Career-technical students in baccalaureate programs: Predictors of the intent to persist and satisfaction with educational pathways

Julie Uranis
Career-Technical Students in Baccalaureate Programs:
Predictors of the Intent to Persist and Satisfaction with Educational Pathways

by

Julie Uranis

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Dissertation Committee:
Eboni Zamani-Gallaher, Ph.D., Committee Co-Chair
David Anderson, Ed.D., Committee Co-Chair
Jaclynn Tracy, Ph.D.
Mary Sue Marz, Ph.D.

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Dedication

To my love, Glen Uranis.
Acknowledgements

It is through working in Extended Programs and Educational Outreach at Eastern Michigan University (EMU) that I began my relationship with the Leadership and Counseling department. I honestly did not intend to pursue a terminal degree until Dr. Jaclynn Tracy prompted me to consider the Educational Leadership Program. That conversation coincided with another conversation I had with my grandfather, Paul Chervekowsky. Grandpa Paul shared his belief that degrees were part of my compensation package at EMU. He remarked that only a fool would leave any compensation on the table.

With my personal reservations in check, I embarked on the most humbling experience of my life. I have never been so in awe of others: the boundless energy and dedication of Dr. Eboni Zamani-Gallaher, the patience and kindness of Dr. David Anderson, the humor and insights of Dr. James Barrott, and the exuberance and support of Dr. Jaclynn Tracy. After long workdays and workweeks I was excited to attend class just to spend some time with these remarkable people.

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My final thought is a nod to my Grandpa Paul. My only regret is that I did not finish while he was still with us. Grandpa Paul, wherever you are in the universe know that you are always in my heart and that I left nothing on the table.
Abstract

This research explores the intersections of descriptive attributes, expectations, and influences (independent variables) and the degree to which they predict the intent to persist and satisfaction (dependent variables) of students enrolled in career-technical programs at four-year institutions. Little research exists for this population, and nothing based on the theoretical frameworks of Bean and Metzner (1985) and Lent, Brown and Hackett (1994). Expecting a significant relationship among several factors contributing to the intent to persist for career-technical students in degree programs, this research explores predictors for persistence in this population. This research revealed that there are simpler relationships among the variables explored in this study and that no one model can explain the variations that exist for both native and transfer students. The study has implications that include tailoring conversations for students, including more measures around academic self-efficacy in federal policy measures of accountability, and exploring the nature of academic self-efficacy in transfer student populations.
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Chapter 1: Introduction

Career and technical education (CTE) programs are at the heart of most community college missions and many comprehensive universities. After completing CTE certificates and associate’s degrees at two-year institutions, students can enter the workforce as highly qualified candidates for 21st century jobs, or they can choose to continue their education at a four-year institution. While educators, employers, and professional groups stress the need for continued education, skill enhancement, and advanced degrees, the factors that contribute to students’ intent to persist and their satisfaction in career-technical programs at four-year institutions remains unclear. Chapter 2, featuring the literature review for this study, will present an in-depth exploration of these gaps in the literature.

Background of the Study

Often termed “vocational education” and “terminal degree programs,” CTE encompasses business, healthcare, and technological fields of study that require technical skills and knowledge often obtained at the sub-baccalaureate level (Bragg, 2001). These programs prepare students for immediate employment in important and growing segments of the labor market (Bailey, 2008; Cohen & Laanan, 1997). Career and technical education (CTE) programs account for a large number of baccalaureate programs and remain critical to the mission of community colleges.

Levesque, Laird, Hensley, Choy, Cataldi, and Hudson (2008) found that 98.1% of all public two-year institutions offered career and technical programs. As Brint & Karabel (2006) observed, CTE gives community colleges a distinctive niche in the postsecondary landscape. Due to global competition and changing demographics, vocational education has “the potential to evolve into a more complex category of higher education” (Summers, 2001, p. 24).
In 2004-2005, 95.6% of all community colleges offered business and marketing CTE programs followed by healthcare (94%), engineering and architectural sciences (84.3%), computer sciences (82.9%), and trade and industry (79.7%) (Levesque et al., 2008). Community colleges have found a niche in training first responders and nurses, with over 60% of all nurses having obtained associate’s degrees in nursing from community colleges (Bailey, 2008). In 2007–2008, 6.3 million credential seeking undergraduate students were in career education programs. Approximately five million students sought career credentials at public two-year institutions (Wei et al., 2009). According to the National Center for Education Statistics (NCES), nearly 15% of students who initially enrolled in career education programs in 2003-2004 achieved a bachelor’s degree by 2009 (Wei et al., 2009). In 2009-10, 22 percent of the 1.7 million bachelor’s degrees awarded were in business, management, marketing, and personal and culinary services. Another 8 percent were awarded in health professions and related programs, another 5 percent in communication and communication technologies (Aud, Hussar, Johnson, Kena, Roth, Manning, Wang, & Zhang, 2012). Considering the size and scope of career education in the United States, it is important to understand the historical contexts under which career technical education developed.

**Policy Antecedents and the Integration of Academics in Career Education**

Several policy antecedents fostered the growth of vocational education in secondary schools and career-technical education at postsecondary institutions. Legislative acts from the Morrill Act of 1862 through the Carl D. Perkins Career and Technology Education Act 2006 (Perkins IV) defined the mission of vocational and technical education and determined the manner in which academic coursework would be separated from, and later integrated into more comprehensive programs of study for career-minded students (Hayward & Benson, 1993)
The Morrill Act of 1862 and later the Morrill Act of 1890 granted land to states for creating postsecondary institutions to serve the extension needs of agriculture. This was the first federal legislation to support vocational education and promote the practical education of average citizens (Gordon, 1999). This new vocationalism, focused on farmers, business professionals, and educators, countered the generally accepted idea that the common school with common education was acceptable for all students (Gordon, 1999; Kincheloe, 1999). With the founding of land grant institutions, higher education became accessible to more citizens and the concept of integrated academics became prescribed, where students possessing both liberal and practical knowledge could meet the needs of society (Gordon, 1999). This posed a problem, as students arriving at postsecondary institutions were often ill prepared for advanced studies. To that end, educational leaders at land grant postsecondary institutions encouraged the creation of high schools for the sole purpose of preparing students for postsecondary studies (Gordon, 1999, Kincheloe, 1999). As Kincheloe (1999) noted, the period between 1890 and 1920 saw a boon in the number of high schools that opened. While the national population grew by 68 percent, student enrollments in high school increased by 812 percent. Twenty-eight percent of America’s youth were high school students in 1920, a significant increase from the 4 percent of youth enrollments in 1890 (Kincheloe, 1999). For the first time in United States’ history, education became the norm for adolescents. Instruction in languages, mathematics, agriculture, and science prepared children for work roles (Kincheloe, 1999). In this regard, land grant colleges fostered the development of a cohesive system of education for vocational students.

established extension offices at land grant institutions, extending greater access to more citizens (Gordon, 1999). It also established guidelines regarding the control of public education, signifying that elementary and secondary education would remain the responsibility of the states while the federal government would create mechanisms to increase access to higher education (Gordon, 1999). By delineating responsibilities, the Smith-Lever Act of 1914 laid the foundation for the chasm that developed between secondary and postsecondary career education. Only in recent legislation, and nearly one hundred years after the Smith-Lever act, has legislation mandated integrated curriculums between secondary and postsecondary institutions.

While the Smith-Lever act of 1914 prescribed the responsibilities of public education in the United States, the Smith-Hughes Act of 1917 isolated vocational education in secondary education. The act mandated state boards of vocational education, which caused many states to create boards of vocational education as separate bodies operating outside the purview of state boards of education (Hayward & Benson, 1993). Through this governance structure, lawmakers identified a distinction between academic curricula, governed by state boards of education, and vocational curricula, governed by state boards of vocational education. This established the wholly separate domains of vocational and academic curricula in high schools (Hayward & Benson, 1993).

There were several stipulations in the Smith-Lever act that further deepened the split between academic and career education in the United States. The act specified that funds, particularly federal funds, designated for vocational education could be spent on the salaries of vocational teachers, but not for academic teachers. While attempting to support vocational education, the unintended consequence of this requirement resulted in the separation of vocational education programs from school operations (Hayward & Benson, 1993). Along with
funding, the Smith-Lever Act placed limits on the amount of academic instruction a secondary student enrolled in vocational education could receive. By using federal funds, educators could only provide a half-hour of academic instruction for every hour of vocational instruction. This mandated formula took effect in the 1920s and lasted through the early 1960s (Hayward & Benson, 1993).

The Smith-Hughes Act of 1917 further emphasized the division between academic and vocational education by creating a narrow definition of vocational education and emphasizing vocational education as a means to educate the children of workers. Many believed at the time that the “concrete-minded” children of workers would be unable to handle academic subjects (Kincheloe, 1999). Vocational education created a niche for these students.

With the release of the Russell Report of 1938, the first evaluation of the dual system of education detailed the impact of the Smith acts. The Russell Committee, appointed by Franklin D. Roosevelt, stated that the limited scope of vocational education prescribed by the Smith-Hughes Act created a system where graduates were unable to adapt to changing work environments thus limiting employment options (Gordon, 1999). These observations further emphasized what a select few educators and legislators believed: that an integrated curriculum of both vocational and academic education creates well-rounded workers.

Proponents of integrated education, such as Walter F. George, a senator from Georgia from 1922 to 1957, sought to provide a more comprehensive education for vocational students (Gordon, 1999). The National Defense Education Act of 1958, passed as the space race was on the minds of many Americans, was one such attempt. This legislation was the first of its kind to stress the importance of new technical competencies, science, mathematics, and foreign languages (Gordon, 1999). This represented a departure from earlier vocational legislation and
provided federal support in the form of student loans and fellowships for more integrated curricula (Gordon, 1999).

With the passage of the Vocational Education Act of 1963, the needs of individual students became the emphasis of vocational education, rather than the needs of employers (Gordon, 1999). By emphasizing the individual and focusing federal attention on the vocational interests of underprivileged and disabled students, The Vocational Act of 1963 documented a shift in educational policy. Marginalized populations, rather than the children of workers, became the focus of vocational instruction (Hayward & Benson, 1993; Kincheloe, 1999). The 1968 amendment to the Vocational Act (Public Law 90-576) broadened the scope of vocational education and sought greater alignment with general education (Gordon, 1999). The Carl D. Perkins Vocational Act of 1984 commonly referred to as “Perkins,” created opportunities for states to modernize and develop high-quality career education programs, and sought to improve access to career education, especially for marginalized populations (Hayward & Benson, 1993).

The Carl D. Perkins Vocational and Applied Technology Education Act of 1990, commonly referred to as Perkins II, represents the first substantial departure from the separate and isolated curricula of vocational and academic coursework in career education. Not since the Smith-Hughes act of 1917 did educators see such a shift, in the form of mandates, regarding curricula in career education. By identifying the goal of preparing competitive and highly skilled workers, Perkins II provided for articulation between secondary and postsecondary education through technical preparation programs, the integration of career education with academics, and partnerships among education, business, and labor (Hayward & Benson, 1993).

Perkins II restricted federal funds to those programs that integrated academic and vocational education (Stern, Finkelstein, Stone, Latting, & Dornslife, 1995). This integration of
vocational and academic curricula posed challenges for a system built on the notion that each existed independently of one another. While general education requirements were now part of the vocational curriculum, their inclusion was without true integration, thus forcing students to make the connections between the skills developed on academic disciplines and the applied skills of career education (Grubb, 1996). This lead to the development of applied academic courses that fuse academic subjects with occupational applications, such as technical writing, business communication, and applied math (Grubb, 1996).

Perkins II authorized technical preparation programs that established articulations between secondary and postsecondary career education. Programs offering two years of instruction in high school and two years of instruction in college developed as “2+2 programs.” Most often involving partnerships between high schools or career academies and community colleges, 2+2 programs bridge the gap between secondary and postsecondary education and signify a policy shift where both legislatures and educators began to view vocational education as a comprehensive enterprise that crossed secondary and postsecondary education. The School-to-Work Opportunities Act of 1994 further enhanced these partnerships by supporting the integration of academic and vocational coursework at the secondary level in the attempt to achieve an adaptable worker that could apply school-based learning in work-based learning environments (Gordon, 1999).

The Carl D. Perkins Vocational and Technology Education Act of 1998 (Perkins III) and the Carl D. Perkins Career and Technology Education Act of 2006 (Perkins IV) solidified the goals the federal government had for vocational education in the United States. Perkins IV required vocational programs of study that linked academic and technical curricula across secondary and postsecondary instruction (Friedel, 2011). With the passage of Perkins IV,
assessments reflected the same emphasis on accountability found in the 2001 No Child Left
Behind Act. Perkins IV also emphasized the use of programs of study; solidified linkages
between secondary, postsecondary, and continuing education; and encouraged students to seek
education in high-demand occupations (Friedel, 2011).

As recent as 2012, the federal government showed a commitment to career and technical
education by supporting the reauthorization of the Carl D. Perkins Career and Technical
Education Act of 2006 with a $1.14 billion investment in career readiness (U.S. Department of
Education, 2012). Calling for a complete transformation of CTE, the Obama Administration’s
proposal focused on accountability and collaboration. The plan called for more graduates with
industry-ready credentials, such as degrees and certificates, and “better outcomes for students
and employers.” (U.S. Department of Education, 2012, p. 2) The proposed blueprint for the
reauthorization of the Perkins Act included four key principles: alignment, collaboration,
accountability, and innovation.

The Obama administration outlined a plan that calls for alignments between education
and industry, to “equip students with 21st-century skills and prepare them for in-demand
Likewise, the plan called for collaboration among all levels of education, with employers, and
with industries. Embedded throughout the plan was greater accountability with an emphasis on
common definitions and performance metrics. This accountability included distributing Perkins
funding through in-state competitions among local consortia. These state competitions would be
based on key performance indicators and the improvement in participation and performance gaps
in the students served (U.S. Department of Education, 2012). The final principle of the plan,
innovation, emphasized the need for state reforms in policies and practices, thus supporting
locally created best practices for CTE implementation (U.S. Department of Education, 2012). The goal of these proposed changes is to support “rigorous, relevant, and results-driven CTE programs” developed in collaboration with employers and industry (U.S. Department of Education, 2012, p. 15).

**Participation in Secondary and Postsecondary Career Education**

From a historical sense, vocational education in secondary education and career-technical education in postsecondary education developed as a means to educate students perceived as less-academically minded. Secondary educators viewed vocational education as niche for the children of the working class (Kincheloe, 1999). Sons of working-class families found themselves in vocational education, whereas boys from families with greater wealth or stature received instruction in the liberal arts and science (Kincheloe, 1999). While attempting to track students where they will be most successful, educators limited their social and economic mobility (Kincheloe, 1999).

With legislation that supported these actions, secondary vocational education became the bastion of economically and educationally disadvantaged youth (Hayward & Benson, 1993). The Vocational Education Act of 1963 further established vocational education as a means to educate the poor and disabled of the United States (Gordon, 1999). By 1992 underserved populations, including those with limited English proficiency represented a significant portion of the students enrolled in vocational education (Bailey, Leinbach, Scott, Alfonso, Kienzel, & Kennedy, 2003; Kincheloe, 1999). This segregation, and in some instances resegregation of minorities within the education system, denied them the opportunities that compulsory primary and secondary education promised (Kincheloe, 1999). Hoachlander, Kaufman, Levesque, and Houser (1992) revealed interesting facts regarding the enrollment patterns in vocational subject areas. While
enrollment in business, marketing, health, and occupational home economics was similar between minority and non-minority students, lower percentages of minorities exist in technical and communication programs (Hoachlander, Kaufman, Levesque, & Houser, 1992). Similarly, vocational education reinforced social roles, as six of the seven traditional vocational areas were heavily sex-typed with females enrolling in business, consumer services, health occupations, and home economics, and males enrolling in agriculture, building trades, and technical education (Gordon, 1999).

During the decade between 1980 and 1990, studies focused on vocational education explored the stark realities of the U.S. education system. For 1980 high school graduates, 40 percent were involved in vocational education. Those students, if they sought additional education, often did so at proprietary institutions. Carroll (1988) observed that almost half of the students enrolled in proprietary institutions were alums of high school vocational programs. Conversely, less than 30 percent of students enrolled in all other segments of postsecondary education were high school vocational students (Carroll, 1988).

This trend is consistent with the observed enrollment patterns for students who have accumulated higher levels of vocational education units in secondary education. Hoachlander, et al. (1992) noted that students with high numbers of Carnegie units in secondary vocational education were less likely to attend a postsecondary institution. Those secondary vocational graduates that attend postsecondary institutions, usually enrolled in public two-year institutions. Of the students who graduated from public high schools in 1982, 62 percent attended at least one postsecondary institution by 1984 (Hoachlander et al., 1992). Eighty-seven percent of students that had less than two vocational Carnegie units attended at least one postsecondary institution by 1984 while only 39 percent of those with eight or more vocational units had done the same.
Similar differences exist for all students regardless of race and ethnicity (Hoachlander et al., 1992, Levesque, Lauen, Teitelbaum, Alt, Librera, & Nelson, 2000). These trends continued, as noted in the NCES study conducted by Levesque, Laird, Hensley, Choy, Cataldi, and Hudson (2008). Subsequent cohorts of vocational high school graduates did not plan to pursue advanced degrees, rather focusing on immediate work or sub-baccalaureate postsecondary credentials (Levesque et al., 2000, Levesque et al., 2008). This trend may change soon. While CTE course completions in secondary education may have suggested limited postsecondary options in earlier cohorts, Castellano, Sundell, Overman, Richardson, and Stone (2014) indicated that CTE course completions awakened college aspirations for some students. They suggested that CTE supports college enrollment and can have numerous benefits to students, leading to “opportunities to earn industry-recognized credentials” (Castellano, Sundell, Overman, Richardson, & Stone, 2014).

As Bean and Metzner (1985) remarked, postsecondary institutions serve as gatekeepers to highly sought-after positions by providing the education and credentials for vocational, technical, and professional programs. While open access institutions, such as community colleges, make these programs more accessible for students of all types, Hoachlander et al. (1992) observed some notable enrollment trends. In the fall of 1990, approximately 6 percent of the U.S. population between the ages of 18 and 34 enrolled in vocational courses, of which 43 percent enrolled at public two-year institutions (Hoachlander et al., 1992). Females and students with low socio-economic status (SES) accounted for the largest numbers of students enrolled in postsecondary career education (Hoachlander et al., 1992; Houser, 1997). Postsecondary vocational majors tend to be older, have family responsibilities, receive financial aid, and enroll in sub-baccalaureate programs (Houser, 1997; Levesque et al., 2000). Levesque et al (2000)
found no association between vocational field and disability status but did note that students
enrolled in postsecondary career and technical education had lower educational aspirations. Only
37 percent of vocational majors expected to earn a graduate degree while 58 percent of academic
majors had those same aspirations (Levesque et al., 2000).

With the dawn of a new century, more diverse student groups began participating in high-
skill and high-demand technical fields of study. In 2004, approximately 58 percent of the
credential-seeking career and technical (CTE) undergraduates were female (Levesque et al.,
2008, p. 114). While dominating the enrollments in high demand areas such as healthcare and
education, women were noticeably absent in such high skill areas as engineering and industrial
trades. Financially independent students, another nontraditional group in postsecondary
education, accounted for 54 percent of the CTE majors with 67 percent of healthcare majors
reporting as financially independent (Levesque et al., 2008). Not only were these students
financially independent but 42 percent were over 25 years old and over 11 percent indicated
some form of disability. Over 75 percent worked while enrolled and over 34 percent worked full
time (Levesque et al., 2008).

**CTE Programming in Postsecondary Education**

CTE education provides students with the means to improve their social mobility and
socioeconomic status. It serves students with occupational interests and supports students with
additional avenues to obtain advanced credentials and marketable skills. CTE programs serve as
evidence of postsecondary institutions’ willingness to meet the needs of business and industry.
By developing programs that address the needs of the labor market, CTE programs establish and
secure the domains of postsecondary education while producing lifelong learners that require
continuing education or additional degrees (Kasworm, Rose, & Ross-Gordon, 2010).
Developing through the years with the assistance of federal legislation, many would credit the beginnings of CTE at postsecondary institutions with the rise of the professions in the United States during the late 19th century (Grubb & Lazerson, 2005). Prior to the industrial revolution in the United States, few Americans viewed credentials and/or education as a requirement for practitioners in medicine, law or engineering (Grubb & Lazerson, 2005). Postsecondary education became the means in which professions standardized education into criteria that certified professional knowledge (Grubb & Lazerson, 2005, Kincheloe, 1999).

As citizens began to think of postsecondary institutions as gatekeepers to professional practice, institutions accepted the charge of preparing and credentialing students for these roles (Bean & Metzner, 1985, Grubb & Lazerson, 2005). Grubb and Lazerson (2005) suggested that with post-World War II changes in higher education, namely the passing of the Servicemen’s Readjustment act of 1944, commonly referred to as the GI Bill, greater numbers of citizens had access to postsecondary education. These students ascribed value to credentials and sought postsecondary education as a means to avoid low-skilled, low-paid labor (Grubb & Lazerson, 2005). For these students, a postsecondary credential equated professional status (Grubb & Lazerson, 2005).

Professional status, as an outcome of postsecondary instruction, is largely dependent on the prestige of the institution along with the programs offered. Just as the Carnegie classification system classifies postsecondary institutions in ordinal categories, so does a hierarchy for postsecondary vocational programs. As noted by Brint & Karabel (2006), community colleges prepare students for middle-level labor positions; comprehensive universities prepare students for occupational and middle level managerial positions; and elite research and flagship institutions prepare students for high status professions.
Community colleges serve the greatest number of CTE students, with over 60 percent of vocational students attending public two-year institutions followed closely by proprietary institutions (Houser, 1997). Due to the short time required to achieve some postsecondary CTE credentials, CTE provides a quick and efficient means for students to retool, retrain, and reinvent their careers. While some students do seek CTE credentials at four-year institutions, most students do so through pre-baccalaureate awards at two-year and proprietary institutions (Hoachlander et al., 1992). The alumni of sub-baccalaureate programs are often highly qualified and academically prepared students that possess the preparation and the aspirations for advanced study. This has led to a growing interest in the development of applied baccalaureate and bachelor-completion programs at four-year institutions.

Over the last ten years, applied baccalaureate and bachelor-completion degrees have become a topic of interest at four-year campuses. Lower estimates for traditional-age freshmen cohorts, projected increases in minority student numbers, as well as external pressures to increase enrollment and produce more graduates have all served as catalysts for baccalaureate completion programs. As Miller (2013) suggested, four-year institutions are beginning to consider transfer students in strategic plans and goals.

Bean and Metzner (1985) asserted that projections for smaller cohorts of traditional students would cause administrators to look to nontraditional students for institutional survival. With nearly 30 percent of baccalaureate degree recipients starting their postsecondary education at community colleges, and many of those students enrolled in CTE, institutional leaders can no longer ignore the impact of community colleges on four-year institutions (Cataldi, Green, Henke, Lew, Woo, Shepherd, & Siegel, 2011). In Michigan alone, nearly 64 percent of the institutions offering postsecondary CTE program were sub-baccalaureate institutions (Leveque et al., 2008).
Due to the saturation of CTE education in sub-baccalaureate education, four-year institutional leaders continue to design curricula that build on CTE programs of study to attract new students to offset lower projections for traditional four-year student populations.

Current estimations suggest that sub-baccalaureate enrollments will grow at a higher rate than four-year institutions for the remainder of this decade. Similarly, groups of students traditionally served by sub-baccalaureate institutions will see significant increases during that same time. If current estimations become a reality, the college population will become older and more diverse by 2020.

By 2020, traditional aged student enrollments could increase by 9 percent if estimates made by the National Center for Education Statistics (NCES) are accurate (Hussar & Bailey, 2009). In contrast, projected increases for 25 to 34 year olds and those 35 and older are 21 and 16 percent respectively (Hussar & Bailey, 2009). By 2020, full-time students will increase by 11 percent, while part-time enrollments will grow by 16 percent (Hussar & Bailey, 2009). Similarly, minority enrollments will increase, 25 percent for Blacks and 46 percent for Hispanics, while enrollment projections for white students indicate an increase of only 1 percent (Hussar & Bailey, 2009). These numbers suggest significant increases in enrollments for community colleges as part-time, older, and minority students often enroll at two-year institutions (Wei et al., 2009). Likewise, projections suggest an increase in associates’ degrees that far outweigh increases in baccalaureate degrees.

Hussar and Bailey (2009) estimate that total enrollment in postsecondary degree-granting institutions will increase by 13 percent by 2020. This estimate, when compared to the 43 percent growth from 1995 to 2009 is some cause for concern (Hussar & Bailey, 2009). Institutions will face tougher competition for students in the coming years, as first-time freshmen
enrollment will increase only 11 percent overall by 2020. During this same period, associate’s
degrees awarded will increase by 26 percent while the number of bachelor’s degrees awarded
will only increase by 21 percent (Hussar & Bailey, 2009). With over 53 percent of credential-
seeking undergraduates receiving less than a bachelor’s degree, a huge untapped market exists
for the continued education of these learners (Levesque et al., 2008). These changes in
postsecondary learner demographics, when compounded with outside influences, serve as
compelling reasons for the creation of baccalaureate and bachelor-completion programs.

As Torraco (2008) discovered, employers’ slight sub-baccalaureate CTE graduates for
their lack of problem-solving and limited on-the-job adaptability. This demonstrates a need for
the development of competencies often found in general education and advanced discipline-
specific coursework. These needs can go unfulfilled, as few options exist for sub-baccalaureate
students seeking additional education. One solution, which questions the authority and control of
the baccalaureate credential, is the suggestion that two-year institutions grant baccalaureate
degrees. According to the American Association of Community Colleges, six percent of
community colleges found in 23 different states award baccalaureate degrees. (American
Association of Community Colleges, 2015). This broad access to the baccalaureate threatens to
undermine the role of four-year institutions in postsecondary education. Some have argued that
baccalaureate degrees from community colleges could meet the needs of employers and students
by addressing the skills gap that exists between sub-baccalaureate degree programs and the needs
of employers while addressing the degree aspirations and unmet needs of CTE graduates (Floyd,
2005)
Baccalaureate Aspirations of Sub-Baccalaureate CTE Students

While the original purpose of vocational or "terminal" programs in career and technical education (CTE) was to train workers, these students often seek additional education opportunities. Recent research reveals that a substantial number of students transferring from two- to four-year institutions are career and technical education (CTE) students (Eggleston & Laanan, 2001). Yet Townsend (2001) argued that community college terminal degree programs serve to stratify higher education by preventing CTE students, often with limited social and academic capital, from enrolling at four-year institutions. As Laanan (2000a, 2000b) observed, over 50% of CTE students that begin their academic careers at community colleges aspire to advanced degrees at or above the baccalaureate level. Seppanen, Bloomer, and Thompson (2005) found that as students mature in their occupations, career advancement often requires additional certifications.

Due to the number of CTE students transferring from two- to four-year institutions, some have suggested that community colleges are but a starting point for the postsecondary academic careers of CTE students (Bragg, Townsend, & Ruud, 2009). Vacik, Nadler, and Miller’s (2006) findings indicated that 63% of CTE students planned to return to college for additional education and training. This is consistent with the work of Bailey (2008) as well as Zeidenberg and Bailey (2010), as they determined that students enrolled in CTE programs such as nursing and computer science often have plans to transfer to four-year institutions to complete baccalaureate degrees. Specifically for nurses, the Bureau of Labor Statistics (2010) acknowledges additional education is a means by which nurses can improve their opportunities for advancement, noting that greater opportunities exist for nurses with Bachelor of Science in Nursing (BSN) degrees than for those with Associate of Science in Nursing (ADN) degrees. Advanced degrees in nursing are required
for positions in administration, research, consulting, or teaching (Bureau of Labor Statistics, 2010). With this in mind, many RNs with ADN degrees seek employment in entry-level jobs, later using tuition reimbursement programs to complete RN-to-BSN bachelor-completion programs (Bureau of Labor Statistics, 2010). RN-to-BSN programs are examples of programs designed to create pathways between two-year and four-year institutions.

Both applied baccalaureate and bachelor-completion programs offer community college students the option of transferring applied associate credits and degrees into degree programs at traditional four-year institutions (Bragg et al., 2009, Ignash & Kotun, 2005). Advocates of applied baccalaureate and bachelor-completion programs view these programs as a means to increase access to four-year degree programs (Bragg, et al., 2009, p. 1).

**Persistence of CTE Transfer Students at Four-Year Institutions**

Students transferring from two-year institutions often find it difficult to apply and enroll at four-year institutions, finding themselves novices attempting to reacquire academic skills after successful professional careers (Hardin, 2008). Many applied baccalaureate and bachelor-completion programs build on prior coursework and feature programs of study that count associate level course work as major credits, allowing students to complete general education requirements to obtain a bachelor’s degree (Ignash & Kotun, 2005; Townsend, 2009a; Townsend, Bragg, & Ruud, 2009). These programs differ from traditional baccalaureate programs as students complete most major coursework at the community college, leaving the student to complete only a handful of courses at a four-year institution. Most often, students enrolling at a four-year institution do so by taking classes in general education, technology, or management depending on focus of their baccalaureate program (Walker & Floyd, 2005). Institutional articulation agreements are key components to the development of applied
baccalaureate and bachelor-completion programs because few state level initiatives exist to increase access to postsecondary institutions for occupational students (Bailey, 2008; Castellano & Overman, 2009; Ignash & Kotun, 2005; Townsend, 2001).

The recent work of Debra Bragg and Barbara K. Townsend illuminated an area of higher education that could increase the number of four-year college graduates in the United States. Townsend, Bragg, and Ruud (2008) completed a state-by-state qualitative review of applied baccalaureate programs, yet their research did not delve into persistence of CTE transfer students at four-year institutions. A review of existing literature revealed no studies focused on the persistence of CTE transfer students at four-year institutions in applied baccalaureate and bachelor-completion programs. A discussion of this void in the literature is in Chapter 2.

**Problem Statement**

As four-year institutions seek increases in enrollment, population shifts, and fewer high school graduates negatively influence the number of potential college students. According to the 2010 U.S. Census, Michigan was the only state to lose population between 2000 and 2010, with a loss of over 54,000 residents during the decade (Mackun & Wilson, 2011). The National Center for Education Statistics predicts an -8.1% drop in Michigan high school graduates through 2018-2019 (Hussar & Bailey, 2009). Considering these factors, some have suggested that focusing on non-traditional adult learners, such as CTE transfer students, could help increase undergraduate enrollments (Noel-Levitz Inc., 2011). Yet a limited number of CTE students attain baccalaureate degrees. According to NCES CTE statistics, only 15% of students initially enrolled in career education programs in 2003-2004 achieved a bachelor’s degree by 2009 (Wei et al., 2009). In exploring the factors that predict persistence for this subpopulation of undergraduate students, this research can inform the practices at four-year institutions. By designing programs
and support systems to meet the needs of CTE baccalaureate-seeking students, practitioners at four-year institutions can increase retention rates and lead to the conferral of more baccalaureate degrees.

This research will explore the intersections of descriptive attributes, environmental influences, as well as expectations and psychological influences (independent variables) and the degree at which they predict the intent to persist and satisfaction (dependent variables) of students enrolled in career-technical programs at a four-year institution. Little research exists for this population, and nothing based on the theoretical frameworks of Bean and Metzner (1985) and Lent, Brown and Hackett (1994). Expecting a significant relationship among several factors contributing applied-baccalaureate and bachelor-completion students’ intent to persist in degree programs, this research will establish predictors for this population. Relationships between student attributes that predict academic success and supportive environments should contribute to expectations and psychological influences that support baccalaureate choices that foster the intent to persist and satisfaction with educational pathways.

Nature of the Study

This study is quantitative in nature, measuring independent variables focused on demographic information, experiences, expectations and psychological influences, and choices as well as dependent variables focused on the intent to persist and satisfaction with educational pathways. By surveying current students in career-technical programs at a regional, four-year public institution, this research will explore the following research questions:

- How do attributes, environments, expectations, and influences impact the intent to persist and satisfaction with educational pathways for career-technical baccalaureate students?
• What amount of variance in the intent to persist and satisfaction of educational pathways for career-technical baccalaureate students can be explained by using a model based on social cognitive career theory and the non-traditional undergraduate attrition model?

• Are there differences in the amount of variance that can be explained by the aforementioned model for career-technical baccalaureate students dependent on prior academic background (attending only one institution, completing transfer credits, completing a general associate’s degree, or completing an applied associate’s degree) within the same program of study?

Using measures defined and tested by previous research and discussed in Chapter 3, a survey will collect participants’ responses on personal and academic attributes and their environment during baccalaureate study. These variables, when combined with measures related to choices as well as expectations and psychological influences will provide insight regarding career-technical program participants. Chapters 3 and 4 provide a discussion of descriptive and inferential statistical analyses used in this study and the key measures that predict persistence, satisfaction with academic choices, and advanced degree aspirations.

**Purpose of the Study**

The purpose of this study is to shed light on a subpopulation of students found at public four-year institutions. CTE students, particularly transfer students, enrolled in baccalaureate programs are an overlooked student group, as their expectations and enrollment patterns can differ from traditional, native students at four-year institutions (Lohman & Dingerson, 2005). After an exhaustive search of existing literature, it is clear that no model of student persistence or
satisfaction predicts the intent to persist for this population, simply because no researcher has sought to do so.

This research uses social cognitive career theory as proposed by Lent, Brown, and Hackett (1994) as well as Bean and Metzner’s (1985) model of non-traditional undergraduate student attrition as theoretical bases. By testing a model that includes non-academic factors, this study will explore environmental factors, attitudes, and influences relevant to the intent to persist and educational pathway satisfaction for career-technical students enrolled in baccalaureate programs at a four-year institution.

By using the conceptual underpinnings of social cognitive career theory (SCCT) and non-traditional undergraduate student attrition model (NUSA), the purpose of this study is to explore the constructs and variables previously unexplored by other researchers, in relation to this specific subpopulation of baccalaureate students. Higher education administrators, particularly those with a student affairs focus tend to believe that co-curricular programming will foster retention, yet Metzner and Bean (1987) found that social integration was not a factor for non-traditional students. This study explores the decisions students make without the benefit of academic and social integration efforts and considers the often-pragmatic career-focused decisions of CTE students.

Finally, through confirmatory factor analysis, this study may produce reliable measures for academic self-efficacy, career aspirations, educational goals, stress, and utility of a baccalaureate degree for nontraditional adult populations, as no measures exist. Measures in this study have been adapted from those used in studies focused on largely traditional populations.
Conceptual Framework

Two theoretical frameworks provide the conceptual underpinnings for this study, Lent, Brown, and Hackett’s (1994) social cognitive career theory as well as Bean and Metzner’s (1985) model of non-traditional undergraduate student attrition. Both theories address demographics, contextual aspects of student enrollment, and contextual influences as they relate to choice behavior and satisfaction. Combining these two frameworks into one theoretical framework yields a theoretical framework that guides this research (Figure 1). Based on existing literature, the conceptual model used in this study posits that baccalaureate choices as well as expectations and psychological influences directly affect the intent to persist and satisfaction with educational pathways for career-technical students. As these students are often non-traditional students, the work of Bean and Metzner (1985) is particularly relevant. Bean and Metzner (1985) theorized that non-traditional students had greater interaction with their external environment. With regard to Social Cognitive Career Theory (SCCT), distal or background contextual influences such as person inputs, academic background, baccalaureate choices, and expectations help shape proximal influences. Proximal influences such as psychological and environmental influences are at the forefront during critical decisions, such as the decision to persist in a degree program (Lent, Brown, Hackett, 2002). Lent, Brown, and Hackett suggested individuals would limit their choices if they “perceive that their environment is not supportive of their choice or if they perceive significant barriers to entering and prospering in careers that most interest them” (Lent, Brown, & Hackett, 2002, p. 276). The literature review in Chapter 2 will address the paths and measurements of the constructs represented in this theoretical framework as well as provide details regarding the inclusion and exclusion of variables in the quantitative analysis.
The strengths of this concept map are twofold, as it builds on the theories of Bean and Metzner (1985) and Lent, Brown, and Hackett (1994) and adapts their theories for a population of students that did not exist in great numbers during the development of their models. This concept map acknowledges that CTE student persistence decisions are multifaceted and the result of complex influences of perceptions and environments. Similar to the work of Martinez, Sher, Krull, and Wood (2009) as well as Cabrera, Nora, and Castaneda (1992, 1993), there is empirical proof that blending two proven models results in the sum being greater than each part. Likewise, this conceptual model moves beyond the research and theories of Tinto, Pascarella, and Terenzini and establishes a new model that could serve to explain the variance observed in the persistence of CTE students. By integrating SCCT and NUSA, the design of this model focuses on CTE students rather than adapting another model, such as Tinto’s (1975) work on traditional undergraduate attrition models.
A weakness of the concept map employed in this study is the contextual nature of the constructs and variables measured. This presents difficulty when attempting to measure indicators quantitatively such as stress, satisfaction, and self-efficacy. Because both perceptions and the feedback loops of past performance inform self-efficacy, it is difficult to operationalize academic self-efficacy, as it exists for students enrolled in a baccalaureate program, without addressing how a student’s past academic background may have contributed to this self-efficacy (Bandura, 1986a). In this regard, this study does not explore the sources of academic self-efficacy, as they may be the result of both academic and career experiences, but rather measures the academic self-efficacy the participants feel in their current role as student. This nuanced approach regarding the measurement of academic self-efficacy may result in measurement error, as no measures exist for academic self-efficacy in this situation.

**Operational Definitions**

*Academic Background* – A group of variables that focus on the previous postsecondary academic coursework of study participants. These variables include previous institution(s) attended, hours earned, if a respondent completed an associate’s degree, prior institution GPA, prior institution enrollment status (full or part time), and modality of prior academic program. These variables are not grouped for analysis but merely for easy reference and clarity for the reader.

*Academic Self-Efficacy* – The means in which individuals self-evaluate their abilities to complete tasks and attain levels of achievement or performance (Bandura, 1986a, 1989)

*Academic Stress* – Perceptions regarding the academic and non-academic factors as well as the time and energy required for baccalaureate study.
**American Indian or Alaska Native** – A person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment (Office of Management and Budget, 1997).

**Applied Baccalaureate Programs** – Townsend et al. (2009b), defined applied baccalaureate degrees as programs designed to incorporate applied associate’s courses, with no loss of associate’s credit, in once considered “terminal” or associate’s degree programs, providing students with advanced knowledge and skills. For this study, applied baccalaureate degree programs are programs designed for students, who after having completed career and technical education (CTE) degrees or certificate programs in applied subject areas (examples: radiology, welding, computer repair, criminal justice – corrections & incarceration) enroll in four-year degree programs with no loss of credit with those subjects. While most sub-baccalaureate CTE credits have no equivalency at the four-year institution, articulation agreements, or other formalized agreements between the community college and four-year institution allow students to enroll with no loss of credit.

**Asian** – A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam (Office of Management and Budget, 1997).

**Baccalaureate Choices** – A grouping of variables focused on the current academic choices of students enrolled in baccalaureate programs. These variables include baccalaureate program, baccalaureate credit hours earned, baccalaureate GPA, baccalaureate enrollment status (full or part time), and modality of baccalaureate program. These variables are not grouped together for analysis but merely for easy reference and clarity for the reader.
**Baccalaureate Program Satisfaction** – The degree to which students find their baccalaureate study satisfying and would recommend the program to others.

**Bachelor-Completion Programs** – Programs designed for students, who after having completed technical education (CTE) degrees or certificate programs (examples: nursing, computer science, business management, marketing) enroll in four-year degree programs with no significant loss of credit, where most, if not all, of their sub-baccalaureate CTE credits have an equivalency at the four-year institution.

**Bachelor’s Degree** – A degree granted after the successful completion of a baccalaureate program of studies (Rooney et al., 2006)

**Black or African American** – A person having origins in any of the black racial groups of Africa (Office of Management and Budget, 1997).

**Career Aspirations** – An individual’s aspirations of leadership and promotion; training and managing others; and additional educational goals (Gray & O’Brien, 2007)

**Career/Technical (CTE) programs** - Sometimes referred to as “terminal programs” or “vocational programs” at sub-baccalaureate institutions, CTE programs require technical skills and knowledge, leading to licensure or immediate jobs in the labor market (Bailey, 2008; Bragg, 2001, Cohen & Laanan, 1997).

**Career/Technical Students** – Students that complete an associate’s degree at a community college in an applied science or in a career or technical program. This also includes students that complete certificate or credentialing programs at community colleges in applied science, or career and technical programs
**Degree Commitment** – The importance of obtaining a bachelor’s degree, the student’s current intentions to complete the degree, and their commitment to earning their bachelor’s degree (Bean, 1980; Davison, Beck, & Milligan, 2009)

**Dropout** – A student enrolled in a program of study, neither completes his or her program of study nor enrolls in subsequent semesters (Bean & Metzner, 1985)

**Educational Aspirations** – The highest level of education sought and the importance of completing that degree (Anderson, 1981, Bean & Metzner, 1985).

**Environmental Influences** – Environmental factors, perceived as supports or barriers by the student that are often derivative of the student’s non-academic life. Indicators include finances, hours of employment, outside encouragement, and family responsibilities. These variables are not grouped together for analysis but merely for easy reference and clarity for the reader.

**Expectations and Psychological Influences** – A group of variables focused on planned or desired goals of students along with other factors perceived during their baccalaureate experience. This includes the desired level of education and career attainment, degree commitment, academic self-efficacy, the utility of the baccalaureate degree, stress, and baccalaureate degree satisfaction (Anderson, 1981; Bean, 1982; Hackett, Betz, Casas, & Rocha-Singh, 1992; Lundberg, McIntire & Creasman, 2008). These variables are not grouped together for analysis but merely for easy reference and clarity for the reader.

**Face-to-Face Instruction** – Instruction that occurs in a traditional classroom setting with limited or no supplemental online materials. All instructor/student and peer-to-peer interactions occur in the classroom setting (Eastern Michigan University, n.d. B.).
**Family Responsibilities** – The existence of minor and/or adult dependents and additional support the student receives regarding environmental tasks.

**Finances** – The difficulty an individual perceives in financing their degree and the satisfaction the student feels regarding the financing of their degree.

**Four-Year Institution** – Postsecondary institutions that award baccalaureate and graduate degrees after the successful completion of the requisite programs of study. (Rooney et al., 2006)

**Grade Point Average (GPA)** – A student’s cumulative grade point average (GPA) standardized on a 4.00-point scale (Rooney et al., 2006)

**Hispanic or Latino** – A person of Cuban, Mexican, Puerto Rican, Cuban, South or Central American, or other Spanish culture or origin, regardless of race (Office of Management and Budget, 1997).

**Hybrid Instruction** – Instruction that occurs both in a traditional classroom setting and where some portion of the face-to-face instruction is replaced by online interactions. Instructor/student and peer-to-peer interactions can occur in either the traditional classroom, online, or both (Eastern Michigan University, n.d. B.).

**Intent to Persist** – The belief or plans a student has to reenroll in his or her degree program in the next semester (Cabrera, Nora, & Casteneda, 1993). Due to the timing of the survey, students could indicate that they would enroll in either summer or fall classes, as some programs do not offer program courses in the summer term.

**Native Hawaiian or other Pacific Islander** – A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands (Office of Management and Budget, 1997).
**Non-Traditional Student** – There are numerous definitions for non-traditional students, most relying on age as the defining criteria (over 24 years of age). This research will use the definition established by the NCES (Horn & Carroll, 1996; National Center for Education Statistics, 2002), which is inclusive of other factors that distinguish non-traditional students from traditional students. These factors include enrollment patterns, financial and family status, and high school graduation status. Enrollment patterns of non-traditional students include (a) one year or more between high school enrollment and post-secondary enrollment and/or (b) attending college part-time. Financial and family status criteria are: (a) financially independent from parents, (b) 35 or more hours worked while enrolled, (c) having dependents (either minor children or non-spouse dependents), and/or (d) single parent status. Finally, non-traditional students, concerning high school graduation status, are those students that did not receive a standard high school diploma; rather they possess a General Equivalency Diploma (GED), high school equivalent, or certificate of completion (National Center for Education Statistics, 1996).

**Non-Traditional Undergraduate Student Attrition Model (NUSA)** – Bean and Metzner’s (1985) model that acknowledges the role that background and external factors play in the persistence decisions of non-traditional students.

**Online Instruction** - All instruction and interactions occur online within a course management system (Eastern Michigan University, n.d. B.).

**Outcomes** – A group of variables comprised of the dependent variables intent to persist, baccalaureate degree commitment, educational pathway satisfaction, and baccalaureate program satisfaction. These variables are not grouped together for analysis but merely for easy reference and clarity for the reader.
Outside Encouragement – The ways in which a student’s non-academic relationships encourage their persistence in a baccalaureate degree program (Davidson, Bromfield, & Beck, 2009).

Person Inputs – Four demographic variables that describe the characteristics of study participants. These variables are age, gender, race/ethnicity and disability/health status. These variables are not grouped together for analysis but merely for easy reference and clarity for the reader.

Public Institution - A postsecondary education institution supported by public funds and tuition and governed by publicly elected or appointed officials (Rooney et al., 2006).

Satisfaction with Educational Pathways – The degree to which participants are satisfied with their pathway to a baccalaureate degree. This includes their satisfaction with any number of possible pathways (completion of an associate’s degree, completion of community college transfer credits, completion of transfer credits at another four-year institution, etc.) and their subsequent enrollment in a career-technical program at a four-year institution.

Social Cognitive Career Theory (SCCT) – A model used to explain both academic and career behavior, which indicates that various concepts and variables influence choices, and actions. SCCT stipulates that an individual’s self-system interacts with environmental variables to influence decisions (Lent, Brown, Hackett, 1994; Lent & Fouad, 2011).

Stop-Out – Students who do not continuously enroll with absences lasting more than one semester but not including non-enrollment during summer terms (Wang, 2009).

Traditional Student – Students who enter post-secondary study the following fall after a traditional high school graduation, enroll full-time in the fall and winter semesters,
financially dependent on their parent(s), work less than full-time, and have no dependents (National Center for Education Statistics, 2002).

**Two-Year Institution** – A postsecondary institution whose primary purpose is to deliver two-year programs that result in certificates or sub-baccalaureate degrees, or two-year programs that fulfill part of the requirements for a baccalaureate degree at a four-year institution (Rooney et al., 2006).

**Utility of Baccalaureate Degree** – “The students’ perceptions of the usefulness of their college education for employment opportunities (practical value) and personal development.” (Bean & Metzner, 1985, p. 522).

**Web-Enhanced Instruction** - Instruction that occurs primarily in a traditional classroom setting where some measure of course materials are available online, yet accessing those materials does not lead to reduced meeting times for face-to-face instruction. Most instructor/student and peer-to-peer interactions are in the traditional classroom setting yet some interaction may occur online (Eastern Michigan University, n.d. B.).

**White** – A person having origins in any of the original peoples of Europe, the Middle East, or North Africa (Office of Management and Budget, 1997).

**Assumptions, Limitations, Scope and Delimitations**

**Assumptions**

The researcher assumes that variables and constructs organized under the groupings of expectations and psychological influences, baccalaureate choices, environmental influences, intent to persist, and satisfaction are measurable and do not act as surrogates for each other or other constructs or concepts excluded from this research. The researcher assumed that these variables are mutually exclusive and are not confounded.
The researcher assumes a convenience sample of students in career-technical programs at a regional four-year public institution will be accessible and participants will be willing to complete a survey, answering honestly and to the best of their abilities. By including students in multiple majors from a regional four-year public institution, the researcher assumes that the required number of responses is achievable, as detailed in Chapter 3, and will yield statistically significant and generalizable results specific to this population.

**Delimitations**

This research, focusing on the student demographic information, environments, expectations and psychological influences, as well as choices as they relate to the experiences of career-technical students has a limited scope. Due to the specific population and conceptual framework used in this study, similarities and generalizations derived from this work do not apply to other student populations.

Location, time, and access are but a few delimitations related to this research. By limiting this population to those students enrolled at a single regional four-year public institution, students enrolled in career-technical programs at other types of institutions are not represented in the findings. By delivering the survey in the winter 2013 term, results are specific to those students enrolled at that time, although an assumption regarding the generalization of these results to students from previous and future semesters may be possible.

**Significance of the Study**

As with most research, the goal of this research is knowledge generation and professional application. Due to gaps in the literature related to CTE graduates and their persistence in baccalaureate programs and the number of students pursuing these studies, the purpose of this research is to inform practice. Specifically, this research should inform post-secondary
professionals that advise and recruit CTE students as they begin the process of enrolling in baccalaureate programs. Using this research, staff members at regional four-year public institutions can design programs and support systems that meet the needs of these students, contributing to greater persistence in career-technical programs.

This study has several implications for the field of educational leadership, since this is the first study that explores educational choices as a product of career decisions and ties those decisions to the intent to persist for CTE students. Of particular importance are the parameters of this study, because little research exists for CTE students, particularly those who transfer to four-year institutions to complete baccalaureate degrees. Those studies that do focus on CTE transfer students often explore the barriers to transfer through qualitative research (Chase, 2011). This is the first quantitative study to explore this population using Social Cognitive Career Theory (SCCT) and Non-traditional Undergraduate Student Attrition (NUSA) as frameworks. Similarly, this is the first study that compares career-technical associate’s degree students to general education associate’s degree students to ascertain any differences between these groups regarding their intent to persist in their degree programs and their satisfaction with their educational pathways. This is a new application of the conceptual frameworks that ground this study.

**Overview and Organization of the Study**

In an effort to inform practice and contribute to the knowledge regarding student intentions with regard to persistence, the goal of this study is to determine the attributes, experiences, expectations, influences, and choices that lead to the intent to persist and satisfaction of CTE students in baccalaureate programs at regional four-year public institutions. By determining the variables that support the intent to persist and satisfaction for this population
of students, post-secondary practitioners can use this research to design pre-admission advising and counseling that can help mediate the effects of a student’s environmental and psychological factors, particularly those factors that contribute directly to perceptions and choices that do not encourage persistence. It is through the foundational information contained in this chapter and the literature review, methodology, findings, and discussion that follow that these goals are accomplished.

Chapter 1 lays the foundation for this research by detailing the focus of the study and providing a brief summary of literature that substantiates the study. The chapter contains the problem statement, nature of the study, research questions, theoretical base, and operational definitions. The chapter concludes with the assumptions, limitations, scope, delimitations, and significance of the study, attending to the organization of the study in the final section of the chapter. Chapter 2 features a literature review of the existing literature related to the problem statements introduced in Chapter 1 and organized around major themes, constructs, and ideas related to this research. The discussion of prior research establishes the relationship between the study and previous works. These summaries, comparisons, and contrasts will define aspects of the theoretical bases for this study and describe the research variables and research method. Chapter 3 details the descriptions and justifications for the research design and approach of this study. This chapter contains information on the setting, sample, instrumentation, and materials. The chapter concludes with an explanation of the descriptive and inferential analyses used in the study and the measures taken to protect participant rights. Chapter 4 discusses observed consistencies and inconsistencies in findings as well as possible alternative interpretations. The study will conclude with an interpretation of findings, implications for theory and practice, and future research in Chapter 5.
Chapter 2: Literature Review

Introduction

This literature review explores previous research related to career and technical education (CTE) students, non-traditional undergraduate student persistence, social cognitive aspects of student persistence, and the various methodologies used in researching these subject areas. This review focuses on the concepts found in the theoretical framework that guides this research study (Figure 1).

The goal of this literature review is to present summaries of the literature focused on CTE students and their intent to persist in postsecondary education, theoretical frameworks for the study of CTE student persistence, and research methodologies used in this and other studies. Additionally, this literature review provides descriptions and definitions regarding important aspects of the theoretical frameworks, study variables, constructs, and research methods used in this study.

Theoretical Frameworks

Similar to Martinez et al. (2009), the conceptual framework used in this research seeks to adapt two empirically proven models for a specific population, career-technical students in baccalaureate programs at a four-year university. The merger of Lent, Brown, and Hackett’s (1994) Social Cognitive Career Theory (SCCT) and Bean and Metzner’s (1984) Model of Nontraditional Undergraduate Student Attrition (NUSA) produced the conceptual framework that guides this research. The framework helps to explain influences on the intent to persist as well as students’ satisfaction with the educational pathways that led to their matriculation in a baccalaureate program. To fully understand the conceptual framework used in this study, one must have an understanding of SCCT and NUSA.
Social Cognitive Career Theory

Social Cognitive Career Theory (SCCT), conceptualized as a model to explain both academic and career behavior, indicates that various concepts and variables influence choices and actions (Lent, Brown, Hackett, 1994). As a constructivist theory focused on feed-forward mechanisms, SCCT stipulates that an individual’s self-system interacts with environmental variables to influence decisions (Lent, Brown, Hackett, 1994; Lent & Fouad, 2011). The development of a self-system and the ways in which people guide their behavior and engage in self-regulation are varied and complex (Lent & Fouad, 2011). Lent, Brown, and Hackett (2002) acknowledge the interplay of social cognitive, contextual, and experiential-learning factors in their model. Concerned with the cognitive mediators through which learning experiences guide career behavior, SCCT posits theoretical paths through which constructs such as interests, abilities, and values interact with contextual factors to influence outcomes (Brown, Lent, Hackett, 2002). This model acknowledges the dynamic and situation-specific nature of decisions and emphasizes the variability of circumstances and adaptability of individuals (Lent & Fouad, 2011). Other frameworks used to study persistence, namely Tinto (1975) do so by exploring factors relating to learning, conditioning, and integration whereas SCCT suggests that social-cognitive, self-regulatory, and motivational processes are integral to persistence (Lent, Brown, Hackett, 2002). Essentially, college students persist because they have developed skills through their prior educational and social learning experiences. These skills, when combined with accomplishments and other sources of feedback, produce a robust sense of academic self-efficacy and expectations that cause them to persist in degree programs regardless of the difficulties they encounter in that process (Brown, Tramayne, Hoxha, Telander, Fan, & Lent, 2008)
Figure 2 demonstrates the SCCT organization of three constructs from Bandura’s (1989) social cognitive theory: self-efficacy, outcome expectations, and personal goals, into one model (Lent, Brown, & Hackett, 2002). Bandura’s social cognitive theory posits that fluid and bidirectional transactions exist between individuals and their environment (Bandura, 1986a). SCCT acknowledges these transactions and furthers that these transactions shape decisions.

A key component of Social Cognitive Career Theory (SCCT) is self-efficacy. Self-efficacy determines the activities and environments in which an individual engages as well as the efforts, persistence, thought patterns, and emotional reactions regarding environmental barriers and supports (Lent, Brown, & Hackett, 1994). Defined as an individual’s beliefs about their capacity to organize and perform behaviors or actions, self-efficacy is a contextual and dynamic set of beliefs that interact with other personal, behavioral, and contextual factors (Lent, Brown, & Hackett, 1994, Lent & Fouad, 2011). In other words, people will develop interests, choose to pursue, and find satisfaction with those activities for which they believe they possess the necessary capabilities (Lent & Fouad, 2011).
However, self-efficacy and past performance is not a direct or perfect relationship as self-efficacy is a contextual set of beliefs subject to the interpretation, encoding, and appraisal of past performances, the weights and measures of which are subjective for each individual (Lent, Brown, & Hackett, 1994; Lent & Fouad, 2011). Self-efficacy, when combined with outcome expectations, promotes and restricts interests and goals (Brown et al., 2008). Personal goals, or one’s intention to engage in activities to realize a particular outcome, help individuals organize, guide, and sustain behaviors regardless of the conditions (Lent, Brown, & Hackett, 1994, Lent & Fouad, 2011). Career plans, decisions, and aspirations are all goal mechanisms and feature prominently in the empirical studies related to SCCT (Lent, Brown, & Hackett, 1994). Kujawa (2013) conducted qualitative research to explore educational aspirations of CTE students who pursued a BAS after completing an applied associate’s degree. Participants in Kujawa’s study indicated they gained confidence as they progressed in their studies and developed an interest in exploring their educational options, suggesting academic self-efficacy and educational aspirations played a role in these decisions (Kujawa, 2013). Overall, her research revealed that CTE graduates gained confidence in their academic abilities as they progress through their education (Kujawa, 2013).

Researchers have begun to explore social cognitive career theory as a framework to examine the postsecondary experiences of subpopulations of traditional students. Olsen (2014) found SCCT to be an appropriate framework for discussions between postsecondary counselors and students. Likewise, several studies have proven that Social Cognitive Career Theory is a sound conceptual model for research. Kahn and Nauta (2001) used logical regression on data gathered from 400 traditional undergraduates at a large public university in the Midwest. They found that SCCT constructs did predict persistence but only after some college experience. In
their conclusions, they indicate that factors developed during recent academic experiences have greater impact on student retention.

Lent, Lopez, Lopez, and Sheu (2008) studied the role of self-efficacy, social supports, social barriers, outcome expectations, and interests, with regard to the persistence goals and major choices of 1208 traditional college students at historically black colleges and universities (HBCUs) intent on majoring in computer science. Using structural equation modeling (SEM), they found the measurement model produced a good fit for the data and the structural model indicated an acceptable fit. Lent et al. (2008) indicated, “Explanation of the relations among the factors by the theoretical model could be improved” (p. 58).

Lent, Brown, Schmidt, Brenner, Lyons, and Treistman (2003) studied term-to-term persistence with SCCT as a conceptual framework and sought to explore the utility of SCCT to explain the role of perceived contextual supports and barriers. Their study of 328 traditional undergraduate engineering students determined that goals were a good predictor of persistence and the SCCT measurement model produced a good fit with the data. The structural model produced an acceptable fit, indicating that explanations for the relations among the factors could be improved (Lent, Brown, Schmidt, Brenner, Lyons, & Triestman, 2003).

Restubog, Florentino, and Garcia (2010) used SCCT to examine how contextual support influenced persistence. In their study of 140 undergraduate nursing students, they surveyed students during three different measurement periods and produced a longitudinal study based on the SCCT conceptual framework, as they separated the framework into stages. Using SEM, the authors produced empirical evidence that specific contextual support variables were associated with persistence. These variables mediated the role of self-efficacy in the study of persistence...
(Restubog, Florentino, Garcia, 2010). Their measurement model yielded a very good fit with the observed data and the structural model was a good fit.

Brown et al. (2008) conducted a meta-analysis that “provided strong support for SCCT’s model of academic performance and persistence.” (p. 305) Due to the nature of the studies they used in their meta-analysis, their path-analytic tests were limited, thus they could not fully test the path model. The existing research indicates that both the measurement model and path model of SCCT could benefit from refinement of constructs such as those from Bean and Metzner’s (1985) Model of Non-traditional Undergraduate Student Attrition.

**Model of Non-Traditional Undergraduate Student Attrition**

Bean and Metzner’s (1985) Model of Non-Traditional Undergraduate Student Attrition (NUSA) builds on Tinto’s (1975) theory of student attrition and acknowledges that external and environmental factors affect the intentions and ultimately persistence for non-traditional students. They theorized that non-traditional students, due to various characteristics, were connected to external environments that are often unrelated to academics (Bean & Metzner, 1985). Because non-traditional students, by their very nature, have environmental factors such as finances, employment, and familial roles such as spouse and parent, they differ from traditional students (Bean & Metzner, 1985). At its most fundamental, NUSA is a model that acknowledges the role that background and external factors play in the persistence decisions of non-traditional students (Figure 3). These external factors have psychological impacts, which influence persistence (Bean & Metzner, 1985). In proposing their model, Bean and Metzner (1985) suggested that due to the heterogeneity of nontraditional samples, future researchers could focus on subpopulations of nontraditional students. As evidenced in several empirical studies, many
researchers agreed that using NUSA as a conceptual framework to study persistence in various non-traditional student populations was a viable conceptual framework.

**Figure 3: Conceptual Model of Non-Traditional Undergraduate Student Attrition**

In a similar model, Bean (1985) found that environmental factors had direct effects on dropout for students over 23 years old at a traditional public institution in the Midwest. Using SEM, he observed three endogenous variables (academic, social-psychological, and environmental) and their interaction with moderating exogenous variables of college grades, institutional fit, and institutional commitment to determine their impact on dropout, noting these constructs accounted for 35 percent of the variance in dropout.
Metzner and Bean (1987) used a sample of 624 part-time freshmen commuter students to explore persistence. They determined that 26 of the variables in the NUSA accounted for 29% of the variance in student persistence for this population. The significant relationships that existed proved the empirical credibility of their original model (Metzner & Bean, 1987). Individual variables served as predictors of dropout such as GPA, intent to leave, and hours enrolled (Metzner & Bean, 1987). They also determined that social integration variables had no significant effect on the outcome (dropout), GPA, or psychological outcomes (Metzner & Bean, 1987). Their model posits that environmental variables affect dropout yet they could not support this hypothesis with empirical data (Metzner & Bean, 1987). While the original model indicated interactions between constructs, Metzner and Bean did not conduct a path analysis due to multicollinearity.

Chartrand (1992) tested a modified version of Bean and Metzner’s (1985) model, by adjusting the path of academic variables, and environmental variables. In her model, Chartrand (1992) indicated that background, academic and environmental variables were all antecedents to psychological outcomes. These distal variables had both indirect and direct effects on the intent to continue for 347 students who were over 24 years of age and living off-campus. Her analysis determined that 60 percent of the hypothesized path relations were significant (Chartrand, 1992). This modification yielded a model with a very good fit. In her final analysis, Chartrand (1992) concluded that external factors influence nontraditional students’ intent to persist. The external support from individuals and the absence of psychological distress had positive and significant impacts on the intent to persist (Chartrand, 1992).

In yet another modified version of the model of Non-Traditional Undergraduate Student Attrition (NUSA), Cabrera et al. (1992) explored the impact finances had on persistence based
on the work of Tinto (1975) as well as Bean and Metzner (1985). Using SEM, they researched the direct and indirect effects of finances on persistence within the context of other environmental variables such as the influences of significant others, goals, and the intent to persist (Cabrera et al., 1992). Their model, with its emphasis on the availability of finances and student attitudes toward finances, accounted for 47 percent of the variance in persistence and explained nearly 26 percent of the variance observed in intention to persist. The measures for goodness of fit were significant (Cabrera et al., 1992).

Cabrera et al. (1993) continued testing their modified model of NUSA to explore the external factors that shape perceptions, commitments, and preferences of 466 postsecondary students. Their model accounted for 45 percent of the variance in persistence and 82 percent of the hypothesized relations among their constructs were upheld (Cabrera et al., 1993). The structural relations observed by Cabrera et al. (1993) supported the earlier models proposed by Tinto and Bean.

Lastly, Wang (2009) used a simplified version of Bean and Metzner’s (1985) model to study the persistence of community college transfer students at four-year institutions. This study is the most recent study using the NUSA and the only one found that focused on transfer student persistence at four-year institutions. Wang’s (2009) secondary data analysis of the NCES Longitudinal Study of 1988 contained 786 cases and used logistic regression to predict membership in two groups: persister and non-persisters. The model fit the data for both sets of students. Wang (2009) concluded that the combined influence of personal, sociological, and psychological factors along with student experiences explained the educational outcomes of community college transfer students at four-year institutions.
Constructs and Variables

In combining the constructs and variables of Bean and Metzner (1985) as well as Lent, Brown, Hackett (1994), there were opportunities to consolidate similar concepts under like categories. Consistency with theory and research findings guides the decisions to include variables and constructs from the two previous models. Guiding these decisions was an extensive review of the literature that included four main content areas:

- Research that used the nontraditional student attrition model (or selected constructs and variables) as a conceptual framework
- Research that used social cognitive career theory (or selected constructs and variables) as a conceptual framework
- Descriptive literature about career technical students, both traditional and nontraditional, that did not measure persistence
- Descriptive literature regarding the persistence of nontraditional students that measured persistence based on varied nontraditional characteristics (age, commuting status, etc.)

This resulted in groupings of variables that will allow comparisons between the study’s sample and population (person inputs), groupings of variables that allow for the exclusion of non-applicable cases, and the establishment of similarities and differences between the study sample and the population (academic background and baccalaureate choices). Included in the conceptual framework are the concepts and variables within environmental influences and expectations and psychological influences that contain various items that measure student perceptions. Another grouping of variables, outcomes, includes measures regarding intent to
persist, baccalaureate degree commitment, educational pathway satisfaction, and baccalaureate program satisfaction, which are the dependent variables of the study.

All measurements using Likert scales have 6-points. An example of which is very satisfied, satisfied, somewhat satisfied, somewhat unsatisfied, unsatisfied, and very unsatisfied. These scale items capture the extremes as well nuanced measures better than a 5-point Likert scale, as a 5-point scale usually includes a neutral response. A 6-point Likert scale forces participants to indicate either negative or positive responses to the measures included in this study (Jackson, 2006).

**Student Demographic Information**

In 2004-2005, nearly 5.5 million students enrolled in career and technical education at community colleges (Levesque, et al., 2008). Most career and technical majors were Caucasian/white (63%), female (58%), and under 25 years (58%) (Levesque, et al., 2008). With an average student age of 28 years and with as much as 56% of the student body over 22 years of age, community colleges serve mostly non-traditional college students (American Association of Community Colleges, 2010; Council for Adult and Experiential Learning, 2008). As evidenced by these studies, gender, and ethnicity serve to establish the demographics for CTE students. Some studies, such as Aiken, Cerveo, and Johnson-Bailey’s (2001) qualitative study on the experiences of black female adult learners in nursing education baccalaureate complete programs as well as Wilson’s (2014) research on the persistence of African American community college students suggest further quantitative analysis of the participation and persistence of these students is necessary.

The conceptual frameworks of Bean and Metzner (1985) as well as Lent, Brown, and Hackett (1994) suggest that student demographics and personal attributes have an impact on
persistence and decisions. In this study, demographic variables describe student characteristics such as age, gender, race/ethnicity, and disability/health status. These variables are not indicators of any construct; rather they appear as exogenous, independent variables in the hypothesized path model for this study and used to determine the composition of the sample. This is consistent with other studies such as Levesque, et al. (2008), where they described recent career and technical majors at community colleges with respect to their age, gender and race/ethnicity.

**Academic Background**

As Tinto (1975) and Spady (1970) suggested, past performance can influence persistence in postsecondary education. While Tinto (1975) focused on the high school performance of traditional college students, CTE students, many having completed a degree or certificate program in a career-technical field, bring previous postsecondary experiences with them to four-year institutions. Because the non-traditional undergraduate attrition model includes high school GPA, which would be the most recent academic experience for many traditional students, it is fitting that previous postsecondary institution GPA is used in the same manner, as the most recent academic experience for many CTE transfer students would be at a community college (Lent, Brown & Hackett, 1994). Similarly, Allen, Robbins, Casillas, and Oh (2008) found that first-year postsecondary academic performance is a predictor of persistence. Many CTE students complete their first-year of postsecondary education at a community college.

Regarding CTE curricula, few postsecondary institutions offer fully online CTE courses and even fewer offer fully online CTE programs (Benson, Johnson, Taylor, Treat, Shinkareva, & Duncan, 2004; Githens, Crawford & Sauer, 2010). Githens, Sauer, Crawford, Cumberland, and Wilson (2014) conducted a research study on the impact community, institutional, and governance factors had on online workforce, or CTE, programs. They found that institutions with
statewide governing boards or within community college systems had “significantly more online occupational programs per 10,000 students than institutions using other governance models.” (Githens, Sauer, Crawford, Cumberland, & Wilson, 2014, p. 298) Likewise, online programs were more likely to exist at community colleges serving predominately white student populations (Githens et al., 2014). Githens et al. (2014) observed, “aside from the racial variables, no other significant relations were found regarding the institutional, social, and economic indicators and the likelihood of offering online occupational programs.” (p. 301)

As more four-year institutions develop applied baccalaureate and bachelor-completion programs for CTE transfer students, some choose to do so by expanding online offerings. While this may allow for greater accessibility for non-traditional students, further analysis is required to determine if the differences in modality between previous course work and current coursework have an impact on intentions to persist and satisfaction (Bragg et al., 2009, Council for Adult and Experiential Learning, 2008, Wladis, Hachey, & Conway, 2015). While course delivery method is not included in either social cognitive career theory or the theory of non-traditional undergraduate student attrition, exploring this phenomenon may have important implications for theory and practice (Lent, Brown & Hackett, 1994; Bean & Metzner, 1985).

Academic background contains measures regarding postsecondary enrollment (enrollment status and GPA) that have shown to contribute to the intent to persist as well as demographic variables used to establish the sample representation of the population and provide context (community college attended, completion of associate’s degree, community college degree/certificate program, and modality of community college program). Bean and Metzner (1985) included high school GPA in their model because it was the students’ most recent academic experience and shown to be a strong predictor for persistence by other researchers.
Because high school GPA may not be an indicator of the students’ most recent academic experience for this study, previous institution GPA replaces high school GPA as a measure of prior academic performance. For traditional or native students in career-technical baccalaureate degree programs, their baccalaureate GPA (a variable in baccalaureate choices) would include all postsecondary work. While neither Bean and Metzner (1985) or Lent, Brown, and Hackett (1994) included non-continuous enrollment in their models, Bean and Metzner included “absenteeism” in their model, noting that missed classes could impact the intent to persist. Johnson (2006) found that students that had extended periods of non-enrollment (stop-out) during their postsecondary education were likely to experience additional stop-outs. Li (2010) confirmed these findings with regard to transfer students, indicating that stop-out students were “71.2% less likely to attain a degree within six years” (p. 228). For this reason, non-continuous enrollment, or stop-out behavior, is included in the conceptual model for this study. Similar to demographic information, the variables associated with academic background are not indicators of any construct rather they appear as both independent and dependent variables in the hypothesized path model for this study and used to determine the composition of the sample.

**Environmental Experiences**

Environmental factors, perceived as supports or barriers by the student, are derivative of the student’s non-academic environment. Indicators include finances, hours of employment, outside encouragement, and family responsibilities. As discussed in Chapter 1, non-traditional students often have personal and work conflicts that interfere with their education. As revealed in the student demographic data of Levesque, et al. (2008), career and technical students balance their academic lives with other interests such as work and family. Batts and Pagliari (2013) detailed that over 50% of the bachelor-completion students in their study received some type of
support from their employer. This support ranged from scheduling accommodations to tuition reimbursement. Canche (2014) found that community college students overall had “fewer sources of support than their counterparts in the four-year sector” (p.748). Likewise, beginning a postsecondary career at a two-year institution was no less expensive than starting at a four-year institution (Canche, 2014).

Conversely, contextual factors, which include role conflicts, may limit outside support and perceived social demands based on the needs of others (Lubben, Davidowitz, Buffler, Allie, & Scott, 2010). These role conflicts could relate to hours of employment and family responsibilities, as indicated in the non-traditional undergraduate attrition model (Bean & Metzner, 1985).

An environmental factor that requires analysis is the role finances have on the persistence of CTE students in baccalaureate programs. Career and technical education plays a significant role in the lives of economically disadvantaged students. Laanan (1998) found that these students, after completing a formalized CTE certificate or associate’s degree at a community college had higher incomes than those students that did not. As Compton, Laanan and Starobin (2010) observed, programs that lead to the development of human capital or marketable skills and credentials can lead to higher earnings. Yet with higher earnings, financial challenges persist for CTE students. Attwell, Heil, and Reisel (2011) also queried students on the number of hours they worked per week and found hours worked to be a mediating variable of familial socio-economic status and degree completion.

According to Levesque et al. (2008), career and technical program students often cite job and financial demands as reasons for leaving programs. Financial issues may require students to work additional hours to pay for education. This is a common theme for CTE students since 21%
of full-time community college students also work full-time jobs while 59% of full-time students have part-time employment. Joshi, Beck, and Nsiah (2009) found that students employed over 40 hours a week were more likely to attend a community college than a four-year institution.

Likewise, Levesque et al. (2008) confirmed earlier studies noting that in 2001, employment rates of 1995-1996 graduates of career and technical programs were 87%. Paulsen & St. John (1997) observed that finances have both direct and indirect impacts on persistence. Their analysis of the 1987 National Postsecondary Student Aid Study provides insight into enrollment decisions of postsecondary students. McKinney and Burridge (2014) found that federal financial aid loans were “the proverbial catch-22” (p. 318). Lower-income students need loans to attend open-access institutions yet they hinder persistence for community college students (McKinney & Burridge, 2014).

Both actual and perceived financial issues play a role in student choices. Cabrera et al.’s (1993) findings suggest that additional factors, beyond the encouragement from family and friends, influence the intent to persist. Similar to Lent, Brown, and Hackett’s (2002) notion that environments contain both supports and barriers along with resources, the operational definition of environmental factors used in this study is the availability and attitudes of finances, the hours of employment, the outside encouragement and the family responsibilities students perceive during their enrollment in a bachelor’s program.

Finances are a key component to resources and a student’s environment. Martinez et al. (2009), in their study focused on the environmental and psychological causes of non-persistence for first-generation students, concluded that a lack of scholarships predicted student dropout more so than other external variables. They, like McKinney and Burridge (2014), concluded that the borrowing habits of first-generation students influenced college persistence. Similar to the
work of Cabrera et al. (1992), both the receipt of financial aid and measures regarding attitudes towards finances are included in the study. These items measure the intangible and tangible elements of finances, considering not only the award of financial aid but also the assessment of financial needs met during enrollment. This approach presents a more comprehensive view of student finances in relation to persistence (Cabrera et al., 1992). This is a departure from other studies that explore student persistence and satisfaction (Chartrand, 1992). Most studies use socio-economic status (SES) as an indicator of financial resources. Because measures of SES include aspects of parental education and occupations, SES is not an adequate indicator of financial need or attitudes for students that are financially independent, such as working adult students in baccalaureate programs.

Another facet of environmental influences is the perception of outside encouragement. Bean and Metzner (1985) indicated that the encouragement a student receives from those in their non-academic environment could influence persistence to degree. In this regard, the operational definition of outside encouragement is the ways in which a student’s non-academic network encourages their persistence in a baccalaureate degree program (Davidson et al., 2009). Metzner and Bean (1987) discovered that outside encouragement directly affected a student’s intent to leave. Similarly, Chartrand (1992) found that support from family and friends influenced student intentions to continue in college. Carney-Compton and Tan (2002) stated that nontraditional female students had less emotional support that traditional students, yet they expressed similar levels of satisfaction with that support. They suggested that only students that felt their return to school would not compromise their roles and responsibilities would actually do so (Carney-Compton & Tan, 2002).
The final item grouped within environmental influences is family responsibilities. As most career and technical majors were Caucasian/white (63%), female (58%), under 25 years (58%), married (23%) and working while enrolled (75%), we can assume applied baccalaureate students have various family responsibilities (Levesque, et al., 2008). Bean and Metzner (1985) indicated that they could find no codifications for students’ family responsibilities and dropout from college to use in the development of their attrition model. Citing several studies suggesting that marital status and the number of dependent children affected persistence, they included the construct “family responsibilities” in their model. For this study, the operational definition of family responsibilities is the care and/or financial support of minor and/or adult dependents and additional support the student receives regarding environmental tasks. Due to the nature of this student population, it is conceivable that these students would be responsible for both the care of minor children and adults, such as adult children or aging parents. Bean and Metzner (1985) cited few examples of research indicating that family responsibilities impacted persistence of students, regardless of their status as traditional or nontraditional students, yet family responsibilities, viewed as an external factor that may impact persistence, is included in their model. Both Metzner and Bean (1987) and Chartrand (1992) found that family responsibilities did not have a significant impact on dropout or intent to leave yet Leppel (2002) discovered that marriage had a negative impact on persistence for both men and women. Children, on the other hand, appear to be motivators for persistence in single women. When combined, marriage and children have a negative impact on persistence for both men and women (Leppel, 2002)

**Expectations and Psychological Influences**

Laanan (2000a, 2000b) stated over 50% of CTE students that begin their academic careers at community colleges aspire to advanced degrees at or above the baccalaureate level.
Expectations and psychological influences, a grouping of constructs (career aspirations, educational goals, degree commitment, academic self-efficacy, utility of baccalaureate degree, stress, and program satisfaction) detail the personal beliefs of participants regarding the consequences of performing particular behaviors (Lent, Brown, & Hackett, 1994). ‘Expectations and psychological influences’ are operationally defined in this study as a grouping of variables and constructs focused on the planned or desired goals of students along with other factors perceived during their baccalaureate experience. This includes the desired level of education and career attainment, degree commitment, academic self-efficacy, the utility of the baccalaureate degree, stress, and baccalaureate degree satisfaction (Anderson, 1981; Bean, 1985; Hackett, Betz, Casas, & Rocha-Singh, 1992; Kujawa, 2013, Lundberg et al., 2008).

In SCCT, expectations and psychological influences appear as outcome expectations and personal goals that include an individual’s beliefs about the types of outcomes contingent on their performance (Lent & Fouad, 2011). From a theoretical perspective, Lent, Brown, and Hackett (2002) stated that people organize, guide, and sustain their behavior by setting goals. These goals mediate the effects of time when individuals must sustain certain activities over long intervals without external reinforcement, such as degree completion (Lent, Brown, & Hackett, 2002). Goals serve as a mechanism by which individuals exert personal agency and/or self-empowerment (Lent, Brown, & Hackett, 2002).

Bean and Metzner (1985) considered educational goals a background variable for non-traditional undergraduate student attrition due to previous studies that noted the direct and indirect effects educational goals had on persistence. The hypothesized path model for this study indicates that educational goals will have a direct effect on the intent to persist and satisfaction. For instance, having unclear or undefined educational goals will directly impact degree
commitment. This in turn may interact with outside encouragement and affect the intent to persist. The concept map and hypothesized path model for this study note these relationships.

Bean (1982, 1985) used two items to measure educational goals. These items resulted in a coefficient alpha of .86 in the 1982 study and .91 in the 1985 study. The differences in these two studies were the populations. The 1985 study focused on undergraduate students 23 years of age and older (Bean, 1985). These two measures were “How important is it to you to get a bachelor’s degree? Moreover “How important is it to you to finish your program of study?” (Bean, 1985). These items are appropriate if one assumes that a bachelor’s degree is the likely culmination of an undergraduate’s career. This may not necessarily fully measure a student’s educational goals. For this reason, their measures of educational goals serve as indicators of degree commitment rather than the construct of educational goals in this study.

The definition for academic self-efficacy used in this study is derivative of Bandura’s (1986a, 1986b, 1989) definition of self-efficacy, which indicates that individuals self-evaluate their abilities to complete tasks and attain levels of achievement or performance. Adopting the operational definition of academic self-efficacy used by Davidson, Bromfield, and Beck (2007), the definition of academic self-efficacy used in this study is the “belief in one’s capability to master academic tasks and assignments and attain one’s academic goals” (p. 605). As Lent, Brown, & Hackett (2002) observed, self-efficacy is not a “unitary, fixed or decontextualized trait; instead it involves a dynamic set of self-beliefs that are specific to particular performance domains and that interact in a complex way with other person, behavior, and environmental factors.” (p. 262). For this reason, the measures of academic self-efficacy are contextual to the activities commonly conducted by students in applied baccalaureate and bachelor-completion programs.
Bean and Metzner (1985) defined degree commitment as the amount of importance ascribed to obtaining a college education measured by the importance of graduating from college. The operational definition used in this study of baccalaureate degree commitment adapts Bean’s (1980) and Davison et al.’s (2009) definitions of degree commitment by measuring the importance of obtaining a bachelor’s degree, the student’s intentions to complete the degree, and their commitment to earning their bachelor’s degree.

Metzner and Bean (1987) discovered that another indicator of expectations and psychological influences used in this study, the utility of a baccalaureate degree, had the greatest impact on intent to leave for undergraduate students. They found that utility related to goals, aspirations, and encouragement, which are all concepts measured in this study. Their theoretical definition of utility, used as an operational definition in this study, is “the students’ perceptions of the usefulness of their college education for employment opportunities (practical value) and personal development” (Bean & Metzner, 1985, p. 522).

Another indicator of expectations and psychological influences, stress, is difficult to measure as evidenced in the lack of postsecondary research focused on these concepts. Kelly, LaVergne, Boone, and Boone (2012) queried students on the role stress had in student non-persistence. In their study, students felt that the inability to handle stress contributed to college-level dropout (Kelly, LaVergne, Boone & Boone, 2012). Deggs (2011) in his qualitative study of perceived barriers of adult learners in undergraduate degree programs suggested that barriers were interrelated, causing stress for adults due to the transcendence of these issues throughout various areas of their lives. Bean and Metzner (1985) hypothesized that utility and satisfaction should reduce the intent to leave while stress would increase those feelings.
Bean and Metzner (1985) defined stress as the “extent to which students believe that they experience stress from factors that are not related to college attendance as well as from the amount of time and energy required for college study.” (p. 526). As indicated in early sections, non-traditional students face numerous challenges in their pursuit of a baccalaureate degree, some of which include the re-socialization or role negotiations that occur during enrollment. For this reason, stress should not be limited to those factors not related to college attendance, as stress is contextual (Zajacova, Lynch, & Espenshade, 2005). The operational definition used in this study includes the academic and non-academic factors as well as the time and energy required for baccalaureate study.

Baccalaureate program satisfaction replaces the general construct of satisfaction found in Bean and Metzner’s (1985) model. Their definition of satisfaction included the enjoyment of the student role and the lack of boredom with college courses (Bean & Metzner, 1985). By including boredom as a factor in satisfaction, Bean and Metzner (1985) inferred that utility, engagement, and boredom coexist within the construct of satisfaction, which may result in confounding variables. For this reason, this research constrains the definition of satisfaction to merely the student’s baccalaureate program of study, as a general concept such as satisfaction, seems vague for quantitative measurement. The operational definition of baccalaureate program satisfaction used in this study involves the degree in which students find their baccalaureate study rewarding and would recommend the program to others, thus modifying Bean and Metzner’s (1985) definition by excluding boredom. An exhaustive search relating to the measurement of satisfaction in postsecondary education yielded several definitions for satisfaction, and even program satisfaction but these often include measures of integration and academic services, yet as Metzner and Bean (1987) observed they do not influence persistence for non-traditional
learners. Bean’s (1980) definition of satisfaction, regarding the “degree in which being a student is viewed positively” (p. 160) infers directionality. As Metzner and Bean (1987) discovered that satisfaction did predict persistence, all indications are that this study will confirm those findings.

**Baccalaureate Choices**

Many studies, such as Hackett, Betz, Casas, and Rocha-Singh’s (1992) study of students in engineering programs, use current program details as variables to explore aspects of student persistence. Likewise, studies hoping to explore CTE student persistence should collect program information regarding any previous CTE programs and current baccalaureate programs to allow for analysis of within- and between-group factors that may explain persistence of CTE students at four-year institutions. The goal of this study is to test a model that explains the variance in student intentions to persist and their satisfaction with their educational pathways for those students enrolled in career-technical baccalaureate programs. External factors often exert influence on the decisions of four-year students. For instance, some four-year institutions limit the number of transferrable CTE credits (Chase, 2011). Further research is necessary to determine if degree program choice has an impact on persistence intentions, as those programs designed to accept more CTE transfer credits may have greater student persistence and satisfaction.

By offering online programs, highly motivated students with competing work, life, and school interests can enroll in courses. Benson, et al. (2004) made this observation with reference to CTE students at community colleges. They claimed that online CTE student characteristics are similar to those of on-campus CTE students. Online CTE students are often working professionals, single parents and enrolled part-time (Benson et al., 2008). While most community colleges offer on-campus career and technical education programs, less than half offer online
CTE programs (Githens et al., 2010). Most community colleges have several CTE sub-
baccalaureate programs, yet as late as 2004, on average they offered only two programs via
distance technologies (Benson et al., 2004). For this reason, further research exploring the
program modality of choice for career-technical baccalaureate students, particularly transfer
students, may be an important factor in the intent to persist. These same considerations may
affect a student’s ability to pursue full-time enrollment as the lack of course offerings in desired
modality may lengthen the time to degree and reduce persistence rates.

The model of non-traditional undergraduate attrition (NUSA) suggests that student
enrollment status may have an impact on persistence in baccalaureate degree programs (Bean
and Metzner, 1985). Eddy, Ray and Rao (2006), found that full-time enrollment for traditional
age college students at community colleges was a determinant factor for transfer between two-
and four-year institutions. Similarly, Chen’s (2007) analysis of NCES data indicated that part-
time enrollment status had a negative relationship with persistence for this same group.

Similar to demographic information and academic background, the variables associated
with baccalaureate choices are not indicators of any construct; rather they appear as both
independent and dependent variables in the hypothesized path model for this study and are used
to determine the composition of the sample. Academic background, environmental influences, as
well as expectations and psychological influences guide baccalaureate choices. For instance, an
individual’s degree/certificate program at the community college will determine the
baccalaureate program at a four-year institution, as articulation agreements determine these
paths. Nakajima, Dembo, and Mossler (2012) found that GPA was a strong predictor of student
persistence. Without some level of degree commitment, academic self-efficacy, and educational
goals, students will not enroll in a baccalaureate program. Similarly, without considering an
initial plan to finance their studies and adjust work schedules and family responsibilities, it is unlikely students will choose to pursue a baccalaureate degree. For this reason, direct paths to baccalaureate choices from academic background, environmental influences as well as expectations and psychological influences exist in the conceptual framework.

**Outcomes**

An important choice faced by students is the continued enrollment in a baccalaureate program. We see this in the Bean and Metzner’s (1985) non-traditional undergraduate student attrition model as “intent to leave” and “drop-out.” Similarly, this concept is addressed in social cognitive career theory as “choice actions” (Lent, Brown & Hackett, 1994). After surveying non-completers of college trade courses, Lohman and Dingerson (2005) discovered that many students enrolled in CTE courses to obtain workplace credentials or gain specific skills for advancement with no intention of competing CTE programs. This lack of perceived utility for full degree programs could explain the trends in CTE dropouts observed by Lohman and Dingerson (2005).

Intent to persist rather than persistence is one of the outcomes used in this research for several reasons: the survey participants are currently enrolled students, this study is not longitudinal in nature, and secondary data analysis is not employed in this research. A study focused on persistence would require a different population (inclusive of graduates and non-completers), linking responses to actual registration activity, or possessing a data set that contains the same variables and constructs used in this study. This research focuses on current students due to presumed difficulty contacting graduates and non-completers. In an effort to guard against any privacy issues, only self-reported measures are used. Finally, no data set exists with the same variables and constructs used in this study to allow for secondary data analysis.
By only surveying current students, this study explores the attributes, environments, expectations, and influences that support student intentions to persist. True to the work of Fishbein and Ajzen (1975), Bean (1982) found the intent to leave was the best predictor of dropout. This research adopts the same presuppositions of Cabrera et al. (1992, 1993) in such that attitudes (intent to persist) influence behavioral intent (persistence).

In focusing on the intent to persist, this research can inform the practice of postsecondary administrators in their attempts to address term-to-term attrition. Cabrera et al. (1993) stated that focusing on past behavior, such as withdrawal decisions, is futile. Rather, administrators should focus on the variables that are predictive of students’ intentions to persist to design intervention strategies (Cabrera et al., 1993).

Little is known about the satisfaction CTE students have regarding their educational pathways. Townsend (2009b) completed research on satisfaction of students with baccalaureate degrees enrolled at community colleges, but there is no research on the satisfaction of CTE students enrolled in baccalaureate programs at four-year institutions. As indicated earlier, satisfaction is often a latent variable measured with various assessments of quality in academic staff/teaching, classes/curriculum, advising support, skills developed, services/facilities, social integration, student centeredness/responsiveness, and pre-enrollment factors (Gibson, 2010). The goal of this study is to determine if CTE students intend to persist and are satisfied with their educational path, regardless of the aforementioned items.

**Excluded Concepts**

The non-traditional undergraduate student attrition model contains several concepts that are inappropriate for the population used in this research (Bean & Metzner, 1985). Residence, when used to distinguish between traditional and non-traditional experiences can provide
between- and within-group comparisons. This study focuses solely on career-technical students. Because these students are often commuters or adult learners, residency is not a distinguishing factor.

Likewise, residency in itself is not a predictor of persistence; rather, as Tinto (1975) suggested, residency facilitates social integration. Bean and Metzner’s (1985) theorized that nontraditional students would not have the same social interaction that Tinto suggested was important in the retention of traditional students. Because many of the programs used in this research are delivered at regional locations or online for non-traditional populations, students have limited access to institutional integration efforts. For this reason, residency is not a relevant variable for this study.

Due to the length of time that may exist between baccalaureate and secondary education, students may have acquired academic skills rendering high school performance useless as a predictor of persistence. As discussed earlier and mentioned by Tinto (1975), high school performance may be a predictor of persistence for traditional students; however, this study does not focus on high school performance, rather prior postsecondary education performance.

The difficulty of operationally defining study skills that may present as a confounding variable (as the perception of study skills is reliant on measures such as GPA which may be the result of test taking ability, written communications and the like), this variable is excluded from this study. Academic self-efficacy replaces this measure because self-efficacy has been proven to impact student persistence (Metzner & Bean, 1987). Likewise, Metzner and Bean (1987) discovered that “study skills seemed to be a statistical artifact since the simple correlation between this variable and dropout was -.08” (p. 25).
While Bean and Metzner (1985) hypothesized that absenteeism would directly impact intent to leave, they found little research to support that claim. In their empirical study to prove their earlier theory, Metzner and Bean (1987) found that absenteeism was not a significant predictor of dropout and did not have a significant impact on dropout when modifying intent to leave. For this reason, absenteeism is not included in this model.

Metzner and Bean (1987) found that course availability did not have a significant impact on dropout or intent to leave. Because of the often prescribed programs of study for applied baccalaureate and bachelor completion students, course availability, similar to academic advising, should not vary enough to result in any clear statistical relationship; thus, it is excluded from this research.

Bean and Metzner (1985) defined social integration as “the extent and quality of student’s interactions with the social system of the college environment” (p. 507). Metzner and Bean (1987) found that “social integration variables failed to create significant effects on the psychological outcome variables, GPA, intent to leave, or dropout. They determined through their analysis that Tinto’s theoretical model (1975) “which emphasized social integration, is not appropriate to use with nontraditional students” (Metzner & Bean, 1987, p. 28). Similarly, the delivery of career-technical baccalaureate programs used in this research include online and off-campus options, so it is likely these students have limited social integration. For that reason, the researcher eliminated social integration from this study because it does not reflect actual program offerings.

The non-traditional undergraduate student attrition model includes academic advising, major certainty, and opportunity to transfer as factors that may affect persistence (Bean & Metzner, 1985). These factors are programmatic opportunities and services at two- and four-year
institutions. Because this study focuses on the personal factors that influence persistence, these items are not included in this research study. For example, because career-technical programs often include articulation agreements for particular baccalaureate programs, few, if any CTE students would experience major uncertainty, as CTE transfers students hoping to maximize their transfer credits often only have one program choice. For instance, RNs hoping to transfer in all of their CTE coursework would choose an RN-to-BSN program. For this same reason, few students would consider transferring to another baccalaureate program during their enrollment at a four-year institution as this would result in their previously earned credits having little or no value in another degree program, as career-technical coursework is highly specialized. This makes transfer considerations irrelevant in this study. Finally, because the pathways between two- and four-year institutions are often clearly articulated, any items focused on academic advising would measure service expectations rather than the impact the advising information had on student persistence.
Chapter 3: Methods

This chapter will detail the methods used in this study and features five main sections. The research design and approach section details the design and approach used in this study as well as the variables used. In the setting and sample section, discussion focuses on population, sampling method, and sampling frame, sample size, eligibility criteria, and sample characteristics of participants. The instrument and materials section details the instrumentation of concepts previously discussed in chapters 1 and 2. The data collection and analysis section provides details on the descriptive and inferential analyses used in the study, describes the nature of the variables, as well as relationships between variables and constructs. Finally, the section devoted to participant rights and protections details the measures taken to protect the participants’ rights as well as a brief discussion of the institutional affiliation of the researcher and the ethical implications of this research.

Research Design and Approach

The research design includes descriptive and inferential quantitative analysis of the variables that predict the intent to persist, baccalaureate degree commitment, educational pathway satisfaction and baccalaureate program satisfaction for career-technical baccalaureate students. Based on the theoretical frameworks previously mentioned, attributes, academic background, and environmental influences may interact with baccalaureate choices as well as expectations and psychological influences to provide predictors regarding the intent to persist and satisfaction. A web-based survey instrument collected responses. The following sections elucidate the design of this research.
Setting and Sample

Population

The population of this study is students in career-technical baccalaureate programs at a regional four-year institution. The researcher sought participation from the enrolled students in 37 majors. As evidenced by the articulation agreements between the four-year institution used in this research and various community colleges, these baccalaureate programs have pre-baccalaureate credentials that allow students to enter the workforce in high-demand, high skill, and high paying jobs without a baccalaureate credential (Eastern Michigan University, n.d. A.). By narrowing the population to these students, this research explores the intent to persist, baccalaureate degree commitment, educational pathway satisfaction and baccalaureate program satisfaction for students who have sub-baccalaureate alternatives to their careers of choice.

Studies focused on this population are limited and often derivative of other research findings. Most studies regarding student persistence are based on post hoc data analysis using common data sets rather than based on researcher specified variables and constructs. Few explore the conditions that foster term-to-term and degree persistence through advanced multivariate analysis (Blecher, 2006; Cataldi et al., 2011; Levesque et al., 2008; NCES, 2002; Wei et al., 2009).

Blecher (2006) used secondary analysis on NCES data to explore the 6-year persistence rates of students in Family and Consumer sciences at four-year institutions to determine if they persisted to their bachelor degrees. While including some environmental variables such the “pull factor” of off-campus work, Blecher (2006) suggested that future studies should include encouragement from family and friends as well as student intentions to persist, as this data is absent in NCES data sets.
Moreover, the notion of a “community college penalty” exists with this population. Long & Kurlaender (2009) indicated that community college transfer students lag behind native four-year students in persistence in baccalaureate programs. They concluded that by a conservative estimate, community college students are 14.5% less likely to complete a baccalaureate degree within 9 years. (Long & Kurlaender, 2009) These findings support the need for further research that accounts for additional environmental variables that may explain some of the attrition for bachelor-seeking CTE students.

Finally, as more institutions develop applied baccalaureate and bachelor-completion programs to meet the needs of adult learners, research regarding persistence and the environments that support the intent to persist is lacking. Because past studies do not account for the attributes, environments, expectations and influences that impact CTE students that transfer, more research on this specific population of students is necessary.

**Sampling Method and Sampling Frame**

The study samples the entire reachable population of students (3348) enrolled in career-technical baccalaureate programs at a four-year institution during the winter 2013 semester. No other criteria, other than those listed in the eligibility criteria section that follows, would exclude students from this research.

**Eligibility Criteria**

Students self-reported their degree program and all demographic characteristics during the data collection process. Only students enrolled in career-technical baccalaureate programs at the selected four-year institution were eligible for inclusion in this study. Using institutional articulation agreements to determine if students had the option of completing pre-baccalaureate credentials in their selected field, the researcher determined that 3,348 students enrolled during
the winter 2013 could be potential participants for this research. Of the 3,348 students, 2,219 students had previous postsecondary experience.

**Sample Size**

The sample consists of those students that responded to the survey. Based on the formula for structural equation models (10 x # of I.V.) + 50, where # of I.V. is the number of independent variables in the study, the goal sample size for this study was 300-350 participants. Two hundred and eighty-nine participants responded to the survey and of those responses 177 cases were eligible for inclusion in this study. Eligibility was limited to participants that answered enough of the survey to be included in statistical analysis and those students that had some previous postsecondary experience. Further details regarding the responses included in this study can be found in Chapter 4, the conclusions resulting from data analysis.

**Sample Characteristics**

The 177 students in this sample are mainly non-traditional, as previously defined and split nearly equally by gender. Most are older than 24 years of age (70%) and employed (84%) while enrolled at the four-year institution. Most students in this population are part-time students (55.4%), as many applied baccalaureate and bachelor-completion programs are designed for part-time enrollment (Table 1).

**Instrumentation and Materials**

**Measures**

Existing theories and research findings guided the development of operational definitions and measures for the variables represented in the conceptual framework and hypothesized structural model of this study. Guiding these decisions was an extensive review of the literature pertaining to the non-traditional undergraduate student attrition model, social cognitive career
Table 1: Sample Demographics (n=177)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Value</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Younger than 25</td>
<td>28.8</td>
</tr>
<tr>
<td></td>
<td>25-34</td>
<td>40.1</td>
</tr>
<tr>
<td></td>
<td>35 and Older</td>
<td>29.9</td>
</tr>
<tr>
<td>Gender</td>
<td>Male</td>
<td>49.2</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>49.7</td>
</tr>
<tr>
<td>Hours Worked</td>
<td>Did not work</td>
<td>14.9</td>
</tr>
<tr>
<td></td>
<td>1-20 hours per week</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>21-40 hours per week</td>
<td>50.9</td>
</tr>
<tr>
<td></td>
<td>Over 40 hours</td>
<td>17.1</td>
</tr>
<tr>
<td>Winter 2013 Credit Hours</td>
<td>11 and below (part-time)</td>
<td>55.4</td>
</tr>
<tr>
<td></td>
<td>12 and above (full-time)</td>
<td>44.6</td>
</tr>
</tbody>
</table>

theory, descriptive literature regarding the persistence of CTE students, and descriptive literature regarding the persistence of nontraditional students.

Measures gleaned from other sources and developed for the survey instrument were included based on face validity (Jackson, 2006). The researcher modified and removed some items, regardless of reliability in previous studies to guard against issues of multicollinearity in this study. Measures included verbally appropriate 6-point Likert scales for items that measure attitudes and perceptions. By using a 6-point Likert scale that does not include “not applicable” or “neutral” points, respondents must state an opinion on the items included in the survey (Jackson, 2006).

Similar to Davidson et al. (2009), the researcher modified the scales to find agreement between item statements and Likert scale points. For instance, an item addressing satisfaction has corresponding end pegs of “very satisfied” and “very dissatisfied.” This caused some awkward phrasing such as “somewhat uncertain” and “very unstressful” but this phrasing was used for
consistency. The 26 pilot study respondents shared that they had no difficulty understanding the points of the Likert-scale.

**Survey Delivery**

The instrument used in this study is an online survey, made available via Surveymonkey.com. Inputs collected include items measuring variables and constructs arranged into the following groups: demographic information, academic background, baccalaureate choices, expectations and psychological influences, environmental variables, and outcomes.

At the completion of the survey, students were directed to a new webpage that contained no user-identifying tracking cookies. Respondents had the opportunity to indicate if they would be willing to answer any follow-up questions; if they would like to be notified of the survey results; and could submit their contact information for a drawing. The researcher incentivized pilot study participation by offering Amazon gift cards for completed pilot study submissions. These submissions included qualitative responses pertaining to question phrasing. The researcher further incentivized final study participation by allowing study participants, upon completion of a survey response, to enter a raffle for one of three Amazon gift cards. A sample of the instrument is found in Appendix A. The following section discusses the measures used in this research and the rationale for the development and inclusion of these measures.

**Measurements**

All measurements in this study are quantitative in nature. There are no qualitative data in this research design. While the research design made qualitative responses possible (through possible follow-up questions), the researcher did not pursue additional responses for this research.
**Age (IA): 1 question, scaled variable, open answer**

Age (IA), measured with a single ordinal item, asks respondents their age at their last birthday. Bean and Metzner (1985) hypothesized that older students would presumably have more family responsibilities and hours of employment when compared to younger students. This constitutes a hypothesized path between age and environmental influences and posits an indirect relationship between age and outcomes (intent to persist, baccalaureate degree commitment, educational pathway satisfaction and baccalaureate program satisfaction). Chartrand (1992) found that age did not impact intent to continue. Metzner and Bean’s (1987) study of part-time, freshman, commuter students supports this as they determined that age was not a significant predictor of drop out but there were indirect effects of age on intent to drop out (Metzner & Bean, 1987).

**Gender (IG): One question, nominal variable, M/F**

Gender (IG), measured by a single nominal item, and asks respondents their gender (female or male). Bean and Metzner (1985) hypothesized that gender would have an indirect effect on persistence influenced by family responsibilities (environmental influences). Metzner and Bean (1987) found that gender had no direct effect on dropout and no indirect effect when moderated by intent, GPA, utility, or satisfaction. They did not explore gender as moderated through environmental influences such as outside encouragement or family responsibilities. Because socially constructed sex-roles could affect family responsibilities and in turn influence outcomes such as the intent to persist and satisfaction with educational pathways, further exploration of the role of gender on the persistence of career-technical baccalaureate students is warranted.
**Ethnicity (IR): One question, nominal variable, federally designated categories**

A single nominal item, which asks participants to indicate their inclusion in federally designated race and ethnic categories, measures race/ethnicity (IR). Participants selected from the following race/ethnicities: American Indian or Alaskan Native, Asian, Black or African American, Hispanic or Latino, Native Hawaiian or other Pacific Islander, White, Other: (please specify) (Office of Management and Budget, 2007). Respondents could select more than one race/ethnicity with those answers recoded to “multiracial/multiethnic” during data validation and recoding. Bean and Metzner (1985) suggested that race/ethnicity would have a negative influence on GPA due to fewer academic opportunities for minority students. This suggests that race/ethnicity acts as a surrogate for socio-economic status (SES) or prior academic performance. Metzner and Bean (1987) discovered that minority students had lower college grades and that GPA had the greatest influence on dropout. The conceptual framework used in this study does not make these same assumptions. The researcher assumed that students enroll in baccalaureate programs designed to build on previous academic successes achieved at community colleges, namely the successful completion of an associate’s degree, any deficiencies in academic preparedness from secondary education would be mitigated by community college experiences. For this reason SES (also absent from Bean and Metzner’s model) is not included, rather it is hypothesized that race/ethnicity will have an impact on environmental influences (outside encouragement and family responsibilities) due to socio-cultural influences.

**Disability/Health Status (IH): One question, nominal variable**

A single nominal item measures disability and health status (IH): “Do you have a disability or health status that impacts your academic or professional performance?” Disability and health status of students is a variable detailed in social cognitive career theory (Lent, Brown & Hackett, 1994) yet it does not receive any analysis in student persistence studies that use social
cognitive career theory as a theoretical framework (Diegelman & Subich, 2001; Hackett, Betz, Casas & Rocha-Singh, 1992; Kahn & Nauta, 2001; Lubben, et al. 2010). Likewise, there is limited information on the persistence of postsecondary CTE students with health and disability issues. Most literature focuses on the persistence and retention of students with disabilities, offering suggestions to establish disability-friendly postsecondary environments, yet providing no quantitative or quantitative research to support these suggestions (Getzel, 2008). Given the policy antecedents that encouraged the enrollment of disabled students in vocational education, this variable requires further research.

**Academic background: Eight items (bifurcated measures based on responses)**

The survey instrument was bifurcated based on previous postsecondary institutional enrollments: technical/trade school, community college, and previous four-year institution. Due to issues revealed in the pilot study, respondents were asked similar questions for each type of institution they previously attended and answers were aggregated into a single variable when appropriate. This allowed for greater clarity in responses and the potential for additional analysis, if desired, based on subpopulations of students, categorized by their characteristics and experiences at previous institutions. As such, summative variables were created to characterize all previous educational experiences into one aggregate response. The criteria for the recoding into summary variables for each concept follow each variable.

**Prior institutions attended (CA): nominal variable**

Participants were asked if they attended another postsecondary institution prior to enrolling at the public four-year institution. Responses were limited to “yes” and “no” and served to bifurcate the survey. Respondents who had no previous postsecondary experience advanced beyond the postsecondary experience questions.
Credit hours earned at previous institution(s) (CH): One question for each type of institution [technical/trade school(s), community college(s), and previous four-year institution(s)] in which the respondent enrolled, ordinal variable

Due to the number of possible answers, participants used a text box to self-report the total number of credit hours earned prior to enrolling in their baccalaureate program. The variable contains the calculated sum of respondent answers across all referenced institution types.

Credit hours transferred from previous institution(s) (CX): One question for each type of institution [technical/trade school(s), community college(s), and previous four-year institution(s)] in which the respondent enrolled, ordinal variable

Due to the number of possible answers, participants used a text box to self-report the total number of credit hours transferred to their current four-year institution. The variable contains the calculated sum of respondent answers across all referenced institution types.

Previous Institution GPA (CG): One question for each type of institution [technical/trade school(s), community college(s), and previous four-year institution(s)] in which the respondent enrolled, interval variable

Due to the number of possible answers, participants used a text box to self-report their GPA at each of their previous institutions. The variable contains the calculated average of respondent answers across all referenced institution types.

Previous stop-out (CS): One question for each type of institution [technical/trade school(s), community college(s), and previous four-year institution(s)] in which the respondent enrolled, nominal variable

Participants will select “yes” and “no" to answer if they had more than one semester (excluding summer semesters) where they did not enroll in classes. This allows for possible
comparisons and additional data analysis for past enrollment behaviors and the possibility of these past behaviors influencing their enrollment at four-year institution. This measure is consistent with Wang’s (2009) definition of non-continuous enrollment. Neither Bean and Metzner (1985) or Lent, Brown, and Hackett (1994) address prior instances of non-continuous enrollment in their models; however, Bean and Metzner’s (1985) model does include “absenteeism” defined as the number of times a student missed class.

Participants indicated their stop-out/drop-out experiences at each of their previous institutions. A recoded value summarizes all previous stop-out/drop-out behavior. If a participant’s responses were consistent for all previous post-secondary experiences, that answer was recorded. Any variation among multiple prior institutions was recorded as a ‘varied’ stop-out/drop-out experience.

*Previous institutional enrollment status (CE): One question for each type of institution [technical/trade school(s), community college(s), and previous four-year institution(s)] in which the respondent enrolled, ordinal variable*

Participants indicated their enrollment status at a previous institution (CE) by choosing either part-time or full-time enrollment. A recoded value summarizes all previous enrollment behavior. If a participant’s responses were consistent for all previous post-secondary experiences, that answer was recorded. Any variation among multiple prior institutions was recorded as a “varied” enrollment status for all previous institutions.

*Modality of credit hours at previous institution (CM): One question for each type of institution [technical/trade school(s), community college(s), and previous four-year institution(s)] in which the respondent enrolled, nominal variable*
Respondents had four options for previous course modality (CM): in-person with no materials online, mostly in-person with some materials online, hybrid where online content replaced some in-person meetings, and fully online with no in-person meetings. This question includes an “other” option where participants described the modality of their courses at a previous institution if the other four options are not suitable. A recoded value summarizes all previous course modalities experienced by the student. If a participant’s responses were consistent for all previous post-secondary experiences, that answer was recorded. Any variation among multiple prior institutions was recorded as a “varied” form of delivery for previous postsecondary instruction.

*Completed a postsecondary credential (CC): One question for each type of institution [technical/trade school(s), community college(s), and previous four-year institution(s)] in which the respondent enrolled, ordinal variable*

Due to the number of possible answers, participants used a text box to self-report any credentials or degree earned as a result of the previous postsecondary experiences. The variable contains the highest credential achieved prior to the respondent’s current four-year enrollment.

*Previous degree/certificate program (CD): One question for each type of institution [technical/trade school(s), community college(s), and previous four-year institution(s)] in which the respondent enrolled, nominal variable*

Due to the number of possible answers, participants used a text box to self-report the major or program of study they followed in obtaining any previously earned postsecondary credentials or degrees. The variable contains the major or program of study for the highest credential achieved prior to the respondent’s current four-year enrollment.

*Environmental influences measures: Four variables*
Finances (FF): Three items - two items with corresponding 6-pt Likert scales, one item with ordinal data

Three items detail respondent sources of funding and attitude towards that funding (FF): difficulty financing the degree, the funding sources used by the student, and the satisfaction the student feels regarding the financing of their degree. This is similar to the construct used by Cabrera et al. (1993). Using an adapted item from Nettles, Thoeny, and Grosman (1986), respondents indicated their perception regarding difficulty with which they financed their degrees. Using a modified item from Martinez et al. (2009), participants indicate the percentage of financing they received from various sources. As some sources require repayment (loans) while others do not (gifts from others and benefits for military service and employment) these forms of financing may have direct impacts on overall stress (expectations and psychological influences) simply due to the anticipated scarcity of resources that may be felt if students do not complete and have loan payments for incomplete degrees. These details could provide additional avenues of research as well as opportunities to further explore the role of types of financing and if those forms of financing impact student experiences. Finally, participants answered a question modified from two studies conducted by Cabrera et al. (1992, 1993). The item measures their satisfaction with the amount of financing they received while enrolled.
**Hours of employment (FE): 1 item, interval variable**

Hours of employment (FE), a single item ordinal variable, measures the average hours a student worked while enrolled in a bachelor’s program. As Levesque, et al. (2008) indicated, CTE students often work full-time.

**Outside encouragement (FO): Six items measured with the same 6-pt Likert scale, interval variable**

Outside encouragement (FO) is a latent construct measured by six items. An exhaustive review of the literature yielded no scale that seemingly matched the concept of outside encouragement, as it exists in the Bean and Metzner (1985) model when considering the population of this study. For this reason, a new measurement of outside encouragement, adapted from several sources is used. These included several separate items regarding the support of significant others and family adapted from Lundberg et al. (2008), family encouragement regarding further education and enrollment as adapted from Cabrera et al. (1993), familial support for baccalaureate study adapted from Davidson et al. (2009), and peer support adapted from Mallinckrodt (1988).

**Family responsibilities (FR): Four items, one nominal, three interval variables**

The family responsibilities (FR) construct, comprised of four items, measures the various familial responsibilities students have while enrolled in career-technical baccalaureate programs. Few scales existed that measure family responsibilities and none designed for adult learners. While Lundberg et al. (2008) did ask non-traditional participants if friends and family assist with responsibilities, this does not address the role children and other dependents have on the familial responsibilities of adult learners (Leppel, 2002). As both marital status and children affect persistence, it is important to consider both in this research (Leppel, 2002). Because adult
learners tend to be older, and logically have older parents, these students may be primary sources of support for parents and even adult children. This is another facet of familial responsibilities that has been previously unexplored with relation to Bean and Metzner’s (1985) work. As Kember (2006) noted, older students renegotiate social positions and status, adapting to new environmental influences. The measures developed for this survey gathers these measures for the purposes of exploring their impact on intent to persist, baccalaureate degree commitment, educational pathway satisfaction and baccalaureate program satisfaction.

*Expectation and psychological measures: Latent Variable, 7 indicators*

*Career Aspirations (EC): Seven items measured with one 6-pt Likert Scale, interval variable*

Career aspiration (EC) is an indicator and often measured by the intent to pursue a particular career (Gray & O’Brien, 2007). CTE students chose a career path by enrolling in a career-technical program at a two-year institution. For this reason, career intent is an inherently flawed measure for this population. Gray and O’Brien’s (2007) 10-item career aspiration measure used a 5-point Likert scale and was deemed reliable overall (α=.84). Their subsets of leadership and achievement as well as training and managing others were reliable with the same Cronbach’s Alpha (α=.84) and adapted for this study (Gray & O’Brien, 2007). The additional educational aspiration scale yielded α=.71. Two items used by Grey & O’Brien (2007) to measure educational aspiration (“Once I finish the basic level of education needed for a particular job I see no reason to continue in school.” and “I would like to pursue a graduate degree.”) were moved to the to the measurement items for educational goals in the effort to avoid multicolinearity in this study. The inclusion of these two items should only serve to increase the reliability of that measure.
Educational goals (EI): Four items, one nominal variable, two 6-pt Likert Scales measuring three items, interval variable

Educational goals (EI), another latent variable measured with several items, indicate the highest level of education sought and the importance of completing that degree (Anderson, 1981, Bean & Metzner, 1985). Four items measure educational goals in this study, the highest degree the participant expects to complete, which is similar to Pascarella, Wolniack, & Pierson’s (2003) single item “highest academic degree that you intend to obtain in your lifetime?” (p. 303-304), the importance ascribed to obtaining that degree, and two items from Gray & O’Brian’s (2007) career aspiration scale (“I would like to pursue a graduate degree” and “Once I finish the basic level of education needed for a job I see no reason to continue in school”), as previously mentioned.

Academic self-efficacy (ES): Five items all measured with a 6-pt Likert Scale, interval variable

Academic self-efficacy (ES) is a latent variable and measured with five items developed by Lundberg et al. (2008) to measure self-efficacy for academic achievement. While treated as individual variables in their study, graduating adult learners had mean scores of 3.25-3.44 with standard deviations ranging from .58 to .69 on a 4-point Likert scale. These items were adapted for use in this study and will be combined to produce the self-efficacy construct. Participants responded indicating their ability to be successful at writing an academic paper, making an oral presentation, synthesizing material from various sources, participating in class discussions, and working as a team in an academic setting (Lundberg et al., 2008).
Utility of baccalaureate degree (EU): Three items measured with the same 6-pt Likert scale, interval variable

Utility of a baccalaureate degree is the final construct grouped under expectations and psychological influences. This latent variable is comprised of three items, all adapted from Bean (1985) and address the usefulness of the degree (“My bachelor’s degree will be useful in obtaining future employment” and “My bachelor’s degree will be useful in developing my skills in seeing alternative points of view.”) and the education received (“I am getting a good education at <school>”)

Academic stress (ER): 20 items measured with the same 6-pt Likert scale, interval variable

Academic stress (ER) is difficult to measure as it is related to or dependent on context in determining if it is characteristic or appropriate in nature. Dill & Henley (1998), in a study that compared perceived stress and stressors of non-traditional (25 years and older) and traditional students using the Adolescent Perceived Events Scale created by Compas, Davis, Forsythe, and Wagner (1987), found it did not adequately measure the stressors that exist for non-traditional students. In their study of self-efficacy, stress, and academic success in nontraditional students, Zajacova, Lynch, and Espenshade (2005) developed a scale for stress. This scale was divided into subscales relating to interaction at school, performance out of class, performance in class, and managing work, family and school. Each subscale had a Cronbach’s alpha ranging from .72 to .83, indicating these were reliable measures (Zajacova et al., 2005). This study adapts these measures, and omits several due to their possible association with environmental influences (having enough money, parent’s expectations). Likewise, due to the varying course modalities, assessments and assignments across degree programs, items of limited relevance for online
learners (taking good class notes) were eliminated. Similarly, items indicating specific types of assignments were either eliminated (writing term papers and preparing for exams) or modified to be more general (submitting assignments on time, having multiple assignments in the same week). Finally, because social integration and interactions are not the focus of this study, due to earlier studies indicating these measures are not relevant for adult learners, the researcher excluded items that seemingly indicated social interaction (making friends at school). What remains is a 20-item scale for academic stress associated with the pursuit of a baccalaureate degree.

**Baccalaureate choices measures:**

* Baccalaureate program (BD): One question, nominal variable

Due to the number of possible answers, participants indicated their baccalaureate program (BD) by providing the whole or partial name for their major program of study. These responses were recoded to standardize the data. This again allows for additional data analysis for subpopulations found in this study and allowed the researcher to exclude students that were not enrolled in a career-technical baccalaureate program.

* Baccalaureate credit hours earned at the four-year institution (BH): One question, ordinal variable

Due to the number of possible answers, participants used a text box to self-report the total number of credit hours earned. While students earned credit hours prior to their baccalaureate program enrollment, this measure is specifically measuring the credit hours completed at their current four-year institution.
**Baccalaureate current CrHr (BC): One question, ordinal variable**

Baccalaureate current CrHr (BC) allows for some comparison with previous academic work as well. This is a single item and respondents entered the number of credits that they were enrolled in during the winter 2013 semester.

**Baccalaureate program GPA (BG): One question, ratio variable**

Baccalaureate GPA (BG) allows for some comparison with academic background, specifically prior GPA. This is a single item and participants entered their baccalaureate GPA in a text box.

**Baccalaureate enrollment status (BE): One question, nominal variable**

Participants indicated their enrollment status (BE) by choosing either part-time or full-time and allows for comparisons and further data analysis when compared to previous postsecondary enrollment status.

**Baccalaureate program modality (BM): One question, nominal variable**

There were four options for baccalaureate program modality (BM): in-person with no materials online, mostly in-person with some materials online, hybrid where online content replaced some in-person meetings, fully online with no in-person meetings and varied. This allows for comparisons and further data analysis when compared to previous postsecondary enrollment status.

**Baccalaureate Drop/Stop Out (BS):**

Participants selected “yes” or “no" to answer if they more than one semester (excluding summer semesters) where they did not enroll in classes at the four-year institution. This allows for possible comparisons to past enrollment behaviors.
**Outcome measures:**

*Intent to persist (OP): 8 items, 7 measured with a 6-pt Likert scale, 1 ordinal variable*

Eight items measure persistence, expected date of graduation and seven indicators related to student intentions regarding reenrollment. Due to the nature of the sample, recoding and some interpretation was necessary. For instance, if students indicated they would graduate at the end of the term, they will be deemed persisters, and answers regarding their intent to leave the institution were not interpreted the same as those with future or non-specific graduation dates, as these students clearly do not intend to persist.

*Satisfaction with educational pathway (OS): 2 items measured with the same 6-pt Likert, interval variable*

Satisfaction with baccalaureate pathway includes two items. Respondents indicated if they are satisfied with their choice to pursue an associate’s degree later followed by a bachelor’s-completion program and if they would recommend that choice to others.

*Program satisfaction (OB): Two items measured with the same 6-pt Likert scale, interval variable*

Satisfaction is often measured with various assessments of quality in academic staff/teaching, classes/curriculum, advising support, skills developed, services/facilities, social integration, student centeredness/responsiveness, and pre-enrollment factors (Gibson, 2010). Due to the numerous facets of satisfaction, defined in this study as various constructs and indicators, an overarching assessment of satisfaction seems the most appropriate for program satisfaction. Rather than treating satisfaction as a latent variable, this study treats it as a concrete construct with two items that measure overall satisfaction, “I am satisfied with my program of study,” and “I would recommend this program to someone.”
**Baccalaureate Degree Commitment (OC): four items measured with three different 6-pt Likert Scales, interval variable**

Two items, adapted from Davidson et al.’s (2009) five-item measurement of degree commitment were used in this research (“How strong would you say your commitment is to earning your bachelor’s degree, here or elsewhere?” and “How certain are you that you will earn your bachelor’s degree?”). Bean’s (1982, 1985) two items assessing the importance students placed on completing their bachelor’s degrees and completing their program of study were used (“How important is it to finish your bachelor’s degree program of study” and “How important is it for you to graduate with a bachelor’s degree from <school>” (Bean, 1982, 1985).

**Pilot Study**

To ensure that survey items are valid and reliable measures of the indicators and latent constructs of the study, the researcher conducted a pilot study. Soliciting students from a cross-section of career-technical baccalaureate program courses yielded enough participants representative of the population and sample to explore any issues with the instrument delivery, phrasing, and operationalization of concepts. Groups of participants completed a preliminary version of the online survey. Upon successful completion of each survey section, participants were asked questions pertaining to their thought processes while answering the survey questions along with their understanding of the questions, to determine if the meaning and interpretation of the questions and expected answers was consistent with the measures (Krathwohl, 2009). Krathwohl (2009) suggested that by studying survey response processes of different groups, differences in meaning and interpretation become apparent due to previous experiences, capabilities, or understandings. Minor refinements were made, including additional bifurcated
questions to limit the number of non-applicable questions pertaining to previous postsecondary education.

**Reliability and Validity**

The design of this study addresses validity in several ways. The results of the pilot study established content validity. Similar to Bean’s (1980) process, the researcher asked pilot study participants to answer questions relating to the measures used to ensure the items are valid. Construct validity of factors was determined through factor analysis during the structural equation modeling (SEM) process (Weston & Gore, 2006). Factor analysis determined the factors that measured the constructs of this study accurately did so (Krathwohl, 2009). This analysis also yielded concurrent validity as the factors corresponded with the questions designed to measure the indicators and constructs and estimated the performance of each item (Bean, 1980, Jackson, 2006). Convergent validity is established when the factor loadings for the survey items are high and consistent between items (Bean, 1980). While some studies use discriminant analysis to establish convergent validity, this is not appropriate for this study due to the dependent nature of the variables (Krathwohl, 2009). Reliability was observed through the correlation coefficients and supported the consistency of the instrument (Jackson, 2006).

**Hypothesized Structural Model**

An advanced multivariate statistical analysis such as structural equation modeling (SEM) requires researchers to consider relationships between constructs and variables a priori (Weston & Gore, 2006). This section discusses the hypothesized structural equation model paths (Figure 4) among the groupings of variables and constructs found within this research study.
Demographic Information

Social Cognitive Career Theory (SCCT) includes personal variables such as gender, race, and disability (Lent, Brown, & Hackett, 1994). Lent, Brown, and Hackett (1994) suggested that background variables relate to social cognitive variables and the career development process. They also stated that gender-role socialization influenced how gender and cognitions shape educational and career choices (Lent, Brown, & Hackett, 1994). Noting the sex-typed vocational majors mentioned in Chapter 1, one would assume a direct effect of person input (gender and race/ethnicity) on academic background, as there may be a direct relationship between gender and community college degree/certificate program for CTE transfer students. Swail, Cabrera, Lee, and Williams (2005) noted that Latino students were less likely to have continuous
enrollment when compared to Caucasian students. In their analysis, they determined that continuous enrollment increased the probability of Latino students earning their baccalaureate degree by 60 percent. Due to these observed differences between Latino and Caucasian students with regard to continuous enrollment, the direct relationship between race/ethnicity, academic background, and baccalaureate choices requires further study. The conceptual framework of the study notes the path between race/ethnicity and academic background. Similarly, Lent, Brown, and Hackett (1994) assumed that gender and race/ethnicity might influence career development. Noting the socially constructed nature of gender-influences, the path between gender and expectation and psychological influences requires further investigation.

Metzner and Bean (1987) found that background variables had indirect effects on persistence. These indirect effects are most likely due to the intervening variables such as career aspirations. As Flores and O'Brien (2002) discussed in their research findings relating to career development for Mexican-American women, socially constructed concepts such as gender and race/ethnicity can influence career aspirations. Similarly, older students may have lower career aspirations and career goals if they are completing a degree near the end of their professional career.

Student demographic information, which include age, gender, race/ethnicity, disability/health status and marital status, are likely determinants for family responsibilities, as women are often the caregivers for both young and elderly family members regardless of direct relation, so the intersection of gender and race/ethnicity may determine the family responsibilities a student has while pursuing his or her degree. A path notes this relationship in the hypothesized structural model for this study.
While Chartrand’s (1992) research focusing on non-traditional students found that age did not have a direct impact on the intent to persist, the possibility still may exist for this population. The heterogeneity of a nontraditional student population requires the exploration of all possible direct relationships. As Gibson (2010) discovered, non-academic variables often cause dissatisfaction in business students thus the inclusion of non-academic factors such as age, gender, race/ethnicity, and health/disability status. For these reasons, both the conceptual model and hypothesized structural model of this study show a direct path from these demographic variables to outcomes. Only through data analysis can a direct, indirect, or non-existent relationship be determined.

**Academic Background**

Academic background, specifically any prior postsecondary coursework will have a direct effect on the baccalaureate choices available to CTE students. A direct path represents the influence academic background has on baccalaureate choices on the hypothesized structural model for this study. Similarly, academic background will have a direct effect on expectations and psychological influences, as some programs of study will present limited educational goals for students. In particular, students in career-technical programs may have lower educational goals simply because their work values applied skills more than other environments. Likewise, these individuals may not know that a terminal degree exists for their chosen career.

Lent, Brown, and Hackett (2002) clarified the relationship between academic background and expectation and psychological influences. They stated that these abilities inform self-efficacy, likewise influencing outcome expectations and interest (Lent, Brown & Hackett, 2002). This influence is evident in the conceptual framework of this study in the path from academic background to expectation and psychological influences. Pascarella, Wolniak, and Pierson
(2003) found that college experience variables influenced the overall degree plans of community college students. With this in mind, a path analysis should reveal that the academic background of CTE baccalaureate students affects the variables and constructs found within the expectation and psychological influences grouping.

Based on the non-traditional student attrition model, Bean and Metzner (1985) hypothesized a direct relationship between student background and defining variables and the intent to leave postsecondary education. The hypothesized path in this study, from academic background to outcomes, recreates their hypothesized path to explore this possible direct relationship.

**Environmental Influences**

The perception of support will likely influence persistence and may affect the stress (expectations and psychological influences) a student perceives while enrolled. Gloria, Castellanos, Lopez, and Rosales (2005) discovered in their quantitative study of traditional Hispanic undergraduate students that social support was a strong predictor of non-persistence decisions. Similarly, Metzner and Bean (1987) found that outside encouragement significantly influences intent to leave, satisfaction, and goal commitment. For these reasons, a bidirectional path exists between environmental influences and expectations and psychological influences.

Paulsen & St. John (1997) found that finances have a direct effect on persistence. As St. John, Paulsen & Starkey (1996) stated, high achieving students will not persist if there are financial obstacles to their enrollment. As Leppel (2002) suggested, fatherhood has a negative effect on persistence yet motherhood has a positive impact on persistence, suggesting the difference in gender roles (family responsibilities) interacts with other factors to influence persistence.
Hours of employment, finances and family responsibilities will have a direct effect on baccalaureate choices, as students that cannot modify their schedule, secure funding, or arrange for assistance with familial obligations will choose programs that accommodate these factors. Those who cannot find baccalaureate degree programs that accommodate these environmental constraints will have difficulty persisting in a program (or find themselves with substantial amounts of stress). Similarly, baccalaureate programs could possibly influence hours of employment and finances as students may modify their work schedules to accommodate baccalaureate study. This bidirectional relationship between environmental influences and baccalaureate choices is noted on both the conceptual framework that guides this study and the hypothesized structural model.

Due to the bidirectional relationship between environmental influences and expectations and psychological influences, an interaction effect may exist with these constructs. Students with negative expectations and psychological influences and negative environmental influences should be less likely to intend to persist and have lower satisfaction related to their educational pathways. Students with one negatively skewed influence (either expectations and psychological influences or environmental influences) should intend to persist at a higher rate and with more satisfaction than dropouts. Conversely, they will be less likely to persist and be satisfied with educational pathways than those students who have both positive psychological and environmental influences. The interaction between psychological and environmental influences represents the ways career technical students frame their decisions to persist.

Finally, with regard to the direct effect of environmental influences on the outcomes of this study (intent to persist, baccalaureate degree commitment, educational pathway satisfaction and baccalaureate program satisfaction), it is clear that environmental factors represent a hurdle
for nontraditional students. As Cabrera et al. (1992) discovered, finances did have a direct effect on the intent to persist. Sandler (2000) also noted that financial difficulty had a direct effect on the intent to persist for nontraditional learners. Yet Chartrand (1992) found that hours of employment and family responsibilities did not have a direct effect on the intent to continue for nontraditional students. Due to these conflicting aspects of the environmental influences used in this study, further investigation regarding the direct or indirect effects of environmental influences is required.

**Baccalaureate Choices**

Baccalaureate choices have bidirectional relationships with both expectations and psychological influences and environmental influences. Many of the career-technical program choices that exist are part-time programs, so there may be no option for full-time enrollment. In this regard, the student’s program choice may directly influence educational goals, as students may need to adjust their goals based on the time it takes to complete a baccalaureate degree. In turn, this adjustment may affect both intent to persist and satisfaction with educational path.

Still, full-time enrollment may cause additional stress for students influencing a student’s intent to persist. Similarly, a student that may only be able to enroll in a part-time online program may not be satisfied with their baccalaureate program if their intent was to enroll in a full-time face-to-face program. Baccalaureate program specifics such as enrollment status, program, and program modality will have a direct impact on finances and even hours of employment, especially if the student chooses to enroll in more classes and reduce their work hours.

The hypothesized structural model details a direct relationship from baccalaureate choices to outcomes. One measure within baccalaureate choices, GPA, may predict the intent to persist. Cabrera et al. (1992) discovered that GPA had an effect on persistence behavior. As
Townsend (2009) remarked in her study of post-baccalaureate students enrolled at community colleges, students with previous academic success have a comparative base to gauge such concepts as satisfaction. This may be particularly true for GPA, since students with successful past experiences at a community college may struggle with low GPAs at a four-year institution, which in turn may impact their satisfaction and intent to persist.

**Expectations and Psychological Influences**

The hypothesized relationship between the variables and constructs grouped within expectations and psychological influences and baccalaureate choices are bidirectional, noted by the bidirectional arrow between expectations and psychological influences and baccalaureate choices on hypothesized structural model (Figure 4). As Bandura (1986a, 1986b, 1989) indicated, self-efficacy is contextual. Students enter academic programs with some sense of self-efficacy but experiences within the program may change those feelings. Students that find themselves with low GPAs in their baccalaureate program may revise their educational goals if they feel they do not have the academic skills for more advanced study.

In terms of expectations and psychological influences and the outcome intent to persist, Sandler (2000) observed that perceived stress did not mediate the intent to persist; however, it did mediate financial attitudes and perceived difficulty of securing financing. As both financial attitudes and perceived difficulty of securing financing are included in the measures of finances used in this study, this further supports the need to explore the bidirectional relationship between expectations and psychological influences and environmental influences through a hypothesized structural model.

As noted in the conceptual framework that guides this research, expectations and psychological influences will have a direct relationship with outcomes. This reflects the
influence of Bean and Metzner (1985) on this model. Chartrand (1992) explored this relationship, finding that the absence of psychological distress had a positive impact on intended persistence in postsecondary education. From a practical sense, one can assume that student perceptions relating to the utility of a baccalaureate degree, their educational goals, their baccalaureate degree commitment, and their baccalaureate program satisfaction would directly impact the intent to persist in a baccalaureate degree program.

Additional Considerations

With any hypothesized path model, researchers must consider additional factors and theories to shape their understanding of the theorized paths that may exist. For this study, three theories found in leadership and organizational behavior contexts stand out as possible explanations of the relationships between variables and constructs: resource dependency, trait theory, and contingency theory.

Resource dependency theory is an organizational theory that states that external forces influence organizations in their search for resources (Pfeffer & Salancik, 2003). These conditions exist on a micro level for individuals included in this study. This study posits that environmental or non-academic factors directly influence the intent to persist and satisfaction with educational pathways. External influences (work and home) supply the resources (encouragement and finances) for the completion of baccalaureate studies. This takes on another dimension when one considers the scarcity of resources (traditional students) for four-year institutions.

Titus (2006) explored student persistence from the existing student attrition models of Tinto (1975) and Bean (1990) and resource dependency theory observing, “The average chance of persistence or institutional persistence is dependent on the extent to which an institution relies on tuition as a source of revenue.” (Titus, 2006, p. 369) He stated that from a resource
Dependency perspective, four-year institutions have begun to consider student retention as a means to offset declining state appropriations (Titus, 2006). Institutions that focus on resource dependency may design programs and support services focused on the unique needs of adult learners. This could affect academic self-efficacy, as these students may perceive they can be successful with additional attention and resources devoted to them by institutional representatives. (Oseguera & Rhee, 2009)

Understanding the concept of trait theory, or that behavior and characteristics contribute to success and make some individuals better suited to persisting in baccalaureate programs, is important for this research. Neither Bean & Metzner (1985) nor Lent, Brown, & Hackett (1994) focused on traits; however, their research could be confused as trait theory research for those unfamiliar with the concepts. Both models assume, what some might consider traits, demographic characteristics interact with aspects of the student’s environment and determine the intent to persist. One such study by Lounsbury, Saudargas, and Gibson (2004) used concepts from Tinto (1975) as well as Bean and Metzner’s (1985) work as a framework to view student intentions to withdraw from college with regard to personality traits. While their study produced statistically significant results, traits only accounted for 22% of the variation in withdrawal decisions. This suggests that traits alone cannot account for the variation in student intentions. Logue, Lounsbury, Gupta, and Leong’s (2007) study was similar but focused on major satisfaction. Their research showed that a combination of vocational interests and personality traits accounted for 49% of the variation in major satisfaction. SCCT highlights the dynamic concepts of the self-system, so it may be easy for some to assume that traits contribute to the persistence decisions. However, what one must understand is the socially constructed nature of gender roles and that various factors interact with psychological and environmental conditions,
ultimately guiding persistence and satisfaction decisions. Background factors alone cannot explain an individual’s capacity to change, develop, and self-regulate through interactions with their environment (Lent, Brown, & Hackett, 2002).

Similar to trait theory, contingency theory suggests that the actions of organizations and individual are contingent upon internal and external environments. In other words, external and internal demands shape career-technical student decisions. Chen (2012) used contingency theory as a basis for a study on student persistence and suggested that institutional structural and demographic characteristics influenced student persistence. Internal and external forces often shape these characteristics. Recognizing the role internal and external demands exert on the individual, Chen (2012) observed that internal and external demands influence persistence. From an educational leadership perspective, these leadership theories shed light on the hypothesized behaviors of four-year institutions and students and may help to explain the effects external and internal demands have on student persistence decisions.

**Participant Rights and Protections**

Protecting the rights of participants is a key component of this research. No personally identifiable data was collected for this study, as the goal of this research is to determine predictors for a population rather than a particular individual. Participants had the ability to opt out of the research study at any time during the survey. Once submitted, respondents could not remove or edit their answers from the research results due to the lack of personally identifiable answers. The possible harm to the participants is very slight, but may result in unforeseen and unintended psychological stress or concern. The researcher submitted all materials for institutional human subjects review prior to deploying the survey.
In addition, the researcher, due to an affiliation with the institution, made every effort to make it clear that the survey instrument was for doctoral research only. While dissemination of the research may have immediate benefits to the institution, this research study is not designed by, or explicitly for, institutional purposes. The researcher identified as a doctoral student researcher and did not detail any additional relationship with the institution to avoid any effect on response rates.

**Data Collection**

As indicated in the instrumentation and material section, data was collected using a survey instrument distributed online in April 2013.

**Data Analysis**

As indicated in the instrumentation and material section, data was collected on multiple variables, which may lead to some interactions and mediating effects. For this reason, structural equation modeling was used to analyze the data and explore possible mediating and interactive effects.

Structural equation modeling (SEM) is a hybrid of factor analysis and path analysis. The goal of SEM is to provide a parsimonious summary of the relationships among variables and constructs in this study (Weston & Gore, 2006). Complex multivariate models such as the one used in this study require researchers to use SEM to estimate relationships among variables as well as estimate the fit of the model to the data (Brown et al., 2008). SEM also allows the researcher to study the relationships among the latent constructs and their direct impact on outcomes (Lei & Wu, 2007). The true power of SEM lies in the fact that these complex relationships are specified a priori and then determined to fit the sample data. These relationships, as indicated on the hypothesized path model (Figure 4), were determined by theory.
The structural or path model describes the complex relationships between the constructs measured in this study (Weston & Gore, 2006). The path model reveals the hypothesized direct and indirect effects of the exogenous variables: age, gender, race/ethnicity, health/disability status, and marital status, and all other endogenous variables (Lei & Wu, 2007). The exogenous variables in this study are best described as demographic characteristics (age, gender, race/ethnicity, health/disability status, and marital status) and all other variables are endogenous, as prior research indicates the variables and constructs in this model are dependent on latent variables and effects from other constructs (Weston & Gore, 2006).

The measurement model in SEM describes the relationship between the constructs and indicators designed to measure them (Weston & Gore, 2006). This allows the researcher to determine how well the variables measure the constructs of the study (Weston & Gore, 2006). Confirmatory factor analysis allows the researcher to evaluate the appropriateness of the variables hypothesized as indicators for the latent constructs in this study. These relationships identified a priori, use confirmatory factor analysis as the appropriate statistical procedure for evaluation (Lei & Wu, 2007, Krathwohl, 2009).

Data analysis for this study was a two-step process, as is the case with SEM. First, an estimation of the measurement model was made prior to the estimation of the path model. This two-step process provides confirmatory assessment of the convergent validity and construct validity mentioned earlier (Cabrera et al., 1993). The observed normality of the data and the sample size determines the goodness of fit indices used for the path model (Bentler & Bonett, 1980; Weston & Gore, 2006).
There are significant advantages to analyzing data using SEM. First, due to the nature of this study, which includes the blending of two conceptual frameworks and the development of measurements appropriate for the constructs and population, SEM allows for construct validation and attends to issues of validity through confirmatory factor analysis (Anderson & Gerbing, 1988). SEM provides the means to estimate and test relationships among the constructs. This is a significant advantage to other general linear models it allows the observation of measure-specific error (Weston & Gore, 2006). Second, the two-step process of SEM allows for the measurement of models and the development of alternative models (Anderson & Gerbing, 1998). While that is not the goal of this research, an alternative model to the hypothesized model may yield avenues for future research.

A disadvantage to this analysis is that many would draw causal relationships from the observed correlations and variances. This misrepresentation of the study findings could lead to erroneous conclusions. While the researcher understands these dangers, those unfamiliar with SEM may draw conclusions without an adequate understanding of the measurement and path models used in this research. Likewise, as with other studies that have used SEM to analyze aspects of social cognitive career theory and non-traditional undergraduate student attrition, no one model can explain 100% of the variance in the intent to persist and satisfaction. While some have been more successful than others at explaining over 40 percent of the variation, no one model can possibly explain the complex nature of student persistence and satisfaction. (Cabrera et al., 1993).

Along with these disadvantages, there are limitations of the data sources. As Lent, Brown & Hackett (2002) observed, students who have adequate academic skills but low academic self-efficacy beliefs may self-select and rule out further educational goals. This holds true for those
who have low career aspirations and low degree commitment, so it would seem that most students would have similar levels of these measures, thus limiting the variation in these variables. Similarly, as academic self-efficacy is derivative of the constant feedback loops of students a plateau may result, as added performances will not change a student’s self-perception of abilities (Lent, Brown, Hackett, 1994). Again, this limits the observed variation in this variable. While a longitudinal study would address this, developing such a study is beyond the scope of this research.
Chapter 4: Findings

This chapter will detail the findings of this study and features three main sections: confirmatory factor analysis, structural equation modeling, and the conclusions drawn after data analysis. The confirmatory factor analysis section will detail the hypothesized and confirmed latent variables and the emergent latent variables that became part of this study. Model fit as well as descriptive statistics for all latent variables will be discussed. The structural equation model section will detail the relationships that existed among the measured and latent variables for this sample. Model fit as well as directional and bi-directional relationships will be discussed. Finally, five conclusions, derivative of the data analysis will be discussed in this chapter, guiding further discussion in Chapter 5.

Confirmatory Factor Analysis and Descriptive Statistics

Confirmatory factor analysis (CFA), a form of data analysis used to identify latent variables or those variables unobservable in quantitative research, confirmed the existence of both hypothesized latent variables and emergent latent variables. CFA is a form of analysis often conducted prior to structural equation modeling (SEM).

As indicated in chapter three, confirmatory factor analysis allows the researcher to evaluate the appropriateness of the variables hypothesized as indicators for the latent constructs in this study. These relationships identified a priori, use confirmatory factor analysis as the appropriate statistical procedure for evaluation (Lei & Wu, 2007, Krathwohl, 2009).

Goodness of fit indices, similar to those used to judge model fit in structural equation modeling, provide confirmatory assessment of the convergent validity and construct validity in confirmatory factor analysis (Cabrera et al., 1993). For the latent variables found in this study, the goodness of fit indices confirmed the validity of the latent variables and items loading on
each factor (Table 1). The confirmatory factor analysis suggests a good-fitting model exists for this sample as there is appropriate fit on two universally agreed upon indices Chi-square/degrees of freedom (CMIN/DF) and the root mean square error of the approximation (RMSEA) as well as several comparative fit indices (Table 2).

Table 2: Confirmatory Factor Analysis Goodness of Fit

<table>
<thead>
<tr>
<th>Index</th>
<th>Fit Standard</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMIN/DF</td>
<td>&lt;3.00 (Byrne, 2010)</td>
<td>1.577</td>
</tr>
<tr>
<td>Root Mean Square Error of the Approximation (RMSEA)</td>
<td>&lt;.10 (Tabachnick and Fidell, 2007)</td>
<td>0.058</td>
</tr>
<tr>
<td>Akaike Information Criterion (AIC)</td>
<td>Default model value lower than the saturation and independence models (Moss, 2009)</td>
<td>Lowest value</td>
</tr>
<tr>
<td>Browne-Cudeck Criterion (BCC)</td>
<td>Default model value lower than the saturation and independence models (Moss, 2009)</td>
<td>Lowest value</td>
</tr>
<tr>
<td>Expected Cross Validation Index (ECVI)</td>
<td>Default model value lower than the saturation and independence models (Moss, 2009)</td>
<td>Lowest value</td>
</tr>
<tr>
<td>Modified Expected Cross Validation Index (MECVI)</td>
<td>Default model value lower than the saturation and independence models (Moss, 2009)</td>
<td>Lowest value</td>
</tr>
</tbody>
</table>

Four comparative fit indices, which are Akaike Information Criterion (AIC), Browne-Cudeck Criterion (BCC), Expected Cross Validation Index (ECVI), and Modified Expected Cross Validation Index (MECVI), confirm the latent variables used in this research, as these indices have lower values than the saturated and independence model. These same indices establish the goodness of fit of the structural equation model, and are discussed in greater detail in the following section.
As mentioned in chapter three, the hypothesized structural equation interaction model (Figure 4) contained 12 hypothesized latent variables. Based on the CFA conducted on this data, nine latent variables contributed to a model that had an appropriate goodness of fit (Figure 5). While some of the latent variables retained items as suggested by the literature review and
survey instrument design for this study, new or altered latent variables became evident during confirmatory factor analysis. What follows is a detailed discussion of each latent variable.

For clarity and due to the number of latent variables found in this study, the discussions for both confirmatory factor analysis and descriptive statistics for each latent variable occur simultaneously, rather than in separate sections. Table 3 features the four confirmed hypothesized variables (academic self-efficacy, academic stress, educational aspirations, and financing). Table 4 refers to those variables that emerged during CFA (leadership – extrinsic motivation, leadership – intrinsic motivation, satisfaction, support – family, support – peers/friends).

Academic self-efficacy was one of four hypothesized and confirmed latent variables. The latent variable academic self-efficacy is comprised of three items that had factor loadings over .71, each having a mean response value of 4.98 or higher. The mean value for academic self-efficacy ($\mu = 5.06$), indicates that participants believed they had the ability to be successful at three tasks associated with their baccalaureate degree programs: writing a paper ($\mu = 5.09$), making an oral presentation ($\mu = 4.98$), and synthesizing information ($\mu = 5.12$). Academic self-efficacy, when reviewed alongside another hypothesized variable, academic stress ($\mu = 4.42$), suggests that participants felt they could be successful in an academic setting. Academic stress is comprised of five items, each having a factor loading above .68. Overall, students had greater feelings of academic self-efficacy ($\mu = 5.06$), indicating they believed they could be successful at various academic activities, yet they were less at ease in engaging in activities that contribute to academic stress ($\mu = 4.42$).
Table 3: Descriptive Statistics for Hypothesized Factors

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mean</th>
<th>Factor</th>
<th>Mean</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Self-efficacy</td>
<td>5.06</td>
<td>Successful at writing an academic paper</td>
<td>5.09</td>
<td>.86</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Successful at making an oral presentation</td>
<td>4.98</td>
<td>.71</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Successful at synthesizing information</td>
<td>5.12</td>
<td>.80</td>
</tr>
<tr>
<td>Academic Stress</td>
<td>4.42</td>
<td>Ease of asking questions in class</td>
<td>4.63</td>
<td>.74</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ease at talking/corresponding with professors</td>
<td>4.37</td>
<td>.85</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ease at getting help and information at school</td>
<td>4.11</td>
<td>.77</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ease at talking to college staff</td>
<td>4.37</td>
<td>.85</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ease at participating in class discussions</td>
<td>4.63</td>
<td>.68</td>
</tr>
<tr>
<td>Educational Aspirations</td>
<td>4.63</td>
<td>Continue in school beyond basic level of education</td>
<td>4.67</td>
<td>.76</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Would like to pursue a graduate degree</td>
<td>4.58</td>
<td>.59</td>
</tr>
<tr>
<td>Financing</td>
<td>3.63</td>
<td>Ease of financing</td>
<td>3.32</td>
<td>.68</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Satisfaction with financing</td>
<td>3.94</td>
<td>.70</td>
</tr>
</tbody>
</table>

Two items contributed to the latent variable Educational Aspirations (μ = 4.63) each having factor loadings above .59. The mean for each item suggests that respondents were less interested in pursuing a graduate degree (μ = 4.58) than in believing one should continue in school beyond the basic level of education (μ = 4.67). Overall, participant respondents revealed they somewhat agree with continuing their education (μ = 4.63).

The final hypothesized variable, financing, contains two items: the difficulty participants had in financing their coursework at the four-year institution and their satisfaction with that financing, each with factor loadings above .68. With a mean value of 3.32, noting this is the lowest mean value for all of the latent variables in this research, we can state that respondents found financing their degree somewhat difficult. In regards to how satisfied they were with the financing they received while enrolled at the four-year institution, a mean value of 3.94 indicates
that participants were nearly “somewhat satisfied” with the amount of financing they received. Due to the low mean for financing overall, notably the lowest for all the latent variables in this research (μ = 3.63) respondents were not overwhelmingly satisfied or dissatisfied with the ease and availability of financing their coursework at the four-year institution.

As mentioned earlier, CFA confirmed the existence of four hypothesized variables and five other variables that emerged during the factor analysis. Table 4 lists the descriptive statistics and factor loadings for these five emergent variables. What follows is a detailed account of each variable’s mean values and factor loadings along with some discussion pertaining to the emergent variable’s relationship to any related previously hypothesized variables.

Through CFA it became evident that the hypothesized latent variable career aspirations existed as two latent variables, primarily focused on aspects of leadership, as items from the hypothesized variable “career aspirations” loaded on two emergent variables. The items that remained after confirmatory factor analysis revealed the respondents were focused on two separate and distinct areas of leadership. These two latent variables, based on the nature of the items, were titled leadership (extrinsic motivation) and leadership (intrinsic motivation). Two items, both pertaining to an individual’s desire to pursue status or a promotion each had factor loadings above .55 and mean values at or above 4.38 for the variable leadership (extrinsic motivation). Interestingly, when compared to the same statistics for the three items that loaded above .66 on leadership (intrinsic motivation), we see that participants agreed to a lesser degree with items focused on extrinsic motivation (μ = 4.65) than those concerned with intrinsic motivation (μ = 4.90). This indicates that students were generally less motivated by extrinsic motivations with regard to leadership. In general, respondents agreed that they would like to become leaders in their career. Interestingly, respondents agreed to a greater degree with intrinsic
motivation items ($\mu = 4.90$) than extrinsic motivation items ($\mu = 4.65$). With an intrinsic item, becoming a leader in their career field, having the highest mean of 5.15 and an extrinsic item, attaining leadership status, had the lowest mean of 4.38 among all of the leadership items.

Table 4: Descriptive Statistics for Factors That Emerged During CFA

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mean</th>
<th>Factor</th>
<th>Mean</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership</td>
<td>4.65</td>
<td>Attaining leadership status is important</td>
<td>4.38</td>
<td>.79</td>
</tr>
<tr>
<td>(Extrinsic Motivation)</td>
<td></td>
<td>Plan to devote energy to getting promoted</td>
<td>4.91</td>
<td>.55</td>
</tr>
<tr>
<td>Leadership</td>
<td>4.90</td>
<td>Hope to become leader in career field</td>
<td>5.15</td>
<td>.76</td>
</tr>
<tr>
<td>(Intrinsic Motivation)</td>
<td></td>
<td>Would like to manage other employees</td>
<td>4.65</td>
<td>.88</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Would like to train others</td>
<td>4.91</td>
<td>.66</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>4.74</td>
<td>Satisfied with educational pathway</td>
<td>4.83</td>
<td>.83</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recommend same educational choices to others</td>
<td>4.55</td>
<td>.97</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Getting a good education</td>
<td>4.85</td>
<td>.67</td>
</tr>
<tr>
<td>Support (Family)</td>
<td>5.22</td>
<td>Family encourages continued attendance</td>
<td>5.19</td>
<td>.86</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Family supports pursuit of bachelor’s degree</td>
<td>5.37</td>
<td>.93</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Emotional support from family related to bachelor’s degree</td>
<td>5.10</td>
<td>.55</td>
</tr>
<tr>
<td>Support (Peer/friend)</td>
<td>4.99</td>
<td>Peers/Co-Workers believe in me furthering my education</td>
<td>4.88</td>
<td>.69</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Significant other supports decision to enroll</td>
<td>5.09</td>
<td>.59</td>
</tr>
</tbody>
</table>

Items from the hypothesized latent variable “satisfaction with educational pathways” and “program satisfaction” yielded a new latent variable, satisfaction. There were three items that loaded above the .67 level on this latent. Two of the three items were designed as items loading on the latent variable “satisfaction with educational pathway”: whether the participants would recommend the same educational choices to others ($\mu = 4.55$) and their satisfaction with their educational pathway ($\mu = 4.83$). The last item that loaded on the variable satisfaction was one that was hypothesized as an item for the hypothesized latent variable “program satisfaction” and focused on the participant’s belief that he/she was receiving a good education ($\mu = 4.85$). We see
that the each mean value was greater than 4, again indicating that students generally agreed that they were satisfied, would recommend the choices they made, and believed they were getting a good education.

Items designed to measure the hypothesized latent variable “outside encouragement” loaded on two emergent latent variables: support (family) and support (peer/friends). Overall, respondents were more positive regarding the support they received from family (μ = 5.22) than the support they received from peers and friends (μ = 4.99), yet both latent variables suggest that respondents agreed that they received support from both groups. For both latent variables, the lowest value (μ = 4.88) was the survey item “My peers/co-workers believe that I should further my education” revealed that respondents did not perceive peer and co-workers to be as supportive as their families. Of note, the item relating to the support of one’s family in relation to baccalaureate degree attainment had the highest mean score (μ = 5.37) of all survey items across all the latent variables, both hypothesized and emergent latent variables.

Finally, while there were 12 latent variables originally hypothesized for this research only nine were confirmed through confirmatory factor analysis yielding appropriate model fit. What follows is a discussion of those eliminated variables.

As indicated on the conceptual framework for this study, the theme of environmental influences had three hypothesized latent variables: Finances, Outside Encouragement and Family Responsibilities. The variable “outside encouragement” contained items that loaded as factors on two emergent variables that better described the nature of the items: Support (family) and Support (Peers/friends). Upon reflection, “family responsibilities”, should not have been considered a latent variable, as the items designed to measure this variable were unique and
measurable as demographic variables in their own right. Because of this, the hypothesized latent variable “family responsibilities” was not considered a latent variable during data analysis.

The theme of expectations and psychological influences had five hypothesized latent variables: Career Aspirations, Educational Aspirations, Academic Self-Efficacy, Utility of BS, and Academic Stress. As mentioned earlier, the variable “career aspirations” had factor loadings that indicated two emergent variables existed: Leadership (Extrinsic) and Leadership (Intrinsic). The items designed to measure Utility of BS did not load consistently on a hypothesized or emergent variable found in this research; thus, those items were excluded from further analysis.

There were four latent outcome variables hypothesized in conceptual model for this research: Intent to Persist, Satisfaction with Educational Pathway, BS Degree Commitment, and BS Program Satisfaction. Of these, “intent to persist” was excluded entirely because the items did not load consistently on one variable. Likewise, a ceiling effect was observed with most of the items designed to measure “intent to persist”, suggesting that participants overwhelmingly agreed that they would persist in their baccalaureate program. Finally, items designed to measure the other three latent variables pertaining to satisfaction and commitment loaded on a new latent: Satisfaction.

Based on the latent variables, both those that were confirmed and those that emerged during confirmatory factor analysis, study participants were satisfied with the ease and availability of financing for their baccalaureate coursework; they felt supported by their family, friends, and peers; were satisfied with their baccalaureate education; sought leadership opportunities; had educational aspirations; felt they could be successful at performing academic tasks; and felt at ease with communicating in an academic setting.
Structural Equation Modeling Results

As previously stated in the data analysis section of this chapter, structural equation modeling (SEM) is a hybrid of factor analysis and path analysis. The goal of SEM is to provide a parsimonious summary of the relationships among variables and constructs in this study (Weston & Gore, 2006). SEM also allows the researcher to study the relationships among the latent constructs and their direct impact on outcomes (Lei & Wu, 2007). Relationships among the hypothesized variables in this research, as indicated on the hypothesized path model (Figure 4), were determined by theory (SCCT and NUSA) and an exploration of the literature related to student persistence and satisfaction (Weston & Gore, 2006).
The interaction model (Figure 6) emerged post-confirmatory factor analysis and features both hypothesized and emergent variables. The resulting model is a generally good-fitting model for this sample as there is appropriate fit on two universally agreed upon indices Chi-square/degrees of freedom (CMIN/DF) and the root mean square error of the approximation (RMSEA) as well as several comparative fit indices (Table 5).

<table>
<thead>
<tr>
<th>Index</th>
<th>Fit Standard</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMIN/DF</td>
<td>&lt;3.00 (Byrne, 2010)</td>
<td>1.469</td>
</tr>
<tr>
<td>Root Mean Square Error of the</td>
<td>&lt;.10 (Tabachnick and Fidell, 2007)</td>
<td>0.052</td>
</tr>
<tr>
<td>Approximation (RMSEA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incremental Fit Index (IFI)</td>
<td>≥.80 (Garson, 2012)</td>
<td>0.826</td>
</tr>
<tr>
<td>Akaike Information Criterion (AIC)</td>
<td>Default model value lower than the saturation and independence models (Moss, 2009)</td>
<td>Lowest value</td>
</tr>
<tr>
<td>Browne-Cudeck Criterion (BCC)</td>
<td>Default model value lower than the saturation and independence models (Moss, 2009)</td>
<td>Lowest value</td>
</tr>
<tr>
<td>Expected Cross Validation Index (ECVI)</td>
<td>Default model value lower than the saturation and independence models (Moss, 2009)</td>
<td>Lowest value</td>
</tr>
<tr>
<td>Modified Expected Cross Validation</td>
<td>Default model value lower than the saturation and independence models (Moss, 2009)</td>
<td>Lowest value</td>
</tr>
<tr>
<td>Index (MECVI)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Four comparative fit indices, which are the Akaike Information Criterion (AIC), Browne-Cudeck Criterion (BCC), Expected Cross Validation Index (ECVI), and Modified Expected Cross Validation Index (MECVI) indicate the default, or full model (Figure 6), is the best fitting as it has lower values than the saturated and independence model. Because the goal of this research is not to build predictive model but rather construct a model that explores variable relationships, these are appropriate indices to judge model fit.

In examining the results of the structural equation model, it is clear that most of the relationships among variables are unidirectional, meaning variables having direct positive or
negative effects on the variance found in other variables. The strength of the correlations within the latent variables range from \( r = .76, \ p \leq .001 \) [Leadership (Extrinsic) to Educational Aspirations] to \( r = .2, \ p \leq .05 \). (Support Family to Academic Self-Efficacy). The only covariance found within the latent variables exists between Financing and Academic Stress where \( r = .4, \ p \leq .001 \). Details regarding these relationships and how they should be interpreted can be found in the conclusions section as well as in Chapter 5.

**Conclusions**

After reviewing the data, confirmatory factor analysis, and the structural equation model, five conclusions became evident. Each conclusion will be detailed separately in this section and chapter five will discuss in greater detail the implications of these conclusions.

**Conclusion 1: Simpler Relationships**

The original conceptual framework of this study indicated the possibility of variance as well as covariance among the hypothesized variables. This variance and covariance along with direct and indirect relationship, supported by a multitude of studies referenced throughout the literature review of this study, are indicated in Figure 1. While this research confirms several of the hypothesized relationships existed, this research did not confirm relationships among several measured and latent variables.
The original conceptual framework suggested that demographics, academic background, and environmental influences are mediated by expectations, psychological influences, and baccalaureate degree enrollment to impact the outcomes of intent to persist, satisfaction with educational pathway, degree commitment, and program satisfaction. The data for this sample did not support the complex model hypothesized (Figure 7). A unidirectional and direct relationship exists in the revised conceptual framework. Essentially, the sample data indicates a unidirectional path from students’ attributes, or demographics, through their past decisions, or academic background, their current environment, expectations and psychological influences, and baccalaureate degree enrollment through to the outcome of academic self-efficacy.

Demographics, while hypothesized as having direct relationship with most variables in the study, only directly effect academic background and environmental influences and nothing else. Prior research suggested that the variables pertaining to the themes of environmental
influences, expectations and psychological influences, baccalaureate degree enrollment, and outcomes would co-vary, the data did not support these hypothesized relationships. Likewise, during data analysis it became clear that the outcome for this population was not the intent to persist, satisfaction with educational path, baccalaureate degree commitment, and baccalaureate program satisfaction but rather academic self-efficacy. This leads to the second conclusion of this study.

**Conclusion 2: Academic Efficacy is the Outcome of this Research**

During data analysis, it became evident that in this particular population ceiling effects existed within the items that measured the latent variables of baccalaureate degree commitment, program satisfaction and the intent to persist. For this reason, it became necessary to exclude items from the study due to the lack of variance required for statistical analysis. Table 6 and Figure 8 are examples of the ceiling effect for the item, “I am currently considering stopping out of my degree program at EMU (not graduating and not returning in the summer or fall terms)”

**Table 6: Intent to Persist, Item 2**

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>1</td>
<td>.6</td>
</tr>
<tr>
<td>Agree</td>
<td>1</td>
<td>.6</td>
</tr>
<tr>
<td>Somewhat Agree</td>
<td>5</td>
<td>2.8</td>
</tr>
<tr>
<td>Somewhat Disagree</td>
<td>4</td>
<td>2.3</td>
</tr>
<tr>
<td>Disagree</td>
<td>15</td>
<td>8.5</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>151</td>
<td>85.3</td>
</tr>
<tr>
<td>Total</td>
<td>177</td>
<td>100.0</td>
</tr>
</tbody>
</table>

After eliminating items with ceiling effects the path of variances and co-variances revealed that academic self-efficacy was the actual outcome for this population of students. The remaining outcome items, thought to measure satisfaction with educational pathways and baccalaureate program satisfaction, became part of a new latent variable: satisfaction. Data
analysis revealed that satisfaction has an indirect relationship to the study’s outcome, academic self-efficacy.

**Figure 8: Histogram of Intent to Persist, Item 2**

*Figure 8: Histogram for survey item, “I am currently considering stopping out of my degree program at EMU (not graduating and not returning in the summer or fall terms)”*

**Conclusion 3: Direct Effect on Academic Self-Efficacy**

As established in Conclusion 2, academic self-efficacy is the outcome for this population of students. There are three latent variables with direct effects on academic self-efficacy: academic stress, educational aspirations, and support from family. No other variable, latent or measured, has a direct effect on the outcome of this study. This means that prior academic experiences and current academic conditions have no impact on academic self-efficacy.
Academic stress, educational aspirations, and support from family, accounts for 80% of the variance in academic self-efficacy. The greatest impact we find is with educational aspirations with a variance of .36 and significance at the .001 level. This suggests that students continuing beyond the basic level of education and interested in pursuing a graduate degree are more likely to believe they can be successful at writing a paper, making a presentation, and synthesizing information. This suggests the desire to obtain a degree serves to support students in thinking they are capable of being successful in their courses, not the reverse. The discussion of this conclusion will continue in the implications found within Chapter 5.

**Conclusion 4: Two Measured Variables Have a Direct Effect on the Latent Variables**

A slightly more simplified version of the structural equation model for this study (Figure 9) shows the relationships among the latent and measured variables in this study. Noticeably, the measured variables have direct effects on one another. Likewise, the latent variables have direct effects on one another. Yet only two measured variables have direct effects on any latent variables. A positive correlation exists between race/ethnicity, a measured variable, and the latent variable financing ($r = .28, p \leq .01$). A negative correlation exists between the measured variable baccalaureate full/part-time enrollment and the latent variable leadership (extrinsic) ($r = -.24, p \leq .01$). This negative relationship suggests that those that are taking classes part time are less concerned with extrinsic career motivations.

While a third direct relationship exists between another set of latent and measured variables (course modality and support-peers/friends), that correlation is low and weak ($r = .04, p \leq .05$) and bidirectional. This suggests that students seek support from peers and friends depending on course delivery modality. Modality was not included in either conceptual model
that guided this research, so further study would be required to understand this minor relationship.

Figure 9: Simplified Structural Equation Model Diagram

The structural equation model for this study suggests that there is variance in feelings of satisfaction along with the ease in which students obtained financing was dependent on their race/ethnicity. This conclusion will be discussed at greater length in Chapter 5.

Conclusion 5: No One Model Explains Both Native and Transfer Student Experiences and Perceptions

During the data analysis phase of this study it became evident that there was no model fit when responses from all participants (n=289) were included in the analysis. However, after the removal of those students with no previous postsecondary enrollments, resulting in 177 participants, the model had an appropriate goodness of fit. It was evident there were two subsets
of students within the sample, those students who had previous academic experiences (trade/technical schools, community colleges, and other four-year institutions) and those who did not. This suggests that these students have very different experiences and perceptions relating to the measured and latent variables in this study; however, neither group was large enough to further examine these differences.

Not all career/technical baccalaureate programs are designed for the same audience. One of the goals of this study was to explore the beliefs and perceptions of baccalaureate students that had the ability to join the workforce after a career/technical certification. This would automatically exclude traditional or native four-year students without prior postsecondary experience and would not achieve a certification in their baccalaureate program. Social cognitive career theory contains variables based on expectations and choices. Native students and students without previous postsecondary experiences would have not have expectations based on previous academic choices at another institution. This is another conclusion that will be detailed in the implications and discussion found in Chapter 5.
Chapter 5: Implications and Discussion

Based on the findings of this study, as detailed in Chapter 4, there are several implications for practitioners, theorists, researchers and policy makers. Those implications and subsequent discussion are found in the following sections: implications for practice, implications for theory, implications for research, and implications for policy.

Implications for Practice

Three implications for practice became evident after reviewing the results of this research: the need for non-academic support for students, the need to tailor conversations for baccalaureate career-technical transfer students, and the dangers of overgeneralizing previous research. These three concepts are important considerations for higher education practitioners serving non-traditional, transfer, and applied baccalaureate students.

Support Structures for Students

A key finding of this research is the direct relationship that exists between the latent variables found in this study, academic stress, educational aspirations, and support from family and the outcome variable, academic self-efficacy. These three latent variables account for 80% of the variance in academic self-efficacy and the relationships between all three variables and the outcome variable are significant (p ≤ .05). These findings suggest that academic self-efficacy is impacted by the support systems available to students.

As indicated in Figure 9, support from family had a direct effect on academic self-efficacy. This supports the research of Metzner and Bean (1987) as they indicated that outside encouragement directly affected a student’s intent to leave, or dropout, of a degree program. Likewise, Chartrand (1992) found that support from family and friends influenced the intent to persist in college. Carney-Compton and Tan (2002) stated that non-traditional female students had less emotional support than traditional students. Because there were no direct relationships
between gender and support, the results of this study suggest contradicting findings to those of Carney-Compton and Tan (2002).

Academic stress is another latent variable directly related to academic self-efficacy. Nearly a quarter of the variance in academic self-efficacy can be attributed to changes in academic stress and that relationship is positive. Interestingly, this suggests that students’ feelings of academic self-efficacy increase as their perceived academic stress increases. This seemingly contradicts the findings of Kelly, LaVergne, Boone, and Boone (2012) as they discovered that students perceived stress as having a negative impact on college-level persistence and Bean and Metzner (1985) who hypothesized that stress would increase a student’s intent to leave college. While stress may have a negative impact on persistence, it has a positive impact on academic self-efficacy. From a practitioner’s view, counseling students on stress management could result in more efficacious feelings towards their work in their degree program.

Deggs (2011) indicated that adult students faced situations that transcended the various domains of their lives, causing stress. This research, when considered alongside Deggs’ findings, suggest that practitioners should consider counseling students on stress management and balancing the competing interests of home life, work, and academic efforts.

The final latent variable with a direct relationship on academic self-efficacy is educational aspirations. This is also the strongest relationship between the outcome variable and any other variable as changes in educational aspiration accounts for 36% of the variance in academic self-efficacy. This is also a highly significant relationship (p ≤ .001). As indicated in Chapter 1, Bean and Metzner (1985) suggested that educational goals were background variables for non-traditional students, particularly when considering attrition. In comparison, this study
clearly shows that educational goals, or aspirations, are closely related to academic self-efficacy, the outcome of this study.

In total, the direct relationship between family support, academic stress, educational aspirations, and academic self-efficacy suggests that support structures are an important component to career-technical baccalaureate transfer students. For that reason, practitioners should initiate discussions regarding support, factors that lead to academic stress, and the assignments that will be expected of students in career-technical baccalaureate programs.

**Tailoring Conversations**

Another implication for practitioners, the need to tailor conversations to the needs of career-technical baccalaureate students, is most relevant in terms of financial aid expectations. This is especially true when this research is viewed alongside existing research. Particularly, Martinez et al. (2009) observed the environmental and psychological causes of non-persistence for first-generation students, determining that first-generation students had more loans than their peers and those loans were also predictors of student dropout. Finally, Olson’s (2014) study focused on the impact counselors informed by social cognitive career theory (SCCT) had on first-generation students. Her research suggests that students can overcome obstacles, such as financial aid issues, if counselors employ SCCT as a framework to help students explore options that will help them arrive at their goals (Olson, 2014).

As career-technical baccalaureate students share many of the same characteristics as, and are often first generation student themselves, it would seem that tailoring financial aid conversations when discussing baccalaureate aspirations is particularly relevant for this population. Due to the lower tuition expenses at community colleges, where these students began their career-technical work, it stands to reason that they may not have as much financial aid need as they do in their baccalaureate program.
One troubling observation concerns student perceptions pertaining to financing and the variance due to race/ethnicity. This may be evidence that practitioners do a poor job of providing financial aid education. Recruiting students requires practitioners to “sell” programs, often stating that most students are eligible for some form of financial aid, but this research suggests there is a disconnect between the statements made in the recruiting process and the reality of financial aid, especially for minority students.

Perhaps it is necessary to counsel students, making sure they have explored all their financial aid options as well as to educate them on their expectations. Many community college students are first-generation and minority students who may not have the knowledge to leverage all the financial aid options available to them, but rather relying on what worked in their prior academic experiences—those that cost far less than the tuition at a four-year institution. Due to the low tuition found at community colleges (where most CTE Baccalaureate students attended prior to enrolling at a four-year institution), they may not have needed to pursue financial aid as they do at a four-year institution. Again, because community colleges serve large percentages of minority students, we can only begin to assume how race and financial aid are directly associated.

**Overgeneralizing Previous Research**

Finally, this research further emphasizes the issues that could arise when we use theories and research that do not pertain to a population to influence practices and policies to serve that population. These findings are similar to those of Wladis, Hachey and Conway (2015), as results from a student population may be insufficient to explain the perceptions and behaviors in another student population. In particular, the final conclusion discussed in chapter four indicates that a structural equation model was not evident when both native and transfer students existed in the sample. This suggests that there are differences, particularly theoretical differences, between
these subpopulations of career-technical students. Just as it was hypothesized in this study, characteristics and attributes suggested in other studies proved to be invalid when considered for transfer career-technical baccalaureate students. In essence, practitioners should be mindful and avoid applying theories and developing practices without the appropriate research to substantiate their work.

**Implications for Theory**

The findings of this research have implications for theory. Specifically, this research sheds light on the nature of the relationships among the variables used in this study. Furthermore, the findings of this study clearly suggest that academic self-efficacy is more significant to the experiences of students in career-technical programs.

**Relationships**

As evidenced in the structural equation model (Figure 9), demographic characteristics had no influence on the latent variables of this study. This suggests that current contextual factors are more relevant for non-native career-technical students in baccalaureate degree programs. This also suggests the need for better theoretical models for this population. Specifically, researchers need to explore other non-traditional theories that could explain the perceptions of these students in degree programs. While there have been some studies conducted that used social cognitive theories with student populations, it is clear that alternative theories can be relevant for this population. In essence, the current literature is lacking in terms of explaining the experiences of career-technical baccalaureate students. This research suggests that previous studies focused on the wrong outcomes and did not adequately explore the contextual factors that impact the experiences of these students.

As revealed in the student demographic data of Levesque, et al. (2008), career and technical students balance their academic lives with other interests such as work and family.
These contextual factors include role conflicts that may limit outside support and perceived social demands based on the needs of others (Lubben, et al. 2010). While these role conflicts could relate to hours of employment and family responsibilities, as indicated in the non-traditional undergraduate attrition model (Bean & Metzner, 1985), the findings of this study suggest otherwise—as employment and family responsibilities did not impact the latent variables for this population.

Lent, Brown, and Hackett (2002) acknowledge the interplay of social cognitive, contextual, and experiential-learning factors in their model. SCCT posits theoretical paths through which constructs such as interests, abilities, and values interact with contextual factors to influence outcomes (Brown, Lent, Hackett, 2002). This model acknowledges the dynamic and situation-specific nature of decisions, and emphasizes the variability of circumstances and adaptability of individuals and is seemingly more relevant to the perceptions of career-technical students (Lent & Fouad, 2011). Transfer career-technical college students have developed skills through their prior educational and social learning experiences. These skills, when combined with accomplishments and other sources of feedback, produce a robust sense of academic self-efficacy and expectations (Brown et al., 2008).

When we think about the theoretical implications of this research, it is clear that demographics do not impact outcomes. Likewise it is clear that Social Cognitive Career Theory provides a better basis for explaining the decisions of career-technical baccalaureate students than the non-traditional undergraduate student attrition model. The Non-Traditional Undergraduate Student Attrition Model focuses too much on prior variables when current contextual factors are more relevant to the perceptions of these students.
Nature of Academic Self-Efficacy

As indicated in the structural equation model found in this research (Figure 10), the nature of academic self-efficacy is unique to transfer career-technical students. It is an outcome, rather than a mediating variable and it is dynamic. Furthermore, academic self-efficacy is influenced by academic stress, educational aspirations, and support from family – three latent variables that are not explicitly mentioned in the literature relating to academic self-efficacy. The nature of academic self-efficacy is evidenced in differences between the structural equation model for this study (Figure 9) and SCCT (Figure 2).

Self-efficacy is buried in SCCT, and yet this research suggests that it is not foundational but rather exists as an outcome; it is more dynamic and not merely a mediating variable. Lent, Brown, & Hackett (1994) suggested that self-efficacy determines the activities and environments in which an individual engages as well as the efforts, persistence, thought patterns, and emotional reactions regarding environmental barriers and supports; however, this research suggests that academic self-efficacy is the outcome of such activities and is the result of student contexts. This is consistent with previous research on self-efficacy, that it is contextual and a dynamic set of beliefs that interact with other personal, behavioral, and contextual factors (Lent, Brown, & Hackett, 1994, Lent & Fouad, 2011). Again, the findings of this research are consistent with the findings of Lent & Fouad (2011) that people will develop interests, choose to pursue, and find satisfaction with those activities for which they believe they possess the necessary capabilities.

As previous research indicates, self-efficacy and past performance is not a direct or perfect relationship as self-efficacy is a contextual set of beliefs subject to the interpretation, encoding, and appraisal of past performances, the weights and measures of which are subjective for each individual (Lent, Brown, & Hackett, 1994; Lent & Fouad, 2011). These previous
findings are supported by this research study. Career plans, decisions, and aspirations are all goal mechanisms and feature prominently in the empirical studies related to SCCT (Lent, Brown, & Hackett, 1994).

Self-efficacy, when combined with outcome expectations, promotes and restricts interests and goals (Brown et al., 2008). Brown et al (2008) suggest that goals are dynamic but this research suggests that both goals and academic self-efficacy are dynamic. As Lent, Brown, & Hackett (2002) observed, self-efficacy is not a “unitary, fixed or decontextualized trait; instead it involves a dynamic set of self-beliefs that are specific to particular performance domains and that interact in a complex way with other person, behavior, and environmental factors” (p. 262). As previously stated, this research aligns with Lent, Brown, & Hackett’s (2002) assertions.

Similar to the work of Lent, Lopez, Lopez, and Sheu (2008) this research focused on the role of self-efficacy, social supports, social barriers, outcome expectations, and interests, with regard to persistence goals. In a similar study, they used structural equation modeling (SEM) and produced a measurement model with a good fit and a structural model of acceptable fit. Lent et al. (2008) indicated, “Explanation of the relations among the factors by the theoretical model could be improved” (p. 58). In light of this research study, it would seem that their theoretical model could have been improved by considering academic stress, educational aspirations, and support from family, as these three latent variables were found to influence academic self-efficacy.

As previously discussed in conclusion three, educational aspirations directly influence academic self-efficacy, rather than the inverse. This indicates that students would continue their education if they have had prior success in their educational career, but rather this research
implies that it is the opposite: students have more academic self-efficacy due to their educational aspirations.

**Implications for Research**

Based on the findings of this study, there are three implications for research that require further discussion: the need for a larger sample size for future studies, acknowledgement of academic self-efficacy as an outcome for this population, and further exploration on the role financing plays with this sub-population of baccalaureate students.

One general research implication would be the necessity to conduct more research with a much larger sample, to determine if the direct relationships are as simple as the first conclusion would suggest and confirm or question all of the conclusions. Based on the formula for structural equation models \((10 \times \text{# of I.V.)} + 50\), where \(\text{# of I.V.}\) is the number of independent variables in the study, the goal sample size for this study is 300-350 participants. Because this research study was limited to less than 200 students, it is clear that future research should survey a larger sample of students.

Based on the second conclusion of this study, that academic self-efficacy is the outcome of this research, it is clear that more research is necessary relevant to the factors that relate to academic self-efficacy. Further, the fact that educational aspirations, academic stress, and family support have direct relationships with academic self-efficacy, suggests additional research is necessary to confirm these findings with this particular population and perhaps other non-traditional populations.

Finally, relative to the conclusion suggesting there is variance in the satisfaction and ease to which minority students perceive their financial aid, further research is necessary, especially for career-technical baccalaureate students and transfer students in general. While Attwell, Heil,
and Reisel (2011), Paulsen and St. John (1997) and Levesque et al. (2008) reviewed financial concerns in relation to student persistence patterns, attitudes towards financial issues may not have that much of an impact when reviewed in context with academic self-efficacy. Yet Batts and Pagliari (2013) demonstrated the biases that exist relative to bachelor-completion students, as indicated in the findings of their study,

Increased salary was not rated as the number one reason for obtaining a four-year degree…Increased salary was among the last reasons for obtaining their degrees. The researchers, however, have to question this finding as most students who seek a degree do so in efforts to advance in the company or to receive higher wages (Batts & Pagliari, 2013). The authors assume that students are compelled to pursue baccalaureate degrees solely for financial reasons. While finances are a key component to resources and a student’s environment, possessing the means to finance a degree program and the satisfaction students feel regarding their financing requires further examination. Cabrera et al. (1992) approached this area of research as they explored the receipt of financial aid and measures regarding attitudes toward finances. This approach presents a more comprehensive view of student finances in relation to persistence and one that is supported by their research as well as this study (Cabrera et al., 1992).

In conclusion, this study confirms and adds to the knowledge that exists in regards to non-native students enrolled in career-technical baccalaureate programs at a public four-year institution, as well as academic self-efficacy as it relates to the aforementioned students. More research is necessary as the lack of literature on this subpopulation of students required the author to rely on research that was not directly applicable to this subpopulation of students. As evidenced in this research, Social Cognitive Career Theory (SCCT) is a seemingly valid course of research for these students, while the Non-traditional Undergraduate Student Attrition
(NUSA) model is too reliant on demographic factors to explain the experiences of these students. It is clear that current contextual factors guide student perceptions and their feelings of academic self-efficacy, the variable found to be the outcome for this population. While this study was initially focused on the intent to persist for career-technical students, it became clear that non-native career-technical baccalaureate students had the overwhelming belief that they would persist in their degree program. Upon further exploration of the data, it became clear that the true outcome for these students was academic self-efficacy, a variable often thought of as a mediating variable.

**Implications for Policy**

Because CTE is influenced by legislation such as the Perkins Act, it is appropriate to include policy implications resulting from the conclusions of this study. Future legislation should include robust pathways between secondary and postsecondary education (Zinth, 2013). Incentivizing these collaborations could be the key to fostering innovative practices, called for in the proposed reauthorization of the Perkins Act (Carnevale, Jayasundera, & Hanson, 2012, U.S. Department of Education, 2012). These incentives could be as limited as allowing transfer students to be included in six-year cohort retention rates at four-year institutions, rather than counting only those students that began at the four-year institution as a traditional student. By receiving “credit” for transfer students, four-year institutions will have more incentive to create bachelor-completion programs as transfer students could improve cohort graduation rates and recognize the swirling enrollment behaviors of contemporary college students.

Student swirl, or enrollment patterns of postsecondary students that include multiple institutions of varying types prior to the completion of a bachelor’s degree, continues to increase. According to the National Student Clearing House Research Center (NSCHRC), 37.2 percent of
all first-time postsecondary students “transferred to or enrolled in at a different institution at least once within six years and before receiving a bachelor’s degree” (National Student Clearing House Research Center, 2015c, p. 19). The NSCHRC report suggests that accountability measures in higher education should go beyond traditional native student six-year cohorts.

Similar non-traditional enrollment patterns such as reverse transfer, or applying credits achieved at a baccalaureate institution to sub-baccalaureate credentials at a technical or community college, is becoming commonplace. As these pathways increase student mobility and student swirl, policymakers need to be aware of this activity, as it is counter to the common four-year postsecondary narrative perpetuated by some policymakers, specifically the notion that students can and should graduate with a bachelor’s degree in four years. Researchers need to conduct research on the relatively new phenomenon of reverse transfer and disseminate that research, informing those seeking information on contemporary college student experiences. As more students have reverse transfer experiences, their experiences will inform others.

Accountability measures focused on sub-baccalaureate credentials were noticeably absent in the new College Scorecard system implemented by the Department of Education in 2015. More research on student mobility, or swirl, and reverse transfer could have an impact on future policy decisions (Department of Education, 2015). As indicated in the conclusions of this study, native and non-native students in career-technical baccalaureate programs at a four-year institution differed in their perceptions, so much so that a good-fitting structural equation model could not be achieved when both types of students were analyzed in this research. These observed differences need to be researched further and that research disseminated, informing higher education administrators who in turn will share their insights with policymakers.
As the Obama administration continues to advocate for stronger pathways between secondary and postsecondary education which includes bridges from community colleges and four-year institutions, these pathways will never become commonplace without full cooperation on educational pathways. With states regulating secondary education and the majority of postsecondary institutions regulated by regional and national accreditors, secondary and postsecondary leaders must develop a shared purpose and goals that extend across P-20 education, regardless of governance and accreditation. Policymakers need to incentivize secondary and postsecondary pathways, similar to the goals suggested by the Obama administration’s proposed changes to the Perkins Act. However, merely suggesting changes will not go far enough, as both secondary and postsecondary systems must benefit from such collaborations.

This study lays the groundwork for more research and new accountability measures for non-native students in career-technical majors, including opportunities focused on student perceptions, from matriculation through graduation. Based on the findings of this research, it is evident that measures of accountability should include student perceptions of academic self-efficacy. Olsen (2014) suggested that using SCCT as a framework for discussions between students and counselors could support student persistence and advance feelings of academic self-efficacy. Academic self-efficacy encourages students to continue the pursuit of education, which supports their career pathway. Programs that include counseling and advising that fosters academic self-efficacy may result in the improved participation rates in CTE programs sought by the Obama administration (U.S. Department of Education, 2012). By funding CTE models that support both key performance measures as well academic self-efficacy, students with risk factors associated with finances as shared by McKinney & Burridge (2015) and Canache (2014) can
participate, thus creating further opportunities for greater participation in career pathways in career and technical fields.

41% of the students that earned a credential at a two-year institution in 2008-2009 completed a baccalaureate degree within six years (National Student Clearing House Research Center, 2015b). That number alone indicates that a fair percentage of baccalaureate graduates are non-traditional students. Retention efforts focused on these students are important, but governmental and non-governmental organizations should increase their efforts focused on students with more non-traditional characteristics. One such program, Knowhow2go, is a national program implemented at the state level to encourage students that have stopped out of postsecondary education to return (American Council on Education, 2014). As transfer students will account for a greater percentage of enrollments at four-year institutions in the coming years, the findings of this research will inform the work of governmental and non-governmental organizations focused on college completion efforts. These organizations should consider including academic self-efficacy, educational aspirations, and familial support in their messaging to program participants. As these entities continue their work on the completion agenda, the four-year student population will continue to shift away from traditional, native students to more transfer or even transient students.

Currently 46% of four-year graduates in the United States attended a community college within 10 years prior to graduation (National Student Clearing House Research Center, 2015a). With proposals from various federal officials and political candidates, along with existing tuition-free community college measures in place in Minnesota, Oregon, and Tennessee, there could be a dramatic increase in the number of students arriving at four-year institutions with previous postsecondary credit and/or credentials (Weeden & Hultin, 2015). As shared earlier in
this study, many students pursue CTE programs of study at community colleges. Four-year institutions must be ready to meet the needs of these students by articulating pathways to desired degree programs and understanding the needs of these students.

Low-cost or free community college tuition may lead to some unintended consequences when recipients look to continue their education at a four-year institution. These students may experience increased transfer shock when they learn that not only is tuition not complimentary at four-year institutions, the cost per credit hour is decidedly higher than any ancillary fees or materials they may have experienced at a community college. This further emphasizes a conclusion of this study, the need to tailor conversations to individual student experiences rather than reiterating general talking points pertaining to federal financial aid and other challenges a student might face as a non-native student at a four-year institution.

Given the increased attention the completion agenda has garnered in recent years, along with the work of policymakers, this study could serve to inform both higher education administrators and policymakers alike. By understanding the perceptions of CTE baccalaureate students, these groups can implement policies that will enhance the postsecondary experiences for these students. In doing so, these policies may have a significant impact on baccalaureate attainment in the United States.
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Appendix A: Survey Instrument

Demographics

1. (IA) What was your age at your last birthday: (text)
2. (IG) Please indicate your gender:
   - Female
   - Male
3. (IR) Please indicate your race/ethnicity: (Check all that apply)
   - American Indian or Alaskan Native
   - Asian
   - Black or African American
   - Hispanic or Latino
   - Native Hawaiian or Other Pacific Islander
   - White
   - Race and/or Ethnicity Unknown
   - Other: (please specify)
4. (IH) Do you have a disability or health status that impacts your academic or professional performance:
   - No
   - Yes

Academic Background

5. (CA) Did you attend another postsecondary institution (technical/trade school, community college, and/or another four year college or university) before enrolling at Eastern Michigan University?
   - No, I did not attend another postsecondary institution prior to enrolling at EMU.
   - Yes, I did attend another postsecondary institution prior to enrolling at EMU.
6. Did you attend a technical/trade school (similar to Specs Howard, Everest Institute, etc.) before enrolling at Eastern Michigan University?
   - No, I did not attend a technical/trade school prior to enrolling at EMU.
   - Yes, I did attend a technical/trade school prior to enrolling at EMU.
   
   Name of institution(s): (text)
7. (CH1) How many credit hours did you complete at the technical/trade school(s) you attended?
8. (CT1) How many of the credit hours you earned were you able to transfer to Eastern to satisfy your bachelor’s degree requirements?
9. (CG1) What was your cumulative GPA at technical trade school(s) you attended: (text)
10. (CC1a) Did your enrollment at a technical/trade school result in a diploma/certificate? No/Yes
    (CD1b) Diploma/Certificate Program: (text)
11. (CE1) During your technical/trade school enrollment, were you enrolled:
    - Full-time
    - Part Time
12. (CM1) The MAJORITY of your technical/trade school classes were:
   o Totally in-person with no materials available online
   o Mostly in-person with limited materials available online
   o Hybrid, where some class time was replaced with materials/lessons available online
   o Fully online, where all course work was conducted online and there were in-person class meetings.
   o Other: (please specify)

13. (CS1) Excluding summer terms/semesters, were there one or more semesters where you did not enroll in classes at the technical/trade school(s)? No/Yes

14. Did you attend a community college before enrolling at Eastern Michigan University?
   o No, I did not attend a community college prior to enrolling at EMU.
   o Yes, I did attend a community college prior to enrolling at EMU.
   Name of institution(s): (text)

15. (CH2) How many credit hours did you complete at the community college(s) you attended?

16. (CT2) How many of the credit hours you earned were you able to transfer to Eastern to satisfy your bachelor’s degree requirements?

17. (CG2) What was your cumulative GPA at the community college(s) you attended?

18. (CC2a) Did your enrollment at a community college result in an associate’s degree?
   (CD2b) Community College Program/Associate’s Degree: (text)

19. (CE2) During your community college enrollment, were you enrolled:
   o Full-time
   o Part Time
   o Varied (some semesters were full-time, others part-time)

20. (CM2) The MAJORITY of your community college classes were:
   o Totally in-person with no materials available online
   o Mostly in-person with limited materials available online
   o Hybrid, where some class time was replaced with materials/lessons available online
   o Fully online, where all course work was conducted online and there were in-person class meetings.
   o Other: (please specify)

21. (CS2) Excluding summer terms/semesters, were there one or more semesters where you did not enroll in classes at the community college(s)? No/Yes

22. Did you attend another four year college or university before enrolling at Eastern Michigan University?
   o No, I did not attend another four-year college or university prior to enrolling at EMU.
   o Yes, I did attend another four-year college or university prior to enrolling at EMU.
   Name of institution(s): (text)

23. (CH3) How many credit hours did you complete at the other four-year institutions(s) you attended?
24. (CT3) How many of the credit hours you earned were you able to transfer to Eastern to satisfy your bachelor’s degree requirements?

25. (CG3) What was your cumulative GPA at the other four-year institutions(s) you attended?

26. (CC3a) Did your enrollment at the other four-year institutions(s) result in a bachelor’s degree?
   (CD3b) Bachelor’s Degree: (text)

27. (CE3) During your enrollment at another four-year college or university, were you enrolled:
   o Full-time
   o Part Time
   o Varied (some semesters were full-time, others part-time)

28. (CM3) The MAJORITY of your other four-year college or university classes were:
   o Totally in-person with no materials available online
   o Mostly in-person with limited materials available online
   o Hybrid, where some class time was replaced with materials/lessons available online
   o Fully online, where all course work was conducted online and there were in-person class meetings.
   o Other: (please specify)

29. (CS3) Excluding summer terms/semesters, were there one or more semesters where you did not enroll in classes at the other university of college(s) you attended before enrolling at EMU? No/Yes

Environmental Influences

(FF) Finances

30. How difficult is it for you to finance your <School> coursework? (modified from Nettles et al., 1986)
   6pt Likert scale (○ Very Difficult, ○ Difficult, ○ Somewhat Difficult, ○ Somewhat Easy, ○ Easy, ○ Very Easy)

31. Please estimate the percentage of funding you receive from various sources in order to finance your bachelor’s degree: (modified from Martinez et al., 2009)
   Federal Loans (text)
   Loans secured through a private lender (including friends and family or credit cards) (text)
   Scholarships & Grants (text)
   Employer tuition reimbursement (text)
   Military benefits (text)
   Gifts from parents/family members (text)
   Self-funded from savings, earnings, & other sources (stocks/bonds) (text)
   Other (text)

32. How satisfied are you with the amount of financing you have received while enrolled at <School>? (modified from Cabrera et al., 1992, 1993)
   6pt Likert scale (○ Very Dissatisfied, ○ Dissatisfied, ○ Somewhat Dissatisfied, ○ Somewhat Satisfied, ○ Satisfied, ○ Very Satisfied)
33. (FE) On average, how many hours per week do you work while enrolled in classes: (text)

34. (FO) Outside Encouragement (please indicate the support you receive from your family)
   6pt Likert scale (○Strongly Disagree, ○Disagree, ○Somewhat Disagree, ○Somewhat Agree, ○Agree, ○Strongly Agree)
   a. In general, my significant others are supportive of my returning to school to complete a bachelor’s degree (adapted from Lundberg et al., 2008)
   b. My family believe that I should further my education. (adapted from Cabrera et al., 1993)
   c. My family encourages me continue attending <school>. (adapted from Cabrera et al., 1993)
   d. My family is supportive of my pursuit of a bachelor’s degree. (adapted from Davidson et al., 2009)
   e. I receive emotional support from my family related to my bachelor’s degree. (adapted from Lundberg et al., 2008)
   f. My peers/co-workers believe that I should further my education. (adapted from Mallinckrodt, 1988)

(FR) Family responsibilities

35. Marital Status
   Single
   Married
   Divorced
   Separated

36. Number of dependents
   a. Minor dependents (under the age of 18): (text)
   b. Adult dependents (those over 18 that rely on you for care and/or financial support): (text)

37. Family and/or friends assist with responsibilities and tasks I would normally do myself if I were not in school. (Lundberg et al., 2008)
   6-pt Likert scale (○Strongly Disagree, ○Disagree, ○Somewhat Disagree, ○Somewhat Agree, ○Agree, ○Strongly Agree)

Psychological Influences

38. (EC) Career Aspirations
   6pt Likert scale (○Strongly Disagree, ○Disagree, ○Somewhat Disagree, ○Somewhat Agree, ○Agree, ○Strongly Agree)
   a. I hope to become a leader in my career field
   b. I would like to manage other employees
   c. I do not plan to devote energy to getting promoted in the organization or business I work in.
   d. I would like to train others.
   e. I hope to move up through any organization or business I work in.
   f. I plan on developing as an expert in my career field.
g. Attaining leadership status in my career is not that important to me.
(adapted from Gray & O’Brien, 2007)

(EE) Educational Goals

39. What is the highest degree you plan to complete? (modified from Pascarella, Wolniak & Pierson, 2003)
   Associate’s degree
   Bachelor’s degree
   Master’s degree
   Doctoral degree or professional equivalent (MD, LLB/JD, DDS)

40. Regarding your continued education:
   6pt Likert scale (○Strongly Disagree, ○Disagree, ○Somewhat Disagree, ○Somewhat Agree, ○Agree, ○Strongly Agree)
   a. I feel it is important for me to complete the degree I indicated in the last question. (modified from Bean, 1982, 1985)
   b. I would like to pursue a graduate degree. (adapted from Gray & O’Brien, 2007)
   c. Once I finish the basic level of education needed for a particular job, I see no reason to continue in school. (adapted from Gray & O’Brien, 2007)

41. (ES) Academic Self-Efficacy
   I have the ability to be successful at:
   6pt Likert scale (○Strongly Disagree, ○Disagree, ○Somewhat Disagree, ○Somewhat Agree, ○Agree, ○Strongly Agree)
   a. writing an academic paper
   b. making an oral presentation
   c. synthesizing material from various sources into one integrated piece
   d. participate in or contribute to class discussions
   e. work as a team member in an academic setting. (Lundberg et al., 2008)

42. (EU) Utility of Baccalaureate Degree
   6pt Likert scale (○Strongly Disagree, ○Disagree, ○Somewhat Disagree, ○Somewhat Agree, ○Agree, ○Strongly Agree)
   a. My bachelor’s degree will be useful in obtaining future employment. (modified from Bean, 1985)
   b. My bachelor’s degree will have value in my chosen field.
   c. My bachelor’s degree will be useful in developing my skills in seeing alternative points of view. (modified from Bean, 1985)

43. (ER) Stress
   6pt Likert scale (○Very Stressful, ○Stressful, ○Somewhat Stressful, ○Somewhat At Ease, ○At Ease, ○Very At Ease)
   Please indicate your level of stress with the following activities related to your bachelor’s degree:
   a. Studying
   b. Asking questions in class
   c. Keeping up with the required readings
d. Understanding my professors’ expectations  
e. Completing assignments  
f. Doing well on assignments  
g. Submitting assignments on time  
h. Having multiple assignments/exams in the same week  
i. Managing both school and work  
j. Managing time efficiently  
k. Improving my writing and reading skills  
l. Getting the grades I want  
m. Talking and/or corresponding with professors  
n. Getting help and information at school  
o. Doing well in my toughest class  
p. Talking to college staff  
q. Finding time to study  
r. Understanding course content  
s. Participating in class discussions  
t. Understanding college regulations  
(Adapted from Zajacova et al., 2005)

**Baccalaureate Degree Enrollment**

44. (BD)<School> program/Bachelor’s Degree: (text)  
45. (BH) Credit hours earned at <School> (text)  
46. (BC) Current credit hours enrolled for this semester: (text)  
47. (BG) Current EMU GPA: (text)  
48. (BE) During your bachelor’s degree program at EMU, on average have you been enrolled as a student:  
   o Full-time  
   o Part Time  
   o Varied (some semesters were full-time, others part-time)  
49. (BM) The MAJORITY of my classes at <School> are:  
   o Totally in-person with no materials available online  
   o Mostly in-person with limited materials available online  
   o Hybrid, where some class time was replaced with materials/lessons available online  
   o Fully online, where all course work was conducted online and there were in-person class meetings.  
   o Other: (please specify)  
   o  

**Outcomes**

(OD) Baccalaureate Degree Commitment

50. Completing your bachelor’s degree:  
   6pt Likert scale (○Very Important, ○Important, ○Somewhat Important, ○Somewhat Unimportant, ○Unimportant, ○Very Unimportant)
a. How important to you is it to finish your bachelor’s degree program of study at <school>? (modified from Bean, 1982, 1985)

b. How important to you is it for you to graduate with a bachelor’s degree from <school>? (modified from Bean, 1982, 1985)

51. Regarding your commitment to earning a bachelor’s degree:
6pt Likert scale (○Very Weak, ○Weak, ○Somewhat Weak, ○Somewhat Strong, ○Strong, ○Very Strong)

a. How strong would you say your commitment is to earning your bachelor’s degree, here or elsewhere? (modified from Davidson et al., 2009)

b. How strong is your intention to persist in the pursuit of your bachelor’s degree, here or elsewhere? (modified from Davidson et al., 2009)

52. Regarding your certainty of obtaining a bachelor’s degree:
6pt Likert scale (○Very Certain, ○Certain, ○Somewhat Certain, ○Somewhat Uncertain, ○Uncertain, ○Very uncertain)

a. How certain are you that you will earn your bachelor’s degree? (modified from Davidson et al., 2009)

53. Expected semester and year of graduation: (text)

54. Regarding your intent to persist in your bachelor’s degree program:
6pt Likert scale (○Strongly Disagree, ○Disagree, ○Somewhat Disagree, ○Somewhat Agree, ○Agree, ○Strongly Agree)

a. I am currently considering dropping out of EMU.
b. I considered dropping out of this program during this semester.
c. I considered dropping out of this program before this semester.
d. I do not plan to enroll at EMU in either the summer or fall terms.
e. I expect to stay at EMU to complete my bachelor’s degree.
f. I expect to return to EMU in either the Summer or Fall terms. (modified from Bean, 1982)
g. I expect to be enrolled at EMU one year from today? (modified from Bean, 1982)

55. (OT) Baccalaureate Program Satisfaction
6pt Likert scale (○Strongly Disagree, ○Disagree, ○Somewhat Disagree, ○Somewhat Agree, ○Agree, ○Strongly Agree)

a. I am satisfied with my program of study.
b. I would recommend this program to someone.
c. I am getting a good education at <school>. (modified from Bean, 1985)

56. (OS) Satisfaction with educational pathway
6pt Likert scale (○Strongly Disagree, ○Disagree, ○Somewhat Disagree, ○Somewhat Agree, ○Agree, ○Strongly Agree)

a. I am satisfied with the educational choices I made.
b. I would recommend the educational choices I made to others.