip)									-0.63	.236	.532	
Highest degree (in HS, PS cert)									-1.31*	.027	.271	3.69
Highest degree (in HS, AS Deg)									-0.51	.472	.598	
Highest degree (in HS, AA Deg)									-0.47	.421	.627	
Model Statistics	χ^2	*df*	Sig.		χ^2	*df*	Sig.		χ^2	*df*	Sig.	
Block	16.46	3	.001		72.09	8	.000		8.10	5	.151	
Model	16.46	3	.001		88.55	11	.000		96.65	16	.000	

Predictor Variables	Block 1- Demographics				Block 2 - College Experience				Block 3 - Full Model			
	B	Sig.	Odds Ratio	Inv Odds	*B*	Sig.	Odds Ratio	Inv Odds	*B*	Sig.	Odds Ratio	Inv Odds
Model Summary	-2LL	Cox & Snell	Nagel. R^2		-2LL	Cox & Snell	Nagel. R^2		-2LL	Cox & Snell	Nagel. R^2	
	773.55	0.02	0.03		701.46	0.10	.17		693.36	0.11	.181	
Hosmer & Lemeshow Test	χ^2	*df*	Sig.		χ^2	*df*	Sig.		χ^2	*df*	Sig.	
	3.22	4	.522		5.58	8	.694		3.483	8	.901	
Classification Table (0 = Associate vs.1 = bacc/more)	0	1	Overall		0	1	Overall		0	1	Overall	
Incorrect Classification *n*	155	0	155		149	7	156		144	11	155	
Correct Classification *n*	0	653	653		6	646	652		11	642	653	
Correct Classification	0.0%	100%	80.8%		3.9%	98.9%	80.7%		7.1%	98.3%	80.8%	

Notes: Total sample 818; 10 with missing cases; 808 included in analysis. Each predictor variable has reference categories or units in parentheses. Inverse odds are reported for significant negative Log odds values.
Significance levels: * < .05; ^ < .01.

APPENDIX H: REGRESSION RESULTS BY DEGREE TYPE

Table H1 Hierarchical Regression Analysis of Graduate Aspirations for Associates in Science Degree Type

	Block 1- Demographics				Block 2 - College Experience				Block 3 - Full Model			
Predictor Variables	*B*	Sig.	Odds Ratio	Inv Odds	*B*	Sig.	Odds Ratio	Inv Odds	*B*	Sig.	Odds Ratio	Inv Odds
College Entry Characteristics												
Age (<25, 25-39)	-0.50	.201	0.61		-0.74	.105	0.48		-0.80	.079	0.45	
Age (<25, 40+)	-0.86*	.042	0.42	2.36	-1.27*	.012	0.28	3.58	-1.24*	.014	0.29	3.448
Gender (F, M)	0.33	.289	1.39		0.29	.400	1.34		0.26	.466	1.29	
Academic Integration												
Prt. in stdnt grps (None, 1/more)					1.09^	.006	2.98		1.03*	.011	2.79	
Reason for att (Job/Skls, transfr)					1.89^	.000	6.64		1.74^	.001	5.71	
Reason for att (Job/Skls, high d)					1.47^	.000	4.37		1.48^	.000	4.39	
Reason for att (Job/Skls, other)					0.33	.651	1.39		0.22	.766	1.25	
Plan courses (No, 1+ sems adv)					0.67	.100	1.96		0.59	.156	1.80	
Academic Achievement												
Highest degree (No deg, Assoc)									0.66	.072	1.94	
Model Statistics	χ^2	*df*	Sig.		χ^2	*df*	Sig.		χ^2	*df*	Sig.	
Block	4.83	3	.185		40.31	5	.000		3.22	1	.073	
Model	4.83	3	.185		45.14	8	.000		48.35	9	.000	
Model Summary	-2LL	Cox & Snell	Nagel. R^2		-2LL	Cox & Snell	Nagel. R^2		-2LL	Cox & Snell	Nagel. R^2	
	253.56	0.02	0.03		213.26	0.20	0.28		210.04	0.21	0.29	
Hosmer & Lemeshow Test	χ^2	*df*	Sig.		χ^2	*df*	Sig.		χ^2	*df*	Sig.	
	0.81	4	0.937		11.39	7	.122		5.895	8	.659	
Classification Table (0 = Bacc/less vs.1 = grad deg)	0	1	Overall		0	1	Overall		0	1	Overall	
Incorrect Classification *n*	0	66	66		21	39	60		20	34	54	
Correct Classification *n*	140	0	140		119	27	146		120	32	152	
Correct Classification	100%	0.0%	68.0%		85.0%	40.9%	70.9%		85.7%	48.5%	73.8%	

Notes: Total sample 209; 3 with missing cases; 206 included in analysis. Each predictor variable has reference categories or units in parentheses. Inverse odds are reported for significant negative Log odds values.
Significance levels: * < .05; ^ < .01

Table H2 Hierarchical Regression Analysis of Graduate Aspirations for Associate in Arts Degree Type

	Block 1- Demographics				Block 2 - College Experience				Block 3 - Full Model			
Predictor Variables	*B*	Sig.	Odds Ratio	Inv Odds	*B*	Sig.	Odds Ratio	Inv Odds	*B*	Sig.	Odds Ratio	Inv Odds
College Entry Characteristics												
Age (<25, 25-39)	-0.30	.126	0.74		-0.11	.611	0.90		-0.11	.610	0.90	
Age (<25, 40+)	-0.95^	.000	0.39	2.59	-0.57*	.017	0.56	1.77	-0.57*	.018	0.57	1.77
Gender (F, M)	0.54^	.006	1.72		0.44*	.038	1.55		0.44*	.038	1.55	
Academic Integration												
Prt. in stdnt grps (None, 1/more)					0.41	.07	1.51		0.41	.073	1.51	
Reason for att (Job/Skls, transfr)					1.71^	.000	5.54		1.72^	.000	5.56	
Reason for att (Job/Skls, high d)					1.02^	.000	2.77		1.02^	.000	2.78	
Reason for att (Job/Skls, other)					1.01^	.003	2.75		1.01^	.003	2.76	
Plan courses (No, 1+ sems adv)					0.37	.063	1.45		0.38	.062	1.46	
Academic Achievement												
Highest degree (No deg, Assoc)									-0.04	.869	0.96	
Model Statistics	χ^2	*df*	Sig.		χ^2	*df*	Sig.		χ^2	*df*	Sig.	
Block	27.45	3	.000		60.82	5	.000		0.03	1	.869	
Model	27.45	3	.000		88.27	8	.000		88.30	9	.000	
Model Summary	-2LL	Cox & Snell	Nagel. R^2		-2LL	Cox & Snell	Nagel. R^2		-2LL	Cox & Snell	Nagel. R^2	
	809.21	0.04	0.06		748.38	0.14	0.18		748.38	0.14	0.18	
Hosmer & Lemeshow Test	χ^2	*df*	Sig.		χ^2	*df*	Sig.		χ^2	*df*	Sig.	
	6.49	4	.165		13.59	8	.093		10.66	8	.222	
Classification Table (0 = Bacc/less vs.1 = grad deg)	0	1	Overall		0	1	Overall		0	1	Overall	
Incorrect Classification *n*	140	114	254		120	85	205		119	88	207	
Correct Classification *n*	152	198	350		172	227	399		173	224	397	
Correct Classification	52.1%	63.5%	57.9%		58.9%	72.8%	66.1%		59.2%	71.8%	65.7%	

Notes: Total sample 609; 5 with missing cases; 604 included in analysis. Each predictor variable has reference categories or units in parentheses. Inverse odds are reported for significant negative Log odds values.
Significance levels: * < .05; ^ < .01

Table H3 Hierarchical Regression Analysis of Baccalaureate Aspirations for Associate in Science Degree Type

	Block 1- Demographics				Block 2 - College Experience				Block 3 - Full Model			
Predictor Variables	*B*	Sig.	Odds Ratio	Inv Odds	*B*	Sig.	Odds Ratio	Inv Odds	*B*	Sig.	Odds Ratio	Inv Odds
College Entry Characteristics												
Age (<25, 25-39)	-0.28	.528	0.75		-0.43	.369	0.65		-0.44	.366	0.65	
Age (<25, 40+)	-0.79	.083	0.45		-1.10*	.034	0.33	2.99	-1.07*	.040	0.34	2.91
Gender (F, M)	0.50	.128	1.64		0.58	.095	1.79		0.56	.112	1.75	
Academic Integration												
Prt. in stdnt grps (None, 1/more)					0.50	.268	1.65		0.49	.284	1.63	
Reason for att (Job/Skls, transfr)					1.70*	.028	5.50		1.64*	.036	5.18	
Reason for att (Job/Skls, high d)					0.53	.167	1.70		0.52	.178	1.68	
Reason for att (Job/Skls, other)					0.26	.647	1.30		0.25	.665	1.28	
Plan courses (No, 1+ sems adv)					0.91*	.010	2.50		0.89*	.013	2.43	
Academic Achievement												
Highest degree (No deg, Assoc)									0.21	.581	1.24	
Model Statistics	χ^2	*df*	Sig.		χ^2	*df*	Sig.		χ^2	*df*	Sig.	
Block	5.55	3	.136		19.66	5	.001		0.31	1	.579	
Model	5.55	3	.136		25.21	8	.001		25.52	9	.002	
Model Summary	-2LL	Cox & Snell	Nagel. R^2		-2LL	Cox & Snell	Nagel. R^2		-2LL	Cox & Snell	Nagel. R^2	
	248.12	0.03	0.04		228.46	0.12	0.16		228.15	0.12	0.17	
Hosmer & Lemeshow Test	χ^2	*df*	Sig.		χ^2	*df*	Sig.		χ^2	*df*	Sig.	
	0.03	4	.999		5.61	8	.690		3.26	7	.860	
Classification Table (0 = Associate vs.1 = Bacc/more)	0	1	Overall		0	1	Overall		0	1	Overall	
Incorrect Classification *n*	63	0	63		50	11	61		50	12	62	
Correct Classification *n*	0	143	143		13	132	145		13	131	144	
Correct Classification	0.0%	100%	69.4%		20.6%	92.3%	70.4%		20.6%	91.6%	69.9%	

Notes: Total sample 209; 3 with missing cases; 206 included in analysis. Each predictor variable has reference categories or units in parentheses. Inverse odds are reported for significant negative Log odds values.
Significance levels: * < .05; ^ < .01

Table H4 Hierarchical Regression Analysis of Baccalaureate Aspirations for Associate in Arts Degree Type

Predictor Variables	Block 1- Demographics *B*	Sig.	Odds Ratio	Inv Odds	Block 2 - College Experience *B*	Sig.	Odds Ratio	Inv Odds	Block 3 - Full Model *B*	Sig.	Odds Ratio	Inv Odds
College Entry Characteristics												
Age (<25, 25-39)	-0.14	.604	0.87		0.07	.812	1.07		0.07	.804	1.07	
Age (<25, 40+)	-0.45	.108	0.64		0.07	.804	1.08		0.06	.831	1.07	
Gender (F, M)	0.83*	.011	2.30		0.70*	.037	2.02		0.69*	.041	2.00	
Academic Integration												
Prt. in stdnt grps (None, 1/more)					0.25	.460	1.28		0.24	.481	1.27	
Reason for att (Job/Skls, transfr)					1.82^	.000	6.20		1.81^	.000	6.12	
Reason for att (Job/Skls, high d)					0.83^	.006	2.30		0.83^	.006	2.29	
Reason for att (Job/Skls, other)					0.41	.265	1.50		0.39	.283	1.48	
Plan courses (No, 1+ sems adv)					0.21	.423	1.23		0.20	.442	1.22	
Academic Achievement												
Highest degree (No deg, Assoc)									0.15	.674	1.16	
Model Statistics	χ^2	*df*	Sig.		χ^2	*df*	Sig.		χ^2	*df*	Sig.	
Block	10.10	3	.018		37.55	5	.000		0.18	1	.671	
Model	10.10	3	.018		47.86	8	.000		48.04	9	.000	
Model Summary	-2LL	Cox & Snell	Nagel. R^2		-2LL	Cox & Snell	Nagel. R^2		-2LL	Cox & Snell	Nagel. R^2	
	505.36	0.02	0.03		467.60	0.08	0.13		467.43	0.08	0.13	
Hosmer & Lemeshow Test	χ^2	*df*	Sig.		χ^2	*df*	Sig.		χ^2	*df*	Sig.	
	2.46	3	.482		2.36	8	.968		8.12	8	.422	
Classification Table (0 = Associate vs.1 = Bacc/more)	0	1	Overall		0	1	Overall		0	1	Overall	
Incorrect Classification *n*	92	0	92		92	0	92		92	0	92	
Correct Classification *n*	0	512	512		0	512	512		0	512	512	
Correct Classification	0.0%	100%	84.8%		0.0%	100%	84.8%		0.0%	100%	84.8%	

Notes: Total sample 609; 5 with missing cases; 604 included in analysis. Each predictor variable has reference categories or units in parentheses. Inverse odds are reported for significant negative Log odds values.
Significance levels: * < .05; ^ < .01

APPENDIX I: CHI-SQUARE TEST OF ASSOCIATION FOR GRADUATE ASPIRATIONS AND SEMESTER FTE

Table I1: Counts, % of Row, and Standardized Residuals of Degree Aspirations for White, Black, and Hispanic Students by Semester FTE

Semester FTE	Degree	Statistic	White	Black	Hispanic
1st Semester (0-15 Credits)	Bachelor or Lower	Count	54	9	9
		% of Row	75.0%	12.5%	12.5%
		Std. Residual	0.0	-0.3	0.4
	Graduate Degree	Count	34	7	4
		% of Row	75.6%	15.6%	8.9%
		Std. Residual	0.0	0.3	-0.4
2nd Semester (16-30 Credits)	Bachelor or Lower	Count	75	18	14
		% of Row	70.1%	16.8%	13.1%
		Std. Residual	-0.1	0.0	0.2
	Graduate Degree	Count	62	15	10
		% of Row	71.3%	17.2%	11.5%
		Std. Residual	0.1	0.1	-0.2
3rd Semester (31-45 Credits)	Bachelor or Lower	Count	66	10	12
		% of Row	75.0%	11.4%	13.6%
		Std. Residual	0.3	-0.9	0.2
	Graduate Degree	Count	53	15	9
		% of Row	68.8%	19.5%	11.7%
		Std. Residual	-0.3	1.0	-0.3
4th Semester (46-60 Credits)	Bachelor or Lower	Count	65	9	6
		% of Row	81.3%	11.3%	7.5%
		Std. Residual	0.3	0.0	-0.8
	Graduate Degree	Count	48	7	9
		% of Row	75.0%	10.9%	14.1%
		Std. Residual	-0.3	0.0	0.9
5th Semester (61+ Credits)	Bachelor or Lower	Count	73	7	6
		% of Row	84.9%	8.1%	7.0%
		Std. Residual	0.5	-1.0	-0.2
	Graduate Degree	Count	67	14	7
		% of Row	76.1%	15.9%	8.0%
		Std. Residual	-0.5	1.0	0.2

Table I2 Chi-Square Analysis of Graduate Aspirations for White, Black, and Hispanic Students by Semester FTE

Semester FTE	χ^2	Sig.
1st Semester	0.515	.773
2nd Semester	0.112	.945
3rd Semester	2.125	.346
4th Semester	1.650	.438
5th Semester or later	2.645	.267

Note. In this appendix, Table 1 shows the counts, row percentages, and standardized residuals for White Black and Hispanic student by FTE Semester. Table 2 shows the chi square values of graduate aspirations by FTE Semester for White, Black, and Hispanic students.

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REFERENCES

Adelman, C. (2006). *The toolbox revisited: Paths to degree completion from high school through college.* Washington, D.C.: U.S. Department of Education. doi: 10.1.1.108.495

Alexander, K., Bozick, R., & Entwisle, D. (2008). Warming up, cooling out, or holding steady? Persistence and change in educational expectations after high school. *Sociology of Education, 81*(4), 371-396. doi: 10.2307/20452746

Alfonso, M. (2006). The impact of community college attendance on baccalaureate attainment. *Research in Higher Education, 47*(8), 873-903. doi: 10.1007/s11162-006-9019-2

American Association of State Colleges and Universities. (2010). *Update on the community college baccalaureate: Evolving trends and issues.* Retrieved from http://www.congressweb.com/aascu/docfiles/AASCU_Update_Community_College_Baccalaureate.p*df*

Anderson, G. M., Sun, J. C., & Alfonso, M. (2006). Effectiveness of statewide articulation agreements on the probability of transfer: A preliminary policy analysis. *Review of Higher Education, 29*(3), 261-291. doi: 10.1353/rhe.2006.0001

Astin, A. W. (1991). *Assessment for excellence.* New York, NY: Macmillan.

Astin, A. W. (1993). *What matters in college? Four critical years revisited.* San Francisco, CA: Jossey-Bass.

Antonio, A. L. (2004). The influence of friendship groups on intellectual self-confidence and educational aspirations. *The Journal of Higher Education, 75*(4), 446-471. Retrieved from http://www.jstor.org/stable/3838742

Bailey, T. R., & Morest, V. S. (2004). *The organizational efficiency of multiple missions for community colleges*. New York, NY: Columbia University, Teachers College, Community College Research Center. Retrieved from http://ccrc.tc.columbia.edu/media/k2/attachments/organizational-efficiency-multiple-missions.p*df*.

Bailey, T. R., & Morest, V. S. (2006). *Defending the community college equity agenda*. Baltimore, MD: Johns Hopkins University Press.

Bailey, T. R., & Morest, V. S. (2006). Introduction: Defending the community college equity agenda. In T. R. Bailey & V. S. Morest (Eds.), *Defending the community*

college equity agenda (pp. 1-27). Baltimore, MD: Johns Hopkins University Press.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice Hall.

Behnke, A. O., Piercy, K. W., & Diversi, M. (2004). Educational and occupational aspirations of Latino youth and their parents. *Hispanic Journal of Behavioral Sciences, 26*(1), 16-35. doi: 10.1177/0739986303262329

Belfield, C. R., & Bailey, T. (2011). The benefits of attending community college: A review of the evidence. *Community College Review, 39*(1), 46-68. doi: 10.1177/0091552110395575

Bemmel, E. P., Floyd, D. L., & Bryan, V. C. (2009). Perceptions and reflections of administrators: Community colleges transitioning to baccalaureate colleges. *Community College Journal of Research and Practice, 33*(2), 151-176. doi: 10.1080/10668920802564923

Bender, L. W. (1990). State articulation policies: Myths and realities. In B. K. Townsend, J. L. Ratcliff, S. Schwarz, & L. H. Ebbers (Eds.), *Community colleges* (ASHE Reader Series, Second Edition, pp. 165-182). Needham Heights: MA: Simon & Schuster. (Reprinted from 1994).

Betts, J. R., & McFarland, L. L. (1995). Safe port in a storm: The impact of labor market conditions on community college enrollments. *The Journal of Human Resources, 30*(4), 741-765. doi: 10.2307/146230

Blau, P. M., & Duncan, O. D. (1967). *The American occupational structure.* New York, NY: John Wiley & Sons.

Bloom, D. E., Hartley, M., & Rosovsky, H. (2006). Beyond private gain: The public benefits of higher education. In J. J. F. Forest, & P. G. Altbach (Eds.), *International handbook of higher education: Global themes and contemporary challenges* (Vol. 18, pp. 293-308). Dordrecht, NL: Springer.

Bogue, J. P. (1950). *The community college*. New York, NY: McGraw-Hill.

Boudarbat, B. (2008). Field of study choice by community college students in Canada. *Economics of Education Review, 27*(1), 79-93. doi: 10.1016/j.econedurev.2006.06.001

Bourdieu, P. B. (1977). *Outline of a theory of practice.* Cambridge, UK: Cambridge University Press.

Braxton, J. M., & Hirschy, A. (2005). Theoretical developments in the study of college student departure. In A. Seidman (Ed.) *College student retention: Formula for student success* (pp. 61-87). Westport, CT: Praeger.

Braxton, J. M., Hirschy, A., & McClendon, S. A. (2004). *Understanding and reducing college student departure.* ASHE-ERIC Higher Education Report, Vol. 30, No. 3. San Francisco, CA: Jossey-Bass.

Brint, S., & Karabel, J. (1989). *The diverted dream: Community colleges and the promise of educational opportunity in America, 1900-1985.* New York, NY: Oxford University Press.

Carter, D. F. (1999). The impact of institutional choice and environments on African-American and White students' degree aspirations. *Research in Higher Education*, *40*(1), 17-41. doi: 10.1023/A:1018770210560

Carter, D. F. (2001). *A dream deferred? Examining the degree aspirations of African American and white college students.* New York, NY: RoutledgeFalmer.

Carter, D. F. (2002). College students' degree aspirations: A theoretical model and literature review with a focus on African American and Latino students. *Higher Education: Handbook of Theory and Research, 17*, 129-171.

Chapman, D. W. (1981). A model of student college choice. *The Journal of Higher Education, 52*(5), 490-505. Retrieved from http://www.jstor.org/stable/1981837

Clark, B. R. (1960). The "cooling-out" function in higher education. *American Journal of Sociology, 65*(6), 569-576. Retrieved from http://www.jstor.org/stable/2773649

Clark, B. R. (1980). The "cooling out" function revisited. *New Directions for Community Colleges*(32), 15-31. doi: 10.1002/cc.36819803204

Cohen, A. M. (2003). *The community colleges and the path to the baccalaureate*. Retrieved from http://cshe.berkeley.edu/publications/docs/ROP.Cohen.4.03.p*df*

Cohen, A. M. (2005). The future of transfer. *Journal of Applied Research in the Community College, 12*(2), 85-91.

Cohen, A. M., & Brawer, F. B. (2008). *The American community college,* (6th ed.) [Kindle Version]. San Francisco, CA: Jossey-Bass.

Cohen, A. M., Brawer, F. B., & Kisker, C. B. (2014). *The American community college* (6th ed.). San Francisco, CA: John Wiley & Sons.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*, (2nd ed.) [Kindle Version]. Hillsdale, NJ: Erlbaum.

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*(1), 155-159. doi: 10.1037/0033-2909.112.1.155

Community College Baccalaureate Association. (2013). *Public community colleges conferring baccalaureate degrees: October 2013*. Retrieved from http://www.accbd.org/wp-content/uploads/2013/10/Conferring-Institutions-October-2013.p*df*

Conway, K. M. (2010). Educational aspirations in an urban community college: Differences between immigrant and native student groups. *Community College Review, 37*(3), 209-242. doi: 10.1177/0091552109354626

Damon, A., & Glewwe, P. (2011). Valuing the benefits of the education provided by public universities: A case study of Minnesota. *Economics of Education Review, 30*, 1242-1261. doi: 10.1016/j.econedurev.2011.07.015

Dougherty, K. J. (1987). The effects of community colleges: Aid or hindrance to socioeconomic attainment? *Sociology of Education, 60*(2), 86-103. Retrieved from http://www.jstor.org/stable/2112584

Dougherty, K. J. (1991). The community college at the crossroads: The need for structural reform. *Harvard Educational Review, 61*(3), 311-336. Retrieved from http://hepg.metapress.com/content/K764030285230560

Dougherty, K. J. (1994). *The contradictory college: The conflicting origins, impacts, and futures of the community college.* Albany, NY: State University of New York Press.

Dougherty, K. J. (2001). State policies and the community college's role in workforce preparation. In B. K. Townsend & S. B. Twombly (Eds.), *Community colleges: Policy in the future context* (pp. 129-147). Westport, CT: Ablex.

Dougherty, K. J., & Kienzl, G. S. (2006). It's not enough to get through the open door: Inequalities by social background in transfer from community colleges to four-year colleges. *Teachers College Record, 108*(3), 452-487.

Dougherty, K. J., & Townsend, B. K. (2006). Community college missions: A theoretical and historical perspective. *New Directions for Community Colleges, 136*, 5-13. doi: 10.1002/cc.254

Eells, W. C. (1939). Implications of the junior college movement. *The High School Journal, 22*(4), 137-144. Retrieved from http://www.jstor.org/stable/40361435

Eells, W. C. (1942). Junior college terminal education. *The Journal of Educational Research, 36*(3), 226-240. Retrieved from http://www.jstor.org/stable/27528357

Fields, R. R. (1962). *The community college movement*. New York, NY: McGraw-Hill.

Florida College System. (n.d.). *Transparency and accountability* (webpage). http://www.fldoe.org/fcs/transparencyaccountability.asp

Florida College System. (2005). *Florida College System fact books: 2005.* Retrieved from http://fldoehub.org/cctcmis/c/Pages/default.aspx

Florida College System. (2006). *Florida College System fact books: 2006.* Retrieved from http://fldoehub.org/cctcmis/c/Pages/default.aspx

Florida College System. (2007). *Florida College System fact books: 2007.* Retrieved from http://fldoehub.org/cctcmis/c/Pages/default.aspx

Florida College System. (2008). *Florida College System fact books: 2008.* Retrieved from http://fldoehub.org/cctcmis/c/Pages/default.aspx

Florida College System. (2009). *Florida College System fact books: 2009.* Retrieved from http://fldoehub.org/cctcmis/c/Pages/default.aspx

Florida College System. (2010). *Florida College System fact books: 2010.* Retrieved from http://fldoehub.org/cctcmis/c/Pages/default.aspx

Florida College System. (2011). *Florida College System fact books: 2011.* Retrieved from http://fldoehub.org/cctcmis/c/Pages/default.aspx

Florida College System. (2012a). *Baccalaureate programs in the Florida College System: Guiding principles and policies.* Retrieved from http://www.fldoe.org/fcs/students/p*df*/gppbp.p*df*

Florida College System. (2012b). *Baccalaureate accountability.* Retrieved from http://www.fldoe.org/fcs/OSAS/Evaluations/p*df*/FYI2011-08UDAccountability.p*df*

Florida College System. (2012c). *Florida College System fact books: 2012.* Retrieved from http://fldoehub.org/cctcmis/c/Pages/default.aspx

Florida College System. (2013a). *Florida College System fact books: 2013.* Retrieved from http://fldoehub.org/cctcmis/c/Pages/default.aspx

Florida College System. (2013b). *Florida College System 2013 annual report.* Retrieved from http://www.fldoe.org/fcs/p*df*/annualreport2013.p*df*

Florida College System. (2013c). *Transparency, accountability, progress, and performance: Tuition and fees*. Retrieved from http://www.fldoe.org/fcs/p*df*/FY13FCSTuitionFeesTAPPExpanded.p*df*

Florida College System. (2013d). *The Florida College System transparency, accountability, progress, and performance: What is the Florida College System's rate of return for students and taxpayers?* Retrieved from http://www.fldoe.org/fcs/p*df*/RateReturnSummary.p*df*

Florida College System. (2013e). *The Florida College System transparency, accountability, progress, and performance: How many Florida College System students graduate with baccalaureate degrees?* Retrieved from http://www.fldoe.org/fcs/p*df*/bacccompletionsTAPP.p*df*

Florida College System. (2013f). *The Florida College System transparency, accountability, progress, and performance: What are the 100 percent, 150 percent, and 200 percent graduation rates for fall, full time, first-time-in-college students across the college system?* Retrieved from http://www.fldoe.org/fcs/transparencyaccountability.asp

Florida College System. (2014). *List of approved bachelor's degree programs by college.* Retrieved from http://www.fldoe.org/fcs/students/Excel/Program_List.xls

Florida College System Task Force. (2008). *The Florida College System: Assuring postsecondary access that supports Florida's Future.* Retrieved from http://www.fldoe.org/fcs/p*df*/CollegeSystemFinalReport.p*df*

Florida Council of 100. (2006). *Preparing for the future: A brief review of the major drivers of Florida's future in the first decades of the 21st Century.* Retrieved from http://www.ods.usf.edu/plans/state/councilfuturereport.p*df*

Florida Department of Education. (2005) *History of the need for baccalaureates: Policy paper.* Retrieved from http://www.fldoe.org/fcs/students/p*df*/HistBacc.p*df*

Florida Department of Education. (2006). *Bachelor of Applied Science degree task force: Final report of activities*. Retrieved from http://www.fldoe.org/fcs/students/P*DF*/taskForceReport.p*df*

Florida Department of Education. (2008). *Baccalaureate programs in community colleges: A program review.* Retrieved from http://www.fldoe.org/fcs/Vision/P*DF*s/PR2008_02_Baccalaureate_Program_Review.p*df*

Florida Department of Education. (2011). *Statewide articulation manual*. Retrieved from http://www.fldoe.org/articulation/p*df*/statewide-postsecondary-articulation-manual.p*df*

Florida Department of Education. (2013). *List of approved bachelor's degree programs by college*. Retrieved from http://www.fldoe.org/fcs/students/Excel/Program_List.xls

Florida Rule 6A-10.024 FAC. (2005). *Articulation between and among universities, community colleges, and school districts*. Retrieved from https://www.flrules.org/gateway/ruleNo.asp?id = 6A-10.024

Florida State University. (n.d.). *Management of orthotics and prosthetics: Master of science in engineering management*. Retrieved from http://distance.fsu.edu/students/management-orthotics-and-prosthetics

Florida State University System. (n.d.). *Interactive university database*: *Enrollment and degrees, 2002-2012.* Retrieved from http://www.flbog.edu/resources/iud/

Florida State University System. (2009). *Retention and graduation rates for all community college transfers*. Retrieved from www.flbog.edu/resources/factbooks/factbooks.php

Florida Statutes. (2013). *Site determined baccalaureate degree access: Florida § 1007.33 sec. 1(a).* Retrieved from http://www.leg.state.fl.us/statutes/index.cfm?App_mode = Display_Statute&Search_String = &URL = 1000-1099/1007/Sections/1007.33.html

Florida Statutes. (2013). *Site determined baccalaureate degree access: Florida § 1007.33 sec. 5(h).* Retrieved from http://www.leg.state.fl.us/statutes/index.cfm?App_mode = Display_Statute&Search_String = &URL = 1000-1099/1007/Sections/1007.33.html

Floyd, D. L. (2005). Community college baccalaureate in the U.S.: Models, programs, and issues. In D. L. Floyd, M. L. Skolnik, & K. P. Walker (Eds.), *The community college baccalaureate: Emerging trends & policy issues* (pp. 25-48). Sterling, VA: Stylus.

Floyd, D. L. (2006). Achieving the baccalaureate through the community college. *New Directions for Community Colleges*(135), 59-72. doi: 10.1002/cc.248

Floyd, D. L., Skolnik, M. L., & Walker, K. P. (Eds.), *The community college baccalaureate: Emerging trends & policy issues*. Sterling, VA: Stylus.

Floyd, D. L., & Walker, K. P. (2009). The community college baccalaureate: Putting the pieces together. *Community College Journal of Research and Practice, 33*(2), 90-124. doi: 10.1080/10668920802564667

Garson, G. D. (2013). *Logistic regression: Binary & multinomial* [Kindle edition]. Asheboro, NC: Statistical Publishing Associates.

Gleazer, E. J. (1980). *The community college: Values, vision & vitality*. Washington, DC: American Association of Community and Junior Colleges.

Gleazer, E. J. (1994). Evolution of junior colleges into community colleges. In G. A. Baker III (Ed.), *A handbook on the community college in America: Its history, mission, and management* (pp. 17-27). Westport, CT: Greenwood Press.

Grubb, W. N. (2002). Learning and earning in the middle, Part I: National studies of pre-baccalaureate education. *Economics of Education, 21*, 299-321.

Hanson, C. (2009). The community college baccalaureate: An historic and cultural imperative. *Community College Journal of Research and Practice, 33*(12), 985-994. doi: 10.1080/10668920701831316

Hayden, S. (1939). Junior college as a community institution. *Junior College Journal, 10*(2), 70-73.

Hearn, J. C. (1984). The relative roles of academic, ascribed, and socioeconomic characteristics in college destinations. *Sociology of Education, 57*, 22-30.

Hearn, J. C. (1987). Impacts of undergraduate experiences on aspirations and plans for graduate and professional education. *Research in Higher Education, 27*(2), 119-141. Retrieved from http://www.jstor.org/stable/40195811

Hills, J. R. (1965). Transfer shock: The academic performance of the junior college transfer. *Junior College Journal, 33*(3), 201-215.

Hollinshead, B. S. (1936). The community junior college program. *Junior College Journal, 7*(3), 111-116.

Hossler, D., Braxton, J. M., & Coopersmith, G. (2003). Understanding student college choice. In F. K. Stage, D. F. Carter, D. Hossler & E. P. St. John (Eds.), Ashe reader series: *Theoretical perspectives on college students* (pp. 5-42). Boston, MA: Pearson. (Original work published 1989).

Hossler, D., & Gallagher, K. S. (1987). Studying student college choice: A three-phase model and the implications for policymakers. *College and University, 62*(3), 207-221.

Ignash, J. M., & Kotun, D. (2005). Results of a national study of transfer in occupational/technical degrees: Policies and practices. *Journal of Applied Research in the Community College, 12*(2), 109-120.

Ignash, J. M., & Townsend, B. K. (2001). Statewide transfer and articulation policies: Current practices and emerging issues. In B. K. Townsend & S. B. Twombly (Eds.), *Community colleges: Policy in the future context* (pp. 173-192). Westport, CT: Ablex.

Integrated Postsecondary Education Data System [IPEDS]. (2009). *IPEDS 2009 compendium tables.* Retrieved from http://nces.ed.gov/das/library/ipeds_com.asp

Jalomo Jr., R. (2001). Institutional policies that promote persistence among first-year community college students. In B. K. Townsend & S. B. Twombly (Eds.), *Community colleges: Policy in the future context* (pp. 262-281). Westport, CT: Ablex.

Kane, T. J., & Rouse, C. E. (1999). The community college: Educating students at the margin between college and work. *The Journal of Economic Perspectives, 13*(1), 63-84. Retrieved from http://www.jstor.org/stable/2647139

Karabel, J. (1972). Community colleges and social stratification. *Harvard Educational Review, 42*(4), 521-562.

Karabel, J. (1986). Community colleges and social stratification. *New Directions for Community Colleges, 54*, 13-30.

Kelly, F. J. (1936). Junior colleges and social reconstruction. *Junior College Journal, 6*, 427-433.

Kohn, M. G., Mansk, C. F., & Mundel, D. S. (1976). An empirical investigation of factors which influence college-going behavior. *Annuals of Economic and Social Measurement, 5*(4), 391-419. Retrieved from http://www.nber.org/chapters/c12702.p*df*

Koos, L. V. (1923). The junior college movement. *The New Republic, 36*(466), 22-24.

Koos, L. V. (1925). *The junior college movement*. New York, NY: AMS Press.

Kujawa, T. A. (2013). The AAS to BAS pathway: Heating up the educational aspiration of CTE students. *Community College Journal of Research and Practice, 37*(5), 356-364. doi: 10.1080/10668926.2012.755648

Laanan, F. S. (2003). Degree aspirations of two-year college students. *Community College Journal of Research and Practice*, *27*(6), 495-518. doi: 10.1080/713838186

Lang, D. W. (2009). Articulation, transfer, and student choice in a binary post-secondary system. *Higher Education: The International Journal of Higher Education and Educational Planning, 57*(3), 355-371. doi: 10.1007/s10734-008-9151-3

Leigh, D. E., & Gill, A. M. (2004). The effect of community colleges on changing students' educational aspirations. *Economics of Education Review, 23*(1), 95-102. doi: 10.1016/S0272-7757(03)00063-3

Levin, J. S. (2004). The community college as a baccalaureate-granting institution. *Review of Higher Education, 28*(1), 1-22. doi: 10.1353/rhe.2004.0029

Lewin, K., Dembo, T., Festinger, L., & Sears, P. S. (1999). Level of aspiration. In M. Gold (Ed.), *The complete social scientist: A Kurt Lewin reader.* (pp. 137-182). Washington, DC US: American Psychological Association. (Original work published 1944).

Marcotte, D. E., Bailey, T. R., Borkoski, C., & Kienzl, G. S. (2005). The returns of a community college education: Evidence from the national education longitudinal survey. *Educational Evaluation and Policy Analysis, 27*(2), 157-175. doi: 10.3102/01623737027002157

McCarron, G. P., & Inkelas, K. K. (2006). The gap between educational aspirations and attainment for first-generation college students and the role of parental involvement. *Journal of College Student Development, 47*(5), 534-549. doi: 10.1353/csd.2006.0059

Medsker, L. L. (1960). *The junior college: Progress and prospect*. New York, NY: McGraw-Hill.

Meier, K. (2008). *The community college mission: History and theory, 1930-2000.* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses database. (UMI No. 3336699)

Meier, K. (2012). Community college mission in historical perspective. In J. S. Levin, & S. T. Kater (Eds.), *Understanding community colleges* (pp. 3-18). New York, NY: Routledge.

Morest, V. S. (2006). Double vision: How the attempt to balance multiple missions is shaping the future of community colleges In T. R. Bailey & V. S. Morest (Eds.), *Defending the community college equity agenda* (pp. 28-50). Baltimore: Johns Hopkins University Press.

Mullin, C. M. (2012). *Why access matters: The community college student body (policy brief 2012-01PBL)*. Washington, DC: American Association of Community Colleges

Mullin, C. M., & Phillippe, K. A. (2009). *Community college enrollment surge: An analysis of estimated fall 2009 headcount enrollments at community colleges*. Retrieved from http://eric.ed.gov/?id = ED511056

National Center for Education Statistics. (2005). *The condition of education 2005*. Washington DC. Retrieved from http://nces.ed.gov/pubs2005/2005094.p*df*

National Center for Education Statistics. (2011). *Community college student outcomes: 1994-2009.* Washington DC: United States Department of Education.

National Center for Education Statistics. (2012). *List of 2012 digest tables* (online). Retrieved from http://nces.ed.gov/programs/digest/2012menu_tables.asp

National Center for Education Statistics. (2013). *Advanced release of selected 2013 digest tables* (online). Retrieved from http://nces.ed.gov/programs/digest/2013menu_tables.asp

Ogbu, J. U. (1981). Origins of human experience: A cultural-ecological perspective. *Child Development, 52*(2), 413-429. Retrieved from http://www.jstor.org/stable/1129158

Ogbu, J. U. (1992). Understanding cultural diversity and learning. *Educational Researcher, 21*(8), 5-14. doi: 10.3102/0013189X021008005

Pappas Consulting Group. (2007). *Proposing the blueprint for higher education in Florida: Outlining the way to a long term master plan for higher education at Florida's Community Colleges.* Tallahassee, FL: Pappas Consulting. Retrieved from http://www.flbog.org/about/_doc/fbd/StructureReport.p*df*

Park, S. (2011). Returning to school for higher returns. *Economics of Education Review, 30*, 1215-1228. doi: 10.1016/j.econedurev.2011.07.006

Pascarella, E. T. (1984). College environmental influences on students' educational aspirations. *The Journal of Higher Education, 55*(6), 751-771. Retrieved from http://www.jstor.org/stable/1981512

Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research.* San Francisco, CA: Jossey-Bass.

Pascarella, E. T., Wolniak, G. C., & Pierson, C. T. (2003). Influences on community college students' educational plans. *Research in Higher Education, 44*(3), 301-314. doi: 10.1023/A:1023025715036

Pascarella, E. T., Wolniak, G. C., Pierson, C. T., & Flowers, L. A. (2004). The role of race in the development of plans for a graduate degree. *Review of Higher Education, 27*(3), 299-320. doi: 10.1353/rhe.2004.0006

Peduzzi, P., Concato, J., Kemper, E., Holford, T. R., & Feinstein, A. R. (1996). A simulation study of the number of events per variable in logistic regression analysis. *Journal of Clinical Epidemiology, 49*(12), 1373-1379. doi: 0.1016/S0895-4356(96)00236-3

Peng, C. J., Lee, K. L., & Ingersoll, G. M. (2002a). An introduction to logistic regression analysis and reporting. *The Journal of Educational Research, 96*(1), 3-14. doi: 10.2307/27542407

Peng, C.-Y. J., So, T.-S. H., Stage, F. K., & St. John, E. P. (2002b). The use and interpretation of logistic regression in higher education journals: 1988-1999. *Research in Higher Education, 43*(3), 259-293. doi: 10.2307/40196455

Pennington, K. L., McGinty, D., & Williams, M. R. (2002). Community college enrollment as a function of economic indicators. *Community College Journal of Research and Practice, 26*(5), 431-437. doi: 10.1080/02776770290041783

Pincus, F. L. (1980). The false promises of community colleges: Class conflict and vocational education. *Harvard Educational Review, 50*(3), 332-361.

President's Commission on Higher Education. (1947a). *Higher education for American democracy: Vol. I, Establishing the goals.* New York, NY: Harper.

President's Commission on Higher Education. (1947b). *Higher education for American democracy: Vol. II, Equalizing and expanding opportunity.* New York, NY: Harper.

President's Commission on Higher Education. (1947c). *Higher education for American democracy: Vol. III, Organizing higher education.* New York, NY: Harper.

Ratcliff, J. L. (1994). Seven streams in the historical development of the modern American community college. In G. A. Baker III (Ed.), *A handbook on the community college in America: Its history, mission, and management* (pp. 3-16). Westport, CT: Greenwood Press.

Robertson-Smith, M. (1990). *Articulation models for vocational education*. Washington, DC. Retrieved from http://files.eric.ed.gov/fulltext/ED327737.p*df*

Roksa, J. (2009). Building bridges for student success: Are higher education articulation policies effective? *Teachers College Record, 111*(10), 2444-2478. Retrieved from http://www.tcrecord.org/Issue.asp?volyear = 2009&number = 10&volume = 111

Rotter, J. B. (1990). Internal versus external control of reinforcement: A case study of a variable. *American Psychologist 45*(4), 489-493. doi: 10.1037/0003-066X.45.4.489

Russell, A. (2010). *Update on the community college baccalaureate: Evolving trends and issues* (A Higher Education Policy Brief). Retrieved from http://www.congressweb.com/aascu/docfiles/AASCU_Update_Community_College_Baccalaureate.p*df*

Sewell, W. H., Haller, A. O., & Ohlendorf, G. W. (1970). The educational and early occupational status attainment process: Replication and revision. *American Sociological Review, 35*(6), 1014-1027.

Sewell, W. H., Haller, A. O., & Portes, A. (1969). The educational and early occupational attainment process. *American Sociological Review, 34*(1), 82-92. Retrieved from http://www.jstor.org/stable/2092789

Shields, N. (2004). Understanding place-bound students: Correlates and consequences of limited educational opportunities. *Social Psychology of Education, 7*(3), 353-376. doi: 10.1023/B:SPOE.0000037503.31317.5c

Snyder, T. D., & Dillow, S. A. (2012). *Digest of Education Statistics 2011* (NCES 2012-001). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

Skolnik, M. L. (2009). Theorizing about the emergence of the community college baccalaureate. *Community College Journal of Research and Practice, 33*(2), 125-150. doi: 10.1080/10668920802564873

Somers, P., Haines, K., Keene, B., Bauer, J., Pfeiffer, M., McCluskey, J., Settle, J., & Sparks, B. (2006). Towards a theory of choice for community college students. *Community College Journal of Research and Practice, 30*(1), 53-67. doi: 10.1080/10668920500248886

Taylor, P., Fry, R., Velasco, G., & Dockterman, D. (2010). *Minorities and the recession-era college enrollment boom.* Retrieved from http://www.pewsocialtrends.org/files/2010/11/757-college-enrollment.p*df*

Tinto, V. (1975). The distributive effects of public junior college availability. *Research in Higher Education, 3*(3), 261-274. doi: 10.2307/40194975

Tinto, V. (2012). *Completing college: Rethinking institutional action* [Kindle Edition]. Chicago, IL: Unversity of Chicago Press.

Townsend, B. K., & Wilson, K. B. (2006). The transfer mission: Tried and true, but troubled? *New Directions for Community Colleges,136,* 33-41. doi: 10.1002/cc.257

Turner, R. H. (1960). Sponsored and contest mobility and the school system. *American Sociological Review, 25*(6), 855-867.

University of Central Florida. (2012a). *University of Central Florida 2012-2013 graduate catalog: Dissertation requirements.* Retrieved from http://www.graduatecatalog.ucf.edu/content/policies.aspx?id = 5696#Dissertation_Requirements

University of Central Florida. (2012b). *University of Central Florida 2012-2013 undergraduate catalog.* Retrieved from http://catalog.sdes.ucf.edu/ucfugrdcatalog1213.p*df*

University of Wisconsin Colleges. (n.d.). *Bachelor of applied arts and sciences: Overview.* Retrieved from http://www.uwc.edu/catalog/degrees/baas

Vaughan, G. B. (1984). Forging the community college mission. *Educational Record* (Summer), 24-29.

Vaughan, G. B. (2006). *The community college story*. Washington DC: American Association of Community Colleges.

Walker, K. P., & Floyd, D. L. (2005). Applied and workforce baccalaureates. In D. L. Floyd, M. L. Skolnik, & K. P. Walker (Eds.), *The community college baccalaureate: Emerging trends & policy issues* (pp. 95-102). Sterling, VA: Stylus.

Walpole, M. (2003). Socioeconomic status and college: How SES affects college experiences and outcomes. *Review of Higher Education, 27*(1), 45-73. doi: 10.1353/rhe.2003.0044

Wang, X. (2009). Baccalaureate attainment and college persistence of community college transfer students at four-year institutions. *Research in Higher Education*, *50*, 570-588. doi: 10.1007/s11162-009-9133-z

Wang, X. (2012a). Factors contributing to the upward transfer of baccalaureate aspirants beginning at community colleges. *Journal of Higher Education, 83*(6), 851-875. doi: 10.1353/jhe.2012.0043

Wang, X. (2012b). Stability of educational expectations among baccalaureate aspirants beginning at community colleges. *Community College Review, 40*(4), 300-319. doi: 10.1177/0091552112454914

Wang, X. (2013). Baccalaureate expectations of community college students: Socio-demographic, motivational, and contextual influences *Teachers College Record, 115*(4), 1-39. Retrieved from http://www.tcrecord.org/Content.asp?ContentId = 16924

Weidman, J. C. (1989). Undergraduate socialization: A conceptual model. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research* (vol. 5) (pp. 114-135). New York, NY: Agathon Press.

Wellman, J. V. (2002). *State policy and community college-baccalaureate transfer*. San Jose, CA. Retrieved from http://www.highereducation.org/reports/transfer/transfer.p*df*

Whitaker, D. G., & Pascarella, E. T. (1994). Two-year college attendance and socioeconomic attainment: Some additional evidence. *The Journal of Higher Education, 65*(2), 194-210.

Witt, A. A., Wattenbarger, J. L., Gollattscheck, J. F., & Suppiger, J. E. (1994). *American community colleges: The first century.* Washington DC: Community College Press.

Young, M. E., & Reyes, P. (1987). Conceptualizing enrollment behavior: The effect of student financial aid. *Journal of Student Financial Aid, 17*(3), 41-49. Retrieved from http://publications.nasfaa.org/jsfa/vol17/iss3/4/

Zook, G. F. (1922). The junior college. *The School Review, 30*(8), 574-583. Retrieved from http://www.jstor.org/stable/1078183