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Predictors of Adult Community College Students' Intent to Transfer From the Community College with the Associate in Science, Associate in Applied Science, or Associate in Arts Degree to a Public University in Florida

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Predictors of Adult Community College Students’ Intent to Transfer
From the Community College with the Associate in Science, Associate in
Applied Science, or Associate in Arts Degree to a Public University in Florida

by

Anthony Gemart Hill

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Education
Department of Leadership, Counseling, Adult, Career, and Higher Education
College of Education
University of South Florida

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Keywords: transfer intent, Florida Community College System, articulation, transfer process

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Dedication

To Pam for allowing me to skip vacations, nights out on the town, dinner dates, and family time to follow my dreams. Thank you for keeping the faith during the long journey. To my family and friends thank you for your support and calling me when I would forget to call you.
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Abstract

The purpose of this study was to examine the predictors and pre-transfer navigation experiences of community college students enrolled in Associate of Arts (AA), Associate in Science (AS), or Associate in Applied Science (AAS) degrees with transfer intent to Florida’s public universities. The population included adult students aged 26 and above enrolled in Florida state/community college AA, AS, or AAS programs. One hundred and seventy-five students from two community colleges participated in this study with a response rate of 10%. The valid data set included 101 respondents, AA \( (n = 17) \), AS \( (n = 76) \), AAS \( (n = 4) \), other \( (n = 4) \), and missing degree \( (n = 1) \). There were more females \( (n = 75, 74.3\%) \) than males \( (n = 26, 25.7\%) \) who participated in this study. The students had a mean age of 34.09 years. Most respondents \( (\text{total} = 89.6\%) \) reported having an intent to transfer to a 4-year public or private university.

Data were collected using the STEM Student Success Literacy Survey (SSLS), a 63-item questionnaire launched and administered via Qualtrics. The purpose of the instrument was to measure *Community College Students Self-Efficacy, Social Capital, and Transfer Knowledge*. The SSLS was adapted to a 66-item questionnaire to include new items regarding transfer experiences, navigation experiences, and intent to transfer.

Results indicated that adult students enrolled in non-transfer degree programs had intent to transfer to a four-year college. Significant relationships were found for four predictors \( \text{research 4-year college, visit transfer center, highest degree, college chemistry} \) of 240 variables in combination to predict the discrete outcome of intent to transfer \( \text{(yes vs. no)} \). Implications
included /AS/AAS students had intent even though the degree itself does not indicate intent; therefore, community/state colleges should treat this population with intent and advisors, policy makers, and administrators need to ensure that the correct information is readily available to those intending to transfer to Florida’s public universities.
Chapter 1

Introduction

The State of Florida higher education college system encompasses 11 state universities, 28 community/state colleges, and 40-career education centers that are part of what has evolved into the Florida College System previously the (Florida Community College System, 2012; The Fact Book, 2012, 2013). The state policy makers define the current model as a seamless articulation system for which students do not lose earned college credit upon transfer (State Wide Articulation, 2011, 2012). According to the Report for the Florida College System (2012), swift development of the community college and university college system in the 1960s and 1970s made an articulation policy essential between the entities. The State of Florida established in 1971 the statewide articulation agreement in which the transfer process was defined and codified for all the 11 state universities and 28 community colleges, which is the seamless articulation agreement between the sending and receiving institutions (The Fact Book, 2012, 2013).

Florida’s 28 community colleges offer three major degree types including certificates. The Office of Articulation Florida Department of Education (2011) provides a degree/certificate definition and articulation flow-chart. These degrees include: (a) the Associate in Science (AS) 2-year technical degree that contains at least 15-18 credit hours of transferable general education courses; (b) the Associate of Applied Science (AAS) 2-year technical degree indicating that a student has trained in a particular field and is prepared for employment; hence, it is a terminal degree or school-to-work degree; and (c) the Associate in Arts (AA) 2-year degree, which is intended for transfer to 4-year colleges, and universities. The AA is awarded by Florida colleges
and state universities upon completion of 60 credit hours in a selected course of study, which includes the completion of 36 credit hours toward a general education program of study.

The AS/AAS according to the State of Florida Education System is interchangeable recognizing little differences except for the codified agreement, which is the articulation of nine selected specific degree programs within the state of Florida College System (The Fact Book, 2012, 2013). Furthermore, the research studies that exist on barriers to transfer, counseling, acceptance rate, or academic achievement are limited to the Associate of Arts Degree (AA) traditional degree-seeking student population (Cejda, 2004; Ignash & Kotun, 2005; Ignash & Townsend, 2001). Few studies have examined the transfer process of AS/AAS adult students who intend to transfer to the university. The numerous perspectives students have related to the transfer process include the belief that the student’s degree program will transfer into the BAS/BS program of choice at the receiving institution. The belief is that students will not lose credit upon arrival at their receiving institution; students will be treated equally during the registration period and will receive financial aid packages equal to native students. Students believe the required upper level courses they need will be readily available they will have junior year class standing upon arrival, and students will not be required to make up any course work (Ignash, 2000; Ignash, 2012; Townsend, 2001).

The adult student community college population over the past several decades has experienced remarkable growth that has had a major impact on the Florida College System (formerly the Community College System). The Florida College System is the primary access point to higher education in the state and serves more than 887,000 students (The Fact Book, 2013; National Institute for the Study of Transfer Students [NISTS], 2011). The Florida College System served 706,703 credit and 146,500 non-credit students for the 2011-2012 reporting year.
Students’ programs of enrollment included Associate in Arts Degree (AA) \( N=355,393 \) and Associate in Science Degree (AS)/Associate Applied Science (AAS) \( N=115,244 \). The total number of degrees awarded during 2011-2012 included: AA Degrees \( n=62,614 \); AS/AAS Degrees \( n=14,953 \) ([The Fact Book, 2013; The Florida College System Annual Report, 2013](#)).

Despite these numbers, the research on students transferring to 4-year colleges and universities has been mostly pilot-study research with traditional aged students 18-25 years of age enrolled in the AA degree program as the focal point of the study.

The policy reaction to the issues of transfer between 2-year colleges and 4-year universities was the development of a common course numbering system to accommodate the transfer of comparable credit between courses among the state’s colleges and universities. The new policy became the Statewide Course Numbering System (SCNS) currently used by all public and selected nonpublic institutions in Florida ([The Fact Book, 2012, 2013](#)).

The Florida College System defined the **Transfer Agreement** as guaranteed articulation and transfer of a group or set of courses between one-degree program and another based upon statewide measures that ensure and validate an acceptable level of learning outcomes ([Florida College System, 2013](#)). Vice Chancellor Ignash in [the Florida Board of Governors State University System of Florida](http://www.flbog.edu/) (2013) defined the transfer policy as mechanisms of credit, course, and curriculum exchange to ensure the ease of transfer between the transferring and accepting institution (http://www.flbog.edu/). Transfer policies at the state, local, and institutional levels are the crucial mandates that align the exit requirements of the 2-year institutions with the receiving 4-year institutions and the articulation/transfer agreement such that the contract between the lower and upper divisions to address admission criteria, student rights, and responsibilities ([The Florida Board of Governors State University System of Florida, 2013](#)).
In the early 2000s, the Florida Legislature accredited community colleges to provide specific baccalaureate degrees in an effort to meet the state’s need for increasing the number of citizens with bachelor degrees, which is in alignment with President Obama’s completion agenda. The Florida College System institutions’ targeted baccalaureate degrees intended to meet local, regional, and state workforce needs. The new hybrid state/community colleges are offering two baccalaureate degree types: Bachelor of Science (BS) and Bachelor of Applied Science (BAS) these degrees were authorized by the state legislature to meet local and regional workforce need and demand. The BS degree is typically in nursing or teacher preparation programs from AS to BS pathway, the BAS degree is an applied program and designed to include a capstone experience. The common BAS degree programs are supervision and management, technology management, and health-related fields (*Guidelines on Transfer Agreements and Faculty Credentials and Qualifications*, 2013).

**Statement of the Problem**

During the period of 1960s, policy makers, administrators, and advisors at Florida’s public institutions voiced concerns regarding the difficulties encountered in assigning course credits to students transferring from lower-division colleges to upper-division universities, or to students changing institutions prior to degree completion (*The Fact Book*, 2012, 2013).

As previously mentioned, Florida’s College System Statewide Articulation Agreement provides for the seamless transfer process between and among Florida postsecondary institutions. This agreement ensures that if the student completes the AA degree, admission to at least one of the SUS institutions is guaranteed, but this the not the case for the AS/AAS degree (*Guidelines on Transfer Agreements and Faculty Credentials and Qualifications*, 2013). The guaranteed admissions agreement makes no mention of the AS/AAS as codified in the agreement leaving the
AS/AAS degree seekers declaring intent to transfer to suffer loss of credit and courses. However, the Florida College System has become a set of active and continuously evolving policies that are student centered with practices to facilitate transition between and among education sectors (*The Fact Book*, 2012, 2013)

**Purpose Statement**

The purpose of this study was to examine the predictors and pre-transfer navigation experiences of community college students enrolled in Associate of Arts (AA), Associate in Science (AS), or Associate in Applied Science (AAS) degrees with transfer intent to Florida’s public universities. There is to some extent transfer navigation disconnect between the student articulation agreement, student transfer policy, student transfer process, and student transfer knowledge. Current findings are that not all AS/AAS degrees will transfer within the state of Florida College System and with 986 AS/AAS adult programs with only nine AS/AAS degrees articulated within the state transfer policy (*The Fact Book*, 2012, 2013; *The Florida College System Annual Report*, 2013).

**Research Questions**

The following research questions were examined:

1. What is the relationship between all survey questions and intent to transfer the AS degree, AAS degree, or AA degree from the state/community college to a Florida public university?
2. What are the pre-transfer navigation experiences for either AS, AAS, or AA students at their current college?
Significance of the Study

The study provided several sources of evidence for the validity of the completion agenda and President Obamas’ goal of having the highest proportion of college graduates in the world by the year of 2025 (Western Interstate Commission for Higher Education, 2012). The Adult College Completion Network unites organizations and agencies working to increase college completion by adults with prior college credits but no degree in a collaboration of learning networks. The Western Interstate Commission for Higher Education (WICHE) facilitates the work of the Network with funding from Lumina Foundation. The Lumina Foundation is dedicated to enrolling and graduating more students from college, mostly low-income students, students of color, first-generation students, and adult learners. The goal is to increase the percentage of Americans who hold high-quality degrees and credentials to 60% by 2025 (Western Interstate Commission for Higher Education, 2012). To achieve this idea of both policies and goals, the engagement of the adult population participation in higher education specifically within the community college transfer system is required because the traditional student flow from high school to college cannot by itself meet the achievements desired by the year 2025 (Western Interstate Commission for Higher Education, 2012). The continued growth of adult students on community college campuses increases the needs for adult transfer services to 4-year public institutions. This study should aid in the understanding of intent to transfer for adult students enrolled in AA, AS, or AAS degrees programs and provide a better understanding of the transfer process. The current policy shift for many of the community colleges from offering 2-year degrees to 4-year degrees is a new paradigm shift to State Colleges that may have completely changed the meaning of transfer student as researched in prior studies.
Conceptual Framework

The transfer of AS/AAS degrees is the least supported within the transfer articulation agreement than transfer of the AA degree. Much of the difficulty is within the perception that students in 2-year AS/AAS programs are considered to be pursuing *terminal* degrees and often received little encouragement to pursue BS/BAS degrees, even though many of these students desired to transfer (Bragg, 2001; Cohen & Ignash, 1993; Frederickson, 1998; Ignash & Kotun, 2005; Palmer, 1987; Townsend, 2001). The view of AS/AAS as a terminal degree is changing over time. According to Ignash and Kotun the view of the AS/AAS degree as terminal is inaccurate, since many of these 2-year degrees can be capped with more specialized coursework in the field or with more general, broad-based coursework in the liberal arts or another specific discipline. The majority of today’s 2- and 4-year students are in career-oriented majors, which is also leading to the changing views (Ignash & Kotun, 2005).

This research is similar to the study conducted during the spring 2004 by Ignash and Kotun (2005) from the University of South Florida who conducted a national study to examine the transfer of 2-year occupational degrees AS/AAS to 4-year colleges, commonly referred to as terminal/school-to-work degrees in most states. The 2004 Occupational/Technical Degree Transferability Survey asked state higher education officials about transfer policies and articulation agreements, as well as existing challenges, regarding occupational transfer. The State of Florida was one of 40 states that participated in the survey for the study (Ignash & Kotun, 2005). For the purpose of this study, Florida College System transfer/articulation policies and students were the emphasis of the research.

The 2004 study was an update of the 1997 study of occupational transfer and articulation. In February 1997, a survey was conducted for the Associate of Applied Science (AAS) degree
and results were compiled for the Illinois Board of Higher Education (Ignash, 1997; Ignash & Kotun, 2005). The design of the questions for the six-item survey was based on policy statements of the American Association of Community and Junior Colleges (1984) and the recommendations for the AAS degree by the National Council on Occupational Education 1985 (Ignash & Kotun, 2005).

In 2006, Ignash and her team conducted a pilot study with 57 AS students charting their feelings and thoughts during the transfer process. During the transition, many students expressed concerns about becoming acclimated to their new environment and the need for guidance. In the pilot study, the researchers tracked the students’ transition and recorded their perceptions and experiences related to transfer, moreover seeking a better understanding of student problems and issues and how they reached a resolution (Ignash, 2012).

Findlen (1997) conducted a study on Western Wisconsin Technical College students, thereby, uncovering a few flawed perceptions regarding transfer. The results of the Findlen study found that technical college courses did transfer, and that transferring technical students outnumbered transfer students in other types of programs (Ignash & Kotun, 2005).

Ignash (2012) in her article relating to the AAS degree discusses the articulation of the degree as the “tangled knot” to the baccalaureate degrees using three distinct pathways, comparing the resulting AAS to baccalaureate degree pathways to similar BA or BS programs. Ignash developed a model describing the three pathways for AAS transfer as the lens to view the existing programs that illustrate the pathways. She also compared the three AAS-to-baccalaureate pathways in the model to similar BA or BS programs that were not designed or intended for AAS students to move on to four year colleges. The study highlighted the extent of curricular differences within the State of Florida articulation policy.
The national survey of occupational transfer conducted by Ignash in 1996-97 found that 22 states reported providing some direction to institutions on standards for the AAS degree; standards that tended to address general education and credit hour minimums, but not much else. In the follow-up study conducted by Ignash and Kotun (2005), 31 of 40 responding states had articulation agreements to transfer an occupational/technical associate degree to an applied baccalaureate BAS degree in specific fields called a career ladder. The most common among the specific fields was nursing, followed by computer science and engineering.

In conclusion, although the Ignash (1996) and Ignash and Kotun (2005) studies were important in establishing the framework for the discussion of transfer regarding AAS degree students with intent to transfer, both studies focused on senior education executives in 50 states within the United States through a listserv used by others to conduct research (State Higher Education Executive Officers [SHEEO]). Using contemporary research focusing on intent to transfer at the level of students, student articulation, student transfer agreements, and adult transfer students, this study attempt to modernize previous studies of intent to transfer the AAS degree and make it more applicable to college students who enroll in today’s 2-year colleges/state college applied science degree programs.

During the fall of 2010, the Division of Florida Colleges surveyed college’s vis-à-vis AS to BS/BAS articulation strategies (Florida Department of Education, 2013). The purpose of the survey was to determine how AS/AAS to BS/BAS articulation procedures were working and if there were a need to update articulation at the state level. Colleges were encouraged to respond to survey questions as they applied to their institution.

The total response rate was 89%, with 25 of the 28 colleges participating in the survey. Key findings of the respondents suggested: (a) 92% of responding colleges were very familiar or
somewhat familiar with AS/AAS to BS/BAS articulation agreements, (b) 72% of responding colleges had a state university in their service areas with BS program offerings where statewide articulation agreements existed, (c) 56% of responding colleges had local AS to BS articulation agreements with the state university in their regions, and (d) 80% of responding colleges reported using FACTS.org for transfer evaluation (Program Review Associate in Science Transfer, 2011, p. 10).

Potential students with plans to enroll in a local community college identified the following barriers to transfer: (a) the lack of alignment between AS and BS degrees, (b) distance and time from the college or university, (c) mathematics and other prerequisites, (d) College Level Academic Skills Test (CLAST) requirements completion, (e) cost of tuition and books, (f) difficulty for full-time workers, (g) traditional belief that AS degrees do not transfer, and (h) limited program offerings (Program Review Associate in Science Transfer, 2011).

For students pursuing admission to a state university, respondents identified the following barriers to transfer: (a) general education requirements, (b) additional prerequisites, (c) lack of alignment between AS and BS, (d) awareness of programs, (e) cost and location; (f) no public university in region, and (g) lack of knowledge from advisors. Lastly, 88% of responding colleges felt there was a need to address AS/AAS to BS/BAS articulation. (Program Review Associate in Science Transfer, 2011).

AS/AAS transfer students found they were lacking credit and were required to meet additional institution prerequisites requirements when they arrive at the receiving institution. Furthermore, if the AS/AAS student did not enroll in one of the nine articulated programs, which included the following: Radiography, Nursing, Hospitality and Tourism Management, Electronics Engineering Technology, Business Administration, Regionally Accredited AS Degree
Program, Computer Engineering Technology, Technology Education, and Criminal Justice Technology, the student may find they have to negotiate their articulation with the receiving institution. The lack of a congruent policy creates problems for this group with transfer intent.

**Limitations**

The questionnaire *Community College Students’ Self-Efficacy, Social Capital and Transfer Knowledge* was suitable for the study because it allowed the collection of extensive data on the student using a standardized format. The questionnaire was administered online providing student flexibility in responding. One of the weaknesses of the questionnaire was that respondents could conceal information they did not want others to know, or provided the researcher with what was considered to be socially or politically correct answers.

The data collection was confined to only two medium/large towns in Florida since community colleges in large metropolitan areas did not agree to participate in the study. The administration of this study at different regional locations within the state of Florida would have enabled a better generalizability of the findings of study. At the same time, data collection of the colleges not participating could have elicited better responses, which might have improved the findings by providing a larger sample size and better response rate.

**Definition of Terms**

The following operational definitions were used in this study,

*Associate of Applied Science (AAS):* A 2-year technical degree indicating that a student has trained in a particular field and prepared for employment.

*Associate in Science (AS):* A 2-year technical degree that contains at least 15-18 credit hours of transferable general education.
**Associate in Arts (AA):** A 2-year degree designed for transfer to other Florida colleges and state universities upon completion of 60 credit hours in a selected course of study, students are awarded the AA, which includes the completion of a 36 credit-hour general education program.

**Bachelor of Applied Science (BAS):** A 4-year degree designed to accommodate the unique demands for entry and advancement within specific workforce sectors.

**Intent to transfer:** A student’s plan to continue his or her education by moving from a community college and enrolling at a 4-year public or private college or university.

**Native Students:** Students who remain at the same institution from their first year to senior year without transfer.

**Navigation:** The process of becoming aware of the steps needed to move from one institution to another to include the comprehensive understanding of the State of Florida Articulation Agreements, degree pathways Associate Degrees to Bachelor Degrees, and the State of Florida transfer process.

**Statewide Articulation Agreement:** The agreement provides for the seamless transfer process between and among Florida postsecondary institutions. This agreement ensures that if a student completes the AA degree, admission to at least one of the State University System (SUS) institutions is thereby guaranteed.

**Terminal Degree:** A 2-year associate degree in workforce from school to work; the intent is to provide students with occupational skills in a variety of areas to enter directly into the workforce.

**Transfer Agreement:** The guaranteed articulation and transfer of a group or set of courses between one-degree program and another, based upon statewide measures that ensure and validate an acceptable level of learning outcomes.
Transfer Knowledge: Student understanding of the complete requirements of the State Florida Articulation Agreement, the understanding of AS/AAS degrees and their codification within the articulation agreement, and the understanding of the Florida College System Pathways AS to BS.

Organization of the Study

Chapter 1 introduced the Florida College System, transfer function, and policy overview of the issues surrounding transfer between 2-year and 4-year colleges. The first chapter provided a statement of the problem, purpose statement, research questions, and significance of the study, conceptual framework, limitations, definition of terms, and an outline of the organization of the research.

Chapter 2 provided a review of historical literature related to articulation agreements and the transfer process with intent to transfer within the Florida College System, with a focus explicitly on adult students within the community college enrolled in AA and AS Degree Programs. The strands of the literature reviewed trace the historical perspective of American Community Colleges, Florida’s Community College System, transfer function, adult transfer students, adult student attrition, remediation, course taking patterns that predict transfer, withdrawal/persistence of adult students, financial aid on community college persistence, rationale for the transfer function, and career technical degree, articulation agreements, and the transfer process within Florida’s Higher Education College System.

Chapter 3 is the description of the research design, participant settings, instrumentation, ethical concerns, data, and summary.

Chapter 4 contains results of the data analysis. This section include the research design, data sources, demographic profile of the respondents, analysis of the survey data, in-person
structured interviews, research question 2, and a discussion of the results. Chapter 5 includes a summary of the study, conclusions, implications, and recommendations for further research.
Chapter 2

Review of Related Literature

The purpose of this study was to examine the predictors and pre-transfer navigation experiences of community college students enrolled in Associate of Arts (AA), Associate in Science (AS), or Associate in Applied Science (AAS) degrees with transfer intent to Florida’s public universities. Chapter 2 includes a review of the historical perspective of American Community Colleges, Florida’s Community College System, transfer function, adult transfer students, adult student attrition, remediation, course taking patterns that predict transfer, withdrawal/persistence of adult students, financial aid on community college persistence, rationale for the transfer function, and career technical degree, articulation agreements, and the transfer process within Florida’s Higher Education College System.

Historical Perspective of American Community Colleges

The literature on community college development in America remains an ever-shifting paradigm, the new hybrid state/community colleges of today that originated as neighborhood schools are unrecognizable as described by Cohen (2001) in his historical research on community colleges. Cohen pointed out during the development phase the federal government had very little influence’, but in today’s political climate of state/community colleges, the federal government has tremendous influence over the policy direction and funding of the hybrid state/community colleges.

The development of community colleges was guided by state plans with the federal government having little involvement at any phase with one concession during the 1930s (Great
Depression) to organize a several colleges as part of the workforce development effort. The community college by definition is any institution accredited to award the associate degree as its highest degree. These institutions are part of the American landscape located within the boundaries of each state providing citizens with occupational programs, the first two years of undergraduate studies, basic skills development, and special interest courses (Cohen, 2001).

The new hybrid model of state/community colleges offering 2-year and 4-year degrees, no longer fit within Cohen’s definition to award the associate degree of providing citizens with occupational programs from school to work. Today’s community colleges are awarding Bachelors of Science and Bachelor of Applied Science to local citizens within their communities.

Saint Petersburg College was the first in the State of Florida to offer the BS and BAS beginning with October 17, 2001. The growth of the model continued throughout the state with community colleges receiving approval as late as August 26, 2015 to include Tallahassee Community College, Seminole State College of Florida, and Polk State College with 26 of the 28 community colleges now offering 4-year degrees.

Cohen (2001) argued that the foremost contribution of the community college has been open access to postsecondary education provided to millions of students who would not otherwise gain access to institutions of higher learning. With the expansion of community colleges and open access have come many arguments regarding this model. The upper class postulate is one of the arguments that the colleges was supported by the upper class desiring to maintain social status by restricting access to the university based on social status. Therefore, the support of institutions that would repudiate the ambitions of lower status students was desirable for this privileged class of citizens. The research supports the argument as presidents of universities and colleges sought to convert their institutions into research and graduate schools.
solely. Proponents of this view point out the disparity of progress into society made by young people from families of the privileged class when compared with families from lower socioeconomic backgrounds. This position is particularly engaging for those seeking to account for a class-based society and for the inequitable distribution of public goods in society (Cohen, 2001).

Today Florida’s state/community colleges continue as the primary point of entree to higher education within the state of Florida with 65% of the state’s high school graduates entering the state/community college system, and 82% of freshmen and sophomore minorities gain entry at one of the 28 schools in the system (Florida College System, 2013, 2014). For minorities, there continues to be a disparity of progress as mentioned by Cohen since this group is flocking to state/community colleges, thereby, decreasing their chances of completion.

Another position for the development of community colleges is what Cohen (2001) refers to as the reciprocal thesis resting on social forces, which contends that community colleges ascended out of an coalition between working class groups and middle class reformers seeking to counter the upper class efforts to stratify and limit educational opportunities. Accordingly, this position espouses that the working class has always supported publicly funded education as a path to progress to higher levels of education through open access via parallel curriculum development.

The divergent argument is that the community colleges were built with the emphasis of serving specific needs of the professional educator. University presidents demonstrated the framework for community college development and support in the early phases, because of the desire of universities to distance themselves from the students they did not care to serve. Therefore, the sponsorship served the best interest of the university and public officials.
advocating community colleges for the prestige and higher status professional positions the community college provided, as teachers became professors, and superintendents became presidents (Cohen, 2001).

Joliet Junior College is best known as the nation’s first public community college founded in 1901, by (Brown superintendent of Joliet Township High School), and Harper (the president of the University of Chicago). The college originally established as an experimental postgraduate high school program with an initial enrollment of six students. Brown and Harper created a junior college that academically developed alongside the first two years of a 4-year college or university (Joliet Junior College, 2013).

The college purpose and design was to accommodate students who desired to remain within the community while pursuing a college education. Within a few years, the term community as a concept shifted to include students outside of the high school district. The Board of Trustees in 1902 officially indorsed the program, made post-graduate high school courses available tuition-free; and in 1916, officially named the post-high school program Joliet Junior College (Joliet Junior College, 2013).

For over 30 years, the college openly flourished with the absence of specific legal sanction. It was not until 1955 that the state provided financial support for campus development of infrastructure; and 10 years later, the Illinois Junior College Board was created thereby taking over the functions formerly carried out by state superintendent of public instruction (Cohen, 2001).

The state of Texas junior colleges were originally founded as religious institutions, two-year church colleges dating from 1898. Others are the product of public secondary schools and prior to the 1940s, the 22 public junior colleges financing came entirely from local funds.
California’s 2-year colleges date from 1907, when a legislative act authorized high schools to offer postgraduate courses. Two-year colleges since 1921 witnessed the development of separate junior college districts. It was not until 1961 when the authorization of state funds released money for capital construction to the junior colleges (Cohen, 2001).

**Florida’s Community College System**

The literature on the history and development of the community college system within the state of Florida is more recent when compared to other state systems originating in 1933. Palm Beach Junior College was established as a public 2-year college, the state’s only public 2-year college until 1947 when St. Petersburg Junior College, founded in 1927, made the transition from a private junior college to public. The Florida Minimum Foundation Program, sanctioned in 1947, combined state and local support for community colleges, thus creating the growth of Florida’s community college system (Florida Department of Education Division of Accountability, Research, and Measurement, 2012).

The Community College Council was established by legislature in 1955. By 1957, it produced a report that would be the guiding principles for the establishment and future growth of the system. The report, *The Community Junior College in Florida’s Future*, was approved by the State Board of Education and contained recommendations for required legal changes and a master plan for establishing a system of public colleges in Florida. The new system would provide post-high school education within commuting distance for over 90% of Florida’s population (Florida Department of Education Division of Accountability, Research, and Measurement, 2012).

The 1957 legislature approved the creation of the Division of Community Colleges in the State Department of Education and appropriated funds for six new colleges. The construction of
new these colleges were Gulf Coast Community College (1957), Central Florida Community College (1957), Daytona Beach Community College (1958), Manatee Junior College (1958), North Florida Junior College (1958), and St. Johns River Community College (1958). Community college growth continued throughout the state during the years of the 1960s and early 1970s, also merging 12 black colleges into the Florida College System serving as critical foundation (Florida Department of Education Division of Accountability, Research, and Measurement, 2012).

The creation of Florida’s 28 community colleges served the citizens of the state by offering the first two years of undergraduate liberal arts studies, vocational education, and adult education. The Florida College System includes 182 sites, including 146 official Public Education Capital Outlay (PECO) sites in the system. To make services convenient and accommodating over 2,000 other locations, churches, public schools, and community centers are also used (Florida Department of Education Division of Accountability, Research, and Measurement, 2012).

By the end of the 1970s, the Florida Legislature established the State Community College Coordinating Board and in 1983, the board eventually replaced with the State Board of Community Colleges. The state witnessed another shift in policy, leadership, and control in 2001. The statute that gave life to the State Board of Community Colleges came under attack and was repealed. The Florida college system became the jurisdiction of the Florida Board of Education (Florida Department of Education Division of Accountability, Research, and Measurement, 2012).

During the course of growth and revision of the Florida College System, educational needs in Florida were on undergoing rapid change. The distinguishable shifts were an increase
Florida’s community college growth resulted in more policy changes and the development of The Postsecondary Education Planning Commission (PEPC), established in 1981, to provide overall guidance and direction for the improvement of postsecondary education in Florida. The PEPC created a Master Plan for the Florida college system with a publication date September 1983. The Master Plan focused on improving quality, the trend of increased part-time enrollment, minority needs, women’s needs, and student’s financial needs. The 1988 Master Plan updated the 1983 plan and identified other challenges addressing quality of education, economic development, and the quality life (Florida Department of Education Division of Accountability, Research, and Measurement, 2012).

The Function of the Community College

Cohen and Brawer (2003) argued the function of the community college integrates two notions: student flow and the liberal arts curriculum. According to Cohen, student flow refers to providing education at the thirteenth and fourteenth grade levels for students as they move through the educational system. The liberal arts curriculum includes education originating from the humanities, sciences, and social sciences, which is the basic study for the majority of colleges students. The liberal arts classification within the curriculum by most community colleges falls under general education requirements (Cohen & Brawer, 2003).

The binary critical characteristics of the institutional connection are the higher learning provided through the liberal arts and the transfer of students from community colleges to 4-year
colleges and universities. Cohen and Brawer (1987) argued that transfer is an intention expressed by some students who take community college classes and behavior manifested by those who eventually matriculate at a 4-year college or university. The liberal arts are a way of categorizing and organizing the curriculum. Universities and 4-year colleges generally award credit toward the 4-year degree to students who have taken liberal arts classes in community colleges, but they also award credit for many classes that are not organized around the liberal arts. Not all or even the majority of students in liberal arts classes transfer, although the majority of students are preparing for transfer take some liberal arts courses and most students in the community college liberal arts classes aspire to transfer. Therefore, the content of the curriculum and community college adult students must be examined one way and the intentions and behavior of the students in a different manner (Cohen & Brawer, 1987).

The current state/community college model, 26 of the 28 institutions are offering BS/BAS pathway degrees, creating a paradigm shift with fewer students having the need to declare intent with the ability to earn a 4-year degree at the home institution. This new shift could be highly beneficial to many students classified as adult or adult students 26 years of age or more to remain at the home institution because 4-year colleges main focus are traditional-aged students.

Previous studies have suggested that approximately three-quarters of the students beginning college in a community college intended eventually to obtain a 4-year degree or higher (Cohen & Brawer, 1987). In 1929, 80% of the students in California junior colleges declared intentions of transferring to a senior institution. The national numbers between 1940 and 1960 students who declared intent remained around two-thirds and three-fourths of the student body. In a student survey during the school term of 1983, students taking classes in 24 urban
community colleges, 74% of them declared their transfer intent. The following school year, 1984, Cooperative Institutional Research Program (CIRP) found 76% declaring intent to transfer. However, the CIRP sample was full-time freshmen and 90% were aged 19 or younger. The research is valuable for this study, because it provides valuable insight into the issues surrounding intent to transfer for all community college students, not just adults who were target population for the current study.

Cohen and Brawer (1987) suggested the formation of the question biases the answers. According to the researchers, the question is usually asked as “What is the highest academic degree you intend to obtain?” This question suggests a goal obtained sometime during the person’s life. When the question is re-written to “What is the primary reason you are attending this college at this time?” the responses changed. Significantly, fewer, one-third, say that they are in college to prepare to transfer, while one-half say that they are in college to gain occupational skills (Cohen & Brawer, 1987).

**Transfer Function**

The literature on the transfer function of the community college suggests the primary purpose has been to accept students from secondary schools, provide them with general education and introductory collegiate studies, and send them on to senior institutions for the 4-year degree. An Associate of Arts Degree typically qualifies the recipient to enter the university as a junior guaranteed and codified within the legislature in many states (Cohen & Brawer, 2003). The primary purpose of the community college, argued by Cohen and Brawer (2003), is the transfer function moving students to 4-year colleges, though this is not the current function of the new state/college model in the State of Florida with 26 of the 28 colleges offering 4-year degrees. The primary function today is to encourage students to complete the 4-year degree at
the campus closest to their home. The caveat with a student staying at home is the limited 4-year degrees offered at these recent hybrid colleges.

The most prevalent and prolonged issues within the community colleges is the extent to which their courses are accepted by the universities. Stripling (2002) reported the University of California accepts only 27% of the non-liberal arts classes offered in the state’s community colleges, but the California State University awards credit for 73% of non-liberal arts coursework (Cohen & Brawer, 2003; Stripling, 2000). The transferability of non-liberal course work has more variance in the State of Illinois, with the University of Illinois, Urbana accepting 16% and Illinois State University accepting 80%. The University of Texas, Stephen F. Austin State University, and Southwest University are uniform; 35% acceptance rate of coursework of the non-liberal arts at the junior level at the University of Texas at Austin and 42% at the state university branches (Cohen & Brawer, 2003).

The questions surrounding which community college courses accepted for graduation credit continues to be a hotly debated topic within educational circles by policy makers, administrators, and practitioners alike. Mostly, all the liberal arts classes will qualify, but courses related to the trades and technologies continue to be problematic for students and the academy (Cohen & Brawer, 2003).

The current literature regarding statewide transfer polices from the Southern Regional Education Board (2013) identified five states (Arkansas, Florida, Kentucky, Louisiana, and Kentucky) that have passed legislation creating the foundation for statewide transfer policy. Florida’s statewide articulation agreement was fully implemented in 2002, with career and technical education programs having statewide articulation plans for associate degrees, but not
bachelor’s degrees. AAS degree programs may articulate on an individual basis (inter-institutional agreements).

Florida’s comprehensive statewide articulation agreement guarantees admission to students who earn AA degrees to one of the 11 public state universities or one of the baccalaureate degree granting Florida College System (FCS) institutions, but does not make this comprehensive guarantee to the AS or AAS degree seeking student. Acceptance rate for transfer students within the State University System (SUS) for AA degree was 77%, transfer of no degree with 60 credit hours was 54%, and AS degree was not counted in the data by the state. Over 51.3% of transfers made up SUS upper division student body comprised of AA, AS, and students that did not earn a degree (The Florida College System, 2011). Because the FCS did not provide the percentage of AS students in the data, it were difficult to capture the true picture of this group.

Townsend’s (2001) article, *Blurring the lines: Transforming Terminal Education to Transfer Education* suggested a new definition of community college transfer education had emerged. Transfer was originally defined as the general education mechanism or the first two years of the bachelor's degree. Most recently, transfer education has been developing a de facto definition as those courses that transfer to a 4-year college, regardless of the nature of the courses. Courses once characterized as nontransferable or terminal education now often transfer to a 4-year college. Today in many states such as Florida, degrees once considered terminal or nontransferable are articulating into 4-year degree programs (Townsend, 2001).

An early supporter of terminal education, Koos (1970) argued the junior college had three primary functions: (a) transfer education or offering two years of work acceptable to colleges, (b) the provision of opportunities to complete or broaden general education, and (c) terminal
education or preparation for employment. The junior college being the final training for employment; therefore, the last purpose characterized as preparing people for semiprofessional employment (Koos, 1970; Townsend, 2001).

The framework of Koos’ definition of terminal education training received by students was final with no intent of transfer or earning a 4-year degree. Terminal students according to Koos had no expectation of transfer, therefore, theoretically keeping academically deficient students out of the university. During the Great Depression, terminal education was highly valued because citizens wanted education that would prepare them for jobs available in the market. By 1940, about 70% of junior colleges in America was offering one or more terminal degree programs (Townsend, 2001; Gollattscheck, Suppiger, Wattenbarger, & Witt, 1994). A study, conducted by Eells (1941), of junior colleges’ terminal education reported 35% of all students enrolled was in terminal education; however, the transfer curricular and function continued to dominate the educational milieu (Frye, 1992; Townsend, 2001).

As the importance of vocational education continued within the walls of the community college, its transfer function came under heightened observation. The opponents of terminal education argued that students who began their undergraduate education at the community college wishing to attain a 4-year degree were less likely to reach this goal than if they began at a 4-year institution of higher learning (Brint & Karabel, 1989; Townsend, 2001).

In the past, the assumption was that the “transfer student” was a young person who, for reasons of finance or convenience, attended a local 2-year institution for two years before transferring to a 4-year college or university. Currently, the 2-plus-2 model is one of many transfer paradigms. Transfer models include reverse transfers (4-year to 2-year), lateral
transfers (2-2 or 4-4), and swirling students (co-enrolled in two or more schools simultaneous) are among the other combinations (Lauren, 2004).

Consequently, the university institutional function was adopted in its entirety by the community colleges in their effort for full partnerships in higher learning, the community colleges arranged their curricula in the university image. The key terms college parallel, college transfer, and college equivalent used to describe their academic programs (Cohen & Brawer, 2003).

Adult Transfer Student

The current literature on transfer students suggested they are more likely to be adult students over 26 years of age, enrolled part-time, working at least part-time, commuters, and have family responsibilities. The fall term of 1999, 5,592,699 students attended 2-year institutions and adult students accounted for 45% of the enrollments during this period, including 57% of the part-time enrollments and only 24% of full-time enrollment (National Center for Education Statistics, 2000; Cejda, 2004). Phillippe and Patton (2000) reported that in the academic school year of 1997, women accounted for 62% of the student population (Cejda, 2004).

Community colleges’ adult student population experienced exponential growth from the mid-1970s until the early 1990s in all segments of higher education (Cejda, 2004). Cohen and Brawer (1996) suggested the increase occurred at the same time the traditional-age student population experienced a decline. The traditional age population, viewed as 18 years of age, peaked in 1979 and declined by 23% by 1992. Statistics reported in the Digest of Education Statistics 2001 indicate that between 1970 and 1999, enrollment at 2-year institutions increased by 141%, compared to a 47% increase in enrollment at 4-year institutions. It was the result of
this information that Cohen (1993) acknowledged adult students were the “new majority” in higher education (Cejda, 2004).

The 1990s witnessed a shift in enrollment patterns. Traditional age students experienced an increase and adult students came to an unanticipated standstill. During the period between 1990 and 1999, enrollment by adult students increased less than 1% during the period (Cejda, 2004; Digest of Education Statistics, 2001). Evidence suggests that since the shift, less attention has been directed to adult students’ needs at many institutions of higher education. During the fall semester of 2013 reporting period, FCS reported the average student age was 26 years old, making the adult student the largest population on Florida campuses. However, SUS policies continue to focus on traditional aged students.

New evidence suggests another paradigm shift is occurring that is policy driven by the President Obama Completion Agenda and the decrease in high school graduates nationwide. The Florida Completion Agenda is to have a college completion rate of 55% by 2025; this is in alignment with President Obama, Lumina Foundation, and The College Board to increase the proportion of college graduates for the United States (FCS, 2012; Cejda, 2004). The completion agenda will require a renewed focus of the adult market because the traditional student market alone will not support the goal of reaching 55% completion rate by 2025.

The broad view of the community college curriculum is a bilateral program with dissimilar goals. The transfer program is for students pursuing a baccalaureate degree, and the vocational program is for students planning to enter the workforce before or after completing a terminal degree. Examination of data subsequent to the 1980s suggests that many college transfer students have not restricted themselves within these dissimilarities. Responses from a national survey of more than 7,500 2-year college students (Cejda, 2004; Palmer, 1987) indicated
that 26% of vocational students planned to transfer to 4-year institutions. Previous analysis by Grubbs (1991) of students in the High School and Beyond Study revealed that 23% of community college students from the class of 1980, having earned vocational associate degrees, transferred to 4-year colleges. Berkner, Horn, and Clune (2000), using data from the 1995-96 Beginning Postsecondary Students Longitudinal Study, found that nearly 32% of associate degree students with majors in vocational fields enrolled with the intent to transfer to a 4-year institution (Cejda, 2004).

**Adult Student Attrition**

Adult student’s intent to transfer remains indirectly linked to attrition because dropout prevention is at the core of success for this population ability to move on to the university. Student attrition is costly overall for the student and the institution. According to Bean and Metzner (1987), adult students’ dropout was an occurrence of cumulative grade point average (GPA), and credit hours enrolled, opportunity to transfer, and age, affecting dropout through the intent to leave.

Bean and Metzner’s (1987) study of adult students attrition was to estimate a conceptual model of adult students attrition. The decision to dropout was dependent upon four sets of variables in the study. Students with poor academic performance are predicted to dropout at higher rates than students who perform well academically, and GPA is expected to be largely based on past (high school) academic performance. The second major factor is intent to leave, influenced by psychological outcomes but also academic variables. The third groups of variables are the background and defining variables, mainly high school performance and educational goals. Lastly, the environmental variables were predicted to have substantial direct effects on dropout decisions (Bean & Metzner, 1987).
Data were collected from 624 adult (commuter, part-time) freshmen at a Midwestern urban university enrolling 22,000 students. The researchers reported the purpose of the study was to estimate the theoretical model using the data from a sample of part-time, freshman commuter students. Furthermore, the study attempted to explain the attrition process for a subgroup of adult students for which studies have rarely been investigated within student attrition research (Bean & Metzner, 1987).

The researchers conducted the study at what was then considered a predominantly commuter school at the time of the data collection. The information was collected from the participants via a questionnaire except registration data, cumulative GPA, and high school class rank, which was furnished by the registrar’s office. During the collection of the data, 57% of the undergraduate student body were women. The mean age of undergraduate was about 25 years of age, and the mean SAT combined verbal and math score of entering freshman was 844 for the fall term of 1982 (Bean & Metzner, 1987).

During the fall term of 1982, data were collected via distribution of a questionnaire in English composition classes, a course that was required by all degree-seeking students. A total of 77% of the students initially enrolled in the composition courses completed the questionnaire, with the reminder of students absent from class during the administration. Therefore, the data was more representative of class attenders than absentees (Bean & Metzner, 1987).

Students attending part-time were defined as students enrolled for less than 12 credit hours. Full-time freshman respondents were eliminated from the analysis, as were 23 part-time students who were stop outs, students who did not enroll for spring term 1983. The study was conducted with 624 part-time, freshman commuter students. Of this number, 382 (61%) persisted and 242 (39%) did not enroll for fall semester 1983. The sample consisted of 61%
female, 14% minority (90% black students), 27% married, and 83% employed students, with about 50% of the working students employed full-time. The mean age was 23.8 years, with one third of students age 25 or older (Bean & Metzner, 1987).

The study consisted of 26 variables in the model which accounted for 29% of the variance in dropout. The variables of direct interest were age, hours enrolled, educational goals, average study hours, study skills, academic advising, hours of employment, and opportunity to transfer.

The researchers used regression analysis, which is the proper test statistic for prediction. It was appropriate because the study was to predict dropout for adult students. Regression analysis was also the correct test statistic because it was useful for forecasting what is synonymous in predicting dropout and intent.

The majority of data concerned facts with most measures consisting of a single item. When there were multiple items, they were combined to form a single construct. All items were loaded in confirmatory factor analysis for the construct. Because no reciprocal effects were hypothesized in the model, ordinary least squares multiple regressions in a path framework were used to estimate the additive parameters in the model (Bean & Metzner, 1987).

The best predictors of dropout were GPA and intent to leave, followed by a background variable and hours enrolled. Intent to leave (used interchangeably with intent) was one of the two strongest predictors of dropout. Intent best predicted by the psychological outcome variables, utility, and satisfaction. However, the effects of age (older students less likely to intend to leave) were stronger than anticipated. In this case, educational goals (highest degree sought) had stronger negative effects on intent to leave than goal commitment (the importance of completing college), contrary to expectations. Three of the environmental variables—finances,
outside encouragement, and the opportunity to transfer—had significant effects on intent to leave (Bean & Metzner, 1987).

Lastly, the social integration variables had no significant effects at all on dropout, GPA, or the psychological outcomes; only faculty contact were significantly related to intent, but in a direction opposite from what was anticipated by the research.

The four variables that were significantly related to dropout were GPA, intent to leave, hours enrolled, and study skills. GPA and intent to leave have been well established in the attrition literature as powerful predictors of attrition and a similar effect was found for part-time students (Bean & Metzner, 1987). The 1974 study conducted by the California State Coordinating Council found that the number of credits for which a part-time student were currently enrolled was negatively related to dropout. The direct effects of absenteeism and academic advising on dropout are important because these activities are subject to institutional intervention (Bean & Metzner, 1987).

The best predictors for intent to leave were utility, age, opportunity to transfer, and satisfaction. Academic variables did not strongly affect intent, whereas several background variables did. Older students intended to leave less frequently than younger students and opportunity to transfer was positively associated with intent (Bean & Metzner, 1987).

Cumulative grade point average produced the largest effect on dropout. Age, high school performance, study skills, and educational goals had a significant positive effect on GPA. Although this study was carried out with students at a Midwestern urban university, it is relevant to the current study because the population included adult students, first time in college or freshman students and commuter students (Bean & Metzner, 1987).
This study provided information about part-time students, beyond simple demographic data, which before this study were not found in previous studies reported in the literature. The variables used to estimate the model accounted for 29% of the variance in dropout. Significant effects were found for 11 of 12 major paths in the model. The absence of important effects for social integration variables were predicted, and the majority of the minor direct effects predicted by the model were found. The environmental variables failed to affect dropout directly, as predicted. The influences of background variables on dropout were almost exclusively indirect rather than direct. The findings from the study suggest the model may have needed to be re-quantified or analyzed using only older adult students (Bean & Metzner, 1987).

For these commuter students enrolled part-time, dropout was a function of academic performance (low GPA and low high school performance) and commitment to the institution (high levels) of intent to leave and absenteeism, and enrolling for fewer credit hours per term). Absenteeism, age, high school performance, and ethnicity had notable indirect effects on dropout through GPA. However, utility, satisfaction, opportunity to transfer, and age influenced dropout through intent to leave (Bean & Metzner, 1987).

The practical recommendations included efforts by the faculty to assess and discourage absenteeism is warranted to improve academic performance, career counseling, and faculty teaching approaches that enhance students perceptions of the value of college education should decrease college dropout, and improving outreach programs; and the quality of academic advising should also reduce attrition (Bean & Metzner, 1987).

Future research recommendations by the authors were to include studies that combine data from a variety of institutions. In this study, samples of adult students tended to be heterogeneous and would probably differ from university to university so that the combination of
several schools might not produce additive effects in the regressions. Future research suggested by the authors might estimate the strength of the compensatory interaction effects between GPA and psychological outcomes and between the academic and environmental variables in affecting attrition decisions. It was also suggested future researchers should study why students leave a particular institution separately from why students drop out of higher education altogether and, thus, separate the institutional and student perspective on drop out (Bean & Metzner, 1987).

For both colleges in the current community college study, the student populations are a hybrid of the university being both state and community colleges. The current study focused on adult student population with the majority, if not all, students being commuters because the colleges that are participating in the study do not provide on-campus housing. This study is useful for the current research because the predictor variables used in the model are very similar and many are an exact match. The researchers accomplished what they set out to do, which was to estimate a conceptual model for adult student’s attrition.

**Student Remediation**

Remediation is synonymous with community college students in general, more so with the adult college student population. Higher education remediation is a continuous topic of discussion among administrators and practitioners alike. Many argue remediation fills an important vocation in higher education by providing opportunities to rectify race, class, and gender disparities generated in primary and secondary schooling, to develop the minimum skills deemed necessary for functional participation in the economy and the democracy, and to acquire the prerequisite competencies for college level course work. Others argue taxpayers should not be required to pay twice for the same educational opportunities, that remediation diminishes
academic standards and devalues the postsecondary credentials, and that the large number of underprepared students who are enrolling in college demoralizes the faculty (Bahr, 2008).

Grubb and Associates (1999) defined remediation as a class or activity intended to meet the needs of students who initially do not have the skills, experience or orientation necessary to perform at a level that the institutions or instructors recognize as regular for those students. These courses have been a part of the community college landscape since these institutions first appeared in the 20th century (Cohen & Brawer, 2003; Levin & Calcagno, 2008). Others such as Tomlison’s (1989) definition for postsecondary remediation included developmental, basic skills, compensatory, or preparatory education as part of defining student remediation requirements.

Institutions identify students for remedial course work by administering placement tests in basic skills or by reviewing grades and prior courses listed on high school transcripts. Many states contract with the College Board to implement ACCUPLACER tests, a computer-adaptive placement testing system designed to facilitate the evaluation and placement of college students in three basic skills areas: reading, writing, and mathematics (Levin & Calcagno, 2008).

The state of Florida College System moved away from the ACCUPLACER and is now using the Postsecondary Education Readiness Test (P.E.R.T.) as the common placement test in use by all 28 Florida colleges and school districts to determine if a student is ready for college credit courses in Math and English. The P.E.R.T. developed collaboratively with the test vendor, McCann Associates, with the Florida Department of Education’s Division of Florida Colleges, and Florida College System faculty to develop and tailor items to faculty specifications. The P.E.R.T. is comprised of three 25-item, computer, and adaptive subtests in reading, writing, and

The P.E.R.T. scores are scaled scores range from 50-150. The current placement score ranges for **Mathematics were:** Lower Level Developmental Education Scores of 50-95; Higher Level Developmental Education Scores of 96-112; Intermediate Algebra (MAT 1033) Scores of 113*-122; College Algebra or higher (MAC 1105) Scores of 123-150. *13 is the college-ready cut score for mathematics; for **Reading:** Lower Level Developmental Education Scores of 50-83; Higher Level Developmental Education Scores of 84-103; Freshman Composition Skills I (ENC 1101). Scores of 104*-150 the*104 being college-ready cut score for reading; and for **Writing:** Lower Level Developmental Education Scores of 50-89; Higher Level Developmental Education Scores 90-98; Freshman Composition Skill I (ENC 1101) Scores of 99*-150 (99 is the college-ready cut score for writing) (https://www.fldoe.org/schools/CommonPlacementTesting).

Bahr’s (2008) study of remediation among community college students focused on students who remediated successfully remediation/developmental math. In the research study conducted by Bahr, hierarchical multi-nominal logistic regression was used to analyze data that addressed a population of 85,984 freshmen enrolled at 107 community colleges. In the study, the researcher argued he was challenging the efficacy of remedial/developmental math programs in community colleges by comparing the long-term academic outcomes (credential attainment and transfer) of students who remediate successfully in mathematics (achieve college-level math skill) with those of students who achieve college-level math skill without the need for remedial assistance.

The purpose of the Bahr study (2008) was to evaluate the relative success or failure of one aspect of remediation, chiefly remedial math in community colleges. Remedial/
developmental math is of specific importance because more students require remedial assistance with math than any other subject matter in remediation such as reading or English (Adelman, 2004; Bahr, 2008). According to Bahr, community colleges are of great importance because, over time, they have become the primary setting in which postsecondary remediation is accomplished.

Bahr (2008) hypothesized that students who are required to take remediation math negotiate successfully the remedial math sequence; therefore, achieving college-level math competencies. They exhibit patterns of credential attainment and transfer that are comparable to those students who achieve college-level math skill without remediation.

The data to test the hypothesis were collected by the Chancellor’s Office as mandated by the California Legislature, which collects data each term via electronic submissions from the 112 community colleges and affiliated adult education centers in California. The data maintained by the Chancellor’s Office represent a census of community college students in California and includes transcripts, demographics, financial aid awards, matriculation records, and degree/certificate awards (Bahr, 2008).

Bahr selected the fall of 1995 cohort of first-time college freshmen who enrolled in any of California’s 107 semester-based community colleges ($N = 202,484$). Valid course enrollment records were available for 93.3% of these students ($N = 190,177$). The observation of course enrollment of these students by the researcher occurred across all semester-based colleges for six years, through the spring of 2001, and retained only those students who enrolled in at least one substantive, non-vocational math course ($N = 87,613$). The researcher then dropped 1,719 students (2.0%) who were missing data on gender, age, or the ID variable used to track student records across colleges, resulting in an analytical cohort of 85,894 students. The data were
refreshed with updated information concerning credential awards and transfer to 4-year institutions through the spring of 2003. Hence, the general study data offered detailed records through the spring of 2001, while the aspects that address credential awards and transfer encompassed an additional two years (Bahr, 2008).

The principal outcome of Bahr’s study was students’ long-term academic attainment in the community college system. Within the milieu of the community college, in essence, the two indicators of long-term attainment that are readily measurable (a) the award of a credential and (b) transfer to a 4-year college or university. In this study, the primary outcome of interest is student intent to transfer or move on to a 4-year college or university. The key explanatory variable of interest in the study was a student’s entry to, and exit from, math course work.

In the research, math was operationalized according to the placement exam Postsecondary Educational Readiness Test (P.E.R.T.) within the state of Florida College System. Math courses were categorized via course catalogs and course characteristics in the data to determine the skill-level of each math course, according to P.E.R.T, in which any member of the cohort enrolled at any time during the observation period.

In total, the researcher collapsed 2,750 math courses into two categories consisting of remedial and college-level. Remedial math includes basic arithmetic, pre-algebra, intermediate algebra, and geometry. College-level math includes all courses that address topics of a skill level equal to, or greater than, college algebra. The coding scheme classified each student in the cohort as either a remedial math student or a college math student based upon each student’s first math course (Bahr, 2008).

The hypothesis for the study was predicting students who successfully completed the remedial math sequence, attaining college-level math skills, exhibiting patterns of credential
attainment, and transferring to 4-year colleges and universities. These remedial students were comparable to those students who attain college-math without the need for remediation (Bahr, 2008).

Bahr’s key explanatory variable consisted of the following attributes (a) college math completer (CC)—student enrolled initially in a college math course and ultimately completed a college level math successfully, (b) college math non-completer (CN)—student enrolled initially in a college math course but ultimately did not complete the math course successfully, (c) remedial math completer (RC)—student enrolled initially in a remedial math course and ultimately complete a college math course successfully, and (d) remedial math non-completer (RN)—student enrolled initially in a remedial math course but ultimately did not complete a college math course. For the analysis, a successful math course for enrollment was described as enrollment resulting of a grade of A, B, C, D, or Credit (Bahr, 2008).

The student-level control variables used in the research were gender, race/ethnicity, age, three proxies of socioeconomic status (SES), three measures of enrollment patterns, academic goal, grade in first math course, English competency at college entry, and two measures of interaction with academic advising services. Frequency distributions for these variables were provided, as well as, as distributions for long-term academic attainment and math status; gender was treated as a dichotomous variable. Race/ethnicity included nine nominal categories and were treated as a set of dummy variables, with the category of White excluded. The measurement for the variable age was in years and collected at the time of application for admission, and was treated as continuous (Bahr, 2008).

Three proxies of SES as student control variables included a dichotomous indicator of receipt of a fee waiver during the first year of attendance, a dichotomous indicator of receipt of
any grants during the first year of attendance, and a continuous indicator of the total monetary value of any grants received during the first year of attendance. Students who did not receive any grants were assigned a value of zero (Bahr, 2008).

Establishment of enrollment patterns for measurement included indicators such as persistence, enrollment inconsistency, and delay for first math course enrollment. Persistence was operationalized as the number of terms in which a given student enrolled in courses from fall 1995 through spring 2001. Enrollment inconsistency was operationalized as the percentage of terms in which a student did not enroll in courses from fall 1995 through the last term the student was observed in the system. Delay of first math was operationalized as the term number of the first math enrollment, with fall 1995 assigned a value of one and spring 2001 assigned a value of seventeen (Bahr, 2008).

The variable academic goal was a self-reported measure of a student’s primary objective, collected during the application process. The researcher collapsed the variables into these nominal categories: (a) transfer to a 4-year institution as an exclusive objective, (b) transfer to a 4-year institution with an allied objective of a non-vocational associate’s degree, (c) non-vocational associate’s degree as an exclusive objective, (d) vocational associate’s degree as an exclusive objective, (e) vocational certificate as an exclusive objective, (f) other job-related goals; abstract educational goals; remediation in fundamental academic subjects, (g) undecided, and (h) unreported. Academic goals were treated as a set of dummy variables, with transfer to a 4-year institution excluded (Bahr, 2008).

Students’ first math course included 10 nominal attributes: A, B, C, D, F, Withdrawal, Credit, No Credit, Upgraded, and missing/unreported, treated as a set of dummy variables, with “A” excluded. Student’s English competency, like math competency, was set to the skill-level
of a student’s first English course. The researcher collapsed 6,625 substantive English courses into four categories: remedial reading, remedial writing, English-as-a-Second-Language, and college-level-English. To the four categories, a fifth additional category added by the researcher to account for students who did not enroll in any English course work during the period of the study. English competency, however, was treated as a set of dummy variables, with college-level English excluded (Bahr, 2008).

Lastly, the interaction with academic advising services was measured using two dichotomous indicators of a given student’s experience of being referred to, and/or receiving, advising at any point during the six-year observation period (Bahr, 2008).

The college-level control variables used by the researcher in the study consisted of the size of each college, the degree of math competency of entering students, and the goal orientation of each college. Size was operationalized as the number of first-time freshmen who enrolled in a given college in the fall 1995 term. Degree of math competency was operationalized as the percentage of the fall 1995 first-time freshmen cohort at a given college whose first non-vocational math enrollment was remedial. Goal orientation was operationalized using four variables, each of which measured the percentage of the fall 1995 first-time freshmen cohort at a given college who indicated one of the following four goals: transfer, associate’s degree, job-related goals, and abstract goals. All six contextual variables were treated as continuous by the researcher (Bahr, 2008).

The method used in the study was a two-level hierarchical logistic regression to model natural variation in the probability of each of the five possible outcomes. The model was specified according to equations in which the left-hand side of the first equation represents the natural log of the odds of the probability of individual $i$, who is enrolled in college $j$. 

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experiencing outcome 2, 3, 4, or 5, versus outcome 1. This outcome varied from the intercept \( j \) \((B_{0j})\) as a function of a set of three dummy variables that represented students’ match status \((RC, CN, \text{ and } RN, \text{ with } CC \text{ excluded as the comparison category})\), the corresponding coefficients for college \( j \) \((B_{1j}, B_{2j}, B_{3j})\), a set of \( k \) student-level control variables, and the coefficients associated with these control variables \((B_{kj})\). The intercept for the college \( j \) \((B_{0j})\) varies for the intercept from all colleges \((C_{00})\) as a function of a set of \( q \) college-level control variables, the coefficients associated with these college-level control variables \((C_{0q})\), and random college-level error term \((E_{0j})\) (Bahr, 2008).

The most striking finding presented by the researcher is the overall similarity of the outcomes of CCs and RCs. These two groups are approximately equally likely to complete only a certificate and approximately equally likely to transfer, although RCs are more likely to transfer with a credential, while CCs are more likely to transfer without credential. RCs are somewhat more likely to complete an associate’s degree (without transfer) than are CCs, but the absolute magnitude of the difference is small (approximately 4% points). Slightly more than one-fifth of CCs do not complete a credential and do not transfer, as compared with slightly less than one-fifth of RCs (Bahr, 2008).

Contrasting the two successful groups, RNs experience outcomes that are much less favorable than RCs and CCs. The findings suggest that more than four-fifths of RNs do not complete a credential and do not transfer. CNs have a more favorable transfer rate than do RNs, and less favorable credential attainment rate (without subsequent transfer), the outcome of CNs are relatively poor (Bahr, 2008).

Even though RCs do differ significantly from CCs in the relative likelihood of experiencing one of the four outcomes, the differences between these two groups were small.
For RCs, the odds of transferring with a credential versus neither completing a credential nor transferring were approximately one-seventh (15%) greater than the odds for CCs, all else being equal. RCs did not differ significantly from CCs in the odds of transferring without a credential, in the odds of completing an associate’s degree (without transfer), or in the odds of completing a certificate only, versus neither completing a credential nor transferring. Therefore, on the unabridged, the two “completing” groups experience outcomes that are nearly identical to one another, once other variables were controlled for in the study by the researcher (Bahr, 2008).

Other findings the outcomes of the two “non-completing” groups differ significantly and negatively from the two “completing” groups. The odds of transferring with a credential versus neither completing a credential nor transferring for CCs are 31 times (3,136%) greater than the odds for RNs and 20 times (2,041%) greater than the odds for CNs, net of controls. Smaller but ample gaps are noted in the likelihood of transferring without a credential and in the likelihood of a completing an associate’s degree without transfer. Constituting the total sum students that do not attain college math skill are at an enormous disadvantage in terms of academic outcomes within the community college, and remedial math “non-completers experience the worst outcomes of the two “non-completing” groups (Bahr, 2008).

The researcher calculated the predicted probability of each outcome because odd ratios are useful for interpreting nonlinear statistics; they offer little help on visualizing the practical size of differences in attainment. The calculations were accomplished by setting all of the student-and college-level controls to their respective means for (continuous variables) or modes for (categorical variables), and then adjusting math status systematically (Bahr, 2008).

The “typical” CC and RC have roughly a 65% change of transferring (with or without a credential), a 5% change of completing a credential without later transferring, and a 30% change
of neither completing a credential nor transferring. In comparison, “the typical” RN has a 10% chance of completing a credential without transfer, and an 83% chance of neither completing a credential nor transferring. The “typical” CN has a greater chance of transferring, and a lesser chance of neither completing a credential nor transferring, otherwise does not differ substantively from the “typical” RN (Bahr, 2008).

The researcher offered three alternative specifications of the model he examined. In the first, alternative specification, he removed all control variables that addressed concepts that occurred subsequent to enrollment. The variables retained comprised math status, sex, race, age, and the three proxies of SES, English competency at college entry, academic goal, and the college-level controls. The purpose according to Bahr in this case, were to ensure that he did not “over control” the outcome by including variable that be influenced by the experience of remediating successfully itself (Bahr, 2008).

Bahr noted that the primary differences between the full model and the simplified model involve the increases in the magnitudes of the estimated effects of math status. RCs have a greater estimated advantage over CCs in the likelihood of transfer with a credential, while the RNs and CNs have a greater estimated disadvantage. A noted like change in the completion of an associate’s degree without transfer, for which RCs now have a statistically significant advantage, while CNs and RNs face a greater estimated disadvantage. Regarding the likelihood of transfer without a credential, RCs and CCs remain equal, while RNs and CNs experience a greater estimated disadvantage.

In the simplified model, part of the estimated total effect of not achieving college math skill (CNs and RNs) includes the effect of the first math grade, as one would expect that “non-completers” performed more poorly, on average, in the first math than did “completers.”
Similarly, more or less some of the increased improvement of RCs over CCs observed in the simplified model likely is a product of greater persistence among RCs (Kolajo, 2004), which increases the likelihood of completing a credential of some sort (whether or not this is followed by transfer). Therefore, overall, the outcomes detailed in the full model appear to be logically consistent and robust against the particular modification specification (Bahr, 2008).

A second alternative specification offered by the researcher. Prior research indicated that the likelihood of successful remediation in math declines sharply with increasing skill deficiency and college entry (Bahr, 2007; Bahr 2008; Hagedorn & Lester, 2006). To test the effectiveness of remediation across levels of initial deficiency, the researcher modified the operationalization of math status to include separate categories for each level of initial math skill, based upon a given student’s first math course enrollment (Bahr, 2008).

The modified variable included 10 categories for Completer and Non-completer math status (College math, Intermediate math, Beginning algebra, Pre-algebra, Basic arithmetic) and academic outcome (No credential and no transfer, Certificate only, Associate’ degree with or without certificate, Transfer without credential, Transfer with credential)—one for each of five levels of initial math skill multiplied by the two possible outcome conditions of achieving math skill successfully or not, replacing the simpler four-category indicator of math status with the 10-category indicator (Bahr, 2008).

The modified model generally supports findings of the previous model. In the modified model while several statistically significant differences between CCs and various categories of RCs emerge, no clear pattern of disadvantage for the poorest skilled RCs is evident, and all differences between CCs and RCs are comparatively small in magnitude. The implication
remediation is equally effective on academic outcomes across levels of initial math deficiency (Bahr, 2008).

The third alternative specification used a different level of successfully attaining college math skills by treating a grade of “D” in college math course as unsuccessful, in contrast to the inclusion of grades of “D” as successful. A comparison of the distributions of college math skills attainment as a function of math skills at college entry under the competing definitions of success. While RCs, relative to CCs, are slightly disadvantaged in other respects, the overall pattern of comparable outcomes for RCs and CCs is preserved. Equally, as in the previous model, as a pattern of increasing disadvantage with decreasing math skill is observed among RNs. Hence, not the first alternative or the second alternative levels of successful remediation appears to be more or less informative than the other with respect to the research questions addressed in the study (Bahr, 2008).

To answer the research question, “Does mathematics remediation work?” the researcher used hierarchical logistic regression to model natural variation in a five-category nominal outcome measure of long-term student attainment as a function of a four-category nominal category measure of student’s entry to, and exit from, math as a set of student-and college-level control variables. Moreover, the replication of the model used a more complex 10-category nominal measure of math status and two competing definitions of attainment of college math skill (Bahr, 2008).

On the subject of remediation within the context of the community college, students who remediate successfully in math exhibit attainment that is comparable to that of students who achieve college math skill without the need for remediation. These findings, according to Bahr, generally hold true across the various levels of initial math deficiency. The two groups
effectively are not distinguishable from one another in terms of credential attainment and transfer, with the minor exclusion of small differences in the likelihood of completing a credential prior to transfer. The finding point to remediation having the capacity to fully resolve academic disadvantage of math skill deficiency, at least as far as the outcomes are concerned (Bahr, 2008).

On the other hand, three out of four (75.4%) remedial math students do not remediate successfully and the academic attainment of these students is dreadful with more than four in five (81.5%) not completing a credential and not transferring (Bahr, 2008). Remediation does work extremely well for some students and for others, not as well as the study pointed out. The researcher attempted to answer the question: Why do the majority of remedial math students do not attain college level-math skill? Several strong correlates of successful remediation in math have emerged in the literature: grade in first math, depth of remedial need at college entry, and breadth of remedial need at college entry. Grade in first math is a strong positive predictor of the likelihood of successful remediation in math (Wang, 2001); however, a student’s math grade is a product of a number of factors, including prior math preparation and the amount of effort applied to the topic by the student (Farkas, 2006; Bahr 2008).

The depth of remedial needs refers to the gradation of deficiency in a given subject, while breadth of remedial needs refers to the number of subjects of subjects in which a given student requires remedial assistance. Several studies suggest the depth and breadth of remedial need are strongly inversely associated with the likelihood of successful remediation. The effect of depth of remedial need is evident in the Bahr study with only 1 in 15 basic arithmetic students achieving college-level math skill, while roughly one in two intermediate algebra and geometry
did do. Hence, the likelihood of successful remediation in math declines sharply as gradation of deficiency (depth of remedial need) increases (Bahr, 2008).

Bahr (2008) argued there are at least three important policy implications obtained from the study of community college remedial math. The first implication was that when mathematics remediation works, it works extremely well. Consequently, critics of remediation continued argument of a second chance as a waste of resources (Reising, 1997). However, they cannot argue remedial math programs are failing to meet their objective for students who remediate successfully. Furthermore, as previously noted by Bahr, those students who have the greatest deficiencies who are the least likely to remediate successfully, and those students who do remediate successfully are disproportionately those who require the least assistance. Critics should observe with care the focus of the analysis is not on the effect of remedial math coursework in general, but on the effect of remediating successfully in math. Certainly one implication from the study that should not be concluded is that remedial coursework is detrimental to the academic outcomes of some students (Bahr, 2008).

The second implication noted within the population, more than four in five (81.3%) first-time freshmen who enrolled in non-vocational math did so distinctly in remedial math. Consequently, it is reasonable to view remediation as fundamental to the activities of the community college that substantial revisions would drastically change the educational milieu of the institution. As a result, those who advocate for the abolition of remediation or other extensive changes in the accessibility of remedial programs should take time away to deliberate such changes because of the severity of consequences to student outcome (Bahr, 2008).

The final implication to note is 59% of the first-time freshmen who enrolled in non-vocational math did not complete a credential and did not transfer, and 84% of the students who
did not complete a credential and did not transfer were remedial math students who did not remEDIATE successfully. The analysis put forward that, all else being equal, assisting remedial math students to remediate successfully may reduce the number of students who enroll in non-vocational math, but do not complete a credential and do not transfer, by as much as two-thirds (65%). Consequently, remediation plays an incontestable fundamental part in the educational paths of students who require assistance with basic skills of educational attainment within the community college system (Bahr, 2008).

**Course-Taking Patterns That Predict Transfer**

The key markers of transfer for community college students identified in the literature are these important predictors: demographics, course completion ratio, remedial/development needs, highest level of math completed, number of science courses completed, and level of engagement (Cabrera, Hagedorn, & Prather, 2010). Transfer, thus, is a necessary component of retention within the Florida College System; consequently, an alternative view is one of system persistence.

The Center for the Study of Community Colleges studied transfer rates from 1984 to 1987 and found a consistent transfer rate of approximately 22% (Cohen & Brawer, 2003), a portion that has remained relatively static throughout the years (Nora 2000; Palmer, 2000, 2005; Spicer & Armstrong, 1996).

In their study of the California Community College Transfer System (Cabrera, Hagedorn & Prather, 2010) attempted to answer these five key questions: (a) What are the markers of transfer for community college students? (b) How is the likelihood of transfer affected by successful completion of various types of courses? (c) How is the likelihood of transfer affected by grades and successful completion of all courses? (d) What type of factors or measures can be
derived from transcript level data? (e) How can transcript level data be transformed into useful and user-friendly tool?).

Hagedorn et al.’s (2010) research relied on transcripts analysis, which consists of a series of planned and systematic investigation of data routinely collected by community colleges including enrollment files, college application data, financial aid records, and other state and federally mandated files.

The sample selected for the study were the Los Angeles Community College District comprised of nine colleges and serves a geographic area covering more than 36 cities across more than 882 square miles (Hagedorn et al., 2010). In the fall of 2006, the recorded total of enrollment within the district 114,777 students.

Included in the study were all first-time transfer-hopeful students enrolling in any of the nine campuses in the fall 1997 semester who enrolled in a Mathematics course and were followed longitudinally through their transcript records for 10 years. The selection criterion were consistent with research showing that taking mathematics is powerful predictor of transfer (Adelman, 1999, 2006; Cabrera et al., 2005; Hagedorn, et al., 2010; Hagedorn, Maxwell, & Hampton, 2002). In addition, students with anticipation of transferring were advised into mathematics in their first semester of enrollment. As a result a group of 5, 031 individuals, 30% of all entering students who were followed via transcripts, through the spring 2007 term. The 10-year span was selected to recognize and acknowledge the transient nature of the students who attend community colleges and, at the same time, provided adequate time to determine transfer with some confidence. The other justification for the 10-year time span centered on previous research using these data revealed the median time for transfer was 11 semesters of active enrollment (Cabrera et al., 2010).
The statistics began with two data sets from the district. The demographic file consisted of the data from college applications such as gender, age, and ethnicity. The second file, called the enrollment or transcript file, consisted of a listing of all enrollments with details on the semester, the grade earned, the credits accrued. The demographic file used the student as the unit of analysis [one line per student] (Cabrera et al., 2010).

The variables of interest in the study were course completion ration, developmental needs, highest math taken, and grades. The researchers operationalized the variables as such: (a) *Course completion ratio* (CCR), defined as the proportion of credits successfully completed (grade of A, B, C, D, or pass); (b) *Development needs*—remedial or developmental needs by coding the level of the first Math and English courses taken. Transfer level math courses were initially coded with a “1” whereas, those below transfer level was coded by the number of levels below transfer (-4, -3,-2,-1); (c) *Highest math taken*—coded with 1,-4,-3,-2,-1 to record the highest math course in which the student enrolled. The number of science courses taken were operationalized through tagging all science courses and subsequently summing the number of courses; (d) *Grades*—grades were operationalized by calculating the cumulative GPA. Involvement or time on campus were calculated as the average credits per semester (Cabrera, et al., 2010).

The instrument used in the study *The Community College Transfer Calculator* is a downloadable tool based on transcript analysis of a longitudinal cohort of transfer intent of community college students. The tool calibration is a logistic regression equation that predicts the impact of key variables on transfer. The tool allows the user to enter student-specific data using pull-down menus that instantly calculate the result of specific course taking on the probability of transfer (Cabrera et al., 2010).
The aim of the *Calculator* emphasized specific community colleges courses known from the literature related to student transfer success. The design put importance on mathematics, English, and science courses, because previous studies have indicated these specific course types are potent predictors of transfer to 4-year colleges and universities (Adelman, 1999, 2005; Cabrera, Burkum, & La Nasa, 2005; Cabrera et al., 2010).

The calculating of a student-level variable from the enrollment file was then aggregated by student reference number and the item of interest calculated. The aggregated values by student were then merged back into the file that contained demographic information. Likewise, merged into the working file transfer status, transfer information was obtained from the National Clearinghouse. For each of the students in the dataset, “1” was recorded if the student had enrolled in a 4-year college or university. Non-transfers were coded “0.” The definition of transfer used by the researchers for the function of the calculator was simply enrollment in a 4-year college or university (Cabrera et al., 2010).

Because the outcome of interest, transfer, was dichotomous, the researchers employed logistic regression to examine the relationship of personal characteristics and course taking patterns with the probability of transferring (Cabrera, 1994; Hagedorn et al., 2010). Logistic regression is especially useful for predicting two categories (i.e., transferred or not transferred). Logistic regression uses a logarithmic transformation to overcome the assumption of linearity and seeks to obtain the best-fitting model to describe the relationship between the dependent variable transfer and the set of independent measures derived from the data (Cabrera et al., 2010).

In advance of testing the prediction model, the researchers examined the data using several screening criteria. First, attention was given to the distribution of the variables. For
some of the variables, a high degree of skewness resulting from the low number of cases in a few of the categories. In some of the cases, the researchers collapsed the values when variability was very low. Next, they examined the degree of collinearity among variables. They accomplished this by examining the correlations among the selected predictors, noting a high-level of correlation between the lowest math course and highest math course (.818). A very high level of correlation points toward the two variables essentially providing the same information and, therefore, should not be included simultaneously in the estimation of the transfer model. Thus, the researchers decided not to include the low math variable in the equation thereby removing it from the model (Cabrera et al., 2010).

The selected variables were entered into the logistic regression equation using a forced entry (1-block) method. A number of measures of goodness of fit were used to appraise the transfer logistic model. The \( \chi^2 \) (chi-squared) suggests the extent to which the variables as a group are associated with transfer and a significant value indicates a good fit (Cabrera et al., 2010).

*The Community College Transfer Calculator* was used to calculate the likelihood of transfer for a specific student-type based on specific academic and course variables. The *Calculator* provides several options as well as a helpful description. The likelihood of transfer percentage changes when the researcher alters the variables within the model. The calculator for Cabrera et al. (2010) study was calibrated for the Los Angeles Community College District. The intention of the calculator was to be customizable to other sites. As soon as the user installs the calculator, the user customizes it by adding institution-specific factors and data. The logistic regression weights or \( b \)-values and the constant, calculated via a statistical program, are entered values and subsequently clicking on the Update \( b \)-Values button. The *Calculator* has a range of
purposes not limited to individual and group settings such as in private advising sessions, orientation sessions, or part of a college success course for predicting likelihood of transfer within the LACCD (Cabrera et al., 2010).

The researchers selected default data from the LACCD (2007) to develop a series of contingency tables to illustrate the power of taking specific courses on the probability of transfer. The study points out the stepping point nature of probabilities. Each step horizontally (to the right) and vertically (down) increases the probability of transfer. Resulting from the study, a young Asian female enrolled in nine or more credits taking one science course, depending on her English entry-level proficiency and final mathematics course, the probability of transfer varies from 19.28% to 80.23%. Although students must begin at the English level in which they were assessed, persevering through the math sequence is extremely powerful. The power of taking college level math also holds regardless of ethnicity (Cabrera et al., 2010).

Practitioners, educators, and administrators may perhaps intuitively conclude that starting in higher level English and/or taking transfer level mathematics is conducive to transfer; *The Community College Transfer Calculator provides* robust evidence of the power of course taking and academic success for community college students. Hagedorn et al. (2010) suggested policy makers and others be aware of these important relationships. Developmental students specially should be aware of the need to take the full math sequences, colleges may consider forming learning communities, mandatory tutoring sessions, and other forms of supplemental instruction for students with transfer intent.

Cabrera et al. (2010) recommends advisors to counsel students to design their academic programs and then to adhere to the courses. Although students in need of rigorous remediation are less likely than their counterparts (who require little or no remediation to transfer), students
can be successful if they persevere and climb the developmental ladder. As indicated by the LACCD Calculator, a full-time student who begins study at one level below transfer level English and two or more levels below transfer level math can increase the likelihood of transfer from 34.3% to 68.6%, if the student perseveres and climbs the developmental ladder through college level math. Furthermore, the same student can increase the likelihood of transfer by roughly 12% by taking two science courses (Cabrera et al., 2010).

State College Systems articulation and transfer agreements comprised of 4-year and 2-year colleges have the possibility of improvement by using the Calculator, thus translating student course-taking behaviors into measures of circular impact. The translation becomes the result of examining the extent to which several course-taking patterns at the community college result in transfer rates consistent with the expectations that guided the original articulation agreement (Cabrera et al., 2010).

An additional course-taking impact examined by the Calculator is the extent to which the combination of science courses along with different levels of remediation maximize a student’s likelihood to transfer. Lastly, the course-taking Calculator can used to examine the undocumented impact of students’ choices in the timing and kind of courses they take at the community college (Cabrera et al., 2010).

Withdrawal/Persistence of Adult Students

In conducting research on the subject of student withdrawal, the majority of work has concentrated on traditional, rather than non-traditional students in the current literature (Laing & Robinson, 2003). Tinto (1993) suggested that factors such as adjustment, difficulty, mismatch, and isolation play an important role in student withdrawal. Further studies, Bean (1983), Pascarella and Terenzini (1991), and Braxton et al. (1995) also emphasized the notions of social
and academic integration/interaction as being important factors when considering student withdrawal (Laing & Robinson, 2003).

The National Center for Education Statistics (NCES) identified seven risk factors affecting student persistence and degree attainment: (a) delayed postsecondary enrollment; (b) students who were high school dropouts or GED recipients; (c) students enrolled part-time; (d) financially independent students; (e) students with dependents other than spouse; (f) single-parent students; and (g) employed full-time (Sorey & Duggan, 2008). The Sorey and Duggan study examined the differential predictors of institutional persistence between adult and traditional-aged degree-seeking, first-time enrollees at a public, multi-campus 2-year community college in southeast Virginia. The following research questions were developed to explore the factors on institutional persistence: (a) What are the predictors of institutional persistence for traditional-aged degree-seeking first-time enrollees? (b) What are the predictors of institutional persistence for adult degree-seeking first-time enrollees? and (c) Do the predictors of institutional persistence for traditional-aged degree-seeking first-time enrollees differ significantly from those for adult degree-seeking first-time enrollees?

The students selected for the study were enrolled at a large, ethnically diverse multi-campus public community college located in the Southeast. The four campuses served 34,940 credit students with 15,000 annual full-time equivalents realized during 2003-2004. Two random samples were drawn for the study. The first sample consisted of 350 randomly selected degree-seeking adult students (25 years of age or older) who entered the college for the first time in August 2005. The second sample included 350 randomly selected degree-seeking traditional aged students (18 to 24 years of age) who also entered the college for the first time in August
2005. The college’s Office of Institutional Effectiveness used Survey-Select to perform simple random sampling (Sorey & Duggan, 2008).

Data collection included the 2005-2006 academic year at two time intervals. In October 2005, Time 1 (Part A) data were obtained from a survey questionnaire administered to the two samples. Time-1 (Part B) data consisted of information extracted by the college’s Office of Institutional Effectiveness and included gender, racial group affiliation, and student enrollment characteristics (i.e., degree type, enrollment status). The college’s Office of Institutional Effectiveness provided student age upon entry to the college in August 2005. Time-2 data included information extracted from the Student Information System (SIS) in March 2006 by the college’s Office for Information System. Academic performance at the college (grade point average during the fall 2005 term) was extracted, as was the criterion variable, institutional persistence or withdrawal (Sorey & Duggan, 2008).

To acquire Time-1 data, both samples received a postcard (October 2005) inviting them to participate in a survey to assess their college experiences. Roughly, one week later, students received a follow-up postcard reminding them of the survey and approaching deadline. Two reminders were also sent electronically to their student e-mail accounts (Sorey & Duggan, 2008).

The survey instrument used in the study were based upon several scholars conducting retention research. The items or scales included in the survey to measure the major constructs under study (i.e., finances, encouragement and support from significant others, degree utility, intent to leave, institutional commitment, goal commitment, academic integration, and social integration) were selected by the researchers for their documented reliability and validity in previous studies (Sorey & Duggan, 2008).
The investigators used two-way contingency table analyses of the dummy coded predictor variables (gender, racial group affiliation, degree type, enrollment status) to gage the relationship between these variables to the persistence of community college students. A discriminant analysis on the continuous variables determined the strongest overall predictors of persistence before independent examinations of the two groups. Predictors that differentiated between students who persist and those who withdraw with a correlation strength of .30 or higher were retained for the study (Sorey & Duggan, 2008).

Sorey and Duggan achieved a response rate of 17.6% overall in the study. Of the 350 traditional-aged sample population, 68 participated in the study providing for a response rate of 19%. The adult student sample population of 350 included 55 who completed the questionnaire. Because the response rate was low for both, the researchers used chi-square analysis to compare the demographics of the study participants and nonparticipants to access representation and generalization. Examination of the data suggested traditional-age participants and nonparticipants were statistically similar in racial group membership and degree type.

The researchers (Sorey and Duggan) also conducted a one-sample t test suggesting the samples were similar in mean age. Chi-square analyses indicated significant deviations in gender, $X^2 (1, N = 68) = 12.51, p = .000$ with the proportion of females ($n = 50$) being excessive; the effect size $d$ of .18 represented a small effect. The results for the test were also significant for enrollment status, $X^2 (1, N = 68) = 7.89, p = .005$, with a greater number of full-time students ($n = 47$) participating than expected. The effect size of $d$ of .12 indicated a small deviation from the expected frequencies.

The chi-square analyses did not show significant differences in the demographic comparison of the adult student participants and nonparticipants except for racial group
affiliation. The effects of the difference in racial group affiliation $X^2 (5, N = 55) = 20.09, p = .001$, were only minor with an affect size $d$ of .07. One sample $t$ tests were conducted on the mean of age of these comparison groups, with the sample mean of 33.1 ($SD = 7.48$) were significantly different from the participant mean age of 31.1, $t (54) = −2.72, p = .009$. The effect size $d$ of −.37 suggests a moderate effect (Sorey & Duggan, 2008).

For an assessment of the internal consistency of the survey, coefficient alphas were computed for the scales that were used to measure the major constructs in the study. Values for the coefficient alphas were as follow: degree utility (.78), encouragement and support from significant others (.84), intent to leave (.80), institutional commitment (.85), goal commitment (.66), academic integration (.64), and social integration (.71). The reliability analysis indicated the scales used to measure the major constructs had acceptable reliability (Sorey & Duggan, 2008).

The researchers created two-way contingency tables to evaluate the significance of the relationships between the dichotomous outcome (persisted or withdrew) and each of the following categorical variables: gender, racial group affiliation, degree type, and enrollment status. Only degree type and persistence were found to be significantly related, Pearson $X^2 (1, 123 = 4.76, p = .029$, Cramér’s $V = .20$. Students enrolled in the occupational technical vocational degree programs were more likely to persist than students enrolled in a transfer program

Descriptive discriminant analysis were performed on the 12 continuous variables. The researchers argued the purpose was to identify the variables with the most salient influences taken together on the institutional persistence of first-time, degree seeking community college students. No significant differences were found within the covariance matrices among students
who persist and students who withdraw ($p$ value of .67 for the Box’s $M$ test). The overall Wilks’ lambda was not significant, $\Lambda = .89$, $X^2 (12, N = 123) = 13.74$, $p = .318$, suggesting that overall the predictors did not differentiate among the students who persist or withdraw. The canonical correlation associated with the function was .336 (Sorey & Duggan, 2008).

There were eight of the pooled within-group correlations between the discriminating variables and the canonical discriminant function, which were greater than or equal to the predetermined significance level of .30. The variables included encouragement and support (.538), social integration (.512), degree utility (.505), academic integration (.450), institutional commitment (.406), intent to leave (.388), fall grade-point average (.354), and finances (.320).

Of the traditional-aged students of the 68 participants, 58 (85%) persisted to the spring 2006 semester, and 10 (15%) did not return. The variables that contributed most to the categorical dependent variable persistence for traditional-aged students were encouragement and support (.609), academic integration (.446), fall grade point average (.417), and intent to leave (.414). Students who reported higher levels of encouragement and support and academic integration were more likely to persist than the traditional students with lower levels were. The fall semester grade point average and the intent to leave variable were also influential in combination with other variables, making a weak contribution. The coefficient for intent to leave was .240 and the coefficient for fall semester grade point average was .207. The variables with the weakest relationship to persistent were degree utility (.289), institutional commitment (.223), finances (.149), and social integration (.050) (Sorey & Duggan, 2008).

For the adult students of the 55 participants, 44 (80%) persisted to the spring 2006 semester and 11 (20%) did not reenroll. Adult students who were more satisfied with student friendships, interpersonal relationships, and the non-classroom interactions with faculty at the
college were more likely to persist than adults who assessed these items at lower levels. The strength of relationship was strong for these variables: institutional commitment (.804), degree utility (.632), encouragement and support (.519), finances (.508), intent to leave (.430), and academic integration (.365). While significant differences were not found for the means of the discriminant function for the intent to leave variable, the structure coefficient was .430. This suggested that in combination with the other variables, intent to leave influenced the persistence of adults in the sample. Degree type and persistence were found not to be significantly related, Pearson \( X^2 (1, N = 55) = 2.21, p = .137 \), Cramér’s \( V = .20 \). Hence, degree type did not significantly differentiate adult students who persisted from adult students who withdrew (Sorey & Duggan, 2008).

Findings from the study revealed that predictors of institutional persistence differed for traditional-aged students and adult community college students. Social integration had the greatest influence on persistence, which was not entirely consistent with previous studies of Metzner and Bean (1987) who found evidence that social integration would not significantly influence adult students. Furthermore, academic integration exerted a strong influence on the persistence of traditional-aged students, and it was least significant of all predictor variables included in the discriminant analysis for the adult students (Sorey & Duggan, 2008).

Degree type did significantly predict institutional persistence for the traditional-aged students and the adult students when aggregated as one population. Students enrolled in occupational technical programs were more likely to persist than students in transfer programs, supporting the findings of earlier research by Gates and Creamer (1984) and Webb (1988).

Encouragement and support received from significant others was the strongest predictor of institutional persistence for traditional-aged students. Encouragement and support had a lesser
influence on adult student persistence. Another finding supported by the literature concerned the complexity of persistence in adult students. In comparison with the traditional-aged student, a greater number of variables had a significant influence on persistence for the adult students in the study (Sorey & Duggan, 2008).

A limitation cited by the researchers was the low response rate. However, chi square analyses and one-sample t tests revealed only a few significant differences between the study participants and non-participants, which indicated the reliability of the study was questionable. According to Sorey and Duggan (2008), mailing the survey questionnaire might increase the participation rate in future studies. Administering the survey to community college students during a first-year orientation program would also increase the participation rate. With a greater response rate, the ability of the survey questionnaire to identify institutional student persistence and withdrawals may be more effectively scrutinized in future research.

The findings also suggest the importance of examining the community college student’s persistence longitudinally. Future research on community college student persistence should combine quantitative and qualitative approaches (Sorey & Duggan, 2008). Implications from the study included several recommendations put forth for institutional stakeholders to improve persistence rates of community college students as the findings suggest, institutional persistence varies by student age (Sorey & Duggan, 2008). Building a strong research and planning unit that purposefully and steadily studies persistence among community college students behavior is imperative. Administrators should encourage other staff to become involved in the study of students through the availability of research and grant opportunities (Sorey & Duggan, 2008).

The development of mandatory orientation and transfer programs that span the entire first semester or first year should include administrators, faculty, and advisors. The more, recurrent
and constant the sessions, the more likely students will form a peer support group and become more socially integrated within the college environment. These orientation programs should be required during the student’s first semester or year at college. Drawing upon the evidence regarding the impact on adult student persistence in the study, the utility of a community college degree should be included as part of orientation. The focus should be on educating students on the benefits of a community college education. Included in the policy should be sessions for certain populations such as occupational vocational degree students and transfer degree students since the study found transfer students to be more likely to withdraw (Sorey & Duggan, 2008).

For the final implication in the study, advisors should inspire student persistence through effective advising sessions that provide clear and consistent information about curriculum and institutional requirements and institutional policies and procedures. Advisors for their facilitation of student-faculty relationships should support regular advising sessions (Sorey & Duggan, 2008).

**Financial Aid on Community College Persistence**

Community college students enrolled during the school year 2007-2008, roughly, 42% who were eligible to receive Pell Grant funding did not file the Free Application for Federal Aid (FAFSA). The underused resource by students’ financial aid were identified as a formidable barrier to access, persistence, and degree attainment among college students (Advisory Committee on Student Financial Assistance [ACSFA], 2008; College Board Advocacy and Policy Center, 2010; Institute for College Access & Success, 2009; McKinney & Novak, 2012).

The FAFSA is labeled as a critical gatekeeper to most financial aid (Bettinger, Long, Oreopolulos, & Sanbonmatsu, 2009; McKinney & Novak, 2012), because in addition to the federal government, most states and postsecondary institutions use the FAFSA to make decisions
about the disbursement of need-based aid. Community college students are frequently ideal beneficiaries of need-based financial aid given that 40% of community college students have such low incomes and limited to resources to pay tuition (Institute for College Access & Success, 2009; McKinney & Novak, 2012).

In their study, The Relationship between FAFSA Filing and Persistence among First-Year Community College Students, McKinney and Novak (2012) sought to examine the relationship between filing FAFSA and within-year persistence among community college students. Of particular interest were whether failure to file a FAFSA resulted in poorer persistence rates among this student population during their first year if enrollment. The relationship between FAFSA filing and persistence among part-time students were also of interest because so many of the students who are eligible for need-based aid did not file. Two research questions guided this study: (a) How does FAFSA filing (i.e., filed or not filed) influence within-year persistence among first-year persistence among first-year community college students? and (b) How does FAFSA filing influence within-year persistence of first year community college students attending part-time? (McKinney & Novak, 2012).

Numerous studies and reports have highlighted the need to improve awareness and utilization of financial aid among community college students (ACSFA, 2008; College Board Advocacy and Policy Center, 2010; McKinney & Novak, 2012). Student loans and work-study programs represent the other primary sources of financial aid disbursed to college students. The causal effects of loans on the persistence of community college students are inconclusive and contradictory. However, some researchers have found that student loans do not affect the persistence of these students (Hippensteel, St. John, & Starkey, 1996; St. John & Starkey, 1994; McKinney & Novak, 2012). The effects of work-study aid on persistence of community college
students have received little attention; however, this may be attributed to the fact that only a small percentage of community college students receive this type of financial aid (McKinney & Novak, 2012).

Not filing a FAFSA could have a harmful impact on the success of community college students. McKinney and Novak (2011) found that among Pell-Grant-eligible students, those who filed a FAFSA had 122% higher odds of persisting from the fall to spring semesters than their peers who did not file.

Students’ academic performance (e.g., high school GPA, highest level of mathematics completed) before attending community college can have a strong effect on their persistence and degree attainment (Adelman, 2006; Arbona & Nora, 2007). Delaying enrollment into college after graduating from high school was found to have a negative impact on degree or certificate attainment among community college students (Adelman, 2006; Attwell, Heil, & Reisel, 2012). Likewise, community college students who attend part time were less likely to persist than students attending full time (College Board Advocacy and Policy Center, 2010).

On the other hand, the effects of participation in remedial coursework on student persistence are mixed. Numerous studies have found that successful completion of remedial coursework is associated with higher rates of persistence among community college students (Bahr, 2008; Crisp & Nora, 2010; Fike & Fike 2008), despite the fact that critics have suggested that taking remedial coursework hinders persistence (Worley, 2003). However, there is agreement among prior studies that higher cumulative GPA earned at the community college is associated with increased odds of persisting (Fike & Fike, 2008; Settle, 2011). Other findings also suggest meeting with an academic advisor can increase persistence among community college students (Bean & Metzner, 1985; Orozco, Alvarez, & Gutkin, 2010).
Many community college students work 20 hours or more per week off campus and this can have negative impact on persistence (College Board Advocacy and Policy Center, 2010). Community college students are more likely to be older than students enrolled at 4-year colleges and have their own dependent children to care for. The pressures of child rearing, in addition to being a college student, can serve as a barrier to persistence for these adult students (Sorey & Duggan, 2008). Assets unquestionably have an important role in the persistence of community college students because so many of these students come from low-income families. Lower income students are often reliant on financial aid to remain enrolled and persist to graduation (Choy, 2000; Heller; 1997; Long & Riley, 2007; St. John, 2000). McKinney and Novac (2012) contend failure to file FAFSA and, therefore, not receiving financial aid that could help pay for college, had a negative impact on student persistence.

The researchers used data for the study from the Beginning Postsecondary Students Study (BPS) (2006) conducted by the National Center for Education Statistics (NCES). The BPS survey sampled a cohort of students who began their college careers during the 2003-2004 academic year and followed student progress through 2006. The advantage of using BPS in the study, according to the researchers, is because the data are not available at the institutional level because students who do not complete a FAFSA are not typically willing to report information about their family status (McKinney & Novack, 2012).

For the study, the researchers attempted to answer two research questions: (a) How does filing (i.e., filed or not filed) influence within-year persistence among first-year college students? and (b) How does FAFSA filing influence the within-year persistence of the first-year community college students attending part time? To answer the two research questions, full and restricted samples were used in the study. The full sample consisted of first-year community
college students who were enrolled in an associate’s degree or certificate program during the fall semester of 2003 and who were eligible to receive federal financial aid (un-weighted n = 3,200). International students were not included in the sample because, for the most part, they are not eligible for federal financial aid. The restricted sample included only those students from the full sample who were enrolled part time during the fall 2003 semester [un-weighted n=700] (McKinney & Novak, 2012).

The dependent variable in the study was whether students persisted from fall semester of 2003 to spring semester of 2004 (0 = did not persist to spring; 1 = persisted to spring). The researchers made the choice to examine within-year, instead of between-year persistence, because research has found that financial concerns are more likely to cause students to drop out during the academic year, while academic factors are more often the source of between year attrition (Somers & St. John, 1997; St. John, Musoba, & Simmons, 2003).

The integrated conceptual framework guided the selected independent variables. The variables were entered into the model by the five following categories: (a) demographic characteristics, (b) cultural and social capital, (c) high school courses, (d) college experiences, (e) environmental factors (McKinney & Novak, 2012).

Descriptive statistics and logistic regressions were used to explore the association between filing a FAFSA and the likelihood of being retained to the spring semester. The dependent variable was binary; therefore, logistic regression was the appropriate method for addressing the research question. Two logistic regression models were used in the study. The first model included the sample of students, and the second model included only the students who enrolled part time the fall 2003 semester. The stated purpose by the researchers for analyzing the restricted sample of only part-time students were to determine if there was an
interaction among any covariates and part-time enrollment. Part-time students were of specific interest because studies have found that these students were less likely to file a FAFSA (Kantrowitz, 2009, 2011; King 2006).

The advantage of logistic regression is that the interpretation of coefficients are simple odds ratios. Odds ratios are obtained directly from the logistic regression model by exponentiation of an independent variable’s coefficient. When an odds ratio is greater than one, the group of students represented by that predictor is, by a factor of one minus the odds ratio, more likely than the reference group to remain enrolled. If the odds ratio is equal to one, there is no difference between the persistence likelihood of the group represented by the predictor and the persistence likelihood of the reference group. Lastly, if the odds ratio is less than one, the group represented by the predictor is, by a factor of one minus the odds ratio, less likely than the reference group to persist to their second year (Long, 1997).

The sample summary is the result of descriptive statistics for each of the predictor variables in the model. For categorical variables, the proportion of each predictor across the entire sample and subsample provided, for continuous variables the mean and standard deviations provided. There were notable similarities and differences between the full and restricted sample.

For student demographics and social cultural capital, the full and restricted samples appear relatively similar. Across both samples, students were more likely to be female, to be White, to have English as their primary language, and to have parents who did not obtain a 4-year degree. The two samples were also similar with regard to high school and college academic performance. In both samples, about one quarter of the students did not take at least Algebra 2 in high school, and just more than half of both groups earned a high school GPA above 3.0. The
average college GPA was just below 3.0 for both samples. Approximately 33% of both samples took remedial coursework during their semester at the community college.

There were proportional differences between the two samples. The restricted sample of part-time students had a larger proportion of students who never met with their advisors and a larger proportion of students who had an undeclared major. The restricted sample of part-timers also had a greater proportion of students who delayed their enrollment after high school for at least one year. Overall, students in both samples worked more than 20 hours per week, but the sample of part-time students had a higher average number of weekly hours worked.

There were also differences between the full and restricted samples in terms of the primary predictor of interest FAFSA filing status and the outcome variable of persistence. On the subject of persistence rates, 9.82% of students in the full sample did not persist to their second semester, compared to 19.43% of the restricted sample. The restricted sample also had a lower proportion of students who filed a FAFSA. The restricted sample had a FAFSA filing rate of 60.71% compared to 73.04% rate for the full sample.

The logistic regression results of the two models used in the study were odds ratios with 95% confidence to show the magnitude and directions of associations. Confidence intervals were also built in to demonstrate the error surrounding each parameter’s odds ratio point estimate and to provide evidence for statistical significance at the .05 level.

Results from the logistic regression indicate that for a majority of the predictor variables, the odds of persisting for the comparison group were not statistically different from the odds for the reference group. There was a negative association between delaying enrollment and persistence. In the full sample, students who delayed their enrollment had 42% lower odds of persisting compared to students who enrolled in the community college directly after high
school. This relationship was similar for part-time students in the restricted sample, indicating the negative association was not dependent on enrollment status.

Meeting with the advisor had a positive association within year persistence. For the full sample, students who met sometimes or often with an advisor had 43% higher odds of persisting compared to students who never met with their advisors. This relationship was not statistically significant for the restricted sample; however, this could likely be due to the increased amount of ambiguity resulting from the smaller sample size.

The logistic regression confirmed the negative association between part-time status and persistence after controlling for other relevant predictors of persistence. In the full sample, students who enrolled part-time had 77% lower odds of persisting compared to students who enrolled full time. Filing a FAFSA was positively associated with persistence across both samples. In the full sample, filing a FAFSA resulted in 79% higher odds of persisting after controlling for other predictors in the model. The positive association between FAFSA filing and persistence was even stronger for the part-time students in the restricted sample. Part-time students who filed a FAFSA had 100% higher odds of persisting compared to part-time students who did not file (McKinney & Novack, 2012).

The researchers discussed the limitations of the study within the main body of the study. The main limitation of the study was the statistical issue of self-selection bias inherent when analyzing observational data. For that reason, the analytical goal of the study was to describe the association between FAFSA filing and persistence for community college students rather than to assert causation (Murname & Willet, 2011). The statistical bias has the potential to undermine the precision of estimates, the magnitude of effects, and sometimes the direction of effects (Dowd, 2008). Due to potential bias from self-selection and omitted variables, the researchers
did not assert causation among any of the predictor variables and student persistence (McKinney & Novack, 2012).

The results from the analysis suggest failure to file a FAFSA negatively affects the ability of community college students, especially part-time to persist from the fall to the spring semester during their first year of enrollment. Delaying enrollment into community college after high school and earning a lower cumulative GPA during the first semester of college were negatively associated with persistence for both samples. Students in the full sample who had met with an academic advisor during their first semester were more likely to persist than students who did not meet with their advisor (McKinney & Novack, 2012).

The predictors in the model, FAFSA filing status had the strongest association with whether or not students persisted to their second semester. Despite the barriers, community colleges must make a concentrated effort to facilitate FAFSA filing among all students. Proactive strategies are required to communicate with students before they arrive on campus. To reduce potential self-selection bias, future research could utilize matching techniques to develop equivalent groups of fliers and non-filers before comparing their within-or-between year persistence rates. Lastly, qualitative studies that explore why community college students who are eligible for Pell Grants did not file a FAFSA would make a useful contribution to the literature (McKinney & Novack, 2012).

**Rational for the Transfer Function**

The implementations for the argument for transfer of associate degrees are countless. States that implement the efficiency model view the transfer pathway as vehicles for aligning lower-division general education and pre-major curricula across 2-year and 4-year institutions, thereby reducing course overlap and the need to repeat similar courses after transferring.
Recently, data from Arizona and Washington suggest the transfer function resulted in a significant reduction in the amount of time and number of credits earned in route to a bachelor’s degree (Hezel Associates, 2007; Cohen, Wagoner, & Kisker, 2012).

The attractiveness for the transfer function of associate degrees from the students’ perspectives provides recipients with greater elasticity and additional transfer options, as these degrees are based on general education packages and lower-division major pathways that are common across state’s community colleges and public universities. Students meeting the requirements to receive the transfer associate degree are assured that their credits will transfer and are accepted at multiple institutions, thereby, gaining a benefit that is particularly important for those students who are more interested in transferring to a specific degree program than to a particular university (Cohen et al., 2012).

As a final point, from lawmakers’ and system leaders’ perspectives the transfer associate degree is the key to increasing the number of community college-to-university transfer, as well as boosting the number of bachelor’s and other postsecondary degrees awarded annually. This outcome aligns nicely within the completion agenda set by President Obama and supported in large part by several benevolent organizations (Cohen et al., 2012).

The transfer associate degrees are not a cure-all, and the discrete and institutional challenges have kept the transfer rates about 25% nationally for the past 30 years and some researchers argue this phenomenon want be eliminated with reform strategy. The argument unfolds “that these degrees and similar reforms to statewide articulation policies are more likely to facilitate the transfer process by preventing the loss of credits and improving time to degree than they are to improve the number of percentage of students who transfer” (Cohen et al., 2012, pp. 6-7). Other scholars including Roska and Kieth (2008) argue the main purpose of
articulation reforms is to ease the process for students who have already decided to transfer, not to encourage more students to do so. This position supports the State of Florida’s no credit loss during the movement from 2-year to 4-year institutions.

**Career and Technical Degrees**

Traditionally, technical and occupational associate’s degrees were not intended to transfer toward bachelor’s degrees (Bragg 2002; Chase, 2011; Findlen, 1998; Ignash & Kotun, 2005; Townsend, 2001). The purpose of terminal education was the preparation from school to work rather than movement from a 2-year degree into a 4-year degree program. The American Association of Community and Junior Colleges, by publishing a statement on the associate’s degree, reiterated this paradigm in 1984, designating the Associate of Arts (AA) and Associate of Science (AS) as degrees that prepare students to transfer to 4-year institutions, and the Associate of Applied Science (AAS) for students planning immediate employment after graduation. In 2000, one third of students with technical degrees indicated the desire to transfer, and many of the students are transferring in spite of the many barriers in place (Chase, 2011; Findlen, 1998; Ignash & Kotun, 2005; Townsend, 2001). AAS students encounter a plethora of transfer barriers, including lack of financial aid, inflexible class scheduling, and unreliable academic advising (American Association of Community Colleges, 2004; Chase, 2011; Deil-Amen & Rosenbaum, 2003; Dougherty, 1987). Also compounded by additional transfer barriers, including credit transfer policies that exclude technical credits and restrictive articulation agreements that typically result in substantial credit loss (Bragg, 2002; Chase 2011).

The Lumina Foundation for Education in September of 2010 organized an assembly of 115 experts in higher education and workforce development, a number of them from state educational agencies throughout the United States to discuss *Applied Baccalaureate*
Developments and Future Implication over a two-day session. The development of community colleges in the United States, occupational/technical degrees were often considered lesser degrees than transfer academics degrees because they were *terminal*, a term according to scholars, that should have been retired years ago (Cohen & Ignash, 1993).

For the issues surrounding the ongoing debate of transfer of students in occupational and technical programs, and the articulation of the credits in these programs, the solution can be found at least, in part, because articulating applied associate (AAS) degrees (or non-liberal arts degrees, or occupational/technical degrees) tests the views of the curriculum. It obscures the lines between what is considered *applied versus academic*, what *general education* is, and how knowledge is structured.
Chapter 3

Methods

The purpose of this study was to examine the predictors and pre-transfer navigation experiences of community college students enrolled in Associate of Arts (AA), Associate in Science (AS), or Associate in Applied Science (AAS) degrees with transfer intent to Florida’s public universities. The parts of this chapter describe the research design, participants and setting, instrumentation, ethical concerns, the data analyses, and a summary.

Research Design

This study used nonexperimental, correlational research design that combined methodological triangulation to examine the predictors of transfer intent and pre-transfer experiences of transfer navigation for community college students enrolled in AA, AS, and AAS programs in two of the 28 community colleges within the state of Florida. The study attempted to examine the relationship between academic degree policy, articulation policy, transfer services, and transfer navigation of the AA, AS, and AAS students. According to Cohen and Ignash (1993) and Ignash and Kotun (2005), research indicates students who are seeking the terminal degree are transferring to other institutions; however, there continues to be a lack of transfer services, transfer information, and transfer support for those students.

The variables of interest in this study were not manipulated; therefore, the research was nonexperimental research (Gall, Gall, & Borg, 2007). The suitability of this design fits
appropriately with the survey strategy, in-person interviews, and the form of the research questions that requires no control over behavioral events and focuses on contemporary events (Yin, 1994).

**Participants and Setting**

The settings for the study were two community/state colleges located in the northeast region and central region of Florida. Both colleges continue to focus on transfer as a primary function of the institutions. The college located in the northeast region was a multisite campus with a total enrollment of 11,071 students for fall semester 2013-2014 across all campus sites; 6,088 students were enrolled in the Associate of Arts (AA) transfer program and 2,399 were enrolled in the Associate of Science (AS) nontransferable programs also known as the school-to-work degree. Student campus demographics for fall semester 2013 indicated that student ages ranged from 16 to 60 years (*The Fact Book*, 2013, 2015).

The college located in the central region of the state was a multi-site campus with a total enrollment of 17,664 students for fall semester 2013-2014. This college offered the Bachelor of Applied Science, Associate in Applied Science, Associate in Science, and Associate in Arts degrees. Across all campus sites, 5,701 students were enrolled in the Associate of Arts (AA) transfer degree and 2,094 students were enrolled in the Associate of Science (AS) nontransferable program also known as the school-to-work degree. Degree-seeking individuals were an average of 26 years of age (*The Fact Book*, 2013, 2015).

**Participant selection.** The accessible population for this study included students enrolled in AS/AAS/AA degree programs. Specific courses were selected to survey students who had attended at least one semester at the participating colleges. Only students in credit
courses offered during the fall of 2013 semester were invited to participate in the study—non-credit courses were specifically excluded from this study.

**Instrumentation**

Science, technology, engineering, and mathematics (STEM) student success literacy survey. This study adapted the STEM Student Success Literacy Survey (SSLS) to answer the research questions (Myers et al., 2012). The SSLS is a 63-item questionnaire developed by a research team that included Professors S. S. Starobin, Assistant Professor, School of Education and Director of Office Community College Research and Policy at Iowa State University, Professors F. S. Laanan and D. Russell (personal communication, S. S. Starobin, July 2013). This study was in equal partnership, collaboration, and approval with the School of Education Office of Community College Research and Policy at Iowa State University research team of Starobin and Lopez (Iowa State Institutional Review Board, 2013). In order to determine whether the tool was useful for drawing meaningful inferences from the data used in the study a Scale Reliability Analysis was conducted returning a Cronbach Alpha = .706 in the acceptable range. The purpose of the instrument was to measure Community College Students Self-Efficacy, Social Capital, and Transfer Knowledge. The objective of the study was to determine the level of literacy of community college students regarding their transfer readiness for obtaining a baccalaureate degree in STEM fields (Johnson, Starobin, Laanan, & Russell, 2012).

The researcher selected the SSLS for the current study after close examination of the Florida Department of Education website STEM Initiatives in Community Colleges: A Program Review (2007). The general introduction illuminates future workforce demands; all students must have a solid foundation in science, technology, engineering, and mathematics (STEM). STEM education in the community college is an applied science or terminal degree pathway
(AS/AAS) from school to work. The STEM initiatives allowed Florida community colleges to offer Associate in Science programs that prepare students for entry into select STEM careers. Moreover, according to *A Guide for Florida’s Public Schools* (n.d.), STEM programs of study are typically classified based upon four occupational clusters: computer technology; mathematical sciences; engineering; and natural, physical, and life sciences (STEM Initiatives in Community Colleges, 2007); therefore, making the SSLS survey an appropriate fit for this study. See Appendix A for a copy of the survey used in this study.

Questionnaires have two advantages for the study: the cost of sampling respondents over a wide geographic area is lower and the time required to collect the data typically is much less. Questionnaires do have disadvantages in that there is no deep probing into respondents’ beliefs, attitudes, and inner experiences. Furthermore, after the questionnaire has been distributed, it is not possible to modify the items (Gall et al., 2007).

**Self-report measure.** The questionnaire for this study was a self-report measure using Qualtrics online survey platform for the study. Qualtrics is a web-based survey tool used to conduct survey research, build surveys, send surveys, and analyze responses. The questionnaire asked participants to reveal their thoughts, feelings, and understanding of the items in the questionnaire.

**Standards of validity and reliability.** The questionnaire for the study did strive to meet the same standards of validity and reliability that apply to other data-collection measures in use for educational research. The 1999 *Standards for Educational and Psychological Testing* Standards defines validity “as the degree to which evidence and theory support the interpretation of test scores entailed by proposed uses of tests” (p. 195). Reliability of the instrument refers to the degree to which measurement error is absent from the scores yielded by the test (Gall et al.,
Objectivity refers to whether scores are undistorted by bias of the individuals who administer and score it. Standard conditions of administration and scoring are appropriate, because these will increase its objectivity. Therefore, the questionnaire had a well-developed guide that specified the procedures to follow that might affect an individual’s reported measures (Gall et al., 2007).

The development of the SSLS advanced from two previous questionnaires. Pace’s (1979, 1998) College Student Questionnaire (CSEQ) and the Community College Student Experiences Questionnaire (CCSEQ). The CSEQ original design was a set of scales to measure the quality of effort students put into using campus services and prospects for learning and development provided by the college. The final questionnaire that guided the development of SSLS was from the Laanan Transfer Students’ Questionnaire (L-TSQ); Laanan co-developer of the SSLS Questionnaire (Laanan, 2004).

Pace (1998) developed a subsequent instrument explicitly for students at 2-year colleges. This instrument became known as the Community College Student Experiences Questionnaire (CCSEQ) and focused on what students do in college and what conditions in college influence what they do and what they achieve. For the development of the SSLS, only selected scales were used from the L-TSQ, CSEQ, and CCSEQ. After variations of the items were completed, the reliability coefficients, including the new items, were calculated and demonstrated a high degree of reliability range (.81 to .94). Consequently, with the modifications of the instrument, the scale was determined to be reliable and valid (Laanan, 2004).

Research studies framed in classical test theory defined reliability of a test to be the degree to which measurement error is absent from the scores generated by the test. Gall et al. (2007) define measurement error as the difference between an individuals’ true score on a test
and scores that are actually obtained. Each of the procedures for estimating true scores and measurement error involves the computation of a reliability coefficient. Reliability coefficients vary between values of .00 and 1.00 with 1.00 indicating perfect reliability of the test scores and .00 indicating no reliability (Gall et al., 2007).

The research team of Starobin, Laanan, and Russell of Iowa State University conducted a pilot study of the SSLS in the spring of 2012 with five Iowa community colleges. An open section was provided for the pilot participating colleges to customize the instrument. Data for the study were collected from students at five of the 15 community college districts within the state of Iowa. The selected colleges were representative of most regions within the state of Iowa. The students who were invited to participate in the study were enrolled in STEM-related courses in the fall of 2011 or spring 2012 school semesters. The study had a response rate of 565 students and 275 students completed 100% of the survey. The data from the 2012 study were analyzed using descriptive statistics, a Pearson correlation, and an independent samples t test (Johnson et al., 2012).

The L-TSQ instrument was field-tested by Laanan on a large urban campus of a public research university located in Southern California. The researcher compiled data from over 700 transfer students from 64 California community colleges to the research university between 1994 and 1995 (Laanan, 2004, 2007). Standards for Educational and Psychological Testing (Standards, 1999) defines validity as the degree to which evidence and theory support the interpretation of test scores entailed by proposed uses of the tests. Standards distinguish five key indicators to demonstrate validity evidence: (a) test content, (b) response processes, (c) internal structure, (d) relationship to other variables, and (e) consequences of testing (Gall et al., 2007).
During the development of psychometric properties of the L-TSQ, the researchers examined factor structure using Exploratory Factor Analysis (EFA) on the community college and university variables as a data reduction technique, and support was found for internal consistency and test-retest reliability. According to Gall et al., factor analysis is one the most widely used techniques in multivariate research, due to the large number of variables often included in a single study. Researchers often utilize factor analysis as an empirical method for reducing variables to a few factors by combining variables for which the correlation is moderate to high. By doing so, each set of variables combined becomes a factor. This combination of variables is in fact a mathematical expression of the mutual element in the variables that are now combined (Gall et al., 2007).

Laanan (2004) used an exploratory factor analysis (EFA) for the development of psychometric measures as a data-reduction technique; therefore, the basic assumption was that dimensions or factors can be used to explain complex phenomena; however, the goal was to identify not-directly-observable factors based on a set of observable variables. Gall et al. (2007) argue that EFA is used to determine if one or more constructs (the factors in factor analysis) underlie individuals’ scores on a set of measures or on a set of items. However, confirmatory factor analysis (CFA) takes the data analysis a step further. This involves factor analysis to test alternatives to determine whether the constructs posited by a theory actually exist and can be distinguished from each other. According to Gall et al., many researchers argue that CFA is a more rigorous analysis, because it starts with constructs and ends with the confirmation or disconfirmation of their existence, while factor analysis starts with data and ends with the discovery of constructs.
Laanan (2004, 2007) stated that the purpose of testing the instrument was to establish the face validity of the instrument and to improve the questions, format, and scale. Face validity is defined as the degree to which the items appear to measure what the instrument purports to measure (Gall et al., 2007). 

Laanan administered the questionnaire to 25 community college transfer students at a public university located in Southern California. The participants for the study were asked to comment on the wording of the questions, organization, relevance of items, and length; hence, establishing face validity of the instrument.

Content validity is the degree to which the items measure the content they were intended to measure. The researcher achieved content validity from a previous pilot study conducted by Laanan (1995) and feedback from the 25 students who were used to pilot test the instrument. To ensure validity would withstand scrutiny, Laanan (2004, 2007) consulted with psychometricians, scholars, and researchers to validate the content and construct of the survey instrument.

In-person structured interviews. The second method used to collect data for the study was structured interviews to supplement the data collected via the SSLS survey. These were structured interviews to produce evidence to confirm the findings from the SSLS survey. One advantage of these structured interviews over the questionnaire is that response rate can be increased because the interaction with individuals can reduce the number of useless or missing data (Gall et al., 2007). The structured in-person student interviews consisted of three student participants using an interview guide with 38 questions. See Appendix B for a copy of the student interview guide. The structured interview guide for three advisors was comprised of 23 questions. Three advisors participated; two were selected from a university in the central region because they had a standing student transfer center and one advisor from a university in the
central west region that had recently closed their transfer center. Two advisors were interviewed in person and one via telephone. See Appendix C for a copy of the advisor interview guide.

The final attempt to collect data was the telephone interview. Because the interviewee was selected from college personnel, reaching the respondent by telephone was easier than to having to revisit the physical location. The items used for the telephone interview were identical to those used in the in-person interview (see Appendix C).

**Data Collection**

**Time line.** After obtaining approval from the University of South Florida Institutional Review Board (IRB), the researcher contacted the colleges selected for the study to obtain informed consent. See Appendix D for a copy of University of South Florida IRB approval form. The colleges received an explanation of the questionnaires, survey interviews, and procedures used and a letter describing the research and conditions of their participation. The accessible population included students enrolled in AA/AS/AAS at the selected colleges’ degree programs. The survey was initially sent to the students in late spring 2014.

**Materials used in the study.** The researcher adapted the SSLS survey from Iowa State University a 63-item questionnaire using the web-based Qualtrics survey system to ask the same questions of all colleges and individuals in the sample. The participants recorded their answers electronically. The web-based questionnaire required the usage of a computer, software, and internet provider. The in-person structured interviews required an interview guide, laptop, and digital recording software to record the participant’s response. The telephone interview was conducted over digital fiber network with an interview guide, laptop, and digital recording software to record the participant responses. See Appendix E for a copy of the Iowa State University IRB approval form.
Procedures. The researcher gained access to the community colleges selected for the study by contacting each institution individually. Pre-contact letters/emails were sent during the summer term of 2013 and the beginning of the fall term 2013 to Deans/Department Heads of the 28 state/community colleges. See Appendix F for a copy of the pre-contact letters/emails to the Deans/Department Heads. Follow-up phone calls were conducted with the Dean of Nursing northeast region college during spring and summer 2014 to solicit students for the in-person interviews. During the fall term 2013, the researcher visited central region college main campus site to meet with two administrators to gain entry and discuss research plans.

The selected college representatives sent the invitation to participate in the study via email to students meeting the criteria established by the researcher. The invitation to participate also served as the letter of consent for participation in the study.

The researcher emailed SUS advisors based on the following criteria: geographical proximity to the study, transfer center located on the campus site, and the advisors worked with adult transfer students. Emails were sent during the spring and summer of 2014 requesting in-person structured interviews to SUS advisors that met the above criteria and three transfer advisors agreed to participate in the study. See appendix H for a copy of the invitation to participate.

Central region student survey. During late spring term 2014, after receiving IRB approval from all colleges participating in the study, Iowa State University research team members launched the study with the college in the central region. The administrator received the Qualtric Survey Link to review from Iowa State University. After the review was complete, the administrator sent an email that he was sending the link to the survey to all students who meet the selection criteria via the institution’s Qualtrics Survey Software List Serv. See
appendix G for a copy of the student invitation to participate. From the link, students received directions on how to complete the survey, which took them directly to the web-based 70-item questionnaire. Each student who participated had the option to start, save, and comeback to finish the survey.

The participants recorded their electronic responses to each questionnaire item. They had the ability to complete the questionnaire at their convenience. The survey remained open for approximately five weeks. Iowa State University officials closed the study during the last weeks of the spring term 2014. Early summer term 2014, the data were compiled and cleaned by Iowa State University and securely provided to the researcher electronically via each institution’s secure website.

**Northeast region student survey.** Late spring term 2014, after receiving IRB approval from the colleges participating in the study, Iowa State University team members launched the study with the college in northeast region. The administrator, who agreed to participate, provided student data names and email addresses to the Iowa State University researchers. The researchers emailed the secure link to students giving directions about how to complete the survey and taking the students directly to the web-based 70-item questionnaire. Each student who participated had the option to start, save, and return to finish. The questionnaire remained open for approximately five weeks.

**Student confirmation interviews.** The Administrator/Dean and instructors/professors of nursing recruited two students to participate in the structured confirmation interviews. The interviews were conducted in person on the main campus in the nursing department and lasted approximately 44 minutes. The interviews were conducted from an interview guide (see
Appendix B) and were recorded using a laptop and digital recording software, securely stored under a password and biometric protection.

**Ethical Concerns**

Because this research involved human beings, there were key ethical concerns that had to be considered during the entire study. Consent was one of the key issues for researchers; researchers were required to inform each participant in the study how information from the survey/interviews will be protected, and the intended use of the research data collected. The researcher was also concerned with the risk-benefit ratio, which is the balance between how much risk the participants would be exposed to and how much good was likely to result from the study (Gall et al., 2007).

It was essential that participant selection be equitable, such that each individual in the available population had a reasonable chance of being in the sample. Another important key issue was the maintenance of privacy and confidentiality of the participants as it was important to minimize the number of individuals who knew the identity of the research participants. The requirement was to inform participants at the beginning of the study that only the researchers would have access to the data. The requirement for further protection of privacy and confidentiality established a higher level of protection by not using names of individuals or locations in publications that may result from the research project without agreement by all parties (Gall et al., 2007).

The researcher for the study obtained informed consent from the participants. Each participant received a letter specifying the research objectives and the conditions of their participation. The letter was drafted in accordance with the language guidelines that were understandable and sensible. Each participant received an explanation of the applied research
procedures including information regarding withdrawal. The letter also explained to the participants that participation was important and desirable and that it was to his or her advantage to cooperate (Gall et al., 2007).

The researcher provided safeguards to all participants meeting the required characteristics and any individual in the available population had a reasonable chance of being in the sample by sending an email from the college Qualtrics web-based survey tool to the student population of the community college (Gall et al., 2007; Qualtrics, 2013).

In order to protect the participants’ confidentiality, the researcher considered the following steps to be essential and applied the safeguards according to Gall et al. Participants provided the information anonymously. In order to collect the sample and data, a third party was utilized for the process. The participants were instructed to use an identifier, such as an alias or code numbers and informed how the data would be destroyed when the study was complete.

**Data Analysis**

IBM SPSS Statistics 22 Software was used to examine the bivariate relationships between each of the 240 variables measured by the questionnaire (predictor variables) and students’ intent either to transfer or not to transfer (dependent variable). The variables captured by the SSLS questionnaire were: (a) social demographics, (b) background information, (c) community college experiences, (d) campus transfer center experiences, (e) experiences with the transfer process, (f) experiences with pre-transfer counseling, (g) experiences with campus services, (h) enrollment type, (i) courses completed, and (j) courses enrolled in. The rationale for including these variables was the postulation that there was an association among these activities and student intent to transfer.
Summary

The purpose of this study was to examine the predictors and pre-transfer experiences related to transfer navigation of AA/AS/AAS adult students with transfer intent based on numerous studies that supported the finding that the applied associate degree did transfer, although it was usually viewed as a terminal degree. The focus of this study was adult students enrolled in two of the 28 community colleges degree programs in the Florida College System with intent to transfer to a state university. This chapter summarized the study’s research questions, population, instrumentation, data collection, variables and constructs examined, and method of data analysis. The study employed a nonexperimental research design using a survey designed from several nationally known and validated survey instruments.
Chapter 4

Results

The purpose of this study was to examine the predictors and pre-transfer navigation experiences of community college students enrolled in Associate of Arts (AA), Associate in Science (AS), or Associate in Applied Science (AAS) degrees with transfer intent to Florida’s public universities. This chapter presents the research design, data sources, profile of the respondents, analysis of the survey data, in-person structured interviews, discussion of the results of the statistical analysis, and observations.

Research Design

The research design for the study was nonexperimental. Participants were adult students enrolled in two of the 28 community colleges degree programs in the Florida College System.

The questions addressed by this study were:

Research question 1. What is the relationship between all survey questions and intent to transfer the AS degree, AAS degree, or AA degree from the state/community college to a Florida public university?

Research question 2. What are the pre-transfer navigation experiences for AA, AS, or AAS students at their current college?
**Data Sources**

The two data sources for this study included questionnaires and structured interviews from the State/Community College System of Florida, located within the northeast and central regions of the state, provided total student enrollment data for this study. The northeast region had a total enrollment of AA \((n = 6,088)\), AS \((n = 2,399)\) and central region AA \((n = 5,701)\), AS \((n = 2,094)\) for the school year 2013-2014. Out of that sample respondents were as follows: the northeast region had participants of AA \((n =14)\), AS \((n = 59)\), AAS \((n = 2)\), other \((n = 4)\) respondents. The central region had participants of AA \((n = 3)\), AS \((n = 17)\), AAS \((n = 2)\) respondents based on the survey launched during spring 2014. The combined data set of participants overall was AA 9.7\% \((n = 17)\), AS 43.4\% \((n = 76)\), AAS 2.3\% \((n = 4)\), and other 2.3\% \((n = 4)\). See Table 1 for student enrollment by degree type and the study participant numbers.

Table 1

*Student Enrollment by Degree Type at the Two Institutions and Study Participation by Students*

<table>
<thead>
<tr>
<th>Degree</th>
<th>Northeast Region Sample</th>
<th>Central Region Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Survey</td>
</tr>
<tr>
<td></td>
<td>(n)</td>
<td>(n)</td>
</tr>
<tr>
<td>Interview</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AA*</td>
<td>6,088</td>
<td>14</td>
</tr>
<tr>
<td>AS**</td>
<td>2,399</td>
<td>59</td>
</tr>
<tr>
<td>AAS***</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

*Note.* *AA* Associate in Arts, *AS* Associate in Science, *AAS* Associate in Applied Science
The SSLS survey was launched during the middle of spring term 2014. Because this was during the middle of the second term, there was the possibility that the low student response rate might have been the result of student fatigue and constant requests to participate in other research studies over the two academic terms (P. Usinger, personal communication, July 15, 2014).

The IRB Chair (2014) from the central region wrote in an email:

I am not surprised we have experienced a dramatic decline in response rates over the last 18 months due to over-surveying of our student population, particularly when it comes to the external college. In addition, we came to notice the length of the invitation/explanation and survey volume is in negative reciprocity to the response rate. Folks just do not want to read several paragraphs and complex statements. Rather than being able to collect the data at the beginning of the semester, processes for implementation of the study created delays in data gathering until the end of the academic year. At least one college official suggested that student fatigue toward the end of the semester might have affected the results. (P. Usinger, personal communication, July 15, 2014)

The deans, administrators, and professors of the School of Nursing in the northeast region provided two adult nursing students for the structured interviews. The senior academic advisor in the central region provided one adult student from the School of Health Sciences to obtain interview data during summer 2014. Three advisors volunteered to participate in the interviews and provide data for the study. One advisor was from a university in the central west region and two individuals were from a university in the central region.

To answer the questions addressed in this research, samples from two different state/community colleges were used. For analysis of the SSLS survey, three tests were conducted (test statistic binary logistic regression, test statistic t, and test statistic chi-square). The researcher evaluated approximately 240 possible predictors using binary logistic regression. A test of the full model against the constant model found four predictors that were statistically
significant. This indicated that the predictors were a set, which reliably distinguished between yes intent and no intent, therefore, these variables were selected for the prediction model.

Using the \( t \) test for independent groups (yes intent, no intent) to analyze approximately 240 combinations of variables, only 11 variables were significant and found to be practical for comparing yes intent and no intent.

Further testing was conducted with the test statistic chi-square of independence to determine whether there was a significant difference between the two groups with yes intent and no intent. These questions were further addressed with methodological triangulation by conducting six structured interviews.

**Research question one.** Research question one was answered with three tests (\( t \) test for independent groups, cross tabulation and chi square, and binary logistic regression) to address the predictor variables. Research question one was also answered with structured confirmation interviews with three community college students and three transfer advisors.

**\( T \) test.** Using IBM SPSS Statistics 22 Software, the \( t \) test for independent groups was performed on approximately 240 variables for testing the difference between the mean of the two independent groups of those students who indicated they had the intent either to transfer or not to transfer. The purpose was to evaluate whether the means for the two independent groups were significantly different from each other. The assumptions of the \( t \) test of independence were considered (a) the two groups were independent of one another, (b) the dependent variable was normally distributed, and (c) the variance of the test (dependent) variable in the two populations are equal (Ho, 2014).

**Cross tabulation and chi square.** Cross tabulations were conducted with IBM SPSS 22 Software on approximately 240 variables to establish a joint frequency of cases based on two
categorical variables to permit the examination of the associations between the variables. The contingency table allows for the summarizing of the data between the nominal or categorical variables in the study (Brownlow, Hinton, & McMurray, 2014).

The chi-square test of independence between variables was conducted with IBM SPSS Statistics 22 Software to determine if the two categorical variables were independent or related. Certain assumptions were considered: the data were from a random sample, there was independence between each observation recorded in the contingency table, and the expected frequency for each category should be at least five (Ho, 2014).

**Logistic regression.** Binary regression tests were performed with IBM SPSS Statistics 22 Software on approximately 240 variables in combination to predict the discrete outcome of *yes intent to transfer* or *no intent to transfer*. The objective of the tests was to predict the category of the outcome of individual cases. The dependent variable was categorical (nominal) consisting of two groups (*yes intent to transfer* or *no intent to transfer*) and the independent variables were dichotomous, discrete, and continuous. The assumptions concerning the distribution of predictor variables are not required for logistic regression (Ho, 2014).

**Demographic Profile of Respondents**

One hundred and seventy-five students participated in this study with a response rate of 10%. Incomplete and invalid cases were removed from the data set; the resulting data were used for all analyses. The valid data set included all respondents (*N* = 101), AA (*n* = 17), AS (*n* = 76), AAS (*n* = 4), other (*n* = 4), missing degree (*n* = 1). There were more females (*n* = 75, 74.3%) than males (*n* = 26, 25.7%) who participated in this study. See Table 2 for the frequency distribution and percentages by the reported degree program.
The students had a mean age of 34.09 (SD = 12.14). Most respondents of both genders (total = 89.6%, female = 74.3%, male = 25.7%) reported having an intent to transfer to a 4-year public or private university.

Table 2

*Results of Frequency Distribution and Percentages by Degree Program*

<table>
<thead>
<tr>
<th>Degree Type</th>
<th>Frequency n</th>
<th>Degree Program %</th>
<th>Valid %</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AA</td>
<td>17</td>
<td>9.7</td>
<td>16.7</td>
<td>16.7</td>
</tr>
<tr>
<td>AS</td>
<td>76</td>
<td>43.4</td>
<td>74.5</td>
<td>91.2</td>
</tr>
<tr>
<td>AAS</td>
<td>4</td>
<td>2.3</td>
<td>3.9</td>
<td>95.1</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>2.3</td>
<td>3.9</td>
<td>99.0</td>
</tr>
<tr>
<td>Missing*</td>
<td>1</td>
<td>0.6</td>
<td>1.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>102</td>
<td>58.3</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

*Note. N=175  *User missing data degree not specified. **No useable data.*

The students had mean grade point average of 2.66 (SD = 1.75). Most respondents reported a grade point average of 3.25-3.74 (n = 34, 34%) and 2.75-3.24 (n = 30, 30%) during the spring 2014 semester.

**Analysis of the Survey Data**

**Test statistic binary logistic regression.** Logistic regression was used to predict categorical variable outcome (yes intent to transfer, no intent to transfer) from a set of predictor variables (research 4-year college, visit transfer center, highest degree, college chemistry). These predictors were selected as result of multiple testing of methods for the regression model (enter, forward: conditional, and forward: Wald); the predictors selected were based on the results of the forward: conditional method for the prediction model. The predicted dependent
variable was a function of probability that a particular subject would be in one of the categories. The goal was to identify which independent variable would predict yes intent or no intent to move on from the state/community college to the 4-year university.

A binary logistic regression analysis was conducted to predict intent from the dependent variable coded (yes intent = 1, no intent = 0). Intent was recoded from the survey question 45 as things stand today, do you intend to transfer to a (4-year public university, 4-year private college or university, private 2-year college, public 2-year college, not intend to transfer). 1= 4-year public university and 4-year private college or university; 0 = No intent; Missing = Private 2-year college and public 2-year college.

Binary logistic regression was conducted using the forward stepwise conditional method on approximately 240 predictors reducing the list to these four predictors (research 4-year colleges; visited 2-year college transfer center; highest academic degree; and college chemistry) to determine which were better predictors of college students’ transfer intent (yes intent or no intent). Regression results indicated the overall model for the four predictors (research 4-year colleges, visited 2-year college transfer center, highest degree, and college chemistry) was statistically reliable in distinguishing between yes intent to transfer and no intent to transfer (-2 Log Likelihood = 49.85; Cox and Snell = 0.433; Nagelkerke $R^2 = 0.577; X^2 = (df = 8) = 5.36, p > 0.5$). The model correctly classified 75.4% of the cases. Employing a .05 criterion Wald statistic, all variables significantly predicted intent.

The Nagelkerke $R^2$ of .433 indicated a relationship between prediction and grouping. The prediction success overall was 75.4% (81.3% for no intent and 69.0% for intent) to transfer. The logistic regression coefficient, Wald test, and odds ratio for each of the predictors are presented in Table 3.
Table 3

Results of Binary Regression Predicting Intent to Transfer AS/AAS/AA Degree to 4-Year College

<table>
<thead>
<tr>
<th>Predictor</th>
<th>B</th>
<th>Wald $x^2$</th>
<th>$p$</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research 4-year college</td>
<td>1.19</td>
<td>5.55</td>
<td>.01*</td>
<td>3.31</td>
</tr>
<tr>
<td>Visit transfer center</td>
<td>-1.12</td>
<td>3.95</td>
<td>.04*</td>
<td>0.32</td>
</tr>
<tr>
<td>Highest degree</td>
<td>0.84</td>
<td>5.58</td>
<td>.01*</td>
<td>2.33</td>
</tr>
<tr>
<td>College Chemistry</td>
<td>3.00</td>
<td>6.81</td>
<td>.01*</td>
<td>20.20</td>
</tr>
</tbody>
</table>

Note. $N = 58$  * = $p \leq .05$  See Appendix I for the Code Book

The odds ratio for research of 4-year institutions for each one-unit change increased the odds of intent by a factor of 3.30. Students who did more research about the various aspects of 4-year institutions to get a better understanding of the environment and academic expectations were more likely to have intent to transfer to a 4-year college or university.

The odds ratio for visit to a 2-year college transfer center for each one unit change decreased the odds of intent by a factor 0.32. Students who visited 2-year college transfer centers were less likely to have intent to transfer to a 4-year college or university than those with no intent.

The odds ratio for highest academic degree for each one-unit change increased the odds by a factor of 2.33. If there were no obstacles, what is the highest academic degree you would like to attain on your lifetime, the students with high academic aspirations were more likely to have intent to transfer to a 4-year college or university.

The odds ratio for college chemistry for each one-unit change increased the odds of intent by a factor 20.2. Students who had taken a science course in chemistry were more likely to have
intent to transfer to 4-year College or university. See Table 4 for the results of the $t$ test and intent to transfer to a 4-year college.

Table 4

*Results of $t$ Tests and Descriptive Statistics Intent to Transfer AS/AAS/AA Degree to 4-Year College*

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes Intent</th>
<th>No Intent</th>
<th>$t$</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$n$</td>
<td>$M$</td>
<td>$SD$</td>
<td>$n$</td>
</tr>
<tr>
<td>Research 4-year Colleges **</td>
<td>36</td>
<td>4.50</td>
<td>2.210</td>
<td>57</td>
</tr>
<tr>
<td>Q39.1 College Math**</td>
<td>35</td>
<td>0.31</td>
<td>0.503</td>
<td>58</td>
</tr>
<tr>
<td>Q50.1 College Algebra 1**</td>
<td>36</td>
<td>0.31</td>
<td>0.467</td>
<td>58</td>
</tr>
<tr>
<td>Q50.2 College Stats**</td>
<td>34</td>
<td>0.50</td>
<td>0.508</td>
<td>47</td>
</tr>
<tr>
<td>Q50.9 College Chemistry**</td>
<td>35</td>
<td>0.29</td>
<td>0.458</td>
<td>54</td>
</tr>
<tr>
<td>Q51.1 Hours studying for class*</td>
<td>36</td>
<td>2.14</td>
<td>1.100</td>
<td>56</td>
</tr>
<tr>
<td>Q37 Consulted with Advisor**</td>
<td>36</td>
<td>4.17</td>
<td>2.120</td>
<td>57</td>
</tr>
<tr>
<td>Q38.1 Discussed Transfer Plans*</td>
<td>36</td>
<td>3.92</td>
<td>2.180</td>
<td>57</td>
</tr>
<tr>
<td>Q38.5 Highest Degree**</td>
<td>36</td>
<td>5.83</td>
<td>1.080</td>
<td>58</td>
</tr>
<tr>
<td>Q33 Age*</td>
<td>36</td>
<td>30.30</td>
<td>11.50</td>
<td>58</td>
</tr>
<tr>
<td>Q57 Free aid*</td>
<td>36</td>
<td>3.31</td>
<td>1.390</td>
<td>58</td>
</tr>
</tbody>
</table>

*Note. * $= p \leq .05$ **For questions as they appeared on the survey see Appendix A.*
**Test statistic** $t$. The $t$ test for independent groups was utilized to test the means of the two independent groups (yes intent, no intent) using one independent (grouping) variable and one dependent variable, thereby testing approximately 240 possible combinations. Only 11 variables with significance were found to be practical for comparing yes intent and no intent.

The assumptions of the $t$ test were not violated: the two groups were independent of one another, the dependent variable was normally distributed, and the distribution of the dependent variable for the one group had the same variance as the distribution for the other group being compared.

The results of the two-independent samples $t$ tests for yes intent to transfer and no intent to transfer experiences were conducted with the following categorical variables (research 4-year colleges, college math, college algebra I, college statistics, college chemistry, hours studying for class, consulted with advisor, discussed transfer plans, and highest degree, age, free aid). The scale used in the study was developed to measure community college students’ self-efficacy, social capital, and transfer knowledge. Initial test items consisted of strongly disagree, disagree, slightly disagree, neither agree nor disagree, slightly disagree, agree, and strongly agree.

The 36 student respondents in the intent group ($M = 4.50, SD = 2.21$) and the 57 student respondents in the no intent group ($M = 2.70, SD = 1.77$), students with intent demonstrated significant interest in researching various aspects of 4-year institutions to get a better understanding of the environment and academic expectations $t(91) = 4.33, p = .01$; which was as expected, for students with intent to transfer.

The 35 student respondents in the intent group ($M = 0.31, SD = .471$) had taken significantly fewer College Mathematics courses then the 58 student respondents in the no intent
group \((M = 0.53, SD = .503)\); mathematic courses are a general education requirement for transfer students \(t(75.57) = 2.13, p = .03\); this was unforeseen for students with intent to transfer.

College Algebra I Mathematics course work of the 36 student respondents in the group with intent \((M = 0.31, SD = .467)\) had significantly different math experiences then the 58 student respondents in the group with no intent \((M = 0.66, SD = .479)\); as before mathematic courses are a general education requirement for transfer students \(t(92) = -3.70, p = .01\); this was unanticipated for students with intent to transfer.

College Statistic Mathematics course work for the 34 student respondents in the group with intent \((M = 0.50, SD = .508)\), was not significantly different from the 47 student respondents with no intent to transfer \((M = 0.28, SD = .452)\); mathematic courses are a general education requirement for transfer students \(t(66.14) = 2.04, p = .45\).

The group with intent was composed of 35 student respondents \((M = 0.29, SD = .458)\), who had significantly different course-taken patterns then the 54 student respondents with no intent \((M = 0.07, SD = .264)\), since science courses are general education requirements for transfer students \(t(48.8) = 2.48, p = .01\). This was as anticipated for students with intent to transfer.

The hours studying for class by the 36 student respondents in the group with intent \((M = 2.14, SD = 1.10)\) had invested significantly fewer study hours then the 58 student respondents with no intent \((M = 2.79, SD = 1.25)\). The hours invested in class preparation is important to student success \(t(92) = -2.51, p = .01\). The fewer hours spent in class preparation was not expected for students with intent to transfer.

The 36 student respondents in the intent group \((M = 4.17, SD = 2.12)\), who consulted with an advisor were significantly more likely than the 57 student respondents in the no intent
group \( (M = 3.23, SD = 1.73) \). Meeting with an advisor is important for students' academic and transfer success \( t(91) = 2.33, p = .02 \). It was as expected that students with intent to transfer would seek out information from advisors.

In addition 36 student respondents in the intent group \( (M = 3.92, SD = 2.18) \) who discussed transfer plans with an advisor had a significantly higher difference than the 57 student respondents did in the group with no intent \( (M = 2.79, SD = 1.65) \). Meeting with advisors and discussing transfer plans is important for successful movement from the community/state college to the 4-year college \( t(60.09) = 2.65, p = .01 \). It was anticipated that students with intent had more discussions regarding transfer from the community/state college to the 4-year college.

For the highest academic degree one would like to earn, the 36 student respondents in the intent group \( (M = 5.83, SD = 1.08) \) had a significantly higher difference for students who had high academic intent than the 58 student respondents in the group who had no intent \( (M = 5.17, SD = 1.33) \). High academic intent is fundamental to high transfer intent \( t(92) = 2.52, p = .01 \). This was as expected that high academic intent was related to high transfer intent.

For the 36 student respondents in the intent group age \( (M = 30.3, SD = 11.5) \), there was a significant difference in age compared to the 58 student respondents in the no intent group age \( (M = 35.9, SD = 11.3) \). Age was significant \( t(92) = -2.36, p = .02 \). The expectation was that older students would have a higher intent to transfer.

Free financial aid is fundamental to student successful transfer, the 36 student respondents with intent \( (M = 3.31, SD = 1.39) \) had a significant difference in free aid; compared to the 58 student respondents \( (M = 4.02, SD = 1.86) \); free aid \( t(92) = -1.97, p = .05 \). The expectation was that students with intent to transfer would request and receive more free aid to cover educational expenses.
Test statistic chi square/crosstabs. The chi-square test of independence and crosstabs were conducted to determine whether the following nominal/categorical variables (degree program, spoke with advisors at 4-year colleges, consulted with an advisor, research 4-year colleges, highest degree, hours studying, gpa, college chemistry, college statistics) were independent or related to the yes intent/no intent. The assumptions of the chi-square test (random sampling was not required, independent observations, mutually exclusive row and column variable categories that include all observations, and large expected frequencies) were considered during the test.

A chi-square test was conducted to assess whether students enrolled in AS/AAS/AA degree programs had intent to transfer to a 4-year college. The results were found to be significant, \( X^2 (3, n = 94) = 8.14, p = .04 \). The proportion of student respondents with intent to transfer the AS was 61.1%, which was greater than the AA student respondents (30.6%) were. The AA is defined as the transfer degree by the State of Florida Board of Education. The proportion of student respondents for the AAS was 5.6%. The AS/AAS is defined as the school-to-work degree which is nontransferable by the state of Florida Board of Education. There is a caveat with the AS degree in that the state of Florida Legislature authorized only nine of the AS degrees to have pathways to the BAS degree. The results suggest there is a relationship between degree type and intent to transfer to a 4-year college. It appears AS students are transferring at higher proportions then students in the AA or AAS degree programs.

To evaluate if students with intent to transfer spoke with advisors at 4-year colleges, a chi-square test was conducted. The results were found to be significant, \( X^2 (5, n = 93) = 11.3, p = .04 \). The proportion was greater for no intent student respondents (38.6%) who spoke with advisors at a 4-year college strongly disagreed and for intent (30.6%) disagreed, they did not
speak to advisors at 4-year colleges. Only (11.1\%) of the student respondents with intent agreed that they with spoke to advisors at 4-year colleges and (8.3\%) with intent strongly agreed with spoke to advisors at 4-year colleges. These results suggest there is a relationship between speaking with advisors and intent. It appears students were not seeking advice from advisors regardless of whether they have intent or no intent.

To evaluate whether state/community college students consulted with an advisor regarding their intent to transfer, a chi-square test was performed. The findings were not significant $X^2_{MH} (1, n = 93) = 5.19, p = .23$. The greater proportion of respondents (42.1\%) with no intent neither agreed nor disagreed that they consulted with advisors and respondents with no intent (26.3\%) strongly disagreed with the statement that they had consulted with an advisor. The proportion of respondents with intent (19.4\%) who strongly agreed with consulted with an advisor and respondents with intent (25.0\%) neither agreed nor disagreed consulted with an advisor. The results from the tests suggest that there is no relationship between consult with an advisor and intent. Respondents with intent or without intent were not seeking information from advisors.

A chi-square test was conducted to evaluate whether students with intent to transfer researched 4-year colleges to obtain information regarding the transfer process. The findings were significant $X^2 (5, n = 93) = 25.7, p = .01$. The inordinate proportion of respondents with no intent to transfer (40.4\%) strongly disagreed with researched 4-year colleges and (33.3\%) of the no intent to transfer respondents neither agreed nor disagreed. The respondents with intent to transfer (33.3\%) agreed with researched 4-year colleges with another (16.7\%) of the respondents strongly agreed with intent to transfer. The results suggest there is a relationship between researched 4-year colleges and intent. The inordinate proportion of respondents did not research
4-year colleges, but there were some students with intent to transfer conducting research on 4-year colleges.

Student intent to transfer was scrutinized by gpa with the chi-square test. The results were significant $X^2(5, n = 94) = 12.5, p = .02$. The higher proportion of the respondents (39.7%) had no intent to transfer had a gpa of 3.25-3.74; however (30.6%) of the respondents with intent had a gpa of 2.75-3.24. Within the highest gpa range of 3.75-4.00 (17.2%) the respondents had no intent to transfer and within the same range (27.8%) of the respondents had intent to transfer. The results suggest there is a relationship between gpa and intent. Respondents within the highest gpa range of 3.75-4.00 had greater intent to transfer. Respondents within the range of gpa 3.25-3.74 had no intent to transfer.

With the majority of the respondents in the sample enrolled in AS degree programs that were not codified by the Florida Legislature as transfer degrees the highest degree respondents aspire to obtain was explored with chi-square evaluate transfer intent. The results were significant $X^2_{MH}(1, n = 94) = 5.97, p = .01$. The higher proportion of respondents (39.9%) with intent planned to earn a MA/MS degree. The next highest proportion of respondents (33.3%) with intent planned to earn at least a BA/BS/BAS or more. The proportion of respondents (37.9%) had no intent beyond the BA/BS/BAS. The findings suggest there is a relationship between highest degree and intent. The majority of the respondents had enrolled in nontransferable degree programs do have intent to transfer to 4-year degree programs and beyond.

To determine if hours of study time students’ invested in class preparation had an influence on students’ intent to transfer a chi-square test was conducted. The results were not significant $X^2_{MH}(1, n = 94) = 5.92, p = .15$. The greater portion of respondents (36.1%) with
intent to transfer had a study time in hours six to 10 hours per week. For the respondents (29.3%) with no intent to transfer invested study time in hours 11 to 15 per week. The results suggest there is no relationship between hours of study time and intent. Respondents with no intent are investing more hours in class preparation.

To evaluate students ‘course taking behavior in the natural sciences (college chemistry) and the impact on intent to transfer a chi-square test was conducted. The results was significant \( X^2 (1, n = 89) = 7.17, p = .07 \). The larger proportion of respondents (92.6%) with no intent to transfer did not take college chemistry. The smaller proportion of respondents (71.4%) with intent to transfer did not take college chemistry. Only (28.6%) of the respondents with intent had taken college chemistry. The results suggest there is a relationship between college chemistry and intent. Only a very small proportion of respondents with intent to transfer had taken college chemistry.

To ascertain students’ course taking behavior in mathematics (college statistics) and the influence on intent a chi-square test was conducted. The results was significant \( X^2 (1, n = 81) = 4.22, p = .04 \). The greater proportion of the respondents (72.3%) had no intent to transfer had not taken college statistics. The smaller proportion of the respondents (50.0%) with intent had taken college statistics. The results suggest there is relationship between college statistics and intent to transfer. Students with intent to transfer had taken college statistics.

**In-person Structured Interviews**

In-person structured interviews were conducted with three students and three transfer advisors. The interviews included two students from the northeast region and one student from the central region. The two students from the northeast region were interviewed at the same location, day, and time. The student from the central region was a single interview. The advisor
interviews from the central region university were conducted separately one in-person on the campus at the transfer center and the other via phone. The final advisor interview was conducted on campus at the university located in the central west region of the state. Advisors names are pseudonyms for all quotes in the study.

**Student interviews.** Three students participated in the interviews: one female and two males. Student respondent one (SR1) was female (age = 53) and student respondent two (SR2) male (age = 57). See Table 5 for student interviews for those items.

Table 5

*Responses to Student Structured Interview Questions to 4-year College*

<table>
<thead>
<tr>
<th>Question</th>
<th>Student Respondent</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your first semester in this college*</td>
<td>SR1</td>
<td>No</td>
</tr>
<tr>
<td>(SQ1)**</td>
<td>SR2</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>SR3</td>
<td>No</td>
</tr>
<tr>
<td>How many credit hours taking*</td>
<td>SR1</td>
<td>9</td>
</tr>
<tr>
<td>(SQ2)**</td>
<td>SR2</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>SR3</td>
<td>12</td>
</tr>
<tr>
<td>What mathematics courses taken*</td>
<td>SR1</td>
<td>Intro &amp; College Algebra, Stats, Calculations</td>
</tr>
<tr>
<td>(SQ3)**</td>
<td>SR1</td>
<td>Intro &amp; College Algebra, Stats, Calculations</td>
</tr>
<tr>
<td></td>
<td>SR1</td>
<td>Development Math</td>
</tr>
<tr>
<td>What science courses taken*</td>
<td>SR1</td>
<td>AP I II, Chem, Micro Bio</td>
</tr>
<tr>
<td>(SQ4)**</td>
<td>SR2</td>
<td>AP I II, Chem, Micro Bio</td>
</tr>
<tr>
<td></td>
<td>SR3</td>
<td>AP I, Zoology I</td>
</tr>
<tr>
<td>Attended transfer orientation*</td>
<td>SR1</td>
<td>No</td>
</tr>
<tr>
<td>(SQ21)**</td>
<td>SR2</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>SR3</td>
<td>No</td>
</tr>
<tr>
<td>Visitation 2-year College Trans Ctr*</td>
<td>SR1</td>
<td>No</td>
</tr>
<tr>
<td>(SQ26)**</td>
<td>SR2</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>SR3</td>
<td>No</td>
</tr>
<tr>
<td>Spoke to transfer students*</td>
<td>SR1</td>
<td>Yes</td>
</tr>
<tr>
<td>(SQ25)**</td>
<td>SR2</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>SR3</td>
<td>No</td>
</tr>
</tbody>
</table>

*Note.* See Appendix A for survey questions. **See Appendix A for SQ1-4, SQ21, 25, 26.
The participants were from the northeast region and were cohorts in the AS nursing program attending the same state/community college. Student respondent three (SR3) was a male (age = 50) from the central region from a different state/community college enrolled in the AS physical therapist assistant program. All respondents were adult students (age $M = 53.3$); these participants were considered full-time students taking 9-12 credit hours.

All respondents who participated in the structured interviews were enrolled in the AS degree program at their respective colleges. All respondents declared intent to continue at a 4-year college. All the respondents reported this was not their first semester in college. However, this was their first semester in the nursing program. Both SR1 and SR2 each had completed five prior semesters of prerequisite and general education for the nursing program. SR3 said it was not his first semester, but this was his first semester of college credit.

SR1 reported she was taking nine credit hours and SR2 was taking 13 hours within the degree program for the current semester. SR3 reported he was taking 12 credit hours within the degree program for the current semester. All the respondents were attending college full time.

All respondents had taken math courses at their respective colleges. SR1 reported she had taken introduction to algebra, college algebra, statistics, and calculations for dosages. SR2 reported he had taken the same courses. SR3 had completed his developmental math and was in his first semester of college credit at the time of the interview.

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reported he had taken the same courses. SR3 had completed his developmental math and was in his first semester of college credit at the time of the interview.

The respondents SR1 and SR2 reported they had completed their science requirements with courses in human anatomy and physiology 1 and 2 with labs, microbiology with lab, and chemistry. SR3 reported he had taken human anatomy and physiology 1 and zoology 1. At the time of the study, he was enrolled in anatomy and physiology 2 and zoology 2.

None of the respondents reported attending transfer orientation at their respective colleges. However, SR1 and SR2 reported that they did witness orientations occurring on campus by visiting colleges, but they had not attended any sessions themselves because of class commitments.

All of the respondents reported they had not visited the 2-year college transfer center since enrolling in their respective colleges. Both colleges that participated in the study did not have a dedicated transfer center providing transfer services to the student population.

SR1 reported she had spoken with transfer students who graduated from her nursing program and had moved on to the UNF School of Nursing. SR1 said what she learned from speaking with transfer students that the commute from her current campus to UNF was excruciating and as a result, the students moved near the campus. SR2 and SR3 had not spoken with any transfer students.

**Advisor interviews.** Three advisors participated in the study two from the central region and one from the central west region. See Appendix J for Table J1 for the advisors’ responses to the structured interviews for intent to transfer.

The advisor interviewees included two females from the central region and one male from the central west. All were advisors at the university level within the State of Florida. The
The first interview was in person with advisor respondent one (AR1) who was a female located at the transfer center of the university in the central region. The second interview with advisor respondent two (AR2) was also female and was by means of telephone. AR1 and AR2 worked for the same university. The final interview was conducted with a male advisor respondent three (AR3) at a university located in the central west region at the advising center.

All administrator respondents in the study agreed that the State of Florida Transfer Process was far from seamless. Located in the central region, AR1 said what the articulation agreement provides the student may be a seamless admission process, but not necessarily graduation. AR1 believed the State of Florida seamless articulation agreement is ambiguous as written. For current students who identify themselves to be AS degree seekers, the majority of them do not know the complications of the articulation agreement for the degree. AR1 provided an in-depth explanation of students who identify as criminal justice majors and the state/community college would automatically track students into the AS degree without advisors and administrators considering how this degree will articulate within the Florida College System.

When asked about the state of Florida seamless transfer process, AR2 from the central region said, “No it is not seamless.” She said, “there are so many elements involved. For the first issue, if a student transfers with an AA degree from a Florida public institution and has not met all the prerequisites for the major, the students could face a year or more of prerequisites and, therefore, transfer is not seamless.” Sandy, K. (2014). Interviewed by A.G. Hill [Digital recording laptop]. *Doctoral Dissertation Requirement*, University of South Florida, Tampa, FL. If the student had general education and electives, but had not taken specific program courses, then it definitely was not seamless. If students were following an appropriate pathway that meets
the university requirements, then it would be seamless to a certain point. These issues are different for each institution within the Florida College System.

She also added the other issue associated with the AS to BS degree program, “is that many students feel cheated or angry because they failed to receive adequate transfer information.” Sandy, K. (2014). Interviewed by A. G. Hill [Digital recording laptop]. *Doctoral Dissertation Requirement*, University of South Florida, Tampa, FL. These degrees have 12 different AS to BS pathways and each has a different set of requirements, unlike the AA degree universal requirements where the student was not blindsided as often as the AS student. If a student enrolled in the AS criminal justice, they are taking at least 42 credit hours, which is an extremely large number of courses that are not going to transfer. The AS degree seeker completes 60 credit hours with 18 general education credits, then 42 credits hours will be within the degree program. Of these credit hours, only 12 will count upon acceptance requiring an additional 30 credit hours within degree course work at the receiving university. If the student goal is to go directly into the workforce in two years, the AS program is the correct pathway.

When asked if the Florida transfer system was seamless, AR3 responded, “No, it is not.” He provided an anecdotal story of the student in attendance at transfer orientation the week before the interview. The student was admitted for the summer term, but she believed her admission was for fall term. This error was discovered when she attempted to register during the orientation. She received a rejection of her registration, because she was required to register for summer and not fall. Because of the requirement to register for summer, financial aid was not available for the student. The advisor and student made inquiries with admissions and were informed there was nothing that could be done for the transfer student. The student was very disappointed with her experience and, upon departure, informed the advisor, “I most likely will
not return to this university.” The advisor said he did not believe the Florida College System to be seamless for all students. He said there are far too many students who were falling into the fissures of a systemic problem.

When AR1 was asked if community colleges should have transfer centers, she said, “Yes” and held up Valencia College as the model. AR1 reported Valencia College makes use of pathway models for advising with each pathway having advisors. Students on an AA pathway has specific advisors and AS pathway has specific advisors. “AA advisors will assume intent, whereas AS advisors will not.” “The caveat with the pathways is if students declare on the admission application they want to major in criminal justice, they will, by design, be tracked into the AS criminal justice program with no option to declare intent because the advisor does not speak with individual students and the assumption is no intent.” Sandy, K. (2014). Interviewed by A.G. Hill [Digital recording laptop]. Doctoral Dissertation Requirement, University of South Florida, Tampa, FL. Valencia College was working to correct this issue at the time of the interview.

AR2 said, “The advisor’s goal is to help students, but the information is very complicated, because the requirements are not the same for each institution.” However, “an office that focuses exclusively on student transfer would be helpful and meaningful.” Judy, D. (2014). Interviewed by A.G. Hill [Digital recording laptop]. Doctoral Dissertation Requirement, University of South Florida, Tampa, FL. AR3 stated, “If one of the goals is to get students in and out of the university into jobs, the institutions have dedicated career centers for that with staff on campus focused solely on that goal.” Marc, T. (2014). Interviewed by A.G. Hill [Digital recording laptop]. Doctoral Dissertation Requirement, University of South Florida, Tampa, FL. He explained if the goal were to move students from 2-year colleges to 4-year
colleges, it would be rational to have transfer centers to help students progress toward the transfer goal.

All three respondents agreed transfer information at the community/state college should be part of the curricula and introduced continuously during each semester. AR1 agreed because she argued students seek out instructors for advice because of proximity and ease before they approach their academic advisors regarding issues related to transfer success. AR1 said she believed the institution had an opportunity to develop a relationship of collaboration between advisors and instructors regarding transfer information to identify the connection of student success with the curricula and transfer intent. AR1 put forward Valencia College as the model for including transfer in the curricula.

Valencia College assimilated transfer into the curricula with student learning support (SOS) class, as part of the course requirement students’ researched institutions they had an interest in transferring to their programs. This course is available to both AA/AS degree seekers. The course was updated with requirements to have all incoming students enroll with the added focus on transfer navigation, thereby bringing more transparency to the transfer process for students. Included with the update is a one-day visit to the neighboring state university for an enrichment experience for which students tour student housing, speak to student groups, speak to colleges, speak to professors, and academic advisors. These types of collaboration between the community colleges and state universities aid in making transfer pathways successful.

AR2 said having transfer information in the curricula would be valuable in educating all stakeholders in the process, since doing so would provide a better understanding of the articulation agreement and transfer process. AR3 stated yes, “it should be included because this mirrors great leadership to begin with the end in mind and to have those transfer expectations up

All three respondents agreed there was need for seminars on transfer requirements and transfer navigation. AR1 reported in her university position, she worked specifically with East Valencia College and other regional colleges conducting transfer seminars. AR2 stated yes, “absolutely that would be a good function for the colleges.” AR3 reported upon entering the position he went to all the top feeder schools to his university. AR3 believed it would be advantageous for the students to have the information up front and doing so would provide clearer transitions and pathways from the state/community college to the university.

The respondents agreed that funding for transfer students was marginal when compared to native students. AR1 explicated there was definitely far more scholarships for freshman then transfer students coming into the university. AR2 said on the surface students are in receipt of more funding at the receiving institution, but it is not enough to cover all the fees with the scholarships fluctuating from $600 up to $700 per academic term. AR3 indicated no, that financial aid for transfer students was insufficient, but postulated there were individual cases where students received adequate transfer funding, but as a group, they do not.

**Research question two.** This question was answered using IBM SPSS 22 Software. The static chi-square and cross tabulation was conducted on 240 variables to establish a joint frequency of cases based on two categorical variables to permit the examination of the association between the variables. The contingency tables allow for the summarizing of the data between the nominal or categorical variables in the study (Brownlow, Hinton, & McMurray, 2014).
The chi-square test of independence between variables was conducted with IBM SPSS Statistics 22 Software to determine if two categorical variables are independent or related. Certain assumptions were considered, that the data were a random sample, the independence between each observation recorded in the contingency table, and the expected frequency for each category should be at least five (Ho, 2014).

**Test statistic chi square.** The chi-square test of independence was conducted to determine whether the following nominal/categorical variables (visited 2-year college transfer center*intent*degree program, met with advisor regular*intent*degree program, research 4-year colleges*intent*degree program, and discuss transfer plans*intent*degree programs) were independent or related with yes intent/no intent. The assumptions of the chi-square test (random sampling was not required, independent observations, mutually exclusive row and column variable categories that include all observations, and large expected frequencies) were considered during the test.

Brownlow et al. (2014) recommended the use of linear-by-linear association for the chi-square statistic, or likelihood ratio, when the sample size is small.

A chi-square test was conducted to assess whether AS/AAS/AA degree students had different pre-transfer/navigation experiences with visits to the 2-year community college transfer centers with intent to transfer. The results were significant for AA degree respondents, \(X^2\) LRT \((3, n = 93) = 7.74, p = .05\). The results were not significant for AS/AAS degree respondents, \(X^2\) LRT \((5, n = 93) = 4.77; p = .44; X^2\) LRT \((2, n = 93) = 2.77, p = .25\). The greater number of AA respondents (60.0%) with no intent to transfer neither agreed nor disagreed with visits to 2-year college transfer centers. The proportion of AA respondents (45.5%) with intent to transfer strongly disagreed with visits to 2-year college transfer centers. Only 9.1% of the AA degree
respondents with intent to transfer strongly agreed with visits to 2-year college transfer centers. The results suggest there is a relationship between degree type and pre-transfer/navigation experiences. It appears that AA degree respondents had different experiences then AS/AAS degree respondents.

To further, determine whether AS/AAS/AA degree students had different pre-transfer/navigation experiences by attending regular meetings with advisors, a chi-square test was conducted. The results were not significant for AA degree respondents $X^2\text{LRT}(5, n = 94) = 15.3, p = .09$. The results were also not significant for AS/AAS degree respondents $X^2\text{LRT}(6, n = 94) = 3.73; p = .72; X^2\text{LRT}(2, n = 94) = 5.54, p = .63$. The larger proportion of AA degree respondents (40.0%) with no intent to transfer slightly disagreed or neither agreed nor disagreed with regular meetings with advisors. The AA degree respondents (27.3%) with intent to transfer slightly agreed with regular meetings with advisors and 18.2% of the AA degree respondents with intent to transfer strongly agreed with regular meetings with advisors. The results suggest there is no relationship between degree types and meetings with advisors.

To further tease out whether AS/AAS/AA degree students had pre-transfer/navigation experiences, a chi-square test was conducted by discussion of transfer plans. The results were not significant for AA degree respondents $X^2\text{LRT}(4, n = 93) = 14.3, p = .06$. The results were also not significant AS/ASS degree respondents $X^2\text{LRT}(6, n = 93) = 14.3; p = .37; X^2\text{LTR}(4, n = 93) = 5.55, p = .13$. The AA degree respondents (60.6%) with no intent to transfer neither agreed nor disagreed with discussion of transfer plans had the greater number of respondents. The AA degree respondents (27.3%) with intent to transfer agreed with discussion of transfer plans. Another 18.2% of AA degree respondents with transfer intent strongly agreed with
discussion of transfer plans. The results suggest there was no relationship between degree type and discussion of transfer plans.

The final chi-square test was to determine what pre-transfer/navigation experiences AS/AAS/AA degree students had by researching 4-year colleges. The results were significant not significant for AA degree respondents $X^2$ LRT ($5, n = 93) = 11.5, p = .41$; they were significant for AS $X^2$ LRT ($5, n = 93) = 18.7, p = .02$; and not significant for AAS degree respondents $X^2$ LRT ($2, n = 93) = 2.77, p = .25$. The AA degree respondents with the larger percentage (60.0%) with no intent to transfer neither agreed nor disagreed with research of 4-year colleges. Another 40.0% of the AA degree respondents with no intent to transfer strongly disagreed with research of 4-year colleges. Of the AA degree respondents with intent to transfer, 27.3% of the respondents agreed with research of 4-year colleges and the other percentage (27.3%) of AA degree respondents strongly agreed with research 4-year colleges. The respondents with no intent in the AS degree program (39.6%) of the respondents strongly disagreed with research of 4-year colleges; however, 33.3% of the proportion of AS degree respondents with no intent to transfer neither agreed nor disagreed with research of 4-year colleges. Of the AS degree respondents, 40.9% of the respondents with intent to transfer agreed with research of 4-year colleges. Another 13.6% of the AS degree respondents with intent to transfer strongly agreed with research of 4-year colleges. The results suggest there is a relationship between degree type and researching 4-year colleges. The results further revealed that AS degree program students’ pre-transfer/navigation experiences were different then AAS and AA degree program students.

**Student interviews.** All respondents declared intent to move on to a 4-year college; however, all students were enrolled in the AS degree which is from school to work and not
codified as part of the articulation agreement. SR1 acknowledged she wanted to move on to earn a master’s degree in nursing. SR2 stated even though age was a factor, he wanted to earn a doctorate in nursing. SR3 said his intent was to earn a doctorate in allied health.

SR1 reported she did visit with advisors, but the information she received was misinformation regarding degree program and transfer. SR2 stated he conducted his own research on transfer via the internet. SR3 responded he had consulted with an advisor; however, it was not in detail and somewhat helpful. The quality of transfer information received by all respondents supported the advisors responses in the study: complexities of articulation and the need for dedicated transfer advisors.

Discussion of the Results

Research question 1. Research question 1 was analyzed with three tests the (t test, cross tabulations and chi-square, logistic regression) and in-person structured surveys. There were more females (n = 75, 74.3%) than males (n = 26, 25.7%) who participated in this study. The students had a mean age of 34.09 years (SD = 12.14). Most respondents of both genders (total = 89.6%, of that females = 74.3%, males = 25.7%) reported having an intent to transfer to a 4-year public or private university. The students had mean grade point average of 2.66 (SD = 1.75). Most respondents reported a grade point average of 3.25-3.74 (n = 34, 34%), 2.75-3.24 and (n = 30, 30%) during the spring 2014 semester. These findings support the previous survey conducted by Myers et al. (2012) and the team of researchers on intent to transfer from the community college. Their study was conducted with the state of Iowa community colleges. The descriptive analysis findings included 565 students responding to the survey; however, only 275 students completed all questions in the survey. About 70% of the respondents were female with an average age of 31 years (Myers et al., 2012).
**Test statistic binary logistic regression.** This test statistic was conducted to predict categorical variable outcome (yes intent to transfer, no intent to transfer) from a set of predictor variables (researched 4-year colleges, visited transfer center, highest degree, and took college chemistry), the predicted dependent variable was a function of probability that a particular subject would be in one of the categories. Binary logistic regression was conducted using the forward stepwise conditional method on approximately 240 predictors reducing the list to four predictors. Regression results indicated the overall model for the four predictors (researched 4-year colleges, visited 2-year college transfer center, highest degree, and took college chemistry) were statistically reliable in distinguishing between yes intent to transfer and no intent to transfer. Using the -2 Log Likelihood = 49.85; Cox and Snell = 0.433; Nagelkerke R² = 0.577; \(X^2 = (df = 8) = 5.36, p > 0.5\), the model correctly classified 75.4% of the cases. Employing a .05 criterion Wald statistic, all variables significantly predicted intent.

The findings from the odds ratio for college chemistry in the current study indicated that for each one-unit change increase, the odds ratio of intent to transfer increased by a factor of 20.2. Students who had taken a science course in chemistry were more likely to have intent to transfer to 4-year college or university. These findings are supported by the earlier work of the Los Angeles Community College District study (2010) of predicting intent and transfer that taking higher-level science course work in the natural sciences and math is a robust predictor of intent to transfer (Cabrera et al., 2010).

The odds ratio for highest academic degree for each one-unit change increased the odds by a factor of 2.33 if there were no obstacles for what is the highest academic degree you would like to achieve in your lifetime, the students with high academic aspirations were more likely to have intent to transfer to a 4-year college or university. These current findings were supported
by the research of Cohen and Brawer (1987) that suggested the formation of the question biases the answers. According to the researchers, the question is usually asked as “What is the highest academic degree you intend to obtain?” This question suggests a goal obtained sometime during the person’s life. When the question is re-written to “What is the primary reason you are attending this college at this time?” the responses change. Significantly, one-third fewer said that they were in college to prepare to transfer, while one-half said that they were in college to gain occupational skills (Cohen & Brawer, 1987).

In the current study, the odds ratio for visited a 2-year community college transfer center for each one-unit change, it decreased the odds of intent by a factor of 0.32. Students who visited 2-year community college transfer centers were less likely to have intent to transfer to a 4-year college or university than those with no intent. None of the three student respondents who participated in the in-person structured interviews reported a visit to a 2-year community college transfer center. Each student respondent had high intent. One of the respondent’s intent was to earn her B.S. in Nursing. The other two respondents’ intent was to earn at least an M.S. in Nursing and the other M.S. in Applied Healthcare. It was also uncovered during the student and advisor interviews that students lacked the information needed to transition successfully from 2-year colleges to 4-year colleges. All three advisors who participated in the study suggested the lack of transfer knowledge at the individual and institutional level is complex and having an active transfer center focused directly on the transfer mission would help with filling the gap of information.

Sorey and Duggan (2008) suggested the development of mandatory orientation and transfer programs that span the entire first semester or first year should include administrators, faculty, and advisors. These orientation programs should be required during the student’s first
semester or year at college. These orientation programs should be required during the student’s first semester or year at college. Drawing upon the evidence regarding the impact on adult student persistence in the study, the utility of a community college degree should be included as part of orientation (Sorey & Duggan, 2008).

The odds ratio for the current research of 4-year institutions for each one-unit change for research 4-year institutions increased the odds ratio of intent by a factor of 3.30. Students who did more research about the various aspects of 4-year institutions to get a better understanding of the environment and academic expectations were more likely to have intent to transfer to a 4-year college or university. These findings were supported by the Sorey and Duggan (2008) study. According to the authors, advisors should inspire student persistence through effective advising sessions that provide clear and consistent information about curriculum and institutional requirements and institutional policies and procedures (Sorey & Duggan, 2008).

**The t test for independent groups.** This t test was utilized to test the means of the two independent groups (yes intent, no intent) using one independent (grouping) variable and one dependent variable; thereby, testing 240 combinations of these combinations only seven variables were found to have significance and four were practical for the model. The results of the two-independent samples t test for yes intent to transfer and no intent to transfer experiences were conducted with the following categorical variables (research 4-year colleges, college math, college algebra I, college statistics, college chemistry, hours studying for class, consulted with advisor, discussed transfer plans, highest degree, age, free aid).

The results of two independent t tests suggested students with a high intent to transfer demonstrated significant interest in researching various aspects of 4-year institutions to get a better understanding of the environment and academic expectations. This importance of students
researching 4-year colleges was uncovered during the advisor and student structured interviews. During the student interviews, it was uncovered from the conversations with that the respondents in the nursing program who attempted to transfer from the AS degree nursing pathway to the BAS nursing degree pathway that each Florida public university had a completely different transfer articulation agreement requirement for the nursing pathway.

Students who enrolled in college statistics and college chemistry demonstrated high intent to transfer supported by their courses-taken patterns. As indicated by the LACCD (2010) study, a full-time student, who begin study at one level below transfer level English and two or more levels below transfer level math can increase the likelihood of transfer from 34.3% to 68.6% if the student perseveres and climbs the developmental ladder through college level math. Furthermore, the same student can increase the likelihood of transfer by roughly 12% by taking two science courses and one additional course, the combination of science courses will maximize a student’s likelihood to transfer (Hagedorn et al., 2010).

**The chi-square test of independence.** A chi-square test was conducted to assess whether students enrolled in AS/AAS/AA degree programs had intent to transfer to a 4-year college. The results were found to be significant, $X^2 (3, n = 94) = 8.14, p = .04$. The percentage of respondents with intent to transfer in the AS degree was 61.1%, which was greater than the AA degree respondents (30.6%). With the majority of the respondents in the sample enrolled in AS degree programs that were not codified by the Florida Legislature as transfer degrees, the highest degree respondents wanted to obtain was explored with the chi-square test to evaluate transfer intent. The results were significant $X^2 MH (1, n = 94) = 5.97, p = .01$. The higher percentage of respondents (39.9%) with intent planned to earn a MA/MS degree. The next
highest percentage of respondents (33.3%) with intent planned to earn at least a BA/BS/BAS or more. The percentage of respondents who had no intent beyond the BA/BS/BAS was 37.9%.

The above findings are supported by the Ignash and Kotun (2005) study relating to AAS degree pathways to a baccalaureate pathway that these degree programs were not designed nor intended for AS/AAS students to move on to 4-year colleges. The study underscored the continued curricular differences within the state of Florida articulation policy. AS/AAS transfer students find they are lacking credits and are required to meet additional institution prerequisite requirements when they arrive at the receiving institution. Furthermore, if the AS/AAS student did not enroll in one of the nine state of Florida articulated programs, the loss of credits becomes even more complex for the transfer student.

**In-person structured interviews.** The interviews were conducted with three students and three transfer advisors. The three student interviews were all conducted in person on campus. The advisor interviews were conducted in person, on campus, and via phone.

**Student structured interviews.** All students who participated in the structured interviews were enrolled in the AS degree program at their respective colleges. All participants declared intent to move on to a 4-year college. When asked what is the highest academic degree they would like to attain, all respondents said advanced degrees such as masters or doctorate. All participants pointed out that age was a factor for continuing to advanced studies. The participants from the northeast region were enrolled in the AA degree program because they had intent to move on. Both participants were in AS Nursing and were advised the best pathway was to earn the AA in conjunction with the AS in Nursing, because of issues with articulation for the AS in Nursing with the receiving college, even though there was a direct pathway to BS to University of North Florida (UNF). The state of Florida provisions of Rule 6A-10.024-
Articulation between universities, community colleges, and school districts’ career ladder listed nursing as one of the 12 AS to BS programs covered under the provisions by the Office of Articulation Florida Department of Education (Florida Department of Education, 2015). The student participant from the central region was enrolled in AS Physical Therapist Assistant (PTA) program, even though the provisions of Rule 6A-10.024-Articulation did not cover the program.

None of the participants had attended transfer orientation at their respective colleges. The participants from the northeast region were aware that their institution had outside colleges who hosted transfer orientation, but they said they were always in class during the scheduled activities. The respondent from the central region said he had not attended a transfer orientation and was not aware of any such activities on his campus. Both respondents from the northeast region said they had consulted with an advisor and received misinformation each time regarding transfer and program requirements.

SR1 reported the advisor told her she was on the correct degree pathway but, in fact, three more classes were required in the nursing program. SR2 reported similar experiences as respondent one. He said the advisor informed him that many of his courses, although they were general education, were out of date and he would be required to retake all of his general education courses. The respondent made inquiries as to why he was being penalized; the advisor said it was institutional policy.

SR2 also reported the institution was counting his previous outdated course work in his grade point average and against his financial aid package. Respondent two said he was very angry regarding how the institution viewed his adult student enrollment and believed the policy was draconian for returning adult students. The respondent from the central region said he had
consulted with an advisor, but it was not comprehensive. He believed information to be somewhat helpful regarding his ability to move on to the state university.

All of the participants were taking 12 credit hours or more and the northeast region students had completed 15 credits or more in college-ready math and science--both students had taken remedial math earlier in their academic careers. The student in the central region, who completed college-ready science and had just finished remedial math and reading, was now taking college-level courses. These findings confirmed the study by Bahr (2008), in which his hypothesis was predicting students who successfully completed the remedial math sequence, attaining college-level math skills, exhibiting patterns of credential attainment, and transferring to 4-year colleges and universities. According to Bahr, these remedial students are comparable to those students who attain college-math without the need for remediation.

**Advisor structured interviews.** All participants in the study agreed the State of Florida seamless transfer process was far from seamless. When asked about the state of Florida seamless transfer process AR1 from the central west region said, no it was not seamless because there were so many elements involved. The first issue was if a student transfers with an AA degree from a Florida public institution and had not met all the prerequisites for their major, they could face a year or more of prerequisites; therefore, transfer was not seamless. If the student had taken general education and electives, and had not taken specific program courses, then it was definitely not seamless. If students were following an appropriate pathway that met the university requirements, then it would be seamless to a certain point. These issues were different for each institution within the Florida College System.

The other issues discussed by AR1 from the central west region suggested students enrolled in the AS to BS degree program many of the students had feelings of being cheated and
angry because they did not receive adequate transfer information. These degrees have 12 different AS to BS pathways and each has a different set of requirements unlike the AA degree universal requirements where the student is not blindsided as often as the AS student. If students are student enrolled in the AS Criminal Justice program, they are taking at least 42 credit hours, which means an extremely large number of courses that are not going to transition. The AS degree seeker completed 60 credit hours with 18 general education credits, then 42 credits hours would be accepted into the degree program. Of these credit hours, only 12 would count upon acceptance, requiring an additional 30 credit hours within-degree course work at the receiving university. If the student goal was to go directly into the workforce in two years, the AS program was the appropriate pathway.

AR2 said what the articulation agreement provided the student was a seamless admission process, but not necessarily graduation. The State of Florida seamless articulation agreement is ambiguous as written. For current students who identify themselves as AS degree seekers, the majority of them do not know the complications of the articulation agreement for the degree. The example provided by AR2 detailed that students will identify as criminal justice majors and the state/community college will automatically filter students into the AS degree without advisors and administrators considering how this degree will articulate within the Florida College System.

AR3 stated he did not think it was seamless for all students. He believed far too many students had not received adequate transfer services, because these students bring unique circumstances to the process.

**Research question 2.** This question was answered with chi-square tests and cross tabulation, which were conducted with IBM SPSS 22 Software on 240 variables, to establish a
joint frequency of cases based on two categorical variables to permit the examination of the association between the variables. The chi-square test of independence between variables was conducted to determine if two categorical variables were independent or related.

**Test statistic chi-square.** The chi-square test of independence was conducted to determine whether the following nominal/categorical variables (visited 2-year college transfer center x intent x degree program, met with advisor regular x intent x degree program, researched 4-year colleges x intent x degree program, discussed transfer plans x intent x degree programs) were independent or related to yes intent/no intent.

A chi-square test was conducted to assess whether AS/AAS/AA degree students had different pre-transfer/navigation experiences with visited 2-year community college transfer centers with intent to transfer. The results were significant for AA respondents, X² LRT (3, n = 93) = 7.74, *p* = .05. The results were not significant for AS/AAS respondents, X² LRT (5, n = 93) = 4.77, *p* = .44; X² LRT (2, n = 93) = 2.77, *p* = .25. The results suggest there was a relationship between degree type and pre-transfer/navigation experiences. It appears that AA degree respondents had different experiences then AS/AAS respondents.

To determine whether AS/AAS/AA degree students had different pre-transfer/navigation experiences by attending regular meetings with advisors, a chi-square test was conducted. The results were not significant for AA respondents X² LTR (5, n = 94) =15.3, *p* = .09. The results were also not significant for AS/AAS respondents X² LTR (6, n = 94) = 3.73, *p* = .72; X² LRT (2, n = 94) = 5.54, *p* = .63. There were no differences across degree type.

To further tease out whether AS/AAS/AA degree students had different pre-transfer/navigation experiences, a chi-square test was conducted based on discussions of transfer plans. The results were not significant for AA respondents X² LTR (4, n = 93) = 14.3, *p* = .06.
The results were also not significant AS/ASS respondents $X^2$ LTR (6, $n = 93$) = 14.3, $p = 0.37$; $X^2$ LTR (4, $n = 93$) = 5.55, $p = 0.13$. There were no differences across degree types.

**Student structured interviews.** All respondents reported they had not visited a 2-year college transfer center, this could be due to the colleges participating in the study did not have a dedicated transfer center. The respondents also reported they had not an attended transfer orientation; this was in agreement with the respondents not visiting the college transfer center. SR1 and SR2 both reported seeing other colleges on campus holding transfer orientations, but the sessions were always in conflict with their class schedules. SR3 reported he was not aware of such services as transfer orientations at the institution; however, he did report visiting one at a 4-year college.

SR1 reported she had spoken with an advisor regarding transfer when considering transferring to a local university. SR2 reported he had not spoken with an advisor regarding transfer. SR3 reported he had spoken with an advisor, but not in any detail. SR1 stated the information provided by the advisor turned out to be incorrect. The advisor counseled she was on the correct trajectory later to find out the nursing program was not a traditional transfer degree, but the college did have an articulation pathway agreement with the University of North Florida.

All respondents reported they had intent to move on beyond the AS degree program. SR1 reported intent to move on to earn a MSN. SR2 stated intent to move on to earn a doctorate in nursing and SR3 intended to earn a doctorate in health care. All respondents had intent to earn advanced degrees; the caveat was they all were enrolled in the school-to-work degree programs, which are not codified within the state of Florida articulation agreement as transfer degrees.
Chapter 5

Summary, Conclusions, Implications, and Recommendations

The purpose of this study was to examine the predictors and pre-transfer navigation experiences of community college students enrolled in AS/AAS/AA with transfer intent to Florida’s public universities. This chapter presents a summary of the study on adult students’ intent to transfer and navigation experiences, conclusions based on the findings, implications for the stakeholders in transfer and articulation within institutions, and recommendations for future research.

Summary of the Study

According to the State of Florida Education System, the Associate of Science/Associate of Applied Science (AS/AAS) is interchangeable, recognizing little differences except for the codified agreement, which is the articulation of nine selected specific degree programs within the state of Florida College System (FCS, 2012, 2013). Limited studies have examined the transfer process of adult AS/AAS/AA students with intent to transfer from the state/community college to the university.

The state of Florida policy makers believe the State of Florida Articulation Agreement ensures a seamless transfer process for the movement of students from the sending institution to the receiving institution without any loss of credit or time. Despite this, most studies into articulation and transfer were conducted with AA degree-seeking traditional students (16-25 years of age) and administrators. Many studies have excluded adult students (26 years of age or above) from their target population. As a result, there remains a lack of understanding of
articulation, transfer, and navigational needs for this student population; therefore, creating a topic for examination. This study contributed a unique perspective to the examination of student articulation and transfer in that it provided a quantitative and qualitative lens of the perceived seamless State of Florida Articulation Agreement and the movement of adult students from one institution to the next.

The Student Success Literary Survey (SSLS) was developed, validated, and administered by a team of researchers from Iowa State University (Myers et al., 2012). The survey included 63 items and measures of self-efficacy, social capital, financial literacy, and general student demographics. The purpose of the survey was to ascertain the level of literacy of community college students regarding their transfer readiness for obtaining a baccalaureate degree in STEM fields. In the spring of 2012, the Iowa State University research team conducted a pilot study with five community colleges in Iowa. The researchers allowed the participating colleges to customize the instrument by providing an open section during the pilot test (Myers et al., 2012).

The researcher adapted the SSLS for the current study while working in partnership with the research team from Iowa State. Seven additional items were added to the survey for this research. During late spring term 2014, after receiving IRB approval from all colleges participating in the study, Iowa State University research team members launched the study with the participating colleges. The population included students (a) who were of adult age (26 years and older), (b) who were enrolled in AS/AAS degree programs fulltime, and (c) who had attended at least one semester of college.

All 28 Florida state/community colleges that offered AS and AAS degrees were contacted to participate: Only two state/community colleges agreed to participate in the study. Subsequently, emails that included cover letters explaining the study were sent to the deans of
the departments that offered AS/AAS degrees and professors/instructors within the same departments requesting volunteers to participate in the study. One hundred and seventy-five students participated in this study with a response rate 10%. The valid data set included all respondents \((N = 101)\). Due to low response rates from the survey, the dissertation committee recommended conducting in-person structured interviews with three transfer advisors and three students to confirm the findings from the survey. The next step was to obtain potential students and advisors to conduct more in-depth interviews. The students included three adult students who were enrolled in AS degrees and who had intent to transfer. Subsequently, two males and one female were interviewed. The final step included identifying adult students and advisors who worked with transfer students at state universities.

Three students participated as interviewees in this study. One female and one male student were cohorts in the AS nursing program attending the same state/community college. The other male student was from a different state/community college enrolled in the AS physical therapist assistant program. All adult participants \((\text{age } M = 50)\) were considered full-time students taking 12 credit hours or more.

Three advisors also participated in this study: two females and one male. The two female participants worked together on the same campus. The female participants were themselves previous transfer students in the Florida College System from the community college to the university graduating, from one of the state universities in Florida with a bachelor’s degree. The male participant worked for a different college located in another Florida city. He was not a previous transfer student and graduated with his bachelor’s degree from an out-of-state university. All three participants had a combined advising experience with transfer students totaling 16 years.
Conclusions

The conclusions from this study are identified below.

This study revealed a trend of AS/AAS students who had the intent to transfer degree programs that were not codified within the state of Florida articulation agreement. The majority of AS/AAS/ respondents on both the web-based survey and the in-person structured interviews had intent to transfer, but the programs in which they were enrolled was school-to-work non-transfer degrees.

This study further revealed a lack of knowledge of the students and advisors regarding the complexities of transfer requirements. For the in-person interviews, the respondents who visited with advisors indicated that they had received misinformation regarding transfer. The student respondents in the structured interviews felt the advisors and colleges had misled them. The in-person advisor respondents did admit the transfer process was complex; therefore, the importance of advisors such as themselves who support a dedicated transfer center is vital.

The colleges of the student respondents, both web based and in-person, did not provide dedicated transfer centers or dedicated advisors to the transfer process. The advisor respondents of the receiving college located in the central region of the state provided incoming students with a dedicated transfer center staffed with dedicated advisors; whereas the receiving college located in the central west region of the state had neither a dedicated transfer center nor advisors dedicated to the transfer process. All advisor respondents believed that dedicated transfer advisors and transfer centers were important to transfer student success and the receiving institution mission is of successful transfer.
All the student respondents in the structured interviews believed the colleges did not treat them fairly regarding college requirements related to course work being outdated, which led to problems with financial aid and grade point averages. Many transfer students felt as if they had been tricked on arrival at the receiving college, requiring more course work and consequently, treating them like a problem, although the admission numbers were larger than those for incoming native freshman students in recent years. Transfer students’ financial aid packages were perceived to be limited, since they do not cover tuition and expenses.

Structured student interview respondents, who enrolled in AS/AAS/AA degree programs with intent to transfer, did not find the Florida articulation agreements to be seamless. The Florida seamless transfer system is perceived to be not so seamless since students are losing credit upon arrival even with the community/state college pathways to the university system. All advisor respondents believed the Florida seamless transfer agreement was not seamless for various reasons.

The State of Florida AS/AAS career ladder agreement was not congruent for nursing students according to the student respondents. The respondents reported they were required to attend the university that had the pathway agreement with their current college or risk losing credit because each institution had different requirements. The nursing program located in northeast region, because of the incongruity of the articulation agreement, required students to enroll in AS and AA degrees concurrently to prevent loss of credit.

**Implications of the Study**

The purpose of this study was to examine the predictors and pre-transfer navigation experiences of community college students enrolled in AS/AAS/AA with transfer intent to Florida’s public universities. The implications of the study indicate AS/AAS students had intent
even though the degree itself does not declare intent; therefore, community/state colleges should treat this population with intent and advisors, policy makers, and administrators need to ensure that the correct information is readily available.

Both sending and receiving colleges and universities need dedicated staff that focuses on the needs of the transfer population. Also, all institutions need to have dedicated transfer centers to include websites dedicated to transfer. Students need accurate information regarding the transfer process and the impediments to their programs.

The state of Florida College System and State University System should establish a major sophisticated online transfer/navigation website that all students could easily access, with the with Department of Education providing the resources for maintenance and upkeep of the transfer website.

Adult students could receive some consideration regarding old course work and not be penalized by institutions for returning to college. Adult students should not be grouped with traditional aged (18-25 years) students in terms of previous financial aid packages and previous aid should not act as a penalty for students. It would help transfer students if their financial aid packages were equivalent to the native student. Transfer students financial aid packages might be developed to cover tuition and fees at the receiving institution.

Receiving 4-year colleges need to change the culture from viewing adult students as a problem if they are to meet the goals of the completion agenda of having the highest proportion of college graduates in the world by the year 2025. Policies need to be more elastic for adult students to adjust to changing characteristics.

Instructors/professors at the state/community colleges should include transfer information in their curriculum. Instructors/professors, students, and advisors need to be partners and change
advocates in the transfer process. State/community colleges should require articulation and transfer as part of student enrichment programs.

The Florida Board of Education, Florida College System, and State University System needs to be aware of the impact of the hybrid model of the state/community college could have on student transfer and specific degrees earned.

The Florida Board of Education needs to be aware of the problems associated with AS/AAS transfer students. The state legislators should consider ways to bridge the gap between degree programs and articulation agreements.

**Recommendations for Future Research**

The recommendations for future research are provided below:

Further research could be conducted on state/community college adult students who have stopped out and returned to college. This might help determine if their needs are different from the needs of the adult students in this study.

Additional research is needed on transfer and navigation experiences for a larger sample of state/community colleges within Florida. Since only two community colleges participated in the SSLS, other institutions in geographically diverse locations could be studied to determine whether the results are similar.

An increase in the number of student and advisor participants might help to determine if the trends are similar to this study for web-based surveys and in-person interviews.

Research on the new hybrid model that state/community college are offering as Bachelor of Science degrees and the impact this has on the transfer process might be beneficial to the state of Florida policy makers.
A comparison of the transfer process for small, medium, and large state/community colleges to explore similarities and/or differences of the transfer experiences and articulation agreements could be conducted.

Additional studies could be conducted to compare results from traditional to adult students to determine whether the transfer/navigation experiences are similar or different.

Perform research with neighboring states regarding transfer and articulation agreement experiences since students commute between the states bordering Florida and include a more diverse population of gender, race, and ethnicity regarding transfer experiences.

Additional research could be undertaken to compare and contrast adult and traditional students’ navigation and transfer experiences to determine similarities and/or differences in their experiences.
References


Iowa State University IRB (2013, June). *Measuring the constructs for STEM student success literacy: Community college student’s self-efficacy, social capital, and transfer knowledge.* Iowa State University: IRB.


Appendices
Appendix A. Survey Instrument

Qualtrics Survey Software

https://lastateeducation.qualtrics.com/ControlPanel/Ajax.php?ac...

Default Question Block

Q1.
Dear Student,

On behalf of the research team, our sincere thank you for your time in responding to the following questions.

This survey will take approximately 15 minutes to complete. Your responses will inform research that will guide instructional practice, student services, and academic support programs to maximize student success! Your participation is critical to the project. We thank you for your attention to the questions and for completing the survey.

Directions for filling out the survey:
- The survey is divided into four sections. Scroll through each section to answer the questions.
- Please complete the entire survey (Plan on approximately 15 minutes).
- When reviewing questions, respond to each with what first comes to mind as the appropriate responses.
- Please click on NEXT at the bottom of each page to advance to the next page.
- If you need to leave the survey temporarily, simply close your web browser. You can come back to complete the survey through the same link within 7 days.
- Please click on NEXT at the end of the survey to submit your answers. You will NOT be able to make any changes once you submit.

Upon completion of the survey, you will be automatically entered in a lottery for a random drawing. If you are selected as one of the winners in the lottery, you will be required to sign a receipt form documenting receipt of the prize. Please know that payments are subject to tax withholding requirements, which may vary depending upon whether you are a legal resident of the U.S. or another country. If required, taxes will be withheld from the prize you receive. You will need to provide your social security number (SSN) and address on a receipt form. This information allows the University to fulfill government-reporting requirements. Confidentiality measures are in place to keep this information secure. You may forgo receipt of the prize and continue in the study if you do not wish to provide your SSN and address.

All answers will become part of a larger data set, and responses are not identifiable to you as a student responder.

Again, we thank you for your time and effort.
Best Regards,
Soko S. Starobin, Ph.D.
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### Appendix A continued

#### Q2. Section 1: Self-Efficacy

The following questions are a series of statements about your personal attitudes and traits. For each item below, please indicate the extent to which you disagree or agree with the statement.

<table>
<thead>
<tr>
<th>Statements</th>
<th>Disagree strongly</th>
<th>Disagree</th>
<th>Slightly disagree</th>
<th>Neither agree nor disagree</th>
<th>Slightly agree</th>
<th>Agree</th>
<th>Slightly strongly Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>If I can’t do a job the first time, I keep trying until I can.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>When I have something unpleasant to do, I stick to it until I finish it.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Failure makes me try harder.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I often make lots of things to do.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I usually mark important dates on my calendar.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I do not seem capable of dealing with most problems that come up in life.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>If something looks too complicated, I will not even bother to try it.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>When trying to learn something new, I soon give up if I am not initially successful.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I wish I could have more respect for myself.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>On the whole, I am satisfied with myself.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

#### Q3. The following questions are a series of statements about your personal attitudes and traits in various social aspects. For each item below, please indicate the extent to which you disagree or agree with the statement.

<table>
<thead>
<tr>
<th>Statements</th>
<th>Disagree strongly</th>
<th>Disagree</th>
<th>Slightly disagree</th>
<th>Neither agree nor disagree</th>
<th>Slightly agree</th>
<th>Agree</th>
<th>Slightly strongly Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is difficult for me to make new friends.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>If I see someone I would like to meet, I go to that person instead of waiting for him or her to come to me.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I do not handle myself well in social gatherings.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

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**Appendix A continued**

**Q4. Since you began attending this college, how often do you engage in the following?**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worrying about what others think of me</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Doing things so that others will like me</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Worrying about being called a &quot;nerd&quot; or &quot;brainiac&quot;</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Worrying about being accused of not being myself (e.g. &quot;acting white&quot; or being a &quot;sell out&quot;)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Q5. Compared to the students at your campus, where the average student is at the 50th percent, rate your confidence about your level of skill according to the following scale.**

<table>
<thead>
<tr>
<th>Skill</th>
<th>I'm below average but not in the bottom 10%</th>
<th>I'm about average</th>
<th>I'm above average but not in the top 10%</th>
<th>I'm in the top 10%</th>
<th>Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math skill</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Writing skill</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Public speaking skill</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Social skill</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Computer skill</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Q6. Please think about the most challenging class you have taken in this college, and answer the following questions based on your experiences in this class.**

**Q7. What subject does this most challenging class belong to?**

- Biology
- Chemistry
- English
- Mathematics
- Physics
- Other, please specify

[rectangle box for specifying]
Appendix A continued

Q8. Why was this class the most challenging?

<table>
<thead>
<tr>
<th>Reason</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Neither agree nor disagree</th>
<th>Slightly Agree</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not know how to study for the exams</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Did not get enough feedback from the professor</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Professor was not available to answer questions</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Professor did not encourage interaction with him/her</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Professor expected a low performance from me</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>The course required a large amount of work</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Q9. On a scale of zero to ten (0: No Anxiety - 10: Extreme anxiety), what was your level of anxiety in this class?

<table>
<thead>
<tr>
<th>Anxiety (0: No Anxiety - 10: Extreme Anxiety)</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
</table>

Q10. To what degree did your anxiety negatively impact your class performance? Please mark the negative impact on a scale of one to five (1 = no negative impact, 5 = extremely negative impact).

<table>
<thead>
<tr>
<th>No Negative Impact</th>
<th>Extremely Negative Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

Q11. When you were working at a challenging task in that class, how confident were you that you would succeed? Please mark the degree of your confidence on a scale of one to five (1 = extremely confident - 5 = not at all confident).

<table>
<thead>
<tr>
<th>Extremely Confident</th>
<th>Not at all Confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>
### Q12. If you succeeded at a challenging part of this class, would you say it was because of:

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Slightly disagree</th>
<th>Neither agree nor disagree</th>
<th>Slightly agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your high ability</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Good luck</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>The task was easy</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>You worked hard</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

### Q13. If you failed (or were less successful) at a challenging part of this class, would you say it was because of:

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Slightly disagree</th>
<th>Neither agree nor disagree</th>
<th>Slightly agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your low ability</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Bad luck</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>The task was hard</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>You didn't work hard enough</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

### Q14. Please indicate the things you did to address the challenges in this class, and how useful they were in improving your performance.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Did not use/ not applicable</th>
<th>Used, not helpful</th>
<th>Used, somewhat helpful</th>
<th>Used, very helpful</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spent more time studying</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Taught myself to study more effectively</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Did all of the assigned reading</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Increased lecture attendance</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Received a sample test from a friend or club/organization to study</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Studied by myself</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Cheated on assignments or exams</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Withdrew from the course</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Studied with other students in the class</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Received informal tutoring</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Received academic support outside the class</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Used feedback from Teacher Assistant or professor on a regular basis</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
### Q15. For this most challenging class, how helpful was the encouragement or advice you received from the following?

<table>
<thead>
<tr>
<th></th>
<th>Did not receive/ not applicable</th>
<th>Received, not helpful</th>
<th>Received, somewhat helpful</th>
<th>Received, very helpful</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family member or friend</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Fellow resident or Resident Assistant</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Fellow classmate</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Upper-class student who had taken the class</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Staff person or administrator</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Professional counselor</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Advisor</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Professor or Teacher’s Assistant for this class</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Academic dean</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Another faculty member</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

### Q16. In a typical week (not exam week), how many hours did you spend studying and preparing for this class?

- ○ 0 or None
- ○ Less than 1 hour
- ○ 1-2 hours
- ○ 3-5 hours
- ○ 6-10 hours
- ○ 11-20 hours
- ○ 21-35 hours
- ○ 36-45 hours
- ○ 46 hours or more

### Q17. Section 2: Social Capital

What is the highest level of education completed by your parents?

<table>
<thead>
<tr>
<th></th>
<th>Elementary school or less</th>
<th>Some high school</th>
<th>High school graduate</th>
<th>Some college</th>
<th>Associate degree from two year college</th>
<th>Bachelor’s degree</th>
<th>Some graduate school</th>
<th>Graduate degree</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Father</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
**Appendix A continued**

**Q18. Are you financially independent (your college expenses are paid by someone other than your parents, e.g., yourself, your employer)?**

- Yes
- No

**Q19. What is your best estimate of your parents' total income last year? Consider income from all sources before taxes.**

- Less than $20,000
- $20,000—$39,999
- $40,000—$59,999
- $60,000—$79,999
- $80,000 or more
- I don't know
- Prefer not to answer

**Q20. How much of your first year's educational expenses (room, board, tuition, and fees) do you expect to cover from each of the sources listed below?**

<table>
<thead>
<tr>
<th>Source of Funds</th>
<th>None</th>
<th>Less than $1,000</th>
<th>$1,000 to $2,999</th>
<th>$3,000 to $5,999</th>
<th>$6,000 to $9,999</th>
<th>$10,000+</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family resources (parents, relatives, spouse, etc.)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>My own resources (savings from work, work-study, other income)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Employer contributions</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Aid which need not be repaid (grants, scholarships, military funding, etc.)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Aid which must be repaid (loans, etc.)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Other sources than above</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

**Q21. Do you have any concern about your ability to finance your college education?**

- None (I am confident that I will have sufficient funds)
- Some concerns (but I probably will have enough funds)
- Major concerns (not sure I will have enough funds to complete college)
Appendix A continued

Q22. Excluding yourself, how many people (children, grandchildren, brothers, sisters, parents, etc.) are you financially supporting?

- None
- 1 - 2
- 3 - 4
- 5 or above

Q23. Are you currently working?

- Yes, I am currently working on campus.
- Yes, I am currently working off campus.
- No, I am not looking for working opportunities.
- No, I am currently unemployed, but I am looking for working opportunities.

Q24. During your time at the community college, about how many hours a week did you usually spend working on a job for pay?

- 1 to 10 hours
- 11 to 15 hours
- 16 to 20 hours
- 21 to 30 hours
- more than 30 hours

Q25. During high school, how often did your parents or other adults:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Never or very rarely</th>
<th>A few times a year</th>
<th>About once a month</th>
<th>Several times a month</th>
<th>Several times a week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discuss book, films, or television programs with you</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eat the main meal with you around a table</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spend time just talking to you</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work with you on your homework</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discuss your progress in school with you</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participate in school related activities (e.g., Parent-Teacher Association)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spend time talking with your friends</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix A continued

Q26. If you were to compare yourself to your parents or guardian, would you say that you are:
   - Much more thrifty and likely to save what I can
   - Somewhat more thrifty and likely to save what I can
   - About as thrifty
   - Somewhat less thrifty and more likely to spend what I can
   - Much less thrifty and much more likely to spend what I can

Q27. What is your mother's occupation?

Q28. What is your father's occupation?

Q29. What is your probable career occupation?

Q30. Since arriving at this college, has your occupational expectation changed?
   - Yes
   - No
Appendix A continued

### Q31. Please indicate WHY your career choice changed:

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Neither agree nor disagree</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of high school preparation for career choice requirements</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Academic difficulty in the major course requirements for the career</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Academic interests and values have changed since arriving at this college</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Career interests have changed since arriving at this college</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Career values have changed since arriving at this college</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Lack of pre-professional learning opportunities available (e.g., internships, research opportunities)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

### Q32. If there were no obstacles, what is the highest academic degree you would like to attain in your lifetime?

- ○ Will take classes, but do not intend to earn a degree
- ○ Vocational certificate/Diploma
- ○ Associate degree (A.A. or equivalent)
- ○ Bachelors’ degree (B.A., B.S., etc.)
- ○ At least a Bachelors’ degree, maybe more
- ○ Master’s degree (M.A., M.S., etc.)
- ○ Doctoral degree (Ph.D., Ed.D., J.D., etc.)
- ○ Medical degree (M.D., D.D.S., D.V.M., etc.)
### Q32. How likely would each of the following be to prevent you from obtaining your college degree?

<table>
<thead>
<tr>
<th>Reason</th>
<th>Not at all likely</th>
<th>Probably not likely</th>
<th>Somewhat likely</th>
<th>Very likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child care issues</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Health issues</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Debt-need to work more hours because of bills</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Inability to balance home and school responsibilities</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Inability to balance work and school responsibilities</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Insufficient financial aid</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Lack of money</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Poor or failing grades</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Transportation issues</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Unprepared for college coursework</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Lack of support services or resources, i.e., tutoring/mentoring/counseling</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

### Q34. Realistically, what do you expect will be your annual income in the first full year after leaving this college?

- ○ Less than $20,000
- ○ $20,000—$39,999
- ○ $40,000—$59,999
- ○ $60,000—$79,999
- ○ $80,000 or more

### Q35. Section 3: Transfer knowledge

About how many hours a week do you usually spend on the community college campus, not counting time attending classes?

- ○ None
- ○ 1 to 3 hours
- ○ 4 to 6 hours
- ○ 7 to 9 hours
- ○ 10 to 12 hours
- ○ more than 12 hours
Appendix A continued

Q36. Have you taken any developmental courses in the following subjects? (check all that apply)

☐ Math
☐ Reading
☐ Writing
☐ None

Q37. About how many hours a week do you usually spend studying or preparing for your classes?

☐ 1 to 5 hours
☐ 6 to 10 hours
☐ 11 to 15 hours
☐ 16 to 20 hours
☐ more than 20 hours

Q38. The following items address your use of academic advising/counseling services at your community college. Please indicate the extent to which you disagree or agree with each statement.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Slightly Disagree</th>
<th>Neither agree nor disagree</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I consulted with academic advisors/counselors regarding transfer.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Information received from academic advisors/counselors was helpful in the transfer process.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I met with academic advisors/counselors on a regular basis.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I talked with an advisor/counselor about courses to take, requirements, and education plans.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I discussed my plans for transferring to a four-year college or university with an academic advisor/counselor.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Advisors/counselors identified courses needed to meet the general education/major requirements of a four-year college or university I was interested in attending.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
### Q39. The following items pertain to your perceptions about the “transfer process” while you were enrolled at the community college. Please indicate the extent to which you disagree or agree with each statement.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Slightly disagree</th>
<th>Neither agree nor disagree</th>
<th>Slightly agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I researched various aspects of 4-year institutions to get a better understanding of the environment and academic expectations.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I visited the 4-year institutions at least once to learn where offices and departments were located.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I spoke to academic counselors at 4-year institutions about transferring and major requirements.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I spoke to former community college transfer students to gain insight about their transfer experiences.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

### Q40. How often did you do each of the following at your community college?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Never or very rarely</th>
<th>A few times per semester</th>
<th>About once a month</th>
<th>Several times a month</th>
<th>Several times a week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visited faculty and sought their advice on class projects such as writing assignments and research papers.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Approaching faculty outside class.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Discussed career plans and ambitions with a faculty member.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Asked my instructor for comments and criticisms about my work.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

### Q41. Have you ever felt that the faculty, staff, or administration in this college treated you poorly?

- Yes
- No
Appendix A continued

Q42. Have you ever felt that the faculty, staff, or administration in this college treated you poorly because of your: (Check all that apply).

- Gender
- Race or ethnicity
- English-language proficiency
- Sexual orientation
- Religion
- Social class
- Other, please specify

Q43. To what extent do the following generally characterize the classroom environment you have experienced at this college?

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>I felt I was treated respectfully in class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class size made it difficult to ask questions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I felt isolated in class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instructor expressed a lack of confidence in my ability to succeed in class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instructor or students made prejudiced comments that made me uncomfortable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I felt like I did not fit in</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I was ignored when I tried to participate in class discussions or ask questions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Q44. In your opinion, how successful has this college been at providing:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Not at all successful</th>
<th>Somewhat successful</th>
<th>Successful</th>
<th>Very successful</th>
<th>Extremely successful</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty role models similar to you</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrative/staff role models similar to you</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clubs and organizations that match your interest</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom environments that encourage your academic success</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A sense of being a valued member of the community</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opportunities to interact socially with your friends</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix A continued

Q69. At this college, what is your overall grade point average (GPA)?

- 3.75-4.00 (mostly As)
- 3.25-3.74 (about half As and half Bs)
- 2.75-3.24 (mostly Bs)
- 2.25-2.74 (about half Bs and half Cs)
- 1.75-2.24 (mostly Cs)
- 1.25-1.74 (about half Cs and half Ds)
- Less than 1.25 (mostly Ds or below)
- Have not taken courses for which grades were given
- Prefer not to answer

Q45. As things stand today, do you intend to transfer to a:

- 4-year public university
- 4-year private college or university
- Private 2-year college
- Public 2-year college
- Not intend to transfer

Q46. Are you planning to major in STEM (Science, Technology, Engineering, and Mathematics) upon transfer?

- Yes
- No
Appendix A continued

**Q47. Which STEM major are you planning to choose upon transfer?**

- Biological Science (includes Biology, Biochemistry/Biophysics, Botany, Environmental Science, Marine Science, Microbiology/Bacteriology, Zoology, etc.)
- Computer Science
- Engineering (includes Aeronautical/Astronautical Engineering, Civil Engineering, Chemical Engineering, Computer Engineering, Electrical/Electronic Engineering, Industrial Engineering, Mechanical Engineering, etc.)
- Forestry
- Health Related Professional (includes Health Technology, Medicine, Dentistry, Veterinary Medicine, Nursing, Pharmacy, Therapy, etc.)
- Military Science
- Physical Science (includes Astronomy, Atmospheric Science, Chemistry, Earth Science, Marine Science, Mathematics, Physics, etc.)
- Technology (includes Building Trades, Computer Programming or Data Processing, Drafting or Design, Electronics, Mechanics, etc.)
- Other STEM major

**Q48. Section 4: Demographic information**

Is this your first semester in this college?

- Yes
- No

**Q49. Thinking about this current academic term, how would you characterize your enrollment at this college?**

- Full-time (12 or more credit hours)
- Part-time (less than 12 credits)
Appendix A continued

<table>
<thead>
<tr>
<th>Q50. Including this semester, what mathematics courses have you taken? Include courses in high school or previous college work. (Check all that apply)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>Basic math, Business math, or Pre-algebra</td>
</tr>
<tr>
<td>Algebra I</td>
</tr>
<tr>
<td>Geometry</td>
</tr>
<tr>
<td>Algebra II</td>
</tr>
<tr>
<td>Trigonometry</td>
</tr>
<tr>
<td>Pre-calculus</td>
</tr>
<tr>
<td>Calculus</td>
</tr>
<tr>
<td>Integrated/Applied Mathematics</td>
</tr>
<tr>
<td>Probability/Statistics</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q51. Including this semester, what science courses have you taken? Include courses in high school or previous college work. (Check all that apply)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>General Biology</td>
</tr>
<tr>
<td>Chemistry</td>
</tr>
<tr>
<td>Physics</td>
</tr>
<tr>
<td>Biology specialty (i.e., microbiology, genetics, botany, cell biology, marine biology, etc.)</td>
</tr>
<tr>
<td>Other Earth Sciences (i.e., geology, meteorology, etc.)</td>
</tr>
<tr>
<td>Physical Science</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q52. Have you participated in Project Lead The Way (PLTW)?</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Yes</td>
</tr>
<tr>
<td>☐ No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q53. Have you ever attended a four-year college/university?</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Yes</td>
</tr>
<tr>
<td>☐ No</td>
</tr>
</tbody>
</table>
Appendix A continued

Q54. What academic credentials have you earned? (Check all that apply)
- None
- High school diploma or GED
- AA (Associate of Arts)
- AS (Associate of Science)
- AGS (Associate of General Studies)
- AAA (Associate of Applied Arts)
- AAS (Associate of Applied Science)
- Diploma
- Certificate
- Other

Q55. What is your gender?
- Male
- Female

Q56. How would you identify your race/ethnic background?
- American Indian or Alaska Native
- Asian
- Black or African American
- Native Hawaiian or other Pacific Islander
- White
- Two or more races
- Race/Ethnicity Unknown

Q57. What is your age?

18 of 21

4/10/13 10:22 AM
Appendix A continued

Q58. What is your marital status?
- Married
- Living together (not married)
- Single, never married
- Divorced/separated/widowed

Q59. Are your parent(s):
- Both alive and living with each other
- Both alive
- Divorced or living apart
- One or both deceased

Q60. What is your current religious preference?
- Catholic
- Protestant
- Jewish
- Islam
- Hindu
- Buddhist
- Other, please specify
- None
- Prefer not to answer

Q61. How many miles is this college from your permanent home?
- 5 miles or less
- 6—10 miles
- 11—50 miles
- 51—100 miles
- 101—500 miles
- Over 500 miles
Appendix A continued

**Q62. Currently, what is your citizenship status?**

- U.S. Citizen, native born
- U.S. Citizen, naturalized
- Non-U.S. Citizen, with a permanent resident visa/green card
- Non-U.S. Citizen, with a temporary U.S. resident visa (e.g., F1/F2 visa, J1/J2 visa)
- Living outside the United States
- Prefer not to answer

**Q63. If you were born outside of the U.S., in what country were you born? Please specify.**


**Q64. At what age did you first come to the U.S. for an extended period of time (i.e., more than 1 month)? Please specify.**

- Birth to 3
- 4 to 7
- 8 to 12
- 13 to 17
- 18 to 21
- Older than 21
- Not applicable

**Q65. Is English your native language?**

- Yes
- No

**Q66. Section 5: Institution Questions**
Appendix A continued

Q67. Please click the "NEXT" button to complete the survey. By completing the survey, you will be automatically entered in a lottery for a random drawing for winning one of the five iPad 2. Good Luck!

Thank you very much for taking the time to complete this survey.

Soko S. Starobin, Ph.D.
School of Education
Director, Office of Community College Research and Policy
starobin@iastate.edu
Appendix B Student Interview Questions

Questions
1. Is this your first semester in this college?
2. How many credit hours are you taking?
3. Including this semester, what mathematic courses have you taken?
4. Including this semester, what science courses have you taken?
5. Have you ever attended a four-year college/university?
6. What academic credentials have you earned?
7. In a typical week (not exam week), how many hours did you spend studying for class?
8. Are you financially independent?
9. Are you currently working?
10. Excluding yourself, how many people are you financially supporting?
11. During your time at the community/state college, about how many hours a week did you usually spend working on a job for pay?
12. If there were no obstacles, what is the highest academic degree you would like to attain in your lifetime?
13. About how many hours a week do you usually spend on the community/state college campus, not counting time attending classes?
14. Have you taken any developmental classes?
15. About how many hours a week do you usually spend studying or preparing for your class?
16. Have you consulted with an academic advisor/counselor regarding transfer?
17. Information received from academic advisors/counselors was helpful in the transfer process?
18. I talked with an advisor/counselor about courses to take, requirements, and education plans?
19. I discussed my plans for transferring to a four-year college or university with an academic/advisor counselor?
20. Advisors/counselors identified courses needed to meet the general education/major requirements of a four-year college or university I was interested in attending?
Appendix B continued

21. I attended transfer orientation?
22. I researched various aspects of four-year institutions to get a better understanding of the environment and academic expectations?
23. I visited the four-year institutions at least once to learn where offices and departments were located?
24. I spoke to academic counselors at four-year institutions about transferring and major requirements?
25. I spoke to former community colleges transfer students to gain insight about their transfer experiences?
26. I visited the community college transfer center?
27. At this college, what is your overall grade point average (GPA)?
28. As things stand today, do you intent to transfer to a four-year college?
29. What is your gender?
30. How would you identify your race/ethnic background?
31. What is your age?
32. What is your marital status?
33. How many miles is this college from your permanent home?
34. During the hours you are on campus for class are there Administrative Services/Disability Services/Career Services/Academic Services open and available to you?
35. What degree program are you currently enrolled in?
36. Have you withdrawn from any class during any semester since enrollment?
37. What common placement test did you take before entering the community/state college The Postsecondary Education Readiness Test (P.E.R.T.), Florida College Entry-Level Placement Test (CPT), Assessment American College Testing Program (ACT), or The College Board (SAT)?
38. What test score did you obtain on the P.E.R.T., CPT, ACT, or SAT?
Appendix C Advisor Interview Questions

ADVISERS/COUNSELORS QUESTIONS

1. Do you think the A.S./A.A.S degree seeker should receive the same transfer status as the A.A. degree seeker upon transfer? Please explain.

2. Do you think the A.S./A.A.S degree should be codified within the State of Florida articulation agreement? Please explain.

3. In your opinion, is the State of Florida transfer system seamless for all students? Please explain.

4. Are A.S./A.A.S degree seekers transferring without loss of credit at the institution?

5. Do you have any information regarding loss of credit at other State public institutions? Please explain?

6. Do you think community/state colleges should have transfer centers? Please explain.

7. Does your institution have a transfer center?

8. Does your institution have transfer orientation center?

9. In your opinion, should transfer information be included in the curricula? Please elaborate.

10. In your opinion should there be seminars on transfer? Please elaborate?

11. Is the State of Florida Virtual Transfer Website adequate for serving students transfer needs?

12. Do you think that transfer students receiving adequate funding? Please elaborate.

13. Are transfer students treated as native students for registration purposes?

14. In your opinion, should the receiving institutions have transfer centers? Please elaborate.

15. In your opinion, should community/state colleges treat A.S./A.A.S students as if they have intent to transfer? Please elaborate.

16. With the changing market place should universities have an outreach program for transfer students?

17. Are remedial/developmental courses needed? Please explain.
Appendix C continued

18. In your opinion, should the State of Florida end remedial/developmental courses? Please elaborate?

19. In your opinion, should remedial/developmental courses be optional even if the test scores say otherwise? Please elaborate.

20. In your opinion, should Florida public universities have programs in which they directly link community/state colleges to students programs of study to aid the transfer process? Please explain.

21. In your opinion, should Florida public universities have a program of preferred consideration that invite outstanding community/state college students to join their student body? Please elaborate.

22. In your opinion, should Florida public universities have an advisor visit community colleges in their local regions for transfer education? Please elaborate?

23. In your opinion, should Florida public universities include transfer mentors in their transfer program? Please elaborate.

Do you have any additional comments you would like to add
Appendix D IRB Approval for USF

7/30/2014

Anthony Hill, M.S.
Adult, Career & Higher Education
4202 East Fowler Avenue
Tampa, FL 33620

RE: Expedited Approval for Amendment
IRB#: Amel_Pro00015193
Title: Adult Community College Students Perceptions of the Transfer Process with Intent to Transfer Associate in Science/Associate in Applied Science to a Public University

Dear Mr. Hill:

Due to the changes that were approved in amendment 1, the review type has been changed from Exempt category 2 to Expedited categories 6 and 7. Your study will now have a twelve month effective period, which will be 7/30/2014-7/30/2015. Due to the change in the effective period, you will now be required to submit a continuing review each year until all research activities are complete.

On 7/30/2014, the Institutional Review Board (IRB) reviewed and APPROVED your Amendment. The submitted request has been approved for the following:

Added Advisers Invitation to Participate, version 1, dated 07/26/2014
Added Student Invitation to Participate, version 1, dated 07/26/2014
Added Expert Interview Guide, Version 1, dated 07/16/2014
Added Student Interview Guide, Version 1, dated 07/16/2014

Approved Item(s):
Protocol Document(s):
Protocol Expedited_V6_07.25.2014

Consent Document(s)*:
Advisers Consent_V1_07.26.2014.pdf
Student Consent_V1_07.26.2014.pdf
Appendix D continued

"Please use only the official IRB stamped informed consent/assent document(s) found under the "Attachments" tab on the main study's workspace. Please note, these consent/assent document(s) are only valid during the approval period indicated at the top of the form(s) and replace previously approved versions.

We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-5638.

Sincerely,

[Signature]

John Schinka, Ph.D., Chairperson
USF Institutional Review Board
Appendix D continued

12/2/2013

Anthony Hill, M.S.
Adult, Career and Higher Education
4202 East Fowler Avenue
Tampa, FL 33620

RE: Exempt Certification
IRB#: Pro00015193
Title: Adult Community College Students Perceptions of the Transfer Process with Intent to Transfer Associate in Science/Associate in Applied Science to a Public University

Study Approval Period: 11/27/2013 to 11/27/2018

Approved Items:
Protocol Document:
Protocol Exempt_V5_11.19.2013

Consent Script:
Invitation to Participate in Survey Study_V5_11.25.2013
Appendix D continued

conducted as outlined in your application and consistent with the ethical principles outlined in the Belmont Report and with USF IRB policies and procedures. Please note that changes to this protocol may disqualify it from exempt status. Please note that you are responsible for notifying the IRB prior to implementing any changes to the currently approved protocol.

The Institutional Review Board will maintain your exemption application for a period of five years from the date of this letter or for three years after a Final Progress Report is received, whichever is longer. If you wish to continue this protocol beyond five years, you will need to submit a new application at least 60 days prior to the end of your exemption approval period. Should you complete this study prior to the end of the five-year period, you must submit a request to close the study.

We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-5638.

Sincerely,

[Signature]

Kristen Salomon, Ph.D., Vice Chairperson
USF Institutional Review Board
Appendix E IRB Approval from Iowa State University

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Date: 9/25/2013
To: Dr. Soko Starobin
    N221A Lagomarcino

From: Office for Responsible Research

Title: Measuring Constructs of STEM Student Success Literacy: Community College Students' Self-efficacy, Social Capital, and Transfer Knowledge
IRB ID: 12-124
Study Review Date: 9/25/2013

The project referenced above has been declared exempt from the requirements of the human subject protections regulations as described in 45 CFR 46.101(b) because it meets the following federal requirements for exemption:

- (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey or interview procedures with adults or observation of public behavior where
  - Information obtained is recorded in such a manner that human subjects cannot be identified directly or through identifiers linked to the subjects; or
  - Any disclosure of the human subjects' responses outside the research could not reasonably place the subject at risk of criminal or civil liability or be damaging to their financial standing, employability, or reputation.

The determination of exemption means that:

- You do not need to submit an application for annual continuing review.

- You must carry out the research as described in the IRB application. Review by IRB staff is required prior to implementing modifications that may change the exempt status of the research. In general, review is required for any modifications to the research procedures (e.g., method of data collection, nature or scope of information to be collected, changes in confidentiality measures, etc.), modifications that result in the inclusion of participants from vulnerable populations, and/or any change that may increase the risk or discomfort to participants. Changes to key personnel must also be approved. The purpose of review is to determine if the project still meets the federal criteria for exemption.

Non-exempt research is subject to many regulatory requirements that must be addressed prior to implementation of the study. Conducting non-exempt research without IRB review and approval may constitute non-compliance with federal regulations and/or academic misconduct according to ISU policy.

Detailed information about requirements for submission of modifications can be found on the Exempt Study Modification Form. A Personnel Change Form may be submitted when the only modification involves changes in study staff. If it is determined that exemption is no longer warranted, then an Application for Approval of Research Involving Humans Form will need to be submitted and approved before proceeding with data collection.

Please note that you must submit all research involving human participants for review. Only the IRB or designees may make the determination of exemption, even if you conduct a study in the future that is exactly like this study.

Please be aware that approval from other entities may also be needed. For example, access to data from private records (e.g., student, medical, or employment records, etc.) that are protected by FERPA, HIPAA, or other confidentiality policies requires permission from the holders of those records. Similarly, for research conducted in institutions other than ISU (e.g., schools, other colleges or universities, medical facilities, companies, etc.), investigators must obtain permission from the institution(s) as required by their policies. An IRB determination of exemption in no way implies or guarantees that...
Appendix E continued

permission from these other entities will be granted.

Please don't hesitate to contact us if you have questions or concerns at 515-294-4588 or IRB@iastate.edu.
Appendix E continued

INSTITUTIONAL REVIEW BOARD (IRB) Modification Form for Exempt Research

Title of Project: Measuring Constructs for STEM Students Success Literacy: Community College Students’ Self-efficacy, Social Capital, and Transfer Knowledge

Principal Investigator (PI): Sokob Starobin
University ID: 27792515
Phone: 515-294-9121
Email Address: starobin@lastate.edu

Degrees: PhD
Department: School of Education

FOR STUDENT PROJECTS (Required when the principle investigator is a student)
Name of Major Professor/Supervising Faculty:
University ID:
Phone:
Email Address: @lastate.edu

Alternate Contact Person: Carlos Lopez
Email Address: clopez@lastate.edu
Correspondence Address: N005 Lagomarcino
Phone:

Please notify the IRB Office if your contact information has changed since the last review.

ASSURANCE

- I certify that the information provided in this application is complete and accurate and consistent with any proposal(s) submitted to external funding agencies. Misrepresentation of the research described in this or any other IRB application may constitute non-compliance with federal regulations and/or academic misconduct.
- I agree to provide proper surveillance of this project to ensure that the rights and welfare of the human subjects are protected. I will report any problems to the IRB. See Reporting Adverse Events and Unanticipated Problems for details.
- I agree that modifications to the approved project will not take place without prior review and approval by the IRB.
- I agree that the research will not take place without the receipt of permission from any cooperating institutions, when applicable.
- I agree to obtain approval from other appropriate committees as needed for this project, such as the IACUC (if the research includes animals), the IBC (if the research involves biohazards), the Radiation Safety Committee (if the research involves x-rays or other radiation producing devices or procedures), etc.
- I understand that approval of this project does not grant access to any facilities, materials or data on which this research may depend. Such access must be granted by the unit with the relevant custodial authority.
- I agree that all activities will be performed in accordance with all applicable federal, state, local, and Iowa State University policies.

Signed: [Signature] 09/11/13
Signature of Principal Investigator Date

Signature of Major Professor/Supervising Faculty Date
(Required when the principal investigator is a student)

For IRB Use Only
Full Committee Review: ☐
Review Date: September 25, 2013
Approval Not Required: ☐
Approval/Determination Date: September 25, 2013
EXEMPT per 45 CFR 46.101(b): ☐
Not Research: ☐
Approval Expiration Date: N/R
EXPEDITED per 45 CFR 46.101(b): ☐
No Human Subjects: ☐
Category Letter Not Approved: ☐
Risks: Minimal [☑]
More than Minimal [☐]
IRB Reviewer’s Signature: [Signature] 9/25/13
Office for Responsible Research
IRB Exempt Modification 07/05/12
Modification Information

Please provide answers to all questions, except as specified. The fields will expand as you type. Incomplete forms will be returned without review.

- Yes  □ No  Was your project initially determined to be eligible for exempt review? This information can be found in the approval letter you received when the study was last reviewed.

  If No, STOP! This is not the correct form! Please submit a Modification Form for Non-Exempt Research form instead.

  If Yes, please complete Parts A and B below.

Part A: Changes in Personnel

- Yes  □ No  1. Does the modification involve a change in Principal Investigator? If Yes, STOP! The new principal investigator must submit a completed new Exempt Study Review Form.

- Yes  □ No  2. Are you adding or removing members of the key personnel? If Yes, complete Table A.1 below.

Table A.1

A. List any individuals that are no longer part of the key personnel:

B. Complete the following table to list any new key personnel:

<table>
<thead>
<tr>
<th>NAME</th>
<th>Interpersonal contact or subject or access to private identifiable data?</th>
<th>Involved in the consent process?</th>
<th>Contact with human blood, specimens, or other biohazardous materials?</th>
<th>Other Roles in Research</th>
<th>Qualifications (i.e., special training, degrees, certifications, coursework, etc.)</th>
<th>Human Subjects Training Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthony Hill</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>Researcher</td>
<td>Doctoral Student (ABD) SFU</td>
<td>6-25-2013</td>
</tr>
</tbody>
</table>

Office for Responsible Research
IRB Exempt Modification 07/05/12

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**Appendix E Continued**

### Part B: Modifications to Exempt Research

<table>
<thead>
<tr>
<th>1. Please describe the proposed modifications to your research:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two changes are being made to this project:</td>
</tr>
<tr>
<td>1. A new key personnel has been added</td>
</tr>
<tr>
<td>2. Additionally, the sample population has been expanded. Therefore, two more colleges located in Florida (e.g., St. Johns River State College and Polk State College) has been added to the study. In both cases an IRB approval has been granted by those colleges.</td>
</tr>
</tbody>
</table>
2. e. A research or demonstration project to examine federal public benefit or service programs (e.g., Medicaid, unemployment, social security, etc.) when the project is pursuant to specific federal statutory authority.

3. Does the modification involve adding any of the following procedures? (Check all that apply.)

- Usability testing of websites, software, devices, etc.
- Collection of information from private records when identifiers are recorded
- Procedures conducted to induce stress, moods, or other psychological or physiological reactions
- Presentation of materials generally considered to be offensive, threatening, or degrading
- Video recording or photographing non-public behaviors
- Use of deception (e.g., misleading participants about the procedures or purpose of the study)
- Physical interventions, such as
  - blood draws
  - new collection of biological specimens
  - use of physical sensors (ECG, EEG, ultrasound, etc.)
  - exercise, muscular strength assessment, flexibility testing
  - body composition assessment
  - measuring of height and weight
  - x-rays
  - changes in diet or exercise
- Tests of sensory acuity (i.e., vision or hearing tests, olfactory tests, etc.)
- Consumption of food (other than as described in #1.d) or dietary supplements
- Clinical studies of drugs or medical devices
- Other procedures not included in 1.a. through 1.e. above; please specify: ____

3.a. If Yes, is your research conducted in an established or commonly accepted educational setting, and are the checked procedures part of normal educational practices in that setting? If Yes, please describe: ____

4. Does the modification result in the inclusion of persons from the following populations? (Check all that apply.)

- Prisoners
- Cognitively impaired
- Children (persons under age 18)
- Wards of the State
- Persons who are institutionalized

4.a. If Yes, please describe how they will be involved and what procedures they will complete: ____

5. Does the modification result in any of the following identifiers being linked to the data at any time point? (Check all that apply.)

- Names:  □ First Name Only  □ Last Name Only  □ First and Last Name
Appendix E continued

☐ Yes ☐ No 6. Does the modification lead to a reasonable possibility that participants' identities could be ascertained from any combination of information in the data? If Yes, please describe:

If Yes to 5 or 6, please complete 7.a. and 7.b. below.

☐ Yes ☐ No 7.a. Will participants’ identities be kept confidential when results of the research are disseminated?

☐ Yes ☐ No 7.b. Could any of the information collected, if disclosed outside of the research, reasonably place the subjects at risk of any of the following? (Check all that apply.)

☐ Criminal liability
☐ Civil liability
☐ Damage to the subjects' financial standing
☐ Damage to the subjects' employability
☐ Damage to the subjects' reputation

☐ Yes ☐ No 7.c. Does the research, directly or indirectly, involve or result in the collection of any information regarding any of the following? (Check all that apply.)

☐ Use of illicit drugs
☐ Criminal activity
☐ Child, spousal, or familiar abuse
☐ Mental illness
☐ Episodes of clinical depression
☐ Suicidal thoughts or suicide attempts
☐ Health history
☐ History of job losses
☐ Exact household income other than in general ranges
☐ Negative opinions about one's supervisor, workplace, teacher, or others to whom the subject is in a subordinate position
☐ Opinions about race, gender, sexual orientation, or any other socially sensitive or controversial topics
☐ Sexual preferences or behaviors
☐ Religious beliefs
☐ Any other information that is generally considered to be private or sensitive given the setting of your research; please specify: _____
Appendix E continued

Submission requirements: Revised data collection materials do not need to be submitted with this application.

If you have any questions or feedback, please contact the IRB office at IRB@iastate.edu or 515-294-4566.
Appendix F Sample Email Requesting Help from Community Colleges

From: 
Sent: Monday, July 07, 2014 7:08 AM 
To: 
Subject: Student Interviews
Importance: High

My name is Anthony G. Hill; I am a doctoral candidate in the University of South Florida Adult Education Program. I am conducting a study to meet the requirements for my dissertation. The purpose of this study is to examine the perceptions related to the transfer process/function for adult students enrolled in the Associate in Science (AS) and the Associate in Applied Science (AAS) with the intent to transfer.

This study is significant because of the growth in the completion agenda and President Obamas’ goal of having the highest proportion of college graduates in the world by the year of 2025 (WICHE, 2012). To achieve this idea of both policies and goals the engagement of the adult population participation in higher education specifically within the community college transfer system is required because the traditional student flow from high school to college cannot by itself meet the achievements desired by the year 2025 (WICHE, 2012).

The contributions of the study to xxxx would include better student advising, better understanding of student needs and required resources for students and the institution, updated articulation agreements, increased seamless transfer of credits, increased successful transfer rates, and increased completion rates.

I completed a student survey spring 2014, with xxxxx and another State College within the State of Florida. My current goal is to overcome the problems with a single research method to accomplish this I propose triangulation of my research methodologies by interviewing a few students.

I am respectfully requesting to schedule a meeting with you this summer to discuss my research and the institutions involvement. I look forward to hearing from you and discussing my research. Please contact me at

See attached PDFs for IRB Approvals

Thank you for your time. 
Anthony G. Hill
Doctoral Candidate
USF School of Education
Appendix G Student Invitation to Participate

Adult Community College Students Perceptions of the Transfer Process with Intent to Transfer Associate in Science/Associate in Applied Science to a Public University.

Student Invitation to Participate_1_07.26 .2013

Dear [Student First Name],
On behalf of [Name of Institution], I would like to invite you to participate in the Adult Community College Students Perceptions of the Transfer Process with Intent to Transfer Associate in Science/Associate in Applied Science to a Public University research study (IRB#15193). This research study consists of structured interviews that asks you about your student academic and social experiences to determine your intent to transfer and transfer knowledge among community/state college students with intent to transfer the AS/AAS degree to a four-year college or university. [Name of Institution] has been selected, and agreed to participate in this important study researching various factors associated with your intent to transfer.

The structured interviews are being conducted by the Researcher PI from the School of Education Department of Adult Education at the University of South Florida as part of a study of community/state college intent to transfer the AS/AAS degree to a 4-year college or university. By participating in this interview, you will provide us with information that will be valuable for improving the quality of the transfer process and articulation agreements leading to student success at both two-year and four-year higher education institutions.

You have been identified and invited to participate in this study because you meet the criteria. Students’ selection and eligibility criteria is based on college enrollment status during the period of the study. All participants are required to be adults/adult students in the AS/AAS degree program. Be in the second semester of studies. Be attending class at least part-time with a course load equivalent of six credit hours minimum and courses leading to college credit.

The interview approximately 30-45 minutes.

Your responses will be kept confidential and will not identify you by name in any report resulting from this research. Moreover, the data will be reported only in aggregate form. Your individual answers to the interview questions will not be provided to anyone at [Name of Institution] and individual institutions will not be identified in reports related to this interview. Your participation in this study is completely voluntary and you may refuse to participate or leave the study early, it will not result in penalty or loss of benefits to which you are otherwise entitled.

Should you have any questions or concerns about this interview, please contact Doctoral Candidate Anthony G. Hill by email (aghill@mail.usf.edu) or phone (813-xxx-xxx).
Appendix H Advisor Invitation to Participate

Adult Community College Students Perceptions of the Transfer Process with Intent to Transfer Associate in Science/Associate in Applied Science to a Public University.
Advisers/Counselors Consent to Participate _1_07.13.2014

On behalf the University of South Florida, I would like to invite you to participate in the AS/AAS Student intent to transfer study. The purpose of this study is to examine the perceptions related to the transfer process or function of AS/AAS adult students with the intent to transfer. The focus of this study is adult students enrolled in two of the 28 community colleges degree programs in the Florida College System with intent to transfer to a state university. The following questions will guide this study: 1) What are the perceptions of community college adult students with the intent to transfer have regarding the transfer process or function enrolled in AS/AAS degree programs? 2) Do AS/AAS degree seekers receive student support in the form of transfer and orientation services? 3) Is there a relationship between the perceptions that influence intent to transfer and incoming grade point average, previous course work, and test scores for the degree type of enrollment? 4) What are the differences of pre-transfer experiences for AS/AAS?
In order to participate in the structured interviews and study, your informed consent is required. You are being asked to make a decision whether or not to participate in the structured interviews and study. If you want to participate in the interviews and study, and agree with the statements below, please sign your name in the space provided at the end. You may change your mind at any time and leave the study without penalty, even after the study has begun.
I understand that:
1. My participation is voluntary and I have the right to refuse to answer any questions.
2. I will be digitally audio recorded via laptop, and the researcher will transcribe the digital audio recording. There will be no way to connect me to my responses. If any publication results from this research, I would not be identified by name.
3. There is no anticipated risks in the time it take to complete the interview.
4. My participation involved being digitally recorded during an interview answering 38 questions. It is estimated that it will take 30-45 minutes to complete the interview.
5. Approximately 506 people will take part in this study. The results will used for the completion of a dissertation by the PI.
6. Data, digital audio, and transcribed office word documents will be stored on USF Canvas by the PI and pin protected. Only the PI will have access to the data, digital audio, and office word documents. Data, digital audio, transcribed office word documents, and consent forms will be destroyed by digital (delete from USF server) or mechanical (shredding) cleansing were appropriate. Only the PI will undertake recordings transcription.
7. You will have the opportunity to review, edit, or erase any audio recording to which you have contributed.

Additional precautions for the digital audio recording security stored temporally on the laptop will have password and biometrics security protection of the interviews. All transcripts will be identified by code rather than by name.
The interview should take less than 45 minutes. I will be recording the session because I do not want to miss any of your comments. Although I will be taking some notes during the session, I want to ensure my notes are accurate by backing up the interview with the recording. All responses will be kept confidential. This means that your responses will only be shared with the research team members and will ensure that any information we include in our report does not identify you as the respondent, also you may end the interview at any time you desire. Risks to the participants will be minimal because the design and procedures have been previously used to conduct studies of transfer students. The participants will not be exposed to any physical, psychosocial, or legal threats. Review of the literature there were no known adverse effects found or anticipated for the participants.

The PI has conducted a Risk/Benefit Assessment and the potential risks for the participants are minimal. The risks identified by the PI for the participants are related to psychological or emotional well-being. The most common risk arises in the field with in-person interviews are from the participant response to the questions asked or topic discussed. The interview questions for the current research study do not ask sensitive questions or topics. None of the questions will illicit any embarrassing, humiliation, or anxiety responses. Invasion of privacy is a potential risk identified by the PI no such questions will be asked of the participants. Risks to the participants can arise from the publication and dissemination of the research. The PI will minimize these risks by protecting confidentiality, anonymity, accidental disclosures, and any off the record comments.

All participants will be kept informed, as part of the consent process, about who they can contact should they have a complaint about any aspect of their involvement in the study.

The benefits of participating in the study include valuable insights into the real story of the transfer process and articulation agreement. Aid in filling the gap in the literature regarding the transfer process. Improve the State of Florida articulation agreement and transfer process. Increase the transfer rate from the community/state college to the state university. Increase in resources for the transfer student in the form of scholarships and financial aid. Better transfer advising and counseling.

Further benefits transfer proliferation of knowledge regarding the educational transfer process or function regarding the perceptions that will further inform educational policies, services, and practices to support adult AS/AAS students. Further benefits to the participants the opportunity to participate and advance the research in transfer studies. The opportunity to have their voices heard in the literature regarding transfer policies, articulation agreements, transfer services, and academic services. Finally, the opportunity exists to influence policy and policy makers. The results of this study will expand human potential among adult students in AS/AAS through enhancing educational policy and practices at both 2- and 4-year educational sectors. It will be useful to current and future adult AS/AAS students, faculty, and staff, student affairs professionals, and institutional researchers.

Should you have any questions or concerns about this interview, please contact Doctoral Candidate Anthony G. Hill by email (aghill@mail.usf.edu) or (813-xxx-xxx); University
Appendix H continued

Advisor/Co Principal Investigator Dr. Waynne James (813-xxx-xxx).

Are there any questions regarding the information provided?
Are you willing to participate in this interview?

____________________   __________________
Interviewee                  Date
## Appendix I Code Book

<table>
<thead>
<tr>
<th>Variables</th>
<th>Codes</th>
</tr>
</thead>
</table>
| Q33. Intent to Transfer/ If there were no obstacles, what is the highest academic degree you would like to attain in your lifetime? | 1. Will take classes, but do not intend to earn degree  
2. Vocational Cert/Diploma  
3. Associate degree (A.A. or equivalent)  
4. Bachelors’ Degree (B.A., B.S., etc.)  
5. At least a Bachelor’ degree, maybe more  
6. Master’s degree (M.A., M.S., etc.)  
7. Doctoral degree (Ph. D., Ed. D., J.D., etc.)  
8. Medical degree (M.D., D.D.S., D.V.M., etc.) |
| Q49. Enrollment status at this college?                                   | 1 = 12-credit hours or more full time  
2 = less than 12 credit hours as part time. |
| Q18. Are you financially independent?                                     | 1=Yes  
2=No |
| Q22. Excluding yourself how many people are you financially supporting?   | 1= None  
2= 1-2  
3=3-4  
4=5 or above |
Appendix I continued

| Q20. How much of your first year’s educational expenses expect to cover from each listed? | 1=None 
2=Less than $1,000 
3=$1,000 to $2,999 
4=$3,000 to $5,999 
5=$6,000 to $9,999 
6=$10,000 
7=Don’t know |
| Q20.1 Family resources (parents, relatives, spouses, etc.) |
| Q20.2 My own resources (savings from work. Work study, other income) |
| Q20.3 Employer contributions |
| Q20.4 Aid which not need to be repaid |
| Q20.5Aid which must be repaid |
| Q20.6 Other sources |

| Q23. Are you currently working? | 1= Yes, I am currently working on campus. 
2=Yes, I am currently working off campus. 
3=No, I am not looking for work. 
4=No, I am currently unemployed, but I am looking for working opportunities. |
| Q68. Excessive withdrawal |
| Q68.1 First term enrollment | Classes withdrawn 1-2 times 
0=No 
1=Yes |
| Classes withdrawn 2-3times |
| 0=No 
1=Yes |
| Classes withdrawn 3-4 times |
| 0=No 
1=Yes |

| Q68.2 Second term enrollment |
| Q68.3 Third+ term enrollment | Classes withdrawn 1-2 times 
0=No 
1=Yes |
| Classes withdrawn 2-3 times |
| 0=No 
1=Yes |
| Classes withdrawn 3-4 times |
| 0=No 
1=Yes |
### Appendix I continued

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
</table>
| Q36. Remedial courses taken (development Math Reading, English) non-credit | Q36.1 0=No Math  
1= Math  
Q36.2 0=No Reading  
2=Reading  
Q36.3 0=No Writing  
1=Writing  
Q36.4 0=No  
1=Yes |
| Q69. At this college what is your GPA?                                    | 1=3.75-4.00  
2=3.25-3.74  
3=2.75-3.24  
4=2.25-2.74  
5=1.75-2.24  
6=1.25-1.74  
7=Less than 1.25  
8=Have not taken courses for which grades were given  
9=Prefer not to answer |
| Q24. How many hours working on a job a week for pay?                       | 1=1 to 10 hours  
2=11 to 15 hours  
3=16 to 20 hours  
4=21 to 30 hours  
5=More than 30 hours |
| Q35. Hours per week on campus not counting attending class?               | 1=None  
2=1 to 3 hours  
3=4 to 6 hours  
4=7 to 9 hours  
5=10 to 12 hours  
6=More than 12 hours |
| Q45. As things stand today, do you intend to transfer to a:               | 1=4-year public university  
2=4-year private college or university  
3=Private 2-year college  
4=Public 2-year college  
5=Not intend to transfer |
| Q37. Hours per week studying and preparing for class?                    | 1=1 to 5 hours  
2=6 to 10 hours  
3=11 to 15 hours  
4=16 to 20 hours  
5=More than 20 hours |
Appendix I continued

| Q38. Following items address the use of transfer center, orientation, and academic advising. | 1= Strongly Agree  
2=Disagree  
3=Slightly Disagree  
4=Neither Agree nor Disagree  
5=Slightly Agree  
6=Agree  
7=Strongly Agree |
|---|---|
| Q38.1 Consulted with academic advisors/counselors. | 1= Strongly Agree  
2=Disagree  
3=Slightly Disagree  
4=Neither Agree nor Disagree  
5=Slightly Agree  
6=Agree  
7=Strongly Agree |
| Q38.2 Information received from academic advisors/counselors was helpful in the transfer process. | 1= Strongly Agree  
2=Disagree  
3=Slightly Disagree  
4=Neither Agree nor Disagree  
5=Slightly Agree  
6=Agree  
7=Strongly Agree |
| Q38.3 Visited academic advisors/counselors on a regular basis. | 1= Strongly Agree  
2=Disagree  
3=Slightly Disagree  
4=Neither Agree nor Disagree  
5=Slightly Agree  
6=Agree  
7=Strongly Agree |
| Q38.4 Talked with advisors/counselors course requirements and education plans. | 1= Strongly Agree  
2=Disagree  
3=Slightly Disagree  
4=Neither Agree nor Disagree  
5=Slightly Agree  
6=Agree  
7=Strongly Agree |
| Q38.5 I discussed my plans of transferring to a 4-year college/university with academic advisors/counselors. | 1= Strongly Agree  
2=Disagree  
3=Slightly Disagree  
4=Neither Agree nor Disagree  
5=Slightly Agree  
6=Agree  
7=Strongly Agree |
| Q38.6 Advisors/counselors identified courses needed to meet the general education/major requirements for a four-year college or university I was interested in attending. | 1= Strongly Agree  
2=Disagree  
3=Slightly Disagree  
4=Neither Agree nor Disagree  
5=Slightly Agree  
6=Agree  
7=Strongly Agree |
# Appendix I continued

<table>
<thead>
<tr>
<th>Question</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q38.7 I attended transfer orientation.</td>
<td>1= Strongly Agree</td>
</tr>
<tr>
<td></td>
<td>2=Disagree</td>
</tr>
<tr>
<td></td>
<td>3=Slightly Disagree</td>
</tr>
<tr>
<td></td>
<td>4=Neither Agree nor Disagree</td>
</tr>
<tr>
<td></td>
<td>5=Slightly Agree</td>
</tr>
<tr>
<td></td>
<td>6=Agree</td>
</tr>
<tr>
<td></td>
<td>7=Strongly Agree</td>
</tr>
<tr>
<td>Q39. The following items pertain to the perception of the transfer process while enrolled at the community college.</td>
<td>1= Strongly Agree</td>
</tr>
<tr>
<td>Q39.1 I researched various aspects of 4-year institutions to get a better understanding of the environment and academic expectations.</td>
<td>2=Disagree</td>
</tr>
<tr>
<td></td>
<td>3=Slightly Disagree</td>
</tr>
<tr>
<td></td>
<td>4=Neither Agree nor Disagree</td>
</tr>
<tr>
<td></td>
<td>5=Slightly Agree</td>
</tr>
<tr>
<td></td>
<td>6=Agree</td>
</tr>
<tr>
<td></td>
<td>7=Strongly Agree</td>
</tr>
<tr>
<td>Q39.2 I Visited 4-year institutions at least once to learn where offices and departments are located.</td>
<td>1= Strongly Agree</td>
</tr>
<tr>
<td></td>
<td>2=Disagree</td>
</tr>
<tr>
<td></td>
<td>3=Slightly Disagree</td>
</tr>
<tr>
<td></td>
<td>4=Neither Agree nor Disagree</td>
</tr>
<tr>
<td></td>
<td>5=Slightly Agree</td>
</tr>
<tr>
<td></td>
<td>6=Agree</td>
</tr>
<tr>
<td></td>
<td>7=Strongly Agree</td>
</tr>
<tr>
<td>39.3 I spoke to academic counselors at 4-year institutions about transferring and major requirements.</td>
<td>1= Strongly Agree</td>
</tr>
<tr>
<td></td>
<td>2=Disagree</td>
</tr>
<tr>
<td></td>
<td>3=Slightly Disagree</td>
</tr>
<tr>
<td></td>
<td>4=Neither Agree nor Disagree</td>
</tr>
<tr>
<td></td>
<td>5=Slightly Agree</td>
</tr>
<tr>
<td></td>
<td>6=Agree</td>
</tr>
<tr>
<td></td>
<td>7=Strongly Agree</td>
</tr>
<tr>
<td>Q39.4 I spoke with former community college transfer students to gain insight about their transfer experiences.</td>
<td>1= Strongly Agree</td>
</tr>
<tr>
<td></td>
<td>2=Disagree</td>
</tr>
<tr>
<td></td>
<td>3=Slightly Disagree</td>
</tr>
<tr>
<td></td>
<td>4=Neither Agree nor Disagree</td>
</tr>
<tr>
<td></td>
<td>5=Slightly Agree</td>
</tr>
<tr>
<td></td>
<td>6=Agree</td>
</tr>
<tr>
<td></td>
<td>7=Strongly Agree</td>
</tr>
</tbody>
</table>
### Appendix I continued

<table>
<thead>
<tr>
<th>Question</th>
<th>1= Strongly Agree</th>
<th>2=Disagree</th>
<th>3=Neither Agree nor Disagree</th>
<th>4=Slightly Agree</th>
<th>5=Agree</th>
<th>6=Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q39.5 I visited the community college transfer center.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q48. Is this your first semester in this college?</td>
<td>1=Yes</td>
<td>2=No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q49. Thinking about this current academic term, how would you characterize your enrollment at this college?</td>
<td>1= Full-time (12 or more credit hours)</td>
<td>2= Part-time (less than 12 credits)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Q50. Including this semester, what mathematics courses have you taken?

<table>
<thead>
<tr>
<th>Course Type</th>
<th>High school</th>
<th>College</th>
<th>Did not take</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic math, Business math, or Pre-Algebra</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Algebra I</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geometry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Algebra II</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trigonometry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calculus</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integrated/Applied Mathematics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Probability/Statistics</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Appendix I continued

<table>
<thead>
<tr>
<th>Question</th>
<th>High School</th>
<th>College</th>
<th>Did not take</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q51.1 General Biology</td>
<td>0=No 1=Yes</td>
<td>0=No 1=Yes</td>
<td>0=No 1=Yes</td>
</tr>
<tr>
<td>Q51.2 Chemistry</td>
<td>0=No 1=Yes</td>
<td>0=No 1=Yes</td>
<td>0=No 1=Yes</td>
</tr>
<tr>
<td>Q51.3 Physics</td>
<td>0=No 1=Yes</td>
<td>0=No 1=Yes</td>
<td>0=No 1=Yes</td>
</tr>
<tr>
<td>Q51.4 Biology Specialty</td>
<td>0=No 1=Yes</td>
<td>0=No 1=Yes</td>
<td>0=No 1=Yes</td>
</tr>
<tr>
<td>Q51.5 Other Earth Sciences</td>
<td>0=No 1=Yes</td>
<td>0=No 1=Yes</td>
<td>0=No 1=Yes</td>
</tr>
<tr>
<td>Q51.5 Physical Sciences</td>
<td>0=No 1=Yes</td>
<td>0=No 1=Yes</td>
<td>0=No 1=Yes</td>
</tr>
<tr>
<td>Q53. Have you ever attended a four-year college/university?</td>
<td>1=Yes 2=No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q54. What academic credentials have you earned?</td>
<td>0=No 1=Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q54.1 None</td>
<td>0=No 1=Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q54.2 High school diploma or GED.</td>
<td>0=No 1=Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q54.3 AA (Associate of Arts)</td>
<td>0=No 1=Yes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Appendix I continued

<table>
<thead>
<tr>
<th>Question</th>
<th>Response Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q54.4 AS (Associate of Science)</td>
<td>0=No</td>
</tr>
<tr>
<td></td>
<td>1=Yes</td>
</tr>
<tr>
<td>Q54.5 AGS (Associate of General Studies)</td>
<td>0=No</td>
</tr>
<tr>
<td></td>
<td>1=Yes</td>
</tr>
<tr>
<td>Q54.6 AAA (Associate of Applied Arts)</td>
<td>0=No</td>
</tr>
<tr>
<td></td>
<td>1=Yes</td>
</tr>
<tr>
<td>Q54.7 AAS (Associate of Applied Science)</td>
<td>0=No</td>
</tr>
<tr>
<td></td>
<td>1=Yes</td>
</tr>
<tr>
<td>Q54.8 Diploma</td>
<td>0=No</td>
</tr>
<tr>
<td></td>
<td>1=Yes</td>
</tr>
<tr>
<td>Q54.9 Certificate</td>
<td>0=No</td>
</tr>
<tr>
<td></td>
<td>1=Yes</td>
</tr>
<tr>
<td>Q54.10 Other</td>
<td>0=No</td>
</tr>
<tr>
<td></td>
<td>1=Yes</td>
</tr>
<tr>
<td>Q55. What is your gender</td>
<td>1= Male</td>
</tr>
<tr>
<td></td>
<td>2=Female</td>
</tr>
<tr>
<td>Q56. How would you identify your race/ethnic background?</td>
<td>1=American Indian or Alaska Native</td>
</tr>
<tr>
<td></td>
<td>2= Asian</td>
</tr>
<tr>
<td></td>
<td>3= Black or African American</td>
</tr>
<tr>
<td></td>
<td>4=Native Hawaiian or other Pacific Islander</td>
</tr>
<tr>
<td></td>
<td>5=White</td>
</tr>
<tr>
<td></td>
<td>6=Two or more races</td>
</tr>
<tr>
<td></td>
<td>7=Race/Ethnicity</td>
</tr>
<tr>
<td>Q57. What is your age?</td>
<td>1=26-36 years</td>
</tr>
<tr>
<td></td>
<td>2=37-46 years</td>
</tr>
<tr>
<td></td>
<td>3=47-56 years</td>
</tr>
<tr>
<td></td>
<td>4=57-66 years</td>
</tr>
</tbody>
</table>
Appendix I continued

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
</table>
| Q58. What is your marital status? | 1=Married  
2=Living together (not married)  
3=Single, never married  
4= Divorce/separated/widowed |
| Q61. How many miles is the college from your permanent home? | 1= 1-5 miles  
2= 6-10 miles  
3= 11-50 miles  
4= 51-100 miles |
| Q66. During the hours you are on campus for class are there Administration/Disability/Career/Academic Services open and available? | 1=Yes  
2=No |
| Q66.1 Book store open | 1=Yes  
2=No |
| Q66.2 Financial aid open | 1=Yes  
2=No |
| Q66.3 Parking services open | 1=Yes  
2=No |
| Q66.4 Note taking services open | 1=Yes  
2=No |
| Q66.5 Testing services/accommodations open | 1=Yes  
2=No |
| Q66.6 Tutoring services open | 1=Yes  
2=No |
| Q66.7 Academic services open | 1=Yes  
2=No |
| Q66.8 Remediation services open | 1=Yes  
2=No |
| Q66.9 Information services open | 1=Yes  
2=No |
<table>
<thead>
<tr>
<th>Q66.10 Interpreter services open</th>
<th>1=Yes                      2=No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q67. What degree program are you currently enrolled?</td>
<td>1=AA (Associate in Arts) 2= AS (Associate in Science) 3=AAS (Associate in Applied Sciences) 4= Other, please specify</td>
</tr>
</tbody>
</table>
### Table J1. Advisor Structured Interviews Questions and Synopsis of Results

<table>
<thead>
<tr>
<th>Question</th>
<th>Advisor Respondent</th>
<th>Gender</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the transfer system seamless? * (SQ3)**</td>
<td>AR1</td>
<td>F</td>
<td>The articulation agreement does allow for a seamless admission process, not graduation. Students identify as A.S./A.A.S seekers and do not know the meaning of the degree.</td>
</tr>
<tr>
<td></td>
<td>AR2</td>
<td>F</td>
<td>No, there are so many elements to that. First being if a student comes with an AA from a Florida public school and they have not met all the prerequisites for their major they could have a year or two of prerequisites to take, therefore nothing seamless about it.</td>
</tr>
<tr>
<td></td>
<td>AR3</td>
<td>M</td>
<td>Absolutely not, this is one of most frustrating part of my work. Transfer students are viewed as being complicated.</td>
</tr>
<tr>
<td>Should AS/AAS transfer students receive the same transfer status as AA transfer students? * (SQ1)**</td>
<td>AR1</td>
<td>F</td>
<td>A little complicated because the intent is job readiness for the workforce. Difficult to articulate A.S./A.A.S because of the general 48 requirement.</td>
</tr>
<tr>
<td></td>
<td>AR2</td>
<td>F</td>
<td>Yes, certainly if we give it to one we should give it to them all they have completed two years if college, but they may not have a program they can articulate into it is different</td>
</tr>
</tbody>
</table>
for each Florida university.

I maybe over simplifying this, but yes. I do not see why we distinguish between the two quite frankly.

I think so, the best example I can give is at Valencia College they have two sets of advisors one for A.S. and for A.A. A.S. students do not know they need to declare intent.

The advisors main goal is to help students, but transfer information is very complex it would be worthwhile to have transfer centers.

Yes I do, if our goal is to get students in and out into jobs and careers we have career centers for that. It would make sense if a goal is to have the student transfer we should have transfer centers.

I absolutely agree to some capacity because students in general seek out faculty at times as their first line advisors when they have questions. One of the easy ways to do this, an Valencia College is doing this is student success programs.
<table>
<thead>
<tr>
<th>ID</th>
<th>Gender</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>AR2</td>
<td>F</td>
<td>Yes, it would be worthwhile. It would educate everyone, the community college, students and professors/instructors, they would a better understanding of articulation.</td>
</tr>
<tr>
<td>AR3</td>
<td>M</td>
<td>Yes, I think that it should be Included. It goes back to any great leader’s book I ever read begin with the end in mind.</td>
</tr>
</tbody>
</table>

**Should there be seminars on transfer?**

<table>
<thead>
<tr>
<th>ID</th>
<th>Gender</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>AR1</td>
<td>F</td>
<td>Yes, my position work specifically with Valencia East Campus, UCF conduct seminars and other local community colleges. We are doing these type of workshops.</td>
</tr>
<tr>
<td>AR3</td>
<td>M</td>
<td>We do not currently. In the past maybe admissions did. What I will tell you when I first took this job I went to all the top feeder schools to this university.</td>
</tr>
</tbody>
</table>

**Do transfer students receive adequate funding?**

<table>
<thead>
<tr>
<th>ID</th>
<th>Gender</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>AR1</td>
<td>F</td>
<td>There are definitely far more scholarships for freshman then transfer students we do have admissions transfer scholarship it is very competitive and the student is required to be from one of Florida community colleges.</td>
</tr>
<tr>
<td>AR2</td>
<td>F</td>
<td>I will say I had a student in today that received the $600 or $700.00 transfer scholars transfer scholarship for the</td>
</tr>
</tbody>
</table>
Appendix J Continued

Do transfer students receive adequate funding?* AR3

M This is a tough one. Yes and no. Overall no, but I think there are cases individually were students do, but as a group I do not. I worked in another the scholarship pot for freshmen was huge for transfer students small.

Note*. See Appendix C for the advisor interview questions survey questions.
About the Author

Anthony G. Hill was born in Rocky Mountain, North Carolina and raised in Palatka, Florida. He earned a B.S. in Political Science from Florida State University, an M.S. in Social Sciences from Florida State University, and an Ed. D. in Educational Program Development, Curriculum and Instruction Major Concentration in Adult Education from the University of South Florida. He has worked in the public sector for over 28 years.