

THE INFLUENCE OF TEACHER AND INSTITUTIONAL SUPPORT ON ACADEMIC  
SELF-EFFICACY, ACADEMIC OUTCOME EXPECTATIONS, AND ACADEMIC  
INTEREST: AN EXPLORATION STUDY

by

Maureen Quiles Ponce

Liberty University

A Dissertation Presented in Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

Liberty University

May 2018

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APPROVED BY:

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Mary M. Deacon, Ph.D., Committee Chair

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Joy Mwendwa, Ph.D., Committee Member

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Jacqueline L. Wirth, Ph.D., Committee Member

## **Abstract**

While college and career readiness benchmarks were created to provide evidence that a student is academically ready to succeed in a post-secondary educational setting, many high school graduates do not reach these academic benchmarks, and of students who go on to college, many do not complete their bachelor's degree. Furthermore, current college and career readiness markers neglect to consider non-academic factors despite research suggesting that psychosocial factors strongly influence readiness beyond academic performance. The literature supports the premise that other powerful forces, namely social-cognitive factors also shape learning and performance, which in turn shapes academic and career outcomes. Self-efficacy emerged as an important social-cognitive factor which can influence academic readiness and by extension, college and career readiness as it affects the ability to adapt and meet varying academic demands and is a key construct in career identity development and interest development. To address this gap, this quantitative study used a modified model of Social Cognitive Career Theory to examine the influence of the learning environment on the academic self-efficacy beliefs, academic outcome expectations, and academic interest of undergraduate college students. The primary research focus was to study the relationship of the students' perceptions about the level of teacher and institutional support to their beliefs about their ability to complete academic tasks, expected outcomes, and academic interests or persistence. Data was collected from 158 undergraduate college students to answer the research questions. The results of the study found that academic interest was statistically significant in mean between upper and underclassman undergraduate college students. Teacher support explained a significant amount of variance in academic self-efficacy and academic outcome expectations.

Additionally, academic self-efficacy and academic outcome expectations were correlated. Institutional support explained a significant amount of variance in academic outcome expectations, and academic outcome expectations explained a significant amount of variance in academic interest. Finally, no relationship was observed between institutional support to academic self-efficacy nor between academic self-efficacy and academic interest. Implications, limitations, and further research recommendations are discussed for school counselors, teachers, administrators, and counselor educators as they relate to addressing the college and career readiness needs of the student.

*Keywords:* college and career readiness, academic self-efficacy, academic outcome expectations, academic interest, teacher support, institutional support, college persistence, career development, Social Cognitive Career Theory

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## **Dedication**

I would also like to dedicate this work to my husband, Jaime, and my four children, Matthew, Isabelle, Evan, and Caleb. We have weathered the many seasons of this eight-year journey, and now my victory is also your victory. To my husband, thank you for sticking this out with me, by my side, and for hanging on, even on the most difficult days. To my children, there are not enough words to express the depth of my love. You have seen me live out my dream through my persistence, endurance, and tenacity because of my love of learning and my belief in myself. There is nothing you can't accomplish when you purpose it in your heart and seek the Lord's covering and wisdom. Your dreams are also my dreams so keep dreaming and reaching for the stars. Si se puede!

## **Acknowledgments**

First and foremost, to my heavenly Father, my Abba, my creator and savior. You have been Jehovah-Jireh to me, providing, leading, and guiding when I didn't see the way. You have been Jehovah-El-Shaddai, supplying all my needs, richly, abundantly, more than I could ask for. You have been Jehovah-Nissi, my covering, my protector, encouraging, motivating, and showing me how to achieve victory when I have been lost. You have been Jehovah-Shalom, showing me that only through full dependence on you, and reliance on who you are, can I know true peace, joy, and have triumphed over the struggles of life. You have been my Jehovah-Rapha, my healer whose unconditional, everlasting, and infinite love has brought healing to my heart and allowed me to experience my relationship with my creator as a secure base and a safe haven from which I am able to launch, explore, enjoy, flourish, thrive, and dream in this life.

There are so many people to whom I hold the deepest gratitude for contributing towards my development during the journey to earn this degree. I have three professors that I am particularly indebted to, what I like to think of as my "dream team."

Dr. Deacon, where do I begin to express my gratitude. Little did I know when I enrolled in the Career Counseling course, that during one of my most difficult seasons in the Ph.D. journey, how the learning I had experienced in this course would impact my career trajectory as a doctoral student, facilitating the necessary self-reflection and introspection needed in order to empower my decision-making regarding my own career development and my identity as a counselor educator. Leave it to Happenstance! Thank you for your mentorship as you led me through the last part of the Ph.D. journey, the dissertation. I am thankful that you gave me the space and encouragement to find my voice as a researcher, for honoring my voice as I developed my topic and all your feedback. Thank you for blessing my life.

Dr. Mwendwa, you have been a friend and a mentor. You have provided Godly counsel and spoken into my life, encouragement, vision, and purpose. You have been a role model and inspiration to me as a sister in Christ and a woman of color, a Latina. Thank you for blessing my life.

Dr. Wirth, it was a privilege for me to work under you during my teaching internship. Thank you for your responsiveness and support, even as a teaching intern, you were available for me to share my heart and thoughts regarding my dissertation journey. Fast forward and our paths crossed again when you agreed to be on my dissertation committee. Thank you for blessing my life.

To my mom and dad, my victory is also your victory; my joy is your joy. Though my dad passed away during my 2nd year in this program and did not live to see me graduate, I know that he is smiling from heaven. My brother Darcy and my sister-in-law Yocasta, you valued my dream, prayed for me, cheered me on, checked in on me, and encouraged me to press on, even when I felt like I had nothing left to give. Thank you for blessing my life.

My Pastors, Jose R. Arce, and Pastor Jr. Arce from Casa Del Alfarero (CDA), each Sunday, without knowing it, you impacted my spiritual walk, speaking life into an often tired and weary soul, and encouraged me to continue “walking” it out. You brought words of purpose, destiny, and motivation in my life, reminding me often that “I have the mind of Christ” therefore, “I am more than a conqueror.” Thank you for blessing my life.

To the CDA worship team, I have also been encouraged through your “worshipping.” As my oldest son practiced during the worship team’s rehearsals, I often sat in the pews working on this project while I waited for my son. I was encouraged while I listened to the worship, gaining strength to face the task set before me. Thank you for blessing my life.



The Lau and Peterson family, thank you for providing me a home away from home during some of my many trips to Liberty U. I am also very thankful to all the doctoral students who have collaborated with me throughout our program, I loved being part of this village. I am especially thankful for the friendship of Sally Lau and John Harrichand who were lifesavers to me during the last leg of this journey. Thank you for blessing my life.

Finally, I would like to thank the faculty in the Department of Counselor Education and Family Studies at Liberty University for which I was blessed to have as a professor during my doctoral journey to include *Dr. Deacon, Dr. Sosin, Dr. Thomas, Dr. Pride, Dr. Sibcy, Dr. Hinson, Dr. Volk, Dr. Daniels, Dr. Peters, and Dr. Jenkins*. It has been a privilege and honor to sit in your class as a doctoral student, and I gleaned and was poured into. The knowledge and wisdom shared during class discussion are imprinted in my heart. You have challenged my thinking, inviting me to search for truth, facilitating growth and maturity, as a professional counselor, counselor educator, and counselor supervisor. Thank you!

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## **List of Abbreviations**

ASCA	American School Counselor Association
ASE	Academic Self-efficacy
AI	Academic Interest
AOE	Academic Outcome Expectations
CCR	College and Career Readiness
CSS	Common Core Standards
ESEA	Elementary and Secondary Education Act
ESSA	Every Student Succeeds Act of 2015
IS	Institutional Support
NCLB	No Child Left Behind
SCCT	Social Cognitive Career Theory
TS	Teacher Support

## **CHAPTER ONE:**

### **INTRODUCTION**

This chapter presents an overview of a study that examines the role of the learning environment on young adults' academic self-efficacy, academic outcome expectations, and academic interests towards completing postsecondary education along with an argument presenting the rationale for this study. It also discusses the statement of the problem, the need, purpose, and significance of this study. The research questions and the constructs of the study are covered at the end of the chapter.

#### **Background of the Problem**

The stability and structure of the US economy are dependent upon an educated labor force with very specific knowledge, job skills, and job traits (Bragg & Taylor, 2014; Hooker and Brand, 2009). Based on labor force projections, the US Department of Labor (2017) has identified multiple job sectors that will require some form of postsecondary education. For example, the number of jobs requiring some level of postsecondary education currently stands at about 59% and is expected to reach 65% by 2020 (Carnevale, Smith, & Strohl, 2013; National Forum on Education Statistics, 2015). By 2018, at least half of the jobs available in the United States will require a 4-year college degree (Martinez, Baker, & Young, 2017).

Despite the need for college-educated adults to meet the projected workforce demands, there currently is a shortage of students pursuing the necessary postsecondary education to meet this demand. When examining the required characteristics of the workforce identified by the US Department of Labor (2017), the expected shortfall estimates ranged from 3 million students (College Board, 2012b; Harvill, et. al., 2012; Sparks & Malkus, 2013) reaching upwards from 16 and up to 23 million workers by 2025 (Martinez, Baker, & Young, 2017). Furthermore, when

viewing the college completion rate of ethnic minority and economically disadvantaged students, they continue to be less likely than their white and Asian counterparts to pursue and complete a college education (Harvill, et al., 2012; Martinez, Baker, & Young, 2017). This resulting shortage of students with the necessary postsecondary education that will enable them to be employed in the occupations identified by the US Bureaus of Labor has created concerns for education policy-makers, business leaders, government officials, researchers, and educators.

Globally, the United State now ranks 16<sup>th</sup> worldwide in the number of people aged 25-34 with a college degree (College Boards, 2012a). While approximately 70% of students who enter ninth grade graduate from high school, only 44% will go on to college (College Boards; 2012a). Furthermore, approximately 28% of these new college students are underprepared academically for college-level work (Sparks & Malkus, 2013). For example, only 30% of students enrolled at two-year colleges will return for a sophomore year, while only 59% attending four-year colleges will earn a bachelor's degree within six years (National Center for Education Statistics, 2018; National Forum on Education Statistics, 2015). These statistics are problematic given that individuals with a high school diploma are twice as likely to be unemployed than college graduates (US Department of Labor, 2017).

Furthermore, for the US to meet the identified labor demands needs and compete in a global economy, it will be important for young adults to have the necessary academic skills in order to successfully access the array of postsecondary educational options such as a 2-year or 4-year college program. Therefore, given the growing importance of postsecondary education, it is imperative to understand the factors that are associated with improving college and career readiness for young adults to determine effective and research-based interventions that can support readiness for college and career.

## Education and Career Choice

The career options available to individuals are closely associated with the educational choices (Smith, 2014; Melamed, 1995; Flores, Ojeda, Huang, Gee, & Lee, 2006). Studies found that students' post-high school academic and career choices are greatly influenced by previous course choices during the high school and middle school years (Falco, 2017; Nagle, Newman, Shaver, & Marschark, 2016; Shoffner, Newsome, Barrio Minton, & Wachter Morris, 2015; Høigaard, Kovač, Øverby, & Haugen, 2015; Long, 2002). However, while course selection is an essential aspect of educational choice, researchers have found that multiple factors beyond course selection impact the likelihood that a student would be prepared to pursue postsecondary education. Key competencies such as academic knowledge, attitudinal factors, and social-emotional behaviors are found to increase the likelihood of a student being prepared to pursue and complete a postsecondary education (Congress, 2015; US Department of Education, 2010; 2015; Achieve, 2017; Aldeman & Carey, 2009; Hooker & Brand, 2009; Conley, 2008; 2013; Camara, 2013; Tierney & Sablan, 2014; Farrington, et. al., 2012; College Board, 2011; 2012a; ACT, 2015; 2016). Referred to as College and Career Readiness (CCR), these key competencies encompass a broad number of factors relevant to educational and career choices.

CCR has its origins from multiple sources. In 2005, the "American Diploma Project" (Achieve, 2017) sought to nationalize standards in order to assure that all high school diplomas would reflect similar educational knowledge and readiness for postsecondary education and or work (Achieve, 2017; Bomer and Maloch, 2011). In turn, this project influenced the development and implementation of federal initiatives such as the reauthorization of the Elementary and Secondary Education Act of 2010 (ESEA); (US Department of Education, 2010). Further initiatives set the stage for indirectly establishing national standards. The Every

Student Succeeds Act of 2015 (ESSA); (Congress, 2015; English, Rasmussen, Cushing, & Therriault, 2016) provided expectations for benchmarks indicative of college and career readiness beyond the No Child Left Behind, NCLB; (US Department of Education, 2010); the Common Core Standards (CCS) established the expected student knowledge deemed necessary to succeed in college and career (Blume & Zumeta, 2014), and the “Race to the Top” initiative provided federal grants to states which adopted CCS (Bomer & Maloch, 2011; Blume & Zumeta, 2014).

As a result of these initiatives, CCR policy now reflects a significant educational reform taking a P-20 approach, preschool to college and beyond (Blume & Zumeta, 2014). As such, business leaders, government leaders, researchers, and educators now consider these CCR skills as the “gold standard” in determining the academic readiness skills needed to succeed in college and career (US Department of Education, 2010; Tierney & Sablan, 2014; Camara, 2013; ASCA, 2014; College Board, 2011; 2012; ACT, 2015; 2016). However, while the CCR identifies multiple areas of academic and non-academic readiness, the initial focus to improve college and career readiness centered on academic knowledge. As such, CCR academic competencies were globally conceptualized as the level of math and English literacy skills required for a student to increase the likelihood of completion, without remediation, of credit-bearing general education courses leading to a degree or industry level certification (U.S. Department of Education, 2010; Aldeman & Carey, 2009; Hooker & Brand, 2009; Data Quality Campaign, 2014; Conley, 2008; 2012). As a result, legislation focused on holding states accountable for increasing percentages of high school graduates who were academically ready for college and career. As a result, all 50 states and the District of Columbia currently collect high school assessment data in the area of math and English literacy (Achieve, 2017), including tracking AP and dual enrollment, high



school GPA, college credit attainment while in HS, SAT, ACT, or PARCC cut scores, and postsecondary enrollment, remediation, and persistence (Achieve, 2017; U.S. Department of Education, 2010; Aldeman and Carey, 2009; Data Quality Campaign, 2014).

However, despite these recent legislative efforts to increase academic performance, students continue to graduate high school without demonstrating the necessary academic proficiencies measured by assessments anchored in CCR (Martinez, Baker, & Young, 2017; DiBenedetto & Myers, 2016; ACT, 2011; 2015; 2016; Wyatt, Wiley, Camara, & Proestler, 2012). For example, 64% high school students who graduated HS in 2016 took the ACT. However, only 38% of that group met the ACT cut score indicative of CCR (ACT, 2016). Among HS students who graduated in 2012 and who also took the SAT, 43% of that group of students met the SAT cut score indicative of CCR (Wyatt, Wiley, Camara, & Proestler, 2012). Additionally, over 20% of high school graduates seeking entry into the military did not pass the academic portion of the ASVAB (Theokas, 2010). Furthermore, current estimates range anywhere between 20% (Sparks and Malkus, 2013; National Forum on Educational Statistics, 2015) and up to 40% of first time college students (US Dept. of Education, 2010; DiBenedetto & Myers, 2016; Harvill et al., 2012) require some form of academic remediation.

Given that these statistics suggest less than half of US students still may not meet CCR benchmarks, it would appear that focusing on academic skills alone have not been enough to help students achieve the requisite skills needed to pursue postsecondary education. Thus, researchers recognized that there were also non-academic readiness skills that students must acquire to complete a postsecondary education successfully. These social-cognitive factors affect the students' ability to capitalize on opportunities and chances for success in educational institutions, which in turn, influence their career prospects and earning potential. As a result, in

addition to academic readiness, CCR competencies were expanded to include requires students to have the psychosocial developmental maturity needed to thrive in the increasingly independent world of postsecondary education and careers, the cultural knowledge to understand and navigate the college environment and labor market, and the skills to succeed in a technology-based economy (Hooker & Brand, 2009).

Underlying the CCR nonacademic factors are psychosocial indicators such as self-motivation and attitudinal factors that provide the necessary impetus to persist in and complete postsecondary education. Motivation is an essential activator, sustainer, and director of behavior (Nevid, 2013). Social Cognitive Career Theory; SCCT (Lent, Brown, & Hackett, 1994, 2002; Lent & Hackett, 1994; Lent, 2013a) provides an agentic explanation for the dominant role of one crucial motivational construct which impacts CCR, self-efficacy beliefs, and the interaction of these beliefs with environmental influences towards shaping behavior through a reciprocal process (Bandura, 1977; 2001; 2005).

The literature suggests that nonacademic factors such as self-efficacy beliefs can affect a student's ability to adapt to and meet the varying demands required in an academic setting (ASCA, 2014; Farrington et al., 2012; ACT, 2007; College Boards, 2016). For example, the strength of self-efficacy in middle school translates to higher levels of success and better preparation for future academic and career challenges (Høigaard, Kovač, Øveraby, & Haugen, 2015). Academic self-efficacy is considered a robust predictor of academic achievement (Farrington et al., 2012; Nagaoka et al., 2013; Dixson, Worrell, Olszewski-Kubilius, & Subontnick, 2016) even across diverse academic domains such as writing and math (Zimmerman & Cleary, 2006). With the addition of these psychosocial or social-cognitive factors, the CCR competencies now recognize and account for the role of non-academic factors that provide

additional context for supporting academic skills which in turn, influences performance, educational, and career choices (Farrington et al., 2012).

### **Career Identity Development**

A primary developmental task for adolescent is the development of a career identity, the integration and summation of ones' strengths, aptitude, and opportunities into an integrated and stable understanding of self, and how one fits into the world of work (Turner and Lapan, 2013; Skorikov & Vondracek, 2011; 1998; Erikson, 1968; Super 1990; Gushue, Clarke, Pantzer, & Scanlan, 2006; Gushue, Scanlan, Pantzer, & Clarke, 2006). Career identity develops within the context of physical, cognitive, and psychosocial changes and the backdrop of societal expectations. As adolescents successfully integrate their interests, skills, and abilities to identify specific career goals, career identity begins to unfold (Turner and Lapan, 2013; Holland, 1997).

Learning experiences and their associated activities are essential factors in the career identity development process. Through learning experiences, adolescent become active agents involved in the process of shaping their career identity development as they begin crystalizing their career interests through the acquisition of academic skills, values, beliefs, problem-solving strategies, and personal traits that guide decision-making, academic choices, and career preferences (Lent, 2013a; Gottfredson, 2002; Krumboltz, Mitchell, & Jones, 1976; Krumboltz, 1979). Learning experiences may also cause an adolescent to unnecessarily circumscribe or compromise a viable career option furthermore influencing their career identity (Gottfredson, 2002).

Formal and informal learning experiences facilitate career exploration and awareness in the school environment which in turn, shapes career development. In response, adolescents develop beliefs about self which move them towards crystalizing their career identity

(Vondracek & Skorikow, 1997). Career identity in turns provides a sense of clarity and stability as adolescents consider potential career goals (Turner and Lapan, 2013). As such, the establishment of a career identity is one of the most central aspect of the transition from adolescence to adulthood (Porfeli, Lee, Vondracek, & Weigold, 2011), part of the overall ego identity (Erickson, 1986), an integral part of the process of overall identity development (Vondracek & Skorikov, 1997), and necessary for stability in pursuing future career goals (Turner & Lapan, 2013).

Strong career identity is associated with a multitude of positive career outcomes for the adolescent. These career outcomes include improved ability to manage potential barriers, greater career certainty and career choice commitment, career interest, career exploration, reality-based career aspirations, successful career planning, and successful work attitude which in turn, results in enhanced career competencies and outcomes (Turner and Lapan, 2013; Meijers, Kuijpers, & Gundy, 2013; Shin & Kelly, 2013). Psycho-social benefits such as positive mental health and psychological well-being are also associated with strong career identity (Turner and Lapan, 2013; Meijers, Kuijpers, & Gundy, 2013; Shin & Kelly, 2013). Therefore, career identity is an important factor related to healthy adolescent development.

### **Career Decision-Making and Interest Development**

As adolescents near high school graduation, they face the need to identify their educational and career goals as well as outline what is required to accomplish these goals (Bandura, 2001; 2005). Adolescents must learn to master many new skills on the road to adulthood. Competing and interacting demands which tax the adolescents' interests, motivation, and management of stressors, can impact adolescents' sense of efficacy in terms of the adolescents' belief about self and whether to think in a manner that is optimistic and self-

enhancing regarding career decision-making as opposed to pessimistic and debilitating (Bandura, 2001; 2005).

**Career Decision-Making.** Career decision-making, the degree to which an individual feels confident in their ability to successfully engage in tasks associated with making a career choice and the commitment to that choice (Taylor & Betz, 1983) is shaped by current and previous learning experiences (Krumboltz, Mitchell, & Jones, 1976; Lent, Brown, & Hackett, 1994; 2000; 2002; Gottfredson, 2002). Parents, teachers, influential adults, and institutional forces expose children and adolescents to a variety of learning experiences in an ongoing and consistent fashion throughout their development. These learning experiences then shape the developing attitudes, beliefs, personality traits, values, skill development and the worldview of children. These experiences then serve as a guide, influencing adolescent's perception of their capability to make a decision regarding career and academic preferences in the area of interest, choice, and competencies (Krumboltz & Vosvick, 1996; Krumboltz, 2009; Gottfredson, 1996; 2002; Lent, Brown, & Hackett, 1994; 2000; 2002).

Career decision-making is a critical factor influencing the career development process for the adolescent (Hsieh and Huang, 2014; Vuolo, Staff, & Mortimer, 2012). Career decision-making can affect focus, initiation, and persistence of behaviors to include career behaviors which in turn, facilitate the execution of a selected career decision (Bandura, 1986; Lent, Brown, & Hackett, 1994). Additionally, career decision-making can influence an individuals' sense of personal agency with regards to their career identity (Betz & Hackett, 2006; Lent & Brown, 2006) and personal agency regarding career aspirations (Mau, 2003; Post-Kammer & Smith, 1985, Rainey & Borders, 1997). The personal agency, in turn, shapes self-efficacy beliefs and the corresponding outcome expectations (Lent, Brown, & Hackett, 1994; 2000).

**Interest Development.** Interest development is shaped by experiential and psychosocial or social-cognitive factors (Lent, Brown, & Hackett, 1994; 2002; Lent & Hackett, 1994; Lent, 2013a). Children and adolescents exposed directly and vicariously to activities from home, school, community, and environment which form the foundation for future career options. Children are also selectively encouraged to pursue or to forgo pursuing specific careers (Gottfredson, 2002; 1996). By practicing and modeling different activities with ongoing positive and negative feedback, children gradually refine their skills, develop preferences, and form self-efficacy beliefs and similar outcome expectations regarding different tasks and domains of behavior. Therefore, these learning experiences contribute to the development of self-efficacy beliefs. As self-efficacy regarding interest emerge, it encourages the intention or goals that increase involvement in an activity. This basic process is seen repeating itself continuously prior to work entry (Lent, Brown, & Hackett, 1994; 2002; Lent & Hackett, 1994; Lent, 2013a).

Self-efficacy beliefs link ability and interest (Lent, Brown, & Hackett, 1994; 2002; Lent & Hackett, 1994; Lent, 2013a; Gottfredson, 2002; 1996). Aptitudes and values are evaluated through individuals' perception of their self-efficacy (Hackett and Betz, 1995; Betz and Hackett, 1981). This in turn results in the transformation of aptitude and values into career-relevant skills through an environment of nurture, resulting from previous and current learning experiences as well as the influence of nature, resulting from hereditary factors that shape a person such as personality characteristics (Lent, Brown, & Hackett, 1994; 2000; 2002; Krumboltz, Mitchell, & Jones, 1979, Naylor & Krumboltz, 1994).

### **Self-Efficacy Beliefs**

Self-efficacy beliefs reflect a person's self-appraisal in a specific domain (Bandura, 1977; 1986; Farrington et al., 2012; Nagaoka et al., 2013; Lent, Brown, & Hackett, 1994). Self-

efficacy beliefs are identified in the literature as pivotal for achieving the non-academic benchmarks indicative of CCR (Farrington et al., 2012; Nagaoka et al., 2013; Høigaard, Kovač, Øverby, & Haugen, 2015). These self-appraisals are pivotal because they impact outcome expectations, beliefs about the outcomes of performing a particular behavior or course of action such as career choice and therefore, influencing personal agency (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001). Self-efficacy influence choices individuals make, courses of action they pursue in that individuals engage in things they feel competent and confident in a while avoiding tasks they feel incompetent (Pajares, 1996; Zimmerman & Cleary, 2006). Self-efficacy beliefs determine how much effort individuals expend on an activity, how long they will persevere when confronting obstacles, how resilient they will prove in the face of adverse situations, their thought patterns, and emotional reactions. Self-efficacy beliefs are sensitive to differences in contextual factors and personal factors (Schunk & Meece, 2005). Therefore, self-efficacy is the critical factor influencing human agency and are prominent for academic and career development (Pajares, 1996; Zimmerman & Cleary, 2006).

**Academic Self-efficacy.** Academic self-efficacy reflects an adolescent's level of confidence or belief that she or he can accomplish educational assignments and tasks. Academic self-efficacy refers to self-perceptions, associated beliefs, and attitudes related to an individual's academic identity, an individual's perception of who they are as a learner, and their intellectual capacities (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001; Farrington, et al., 2012; Nagaoka, et al., 2013; Pajares, 1996). Academic self-efficacy is not only a predictor of perceived ability, but also a robust predictor of academic achievement (Farrington, et. al., 2012; Nagaoka, et. al., 2013; Dixon, Worrell, Olszewski-Kubilius, & Subontnick, 2016) and associated with higher college and career readiness (College Board, 2016; ACT, 2007).

Individuals will develop personal interests and goals in line with their academic self-efficacy beliefs which in turn, influences outcome expectation which in turn, lead to career interests and goal development (Lent, Brown, & Hackett, 1994). For example, a student may possess the academic prerequisite skills needed to achieve a postsecondary education leading to a particular career goal and may understand the value of attaining a degree. However, they may not have a corresponding level of academic self-efficacy, their belief or perception of their ability for academic success. Also, their expectation of the outcomes should they pursue and achieve academic success further influences the development of interests. Interests, in turn, inform students' willingness to engage in the activities required for success in the task. As such, the student may foreclose on goals which do not match their perception of their academic skills or may lose interest to pursue a career. Thus, in response to experiences in the learning environment, an individual's academic self-efficacy beliefs and outcome expectations influences the motivation of an individual in developing career interests and career goals which reflect high self-appraisal and confidence or influence the forfeit of career interests and goals due to their low self-appraisal and low confidence.

### **Social Cognitive Career Theory**

Social Cognitive Career Theory (SCCT) is a career development framework emphasizing the complex ways in which people, their behavior, and the environment mutually interact and influence one another, therefore, is relevant to both academic and career behaviors (Lent, Brown, & Hackett, 1994, 2002; Lent & Hackett, 1994; Lent, 2013a). SCCT holds that people can exercise some degree of agency in their career development; however, people contend with many factors than strengthen, weaken, or over-ride their ability to self-direct. Furthermore, it is the



interplay among the three cognitive-person variables, self-efficacy belief, outcome expectations, and personal goals that affect the exercise of agency in career development.

Self-efficacy beliefs address the question, “Can I do this?” Self-efficacy is defined as a person’s appraisal of their abilities to organize and implement the actions necessary to attain the performances they have elected (Lent, Brown, & Hackett, 1994, 2002; Lent & Hackett, 1994; Lent, 2013a). Outcome expectations, the second cognitive person variable, asks “If I do this, what will happen?” Outcome expectations reflect beliefs about the consequences or outcomes of performing particular behaviors and involves imagined consequences of particular courses of actions. Personal goals, the third cognitive person variable asks “How much and how well do I want to do this?” Personal goals refer to a person’s intention to engage in a particular activity or to produce a particular outcome. Having goals is a way of exercising agency in educational and occupational pursuits.

In addition to cognitive-person variables, SCCT also explains the interaction of performance, interest, and choice on career development (Lent, Brown, & Hackett, 1994, 2002; Lent & Hackett, 1994; Lent, 2013a). Performance attainment, the educational and work task accomplishments by an individual is indicative of the degree to which a person persists at particular career paths, especially when encountering obstacles. However, there are contextual variables that can affect performance attainment. As mentioned previously, SCCT acknowledges both the contributing experiential and socio-cognitive factors which shape career interest development. By practicing and modeling different activities with ongoing positive and negative feedback, individuals gradually refine skills, develop preferences, and form self-efficacy beliefs and outcome expectations which shapes choice behaviors and in turn, shapes career development.

### **Social Cognitive Career Theory and the Domain of Academic Readiness**

SCCT provides an agentic explanation of the development of academic readiness, a crucial component of academic success (Congress, 2015; US Department of Education, 2010; Achieve, 2017; Hooker & Brand, 2009; Conley, 2008; Farrington, et. al., 2012; College Board, 2012; ACT, 2015; 2016). Academic readiness refers to the degree to which a student prepared with the necessary academic skills, knowledge, and abilities to meet the rigors of pursuing a postsecondary education with success (Porter and Polikoff, 2012) and is most often associated with CCR (US Department of Education, 2010; Achieve, 2017; Hooker & Brand, 2009; Farrington, et. al., 2012; College Board, 2012; ACT, 2015; 2016). SCCT theorizes that engaging in behaviors such as attending college, persisting to earn a diploma, completing a career training program, or pursue a defined career path is related to the strength of self-efficacy beliefs with regards to those domains which in turn, has the potential to influence subsequent outcome expectations and interests (Lent, Brown, & Hackett, 1994; 2000; 2002). What this means is that the more confident a student is in their belief about their ability to be academically ready and their belief that the outcomes associated with being academically ready are worthwhile, the more likely the student will persist when challenges arise and in turn, develop and persist in interests that align with those beliefs.

### **Academic Self-Efficacy and Learning Experiences**

Academic self-efficacy influences academic readiness through its impact on effort, choice behaviors, and persistence (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001; Farrington, et. al., 2012; Nagaoka, et. al., 2013; Pajares, 1996; Lent, Brown, & Hackett, 1994; 2002; Lent & Hackett, 1994; Lent, 2013a; Artino, 2012; Høigaard, Kovač, Øverby, & Haugen, 2015). An individual with strong academic self-efficacy can demonstrate more perseverance and

more appropriate academic behaviors, which in turn, results in improved academic performance, increased resiliency, and better strategies to resist adverse academic influences (Zimmerman & Cleary, 2006; Pajares, 1996). Therefore, academic self-efficacy is a crucial building block fostering academic success (Bandura 1977; Rocchino, Dever, Telesford, & Fletcher, 2017) and future career outcomes (Bondy, Peguero, & Johnson, 2017).

Academic self-efficacy impacts the beliefs and actions of an individual and these beliefs are central to a person's sense of agency (Peguero & Shaffer, 2015). Self-efficacy beliefs contribute towards an approach, avoidance, and persistence behaviors and can either propel or hinder a students' persistence for developing the necessary academic readiness skills needed to achieve their career goals (Lent, 2013a). Academic self-efficacy is an important social-cognitive factor related to educational and career outcomes (Farrington, et. al., 2012; Zimmerman & Cleary, 2006; Pajares, 1996) and a key factor in an individual's career development process due to its' influence on interest and career choice behaviors (Lent, Brown, & Hackett, 1994, 2002; Lent & Hackett, 1994; Tang, Pan, & Newmeyer, 2008).

Learning experiences encountered throughout development can nurture or stifle an individual's academic self-efficacy beliefs in that perceived areas of inadequacy can limit the scope of interest and the effort towards pursuing a particular educational or career goal (Gottfredson, 2002; 1996). For example, contextual factors such as a narrow range of educational experiences, limited relationships with adults who can provide adequate guidance, lack free social connections or little knowledge on how to navigate educational institutions can result in limited exposure to career development experiences for an adolescent. As such, an individual may develop lower self-efficacy beliefs regarding academic domain as a result of these contextual factors, which influence their sense of agency regarding their career

development. This low self-efficacy belief may result in an individual forfeiting the pursuit of a particular career goal (Gottfredson, 2002; 1996).

### **Academic Outcome Expectations**

Academic outcome expectations impact academic readiness through its influence on student's belief regarding the kinds of behaviors that lead to a specific outcome (Sharma & Nasa, 2014). Academic self-efficacy beliefs are relevant to understanding academic outcome expectations in that academic self-appraisals help determine the academic outcome one expects, that is, lead to specific academic behavior and motivations that can encourage or discourage effective performance (Bandura, 1977; 1984; Pajares, 1996; Schunk & Meece, 2005). Therefore, the outcomes an individual expects is dependent mainly on their judgment of what they can accomplish. For example, individuals are more apt to engage in activities they believe will result in favorable outcomes and avoid those perceived with negative consequences. However, the reverse is not valid in that the outcome one expects does not always translate into increased self-efficacy. For example, a student can expect positive outcomes from an action such as earning a high grade for an excellent research paper but have doubts about their self-efficacy beliefs to produce the excellent research paper.

Academic outcome expectations develop from a variety of direct and vicarious learning experiences (Lent, Brown, & Hackett, 1994; 2002; Lent & Hackett, 1994; Lent, 2013a). For example, learning experiences vary from adolescent to adolescent based on a variety of contextual factors. As such, regardless of an adolescents' unique abilities, aptitude, or interests, their expectation can create a barrier to fulfilling career goals, and as a result, a student may simply decide to discontinue the pursuit of career goals based on perceived academic outcome expectations without investigating all options. Therefore, the academic outcome expectations

which would encourage an individual to pursue a desired career would be negatively impacted by contextual factors resulting in a further lack of agency. SCCT hypothesizes that educational and career-related goals, choices, and interests develop in response to applicable self-efficacy beliefs and outcome expectations. Career choice behaviors are influenced by beliefs developed through exposure to learning experiences. Feelings of success or failure from trial and error approaches reinforce attempting, continuing, or discontinuing activities that eventually lead to goals which in turn, impact career development (Lent, Brown, & Hackett, 1994; 2002).

### **Academic Interests**

According to SCCT, self-efficacy beliefs and outcome expectations are theorized to influence interest development (Lent, Brown, & Hackett, 1994, 2002; Lent & Hackett, 1994; Lent, 2013a). From the CCR literature, academic readiness reflects not only an expectation that students are academically prepared to access college but also, that students possess the necessary skills to successfully persist towards graduation (Hooker and Brand, 2009). Measuring a students' intention for persisting towards completing their college degree may be a critical measure of academic interest. Attrition rates have been a concern for college administrators and legislators (Friedman & Mandel, 2009; Mannan, 2007; Sparks and Malkus, 2013). In response, improving college graduation rates represents an area of focus for many institutions of higher education including both 2-year and 4-year institutions (Thomas, 2014; Kiser & Price, 2008; Davidson, Beck, & Milligan, 2009).

Intention is a powerful predictor of behavior (Thomas, 2014). An institution of higher education can forestall the students' intention to drop-out when they feel more connected to their institution; the institution that provides an environment that supports the students' academic, emotional, and social needs, develops greater persistence behaviors which in turn, supports

college completion (Thomas, 2014; Fish, Gefen, Kaczetow, Winograd, & Futtersak-Goldberg, 2016; Friedman & Mandel, 2009; Tinto, 1975; 1987). For example, students with low-efficacy beliefs and who demonstrated a lack of interest in their academic work were more likely not to return to college (Davidson & Beck, 2006; Beck & Milligan, 2014). Attrition can occur for many reasons; (Tinto, 1987) however, it takes effort and interest to complete college. Lack of academic interest resulting in diminished perseverance, resilience, and motivation can lead to eventual withdrawal from school (Davidson & Beck, 2006; Beck & Milligan, 2014; Bean & Eaton, 2001).

### **Learning Environment**

The learning environment is an essential psychosocial domain that informs not only the acquisition of knowledge but impacts self-efficacy beliefs, outcome expectations, and academic and career interests (Lent, Brown, & Hackett, 1994). Adolescents are exposed to innumerable learning experiences every single day throughout their development and it is through these multiple direct and instrumental learning experiences that an individual develops preferences for activities which they have been positively reinforced (Lent, Brown, & Hackett, 1994; 2000; 2002; Krumboltz, & Vosvick, 1996; Krumboltz, 1994; 1996). Within the school, a supportive learning environment facilitated through teachers and institutional support can promote the types of learning experiences which are pivotal for developing self-efficacy beliefs and outcome expectations which support adolescents in their career development (Høigaard, Kovač, Øverby, & Haugen, 2015).

### **Teachers Support**

The interactions which occur in the classroom contributes to a student's academic motivation in that learning experiences resulting from the teacher-student relationship within a

school can facilitate student interest or disinterest in learning (Moos, 1980; Hughes & Chen, 2011). The theoretical foundation for the study of teacher support in the classroom learning environment is based on Moos' (1974, 1976, 1979) classification of learning environments. Accordingly, there is three dimensions to the learning environment: (a) relationship, (2) personal development; and (3) system maintenance and change (Moos, 1974, 1976, 1979). The Relational dimension reflects the quality of the personal relationship. It comprises of the help, interest, trust, and friendship that the teacher shows towards the student (Moos, 1979). The Personal Development dimension reflects opportunities for personal development and self-enhancement found within the classroom environment. System Management and System Change dimensions examine the learning quality of the environment such as orderliness, clear expectations, and responsiveness to change.

Teachers support plays an influential role in impacting student expectations and self-efficacy belief regarding school ability (Moos, 2000). Self-efficacy beliefs, in turn, support learning through its impact on task persistence (Multon, Brown, & Lent, 1991). Additionally, caring and supportive interpersonal relationships lead to more positive academic attitudes and beliefs (Battistich, Solomon, & Kim, 1995; Shouse, 1996; Solomon, Battistich, Watson, Schaps, & Lewis, 2000). Teacher support is linked to student engagement and positive student identity, which in turn is linked to achievement (Hughes & Chen, 2011; McClure, Yonezawa, & Jones, 2010; Quin, 2017). For example, in the domain of math, teacher support was linked to the nourishment of math self-efficacy beliefs (Olle & Fouad, 2015). Additionally, the presence of supportive adults had the strongest link to school engagement and better psychological well-being (Battistich et al., 1995). Finally, teacher support is also connected to career decision making self-efficacy (Metheny, McWhirter, & O'Neil, 2008) and positively related to career

decision-making self-efficacy and career outcome expectations in students (Gushue & Whitson, 2006). Given the evidence linking the role of the psychosocial classroom learning environment on the development of self-efficacy beliefs in adolescents, this study will focus on Moos' Relational dimension, specifically, the teacher-student interaction in the classroom.

### **Institutional Support**

Schools structures provide students with the necessary knowledge and resources for achieving academic success (Gonzales, 2013; Stanton-Salazar, 2011; Schunk & Meece, 2005). Institutional support in this study refers to the resources, opportunities, privileges, and services which institutions transmit to students (Stanton-Salazar, 2011). Institutional support provides the student with a network of resources, knowledge, and corresponding emotional support to navigate effectively and successfully within the institution. Institutional support reflects the cultural landscape of a student's life. Culture-specific attributes such as interests, attitudes, and skills are influenced by the learning environment (Gottfredson, 2002, 1996). Choices are constrained and limited to what is available in an individual's cultural landscape. Gender differences can develop through a "one size fits all" cultural prescription. As a result, interests, attitudes, and acquisition of essential skills are contingent upon the experiences found in an individuals' cultural landscape (Gottfredson, 2002, 1996).

Institutional support plays an influential role in impacting institutional climate and student engagement. For example, there is a protective effect resulting from the perception of positive institutional support on students' social-cognitive development (Battistich et al., 1995). The research on the educational achievement of Latino/Mexican Americans which focused on school climate found that school support impacted engagement and success for students (Valenzuela, 1999). School support in the form of an encouraging school climate has been



linked to academic engagement and school attachment for Latino and African-American males reducing their likelihood to drop out (Bottiani, Bradshaw, & Mendelson, 2016; Cornell, Shukla, & Konold, 2016; Kotok, Ikoma, & Bodovski, 2016). Additionally, a sense of school belonging evidenced by students feeling encouragement to participate in their school community and encouraged to have educational aspirations positively predicted academic self-efficacy (Uwah, 2008). Therefore, the institutional support provides students with the encouragement to assist in overcoming challenges and barriers which impact self-appraisals and psycho-social well-being (Stanton-Salazar, 2011).

### **Learning Experiences and Career Development**

Learning experiences teach an individual about their likes, dislikes, what they are good at, and what they can expect from the world. As skills, values, beliefs, personality traits, and decision-making behaviors are acquired and developed, academic and career preference trajectories are put into place which shapes the formation of a career identity for an adolescent. Whether learning occurs from the consequences of one's actions (instrumental learning experiences) or from experiences which result in approach or avoidance responses (associative learning experiences), the influence of learning experiences which cause individuals to generalize and develop belief, whether reality-based or not, cannot be denied (Krumboltz, 1979; 1994; Krumboltz & Vosvick, 1996). The result of these complex sequence of learning experiences, innumerable, and over time, is a direct influence on an individual's career development trajectory.

### **Statement of the Problem**

Educational institutions' primarily focus on learning and instruction is based on the historical importance of academic achievement factors. However, the literature supports the

premise that other powerful forces, namely, social-cognitive factors also shape learning and performance, which in turn, can influence academic and career outcomes (Moos, 2000; ACT, 2007; College Board, 2016; Farrington, et. al., 2012; Nagaoka, et. al., 2013; Erikson, 1968; Symonds, Schwartz, & Ferguson, 2011; Hooker and Brand, 2009). Currently, empirical research is limited to understanding the relationship between social-cognitive factors and CCR. Given that no research has used a modified choice model of SCCT to investigate the strength and direction of the relationship between teacher support, institutional support, academic self-efficacy beliefs, academic outcome expectations, and academic interests, understanding the nature of the relationship between these variables will be the focus in this dissertation.

Therefore, the purpose of this exploratory study is to examine the association of undergraduate college students' perception of their learning environment and its' influence on academic self-efficacy, academic outcome expectations, and academic interest. The teacher and institutional support learning environment will be the context for investigating the development of academic self-efficacy beliefs, academic outcome expectations, and academic interest. This researcher will use quantitative data to examine a modified SCCT choice model to test the predictive power of teacher support and institutional support to explain academic self-efficacy and academic outcome expectations. Additionally, the predictive power of teacher support and institutional support, academic self-efficacy and academic outcome expectations to explain academic interest will be explored.

### **The Need for the Study**

Given that postsecondary education is a necessary task for current students to meet the labor demand needs in the US, high school students need to be prepared for the many postsecondary options. CCR represents foundational academic knowledge, skills, and 21<sup>st</sup>-

century employability competencies necessary to be successful in non-remedial postsecondary education or training leading to entry-level positions in the workforce (Conley, 2008; 2012; Hooker & Brand, 2009). Given that current CCR competencies neglect to consider critical social-cognitive factors, this gap presents an opportunity to empirically investigate the role of learning experiences in facilitating academic self-efficacy beliefs, academic outcome expectations, and academic interest. Learning experiences are theorized to shape academic self-efficacy beliefs and academic outcome expectations which in turn, predict future career interests, choices, and actions (Lent, Brown, & Hackett, 1994; 2002; Lent & Hackett, 1994; Lent, 2013a). There is an absence in the literature regarding which particular learning experiences link to academic self-efficacy, academic outcome expectations, and academic interests. Research is needed to examine the role of teacher support and institutional support as a context for the development of academic self-efficacy, academic outcome expectations, and academic interests especially for ethnically diverse individuals whose voice is often neglected in the literature (Peguero & Shaffer, 2015; Fouad & Santana, 2017). This research will consequently facilitate equitable policy and useful and research-based interventions by college administrators, school counselors, researchers, theorist, and educators for improving academic readiness for adolescents.

### **Research Questions**

This study will explore the relationship among academic self-efficacy, academic outcome expectations, teacher support, institutional support, and academic interest for female and male adult undergraduate students. It will examine the fit of the data to a modified model of Social Cognitive Career Theory (Lent, Brown, & Hackett, 1994; Lent, 2013a). The following research questions will guide this research:

**Research Question 1**

Are there differences in Academic Self-Efficacy, Academic Outcome Expectations, Academic Interest, Teacher Support, and Institutional Support among undergraduate college students by academic level?

**Research Question 2**

Does Teacher Support and Institutional Support explain a significant amount of the variance in Academic Self-Efficacy for undergraduate college students?

**Research Question 3**

Does Teacher Support and Institutional Support explain a significant amount of the variance in Academic Outcome Expectations for undergraduate college students?

**Research Question 4**

Does Academic Self-Efficacy and Academic Outcome Expectations explain a significant amount of the variance in Academic Interest for undergraduate college students?

**Research Question 5**

Does the data fit the modified model of Social Cognitive Career Theory for undergraduate college students?

**Assumptions and Limitations**

This study will utilize a sample of undergraduate college students from one university who are enrolled in a psychology course and respond to an invitation to participate in a research study. As a result, the findings of the study are limited to those students who opt to access and respond to the study scales. Therefore, the results may not generalize to other populations as the sample used may not be representative of all undergraduate students. Also, participants who elected to participate in this study may not be representative of undergraduate college students at

different academic levels and representative regarding diversity (e.g., Age, gender, ethnicity, academic level).

Furthermore, this study utilized a cross-sectional, correlational design. Therefore, neither causality nor directionality can be determined, and the results should be interpreted accordingly. Awareness of the possibility of socially desirable responses should be considered when making inferences. Responses made by participants will be based on their experiences and recollection of thoughts, events, and feelings. Finally, because of nature or research scales, questions may be open to interpretation.

### **Definition of Terms**

This study examines four constructs: academic self-efficacy, academic outcome expectations, academic interest, and learning experiences. The following is a list of operational definitions of these constructs as used in this study.

#### **Academic Self-Efficacy**

Academic self-efficacy reflects an adolescent's level of confidence or belief that she or he can accomplish educational assignments and tasks (Peguero & Shaffer, 2015). Academic self-efficacy refers to self-perceptions, associated beliefs, and attitudes related to an individual's perception of who they are as a learner, and their intellectual capacities (Farrington et al., 2012; Nagaoka et al., 2013; Bandura, Barbaranelli, Caprara, & Pastorelli, 2001; Pajares, 1996)

#### **Academic Outcome Expectations**

Academic Outcome Expectations are the perceived levels of positive results of performing academic activities and behaviors (Bandura, 1986, 1989), a student's beliefs that specific behaviors will lead to an inevitable outcome (Sharma & Nasa, 2014).

### **Academic Interest**

Academic Interest is the level of liking associated with academic activities (Lent, Brown, & Hackett, 1994; Lent & Brown, 1994; 2006) measured regarding student intention to persist towards earning their college degree.

### **Learning Environment**

Learning Environment includes two components: teacher support and institutional support. Teacher support is the perceived teacher-student relationship and the perceived level of help, interest, trust, and friendship that a teacher shows towards the student (Moos, 1980). Institutional support is the perceived institutional-student relationship and the perceived support from institutional agents' work and focuses on helping adolescents feel cared for and achieve their academic and career milestones (Stanton-Salazar, 2011; Thomas, 2014).

### **Organization of the Remaining Chapters**

This dissertation consists of five chapters. Chapter One provided the rationale for the study, the need, purpose, and significance of the study, the research questions, assumptions, limitations, and the definition of terms. Chapter Two presents a review of the literature on the theoretical foundations of the study, academic self-efficacy, academic outcome expectations, and academic interests, and learning environment. Chapter Three provides the methodology for this research. The answers to the research questions and findings of the analyses are covered in Chapter Four, and lastly, Chapter Five presents a discussion and the implications of results. It will also include the limitations of the study and specific implications for counselors, counselor educators, theorists, researchers, and educators.

## **Chapter Summary**

This chapter provides a rationale for the study exploring the role of the learning environment regarding teacher and institutional support on the perceptions of undergraduate college student's academic self-efficacy, academic outcome expectations, and academic interests. Background of the salient literature is reviewed, and it linked to the constructs under study. A review of the existing literature resulted in a research question concerning the role of teacher support and institutional support as a context for the development of academic self-efficacy, academic outcome expectations, and academic interests. The research that was conducted to answer this question has assumptions and limitations, as outlined briefly in this chapter. The final chapter will deal with them in greater depth.

## **CHAPTER TWO: REVIEW OF THE LITERATURE**

A review of the literature will provide the basis for examining the role of the learning environment on adolescent academic self-efficacy beliefs, academic outcome expectations, and academic interest. This chapter includes a literature review on the population, on the theoretical foundation of the study, and on the construct of academic self-efficacy, academic outcome expectations, academic interest, teacher support, and institutional support.

### **Education and Career Choice**

Educational and career choices are one of the most relevant career decisions an individual will make (Arquero, Fernandez-Polvillo, & Valladares-Garcia, 2017). Educational choice refers to the courses a student takes (Long, 2002). The career choices available to an individual is dependent upon their postsecondary education which in turn, is dependent on educational choices pursued while in middle and high school (Smith, 2014; Curry, Belser, & Binn, 2013; Melamed, 1995; Flores, Ojeda, Huang, Gee, & Lee, 2006; Falco, 2017; Nagle, Newman, Shaver, & Marschark, 2016; Shoffner, Newsome, Barrio Minton, & Wachter Morris, 2015; Høigaard, Kovač, Øverby, & Haugen, 2015). For example, math, science, and engineering careers have been linked to the successful pursuit of rigorous math and science educational choices in elementary and middle school. (Long, 2002). Beyond that, even courses taken during the elementary school years have been associated with future educational and career choice opportunities (Long, 2002; Arbona, 2000). As a result, it appears that educational choice leads to a pathway of inclusion or exclusion, a pipeline where not all students are equally prepared to pursue the career choice of their choosing based on previous educational choices.



Educational choice is influenced by a variety of factors. The educational environment influences choices selected. For example, a college-going culture where rigorous educational choices are offered such as college-preparatory courses (Smith, 2014; Nagel et al., 2016) combined with caring supportive relationship has been found to reinforce educational choices in line with not only pursuing college after high school but also, reinforcing college completion (Smith, 2014). Second, peer achievement influences educational choice. Students tend to judge their probability of success and compare it to their peers and that appraisal, in turn, may influence the selection of certain educational choices over others (Jonsson & Mood, 2008). Third, student interest influences educational choice. Maltese and Tai (2011) found that the pursuit of educational choices related to STEM courses (science, technology, engineering, and math) was linked to growing mathematics and science interest which in turn, was linked to future career aspirations. Fourth, attitude influences educational choice. For example, having an approach as opposed to an avoidance attitude about math and science topics was related to the pursuit of a math and science career (Riegle-Crumb, Moore, Ramos-Wada, 2011).

An important attitudinal factor to influence educational choice is self-efficacy beliefs (Bandura, 2001; 2005; Pajares, 1996; Zimmerman & Cleary, 2006; Lent, Brown, & Hackett, 1994; 2002; Van Tuijl & Van der Molen, 2016). Self-efficacy is a key attitudinal factor in providing students with the ability to adapt to and persist when encountering the various demands associated with pursuing an educational choice. Self-efficacy is a motivation construct and an important activator of behavior (Nevid, 2013). For example, students will tend to approach courses which they appraise with less apprehension (Arquero, Fernandez-Polvillo, & Valladares-Garcia, 2017). Additionally, self-efficacy beliefs are important contributors to persistence behaviors necessary for striving in the face of academic challenges (Borgen &

Borgen, 2016; Høigaard, Kovač, Øveraby, & Haugen, 2015; Pajares, 1996; Zimmerman & Cleary, 2006) and are predictive of academic achievement regardless of the academic domain (Farrington, et al., 2012; Nagaoka, et al., 2013; Dixson, Worrell, Olszewski-Kubilius, & Subontnick, 2016).

### **College and Career Readiness and Future Educational Choice**

In addition to educational choice, there are key competencies in the area of academic knowledge, attitudinal factors, and social-emotional behaviors which demonstrate that an individual is prepared to successfully pursue a variety of postsecondary educational options which in turn, prepares an individual to pursue future career opportunities. Known as College and Career Readiness (CCR), these competencies are very relevant to educational and career choice options (Congress, 2015; U.S. Department of Education, 2010; 2015; Achieve, 2017; Aldeman & Carey, 2009; Aldeman, 2006; Hooker & Brand, 2009; Conley, 2008; 2012; Camara, 2013; 2010; Tierney & Sablan, 2014; Farrington, et al., 2012; College Board, 2012a; ACT, 2015; 2016). CCR provides benchmarks related to math and English literacy skills which demonstrate adequate preparation for pursuing a variety of postsecondary educational opportunities with greater success (U.S. Department of Education, 2010; Aldeman & Carey, 2009; Aldeman, 2006; Hooker & Brand, 2009; Data Quality Campaign, 2014). As such, CCR standards are globally conceptualized as the level of preparation required that will allow a student to enroll, and complete, without remediation, credit-bearing general education courses. Therefore, achieving CCR benchmarks has the potential to influence future educational and career choice.

CCR has its origins from a series of events. The National Educational Summit in 1996 led the charge for supporting standard-based educational reform creating Achieve, an educational reform organization (Achieve, 2017; Achieve, 2012; Bomer & Maloch, 2011). One of the issues

identified by state governors, state education officials, postsecondary leaders, and business executives was the concern resulting from each state have a different standard for defining graduation proficiency. Due to various stakeholder's frustration resulting from these differing standards and without the reauthorization of No Child Left Behind Act (NCLB) of 2001, Achieve in collaboration with the National Governors Association launched the "American Diploma Project" in 2005. The focus of this project was to unite governors, education officials, postsecondary leaders, and business executives by providing consistency across states with the goal of improving the preparation of high school students. The convergence of these stakeholders led to the creation of national standards through alignment of graduation requirements, assessments, and accountability systems, hence the beginning of College and Career Readiness. The Elementary and Secondary Education Act of 2010 (ESEA); (U.S. Department of Education, 2010) called for raising English and math standard which would build academic skills toward preparing the student for college and career by the time students graduate from high school. Every Student Success Act of 2015 (Congress, 2015) provided additional leverage to more meaningfully incorporate the various aspect of academic and nonacademic CCR benchmarks more cohesively as well as charging states to develop accountability structures (Congress, 2015; English et al., 2016).

Achieve and the National Governors Association partnered with the Council of Chief State School Officers to develop Common Core State standards, international benchmarked K-12 standards, in the area of English literacy and Math which demonstrate college and career readiness. Therefore, the Common Core K-12 standards are CCR Standards (Achieve, 2017; Achieve, 2012; Bomer & Maloch, 2011). The federal government has financially rewarded states with economic stimulus packages for adopting the Common Core State standards (Bomer

& Maloch, 2011; Blume & Zumeta, 2014). In response, many states adopted the Partnership for Assessment of Readiness for College and Careers (PARCC), an assessment which measures common core standards phrased regarding student outcomes as one way to measure CCR. Additionally, many states also use assessment such as ACT, SAT, or Accuplacer to measure CCR. The purpose of using a variety of assessments is to build multiple pathways for demonstrating college and career readiness for all students, regardless of race, ethnicity, gender, or economic factors.

Currently, forty-two states and the District of Columbia have adopted Common Core Standards which is a reflection of CCR standards. According to the U.S. Department of Education (2010), Common Core standards which have led to the CCR standards put students, parents, and teacher on the same page with similar goals in order to ensure students are progressing each year, are graduating high school, and are prepared to succeed in college, career, and in life. As such, college and career readiness reflect a P-20 approach to education policy, from preschool through college and beyond, to achieve educational gains for all students (Blume & Zumeta, 2014).

CCR was envisioned to increase the level of preparation regarding students' reading and math proficiency which would result in better training for future employability. It can be concluded that college and career readiness has not been achieved for a majority of students as measured by assessments or indicators anchored in CCR (Martinez, Baker, & Young, 2017; DiBenedetto & Myers, 2016; College Boards, 2012a, ACT, 2011; 2015; 2016). For example, when using CCR assessments anchored in CCR such as the SAT or ACT, about 40% of the student who took these college entrance exams achieved cut scores which are indicative of CCR (ACT, 2016; College Boards, 2012a). Another important indicator is the high school completion

rate. The current high school drop-out rate is approximately 26% (NCES, 2018). Additionally, college students identified as needing some type of academic remediation range between 20-40% (NCES 2018; National Forum on Educational Statistics, 2015; US Dept. of Education, 2010; DiBenedetto & Myers, 2016; Harvill et al., 2012). Beyond this, there are multiple other indicators that states report as evidence of student movement towards CCR. Because not all states collect or report the same type of data, challenges exist when comparing progress towards CCR across states (Achieve, 2017).

### **Social-Cognitive Factors**

In addition to CCR academic factors, the literature is beginning to indicate that there are underlying nonacademic readiness or socio-cognitive factors that also prepare students to pursue postsecondary education successfully. Nonacademic factors refer to strategies, attitudes, and behaviors which are crucial to academic performance (Farrington et al., 2012). Socio-cognitive factors work in tandem with academic factors as a critical environmental factor which provides the context for supporting academic skills, even as environmental factors influence intellectual functioning (Nisbett et al., 2012; Allen et al., 2004). For example, social-cognitive factors are positively correlated with college GPA for a first-year college student, which, in turn, is connected with overall college success (College Boards, 2016; ACT, 2007). Positive self-concept and the availability of a support system is predictive of academic success in college for minority students, and at times, more important than traditional measures of cognitive skills such as SAT scores for predicting success (Fuentes & Sedlacek, 1994; Tracey & Sedlacek, 1985; 1987). Finally, perseverance, another social-cognitive factor is linked to continuous academic skills development in the presence of obstacles (ACT, 2007).

Beyond the academic competencies, CCR conceptualizing has expanded to include critical socio-cognitive factors, the maturity needed to thrive in the increasingly independent world of postsecondary education and careers, the cultural knowledge to understand and navigate the college environment and labor market, and the skills to succeed in a technology-based economy (Hooker & Brand, 2009; Allen, et al., 2004). To better understand the role of socio-cognitive factors, the University of Chicago Consortium on Chicago School Research (CSSR), (Farrington et al., 2012; Nagaoka et al., 2013) reviewed the literature on nonacademic factors and then designed a framework to conceptualize these factors. The consortium identified five general categories of nonacademic factors demonstrated to impact academic performance. The first factor, academic behaviors refer to the behaviors of the academically minded student such as completing class and homework or class participation in discussions. The second factor, academic perseverance, refers to a student's effort, their ability to remain focused and engaged in work despite any impediments that may present along the way. Third, social skills refer to interpersonal skills such as social interactions. Fourth, learning strategies relate to the approaches and tactics utilized by an individual when engaging in cognitive processes such as those required in learning.

Academic mindset, the fifth factor refers to self-perception, associated beliefs, and attitudes related to one's academic identity. Academic identity reflects an individual's perception of who they are as a learner and their intellectual capacities. Individuals with strong academic mindset can demonstrate more perseverance and more appropriate academic behaviors, which in turn, results in improved academic performance. Examples of influential academic mindsets identified by University of Chicago Consortium (Farrington et al., 2012, pg. 49)

include “I belong in this academic community”; “My ability and competence grow with my effort”; “I can succeed at this”; and “This work has value for me”.

Self-efficacy beliefs are the foundation on which academic mindsets are built. Self-efficacy refers to the beliefs an individual hold regarding their ability to succeed at a given task and is domain specific (Bandura, 1977; 2001; 2005; Farrington et al., 2012; Nagaoka et al., 2013). Self-efficacy beliefs can propel an individual towards attempting a task which is appraised with high confidence or cause an individual to avoid a task appraised with less confidence. In considering academic self-efficacy, this psychosocial factor was not only a predictor of perceived ability, but it was found to be a robust predictor of academic achievement as well (Farrington, et al., 2012; Nagaoka, et al., 2013; Dixson, Worrell, Olszewski-Kubilius, and Subontnick, 2016) to include a variety of academic domains such as writing and math domains (Zimmerman & Cleary, 2006; Pajares & Schunk, 2001b; 2002).

Underlying self-efficacy is persistence, a reflection of self-motivation, and motivation shapes behavior (Nevid, 2013). Social Cognitive Career Theory (Lent, Brown, & Hackett, 1994, 2002; Lent & Hackett, 1994; Lent, 2013a) provides a theoretical explanation for the reciprocal interaction between self-efficacy beliefs in combination with environmental forces to shape thought and behavior which in turn, shapes educational and career choice. With the addition of socio-cognitive or psychosocial factors, CCR competencies now recognize and account for the role of non-academic variables as an additional contextual factor in supporting a student’s ability to prepare for successfully pursuing a postsecondary education (Farrington, et al., 2012; Hooker & Brand, 2009; Allen, et al., 2004). Given the evidence that the adolescents’ acquisition of CCR skills has implications for their future educational and career choices, adolescent development is a pivotal period for understanding emerging college and career readiness skills.

## **Adolescent Development**

The need to acquire pivotal career development skills occur during a period marked by dramatic developmental growth. As such, during adolescence, the individual undergoes multiple levels of change including physical, emotional, social, interpersonal, and in cognitive areas of functioning (Williams, Holmbeck, & Greenley, 2002; Townsend & Watson, 2004; Campbell & Rohrbaugh, 2006; Melchert, 2015; Huffman, 2010; Meschke, Peter, & Bartholomae, 2012; Jones & Deutsch, 2013). Adolescence reflects the developmental period where individuals transition from childhood to adulthood and can be divided into two phases, middle adolescence, from age of 14-18 and late adolescence between ages of 19-21 (American Psychological Association, 2002; American Academy of Child & Adolescent Psychiatry, 2011; Christie & Viner, 2005; PREA Resource Center, 2008).

### **Middle Adolescent Development**

During middle adolescence, from the age of 14-18, adolescents undergo multiple levels of change (Williams, Holmbeck, & Greenley, 2002; Townsend & Watson, 2004; Campbell & Rohrbaugh, 2006; Melchert, 2015; Huffman, 2010; Meschke, Peter, & Bartholomae, 2012). The physical transformation experienced throughout middle adolescence is nearly complete including increased height, weight, and secondary sex characteristics. Biological maturation of the brain triggers the cognitive developmental processes of the adolescent. There is a marked change in cognitive development, such as the use of refined thinking, problem-solving, emotional expression, language capacity, personality, and motivational development (Campbell & Rohrbaugh, 2006; Melchert, 2015; Huffman, 2010; Compas, Hinden, and Gerhardt, 1995).

The adolescent transitions into Piaget's Fourth Stage of Cognitive Development as they move from concrete to abstract thinking and apply their operations to abstract concepts (Piaget,



1965; Huffman, 2010, Crain, 1992). Sensorimotor stage, the first stage refers to the cognitive development that occurs from birth to age 2. The child uses their senses and motor activity to explore the world and develops their schemas. Preoperational stage (age 2 to 7) is the period when the child applies symbolic thinking and advances in their language development. The third stage, referred to as concrete operational, occurs from age 7 to 11. The child is now able to use important thinking skills which have emerged at this stage in terms of concrete operations. Finally, the fourth stage is referred to as the formal operational stage and encompasses ages 11 and older. At this stage, the child who is now an emerging adolescent moves to more sophisticated forms of abstract thinking.

The development of a stable and robust sense of self, hence an identity, is considered to be a central task of adolescence (Erikson, 1968). Identity involves defining who one is, what one values, and the direction one wishes to take in life. During adolescence, individuals can integrate perceptions of self (based on emotions, beliefs, and values), begin to seek a sense of purpose in their lives, and start looking to formulate their adult identity (Gushue, Clarke, Pantzer, & Scanlan, 2006). In adolescence, identity development is in the process of expanding and maturing, a necessary developmental task of this period. This development is necessary for an individual to be able to thrive as an independent learner in a world where the pursuit of postsecondary education is becoming a requirement.

Through the psychosocial task of identity formation, middle adolescents experiment with and begin to establish self in relation to others, school, and the world of work (Erikson, 1968; Schwartz, 2001, 2008; Yeager & Bundick, 2009). Erikson's Theory of Identity Development consists of several stages however stage five is of particular importance for understanding the adolescent identity (Erikson, 1968). Erickson hypothesized that during stage five referred to as

“Identity vs. Role Confusion” (ages 12-18), the adolescent makes an effort to explore and determine who they are in the establishment of their identity in preparation for adulthood. During this stage, a commitment is made to vocational, personal relationships, ethnic groups, principles and career choice, and commitment is considered a core element of identity.

During adolescence, individuals gradually start to explore their identity at a much deeper level. During this period of exploration or what Erickson (1968) referred to as psychosocial moratorium, a shift occurs for the individual, from the previous childhood persona into an integrated and coherent identity with meaning (Soenens and Vansteenkiste, 2011). For identity formation to be successful, individuals need to go through a process of internalization where a commitment is made which begins to define and give shape to the chosen identity. Identity gives direction in life and allows the individual to organize their aspirations purposefully, in an integrated fashion, reflecting personal goals and values. Role confusion reflects a lack of direction and definition of self, restricted exploration in adolescence, and a lack of preparation for the next stages which occur in adulthood (Erikson, 1968).

### **Late Adolescent Development**

During late adolescence, from the age of 19-21, the adolescent is typically fully developed. Cognitively, the adolescent is now able to think ideas through, has increased delayed gratification, is able to self-reflect inner experiences, has an increased concern for the future, and continues to refine moral reasoning (Williams, Holmbeck, & Greenley, 2002; Townsend & Watson, 2004; Campbell & Rohrbaugh, 2006; Melchert, 2015; Huffman, 2010; Meschke, Peter, & Bartholomae, 2012). Some pivotal social-emotional development indicators include a firmer sense of identity, increased emotional stability, increased independence and self-reliance, and the

increased importance of peer relationships. Additionally, there is a pursuit of realistic vocational goals through training or career employment.

Developmental changes impact self-efficacy beliefs, a person's self-appraisal in a specific domain. Adolescents are achieving cognitive maturity, are now better able to interpret and integrate multiple sources of information about their competence, have a more differentiated view of their abilities, and have a healthy relation between performance feedback and competence beliefs (Zimmerman & Cleary, 2006). In late adolescence, there is greater control and more choice in the tasks pursued and tasks avoided (Pajares, & Schunk, 2002). This is particularly important as adolescent begin to consider and develop their vocational capabilities seriously. How much effort and energy an individual expends and their ability to persevere in the face of obstacles can be associated with their level of self-efficacy (Bandura, 2001; 2005; Pajares, 1996; Zimmerman & Cleary, 2006; Lent, Brown, & Hackett, 1994; 2002). Individuals who attribute successes to internal and stable factors experience a stronger sense of self-efficacy. Stronger self-efficacy can lead to feelings of optimism, lower anxiety, higher self-esteem, and resiliency which in turn, enhances a person's sense of well-being, sense of accomplishment, and connection to others (Pajares, & Schunk, 2002), core components to the identity development of the adolescent.

As a young person moves into late adolescence, they must begin to seriously consider their educational and career goals about an occupation and what is required to accomplish these educational and career goals (Bandura, 2001; 2005). Because of competing and interacting demands which tax the adolescent interest, motivation, and management of stressors, their sense of efficacy can be impacted in terms of the adolescents' belief about self and whether to think in a manner that is optimistic and self-enhancing as opposed to pessimistic and debilitating

(Bandura, 2001; 2005). How successfully the adolescent negotiates these demands can have emotional, social, career, and academic implications. Thus, as adolescents complete high school and transition from school-to-school or school-to-work, they must simultaneously manage the myriad of physical and cognitive changes without losing sight of the increasing demands from the environment in order to successfully prepare for transitioning into adulthood (Bandura, 2005; Viner, 2013). How successfully the adolescent negotiates these developmental changes can have emotional, social, career, and academic implications.

### **Career Development Tasks in Adolescence**

As part of the career development process, adolescents need to be prepared to make appropriate educational and career choices for successful school-to-school and school-to-work transition. There are two crucial career development tasks for adolescents. First, adolescents need to understand who they are and how they best fit in the world of work, exploring and synthesizing who they are across multiple contexts and relationships (Jones & Deutsch, 2013) and a crucial precursor to implementing a career plan. Career identity is defined as the integration and summation of ones' strengths, aptitude, and opportunities into an integrated and stable understanding of self and how one fits into the world of work (Turner and Lapan, 2013; Skorikov & Vondracek, 2011; 1998; Erikson, 1968; Super 1990; Gushue, Clarke, Pantzer, & Scanlan, 2006; Lent, et al., 2001). Second, mature career decision-making thoughts and actions are needed in the process of constructing a career plan (Turner & Lapan, 2013). Career decision-making refers to the degree to which an individual feels confident in their ability to successfully engage in tasks associated with making a career choice and the commitment to that choice (Taylor & Betz, 1983; Gushue, Clarke, Pantzer, & Scanlan, 2006). Maturity in career decision-

making is evidenced by the individual making the required decisions related to appropriate academic coursework and postsecondary education (Niles & Harris-Bowlsbey, 2017).

### **Development of Career Identity**

Career identity development occurs within the context of the adolescents' physical, psychosocial, and cognitive development, within the backdrop of societal expectations, and reflects agentic control over one's career development. Career identity asks questions such as "who am I" and "what do I want to do" in relation to vocational or career domains (Blustein, 1994). Without a clear and strong career identity, without the integration of one's identity, an individual will struggle in their career decision-making (Skorikov & Vondracek, 2011; Kroger, 2007; Savickas, 1985; Vondracek & Skorikov, 1997). During the adolescent developmental period, in response to more sophisticated and complex cognitive processes, the adolescent begins shaping how they respond to "who am I" and "what do I want to do" towards an understanding of the meaning of work.

Career identity is shaped by a variety of experiences encountered within one's environment. Learning experiences shapes preferences and behaviors which in turn, cause adolescents to either circumscribe or compromise potential career options aligned with a designated career identity (Gottfredson, 2002; 1996). Multiple formal and informal learning experiences provide the context for exploring careers which in turn, facilitate the development of a career identity (Lent, Brown, and Hackett, 1994; 2000; 2002). Through the learning experiences which increase self-awareness and self-knowledge (Lent, Brown, and Hackett, 1994; 2000; 2002), individuals can begin to know themselves, which in turn allows for a progression in their career identity development (Blustein, 1994). Through the various learning experiences, as individuals develop their interests and abilities, values, preferred activities, differentiation of preferred activities, goal-setting, and career-related decision-making behaviors (Erickson, 1968,

Super, 1990; Holland, 1997; Lent, Brown, and Hackett, 1994; 2000; 2002). Through this process, an individual can identify specific career goals, in response to an unfolding career identity (Turner and Lapan, 2013; Holland, 1997).

Career identity development is a life-long process of constructing, shaping, and reshaping influenced by a variety of contextual factors. Proximal factors within the learning environment such as familial and close relationships influence career identity. Distal factors within the learning environment such as sexism, racism, social barriers, economic factors, or lack of access to the opportunity structure influence career identity. Contextual factors also influence the transformation of academic skills into career-relevant skills in the learning experiences which support academic development funneled through self-efficacy beliefs and outcome expectations (Lent, Brown, & Hackett, 1994; 2002; Lent & Hackett, 1994; Lent, 2013a). Learning experiences and their associated activities are important factors in that adolescent become active agents involved in the process of shaping, crystallizing, and acquiring of academic and career preferences (Lent, 2013a; Gottfredson, 2002; Krumboltz, 1979; 1994; Krumboltz, Mitchell, & Jones, 1996) and either in circumscribing or compromising viable career options (Gottfredson, 2002; 1996).

The development of a strong and stable career identity is associated with career maturity. Career maturity reflects career decision-making behaviors that are sound, logical, and clear (Skorikov & Vondracek, 2011; Gushe, Scanlan, Panter, & Clarke, 2006; Holland, 1997; Turner and Lapan, 2013). Clarity in career decision-making leads to improved ability to overcome contextual factors, manage potential barriers, greater certainty in career choice commitment, increased career interest, career exploration, reality-based career aspirations, successful career planning, and successful work attitudes which in turn, results in enhanced career competencies

and outcomes (Turner and Lapan, 2013; Meijers, Kuijpers, & Gundy, 2013; Shin & Kelly, 2013). Conversely, career indecision is associated with weak career identity, poorer well-being, psychosocial adjustment, and life satisfaction (Turner and Lapan, 2013; Meijers, Kuijpers, & Gundy, 2013; Shin & Kelly, 2013).

Career identity leads to occupational goal setting, self-reflection, a sense of direction, and quality of reasoning about career opportunities and challenges. For example, career identity is a strong predictor of the quality of reasoning about future career challenges and opportunities, while career indecision is correlated with a less established sense of occupational identity. (Savickas, 1985; Vondracek & Skorikow, 1997; Skorikow & Vondracek, 1998; 2011; Kroger, 2007). Career identity development is often considered an overall index of progress toward healthy career development and a fundamental component of adolescent identity formation (Skorikov & Vondracek, 2011). During the adolescent developmental period, developing a career identity becomes a major task (Gushue, Clarke, Pantzer, & Scanlan, 2006; Lent et al., 2001) and one of the most central aspects of the transition into adulthood (Porfeli, Lee, Vondracek, & Weigold, 2011).

### **Development of Career Decision-Making**

Career decision-making is another critical career process in motion for the adolescent (Hsieh and Huang, 2014; Vuolo, Staff, & Mortimer, 2011). Adolescents can now begin to think more abstractly and logically (Piaget, 1965) which allows an individual to start envisioning their career self in the future as well as what steps are needed to implement this career self. Career decision-making reflects the process of exploring and experiencing the world of work, involves understanding self in relation to one's abilities, interests, skills, and values, and combining these to create a meaningful framework (Savickas & Walsh, 1996). This framework leads to the

process of making informed career choices. Informed career choices begin with awareness (Turner & Lapan, 2013).

Career decision-making develops through the interactions between genetic factors, environmental factors, cognitive development, and task approach skills which moves an individual along a particular career path (Krumboltz, 1979). An example of a genetic factor is gender. Examples of environmental factors include cultural and contextual factors, family knowledge, family resources, and the educational system experienced by the individual. It includes both internal factors (lack of confidence, thoughts, self-appraisal, negativity) and external factors (racism, weak economy) in the form of either barriers or supports. Barriers make the career progress difficult whereas supports facilitates career progress by shaping the options provided to a person (Krumboltz, 1979). Cognitive factor refers to intellectual capabilities. Task approach skills refers to performance standards, values, work habits, cognitive processes and the emotional responses a person has developed and brings to each new task encountered.

Two types of learning experiences also influence career decision-making. Instrumental learning experiences occur when an individual takes action on the environment which in turn, produces a consequence (Krumboltz, 1979). This include antecedent, covert, and overt behavioral responses and consequences which in turn becomes part of subsequent learning experiences. For example, if an adolescent is playing soccer, kicks the ball, with enough strength, and is able to score a goal, the adolescent has succeeded in an activity and has a positive feeling as a result. The more the adolescent engages in a variety of activities, the more likely opportunities for learning experiences to shape future behavior.



Associative learning experiences occur when a person either listens to, reads about, or watches others (Krumboltz, 1979). For example, reading about an astronaut might inspire an individual to train to be an astronaut. Watching a police officer helping rescue a pet might inspire an individual to explore a career in law enforcement. Both instrumental and associative learning experiences provide the context for individuals to form a generalization about their interests, abilities, values, and beliefs. Some learning experiences create positive interest causing an individual to gravitate towards a future experience that may result in similar positive emotional and social benefit. Negative learning experience generally causes an individual to avoid certain activities. Over time, preferences develop related to potential career options.

Teachers, influential adults, and institutional forces expose adolescents to a variety of learning experiences in an ongoing and consistent fashion throughout their development. For example, in the school setting, negative learning experiences might cause an individual to fear a certain subject matter such as math, and hence, avoid pursuing occupations that involve math (Krumboltz, Mitchell, & Jones, 1976; Lent, Brown, & Hackett, 1994; 2000; 2002; Gottfredson, 2002). As a result, learning experiences will shape the developing attitudes, beliefs, personality traits, values, skill development and the worldview of children. Learning experiences serve as a guide, influencing adolescent's perception of their capability to decide on a career and academic preferences in the area of interest, choice, and competencies (Krumboltz & Vosvick, 1996, Krumboltz, 2009; Gottfredson, 1996; Lent, Brown, & Hackett, 1994; 2000).

Career decision-making can influence focus, initiation, and persistence of behaviors to include career behaviors which in turn, facilitate the execution of a selected career decision (Bandura, 1986; Lent, Brown, & Hackett, 1994). Career decision-making can influence career identity (Betz & Hackett, 2006; Lent & Brown, 2006) and career aspirations (Mau, 2003; Post-

Kammer & Smith, 1985, Rainey & Borders, 1997). Additionally, many individuals will circumscribe or compromise their vocational aspiration according to the social valuation of occupations and in response to what is viewed as gender appropriate or inappropriate (Gottfredson, 1981, 2002). Furthermore, individuals must also overcome both internal and external barriers in order to navigate career decision-making effectively (Krumboltz, 1979). If students do not have relevant information, have conflicting information, or cannot process the information, career indecision will occur. Career indecision causes significant distress for an individual (Rottinghaus & Hauser, 2013; Whiston & James, 2013).

### **Social Cognitive Career Theory**

Social Cognitive Career Theory (SCCT) is a career development framework emphasizing the complex manner in which people, their behavior, and their environment interact to enhance or constrain agency, to codetermine, in a reciprocal and triadic manner (Lent, Brown, & Hackett, 1994, 2002; Lent & Hackett, 1994; Lent, 2013a). Triadic reciprocity incorporates personal attributes such as internal cognitive and affective states, external environmental factors, and overt behavior all operating as interlocking mechanisms that affect one another bi-directionally (Bandura, 1986). SCCT acknowledges the situation, the domain-specific nature of behavior, and the means by which people exercise personal agency. SCCT assumes that people have the capacity to exercise some degree of agency in their career development. However, people also contend with many factors that may strengthen, weaken, or over-ride their ability to self-direct. It is the interplay among several cognitive-person variables that partly enable the exercise of agency in career development (Lent, Brown, & Hackett, 1994, 2002; Lent & Hackett, 1994; Lent, 2013a). SCCT has its origins from Bandura (1989) Social Learning Theory which highlighted the role of self-referent thinking as an important contributor to human motivation.

SCCT focuses on three socio-cognitive mechanisms that are relevant to career development as each one is assumed to play a role in guiding psychosocial functioning, is a mechanism of personal agency, and important to career entry. Self-efficacy belief is defined as a person's appraisal of their abilities to organize and implement a course of actions necessary to attain the performances they have selected (Lent, Brown, & Hackett, 1994; 2002; Lent & Hackett, 1994; Lent, 2013a). Self-efficacy beliefs are not passive but rather, a dynamic set of beliefs specific to particular performance domains. Self-efficacy beliefs interact complexly with other personal, behavioral, and contextual factors which in turn, influence the activities individual select and their performance. Outcome expectations, the second cognitive person variable, reflect beliefs about the consequences or outcomes of performing particular behaviors, these are imagined consequences of specific courses of actions reflecting the personal beliefs about probable response outcomes (Lent, Brown, & Hackett, 1994, 2002; Lent & Hackett, 1994; Lent, 2013a). Outcome expectations involve weighing the decisional consequences of potential options. Outcome expectations are reciprocally linked to self-efficacy beliefs in that people not only act on the beliefs of what they can do but also act on the beliefs on the likely effect of their act.

Personal goals, the third cognitive person variable plays a vital role in the self-regulation of behavior which in turn, allows a person to exercise agency in career behaviors (Lent, Brown, & Hackett, 1994, 2002; Lent & Hackett, 1994; Lent, 2013a). Personal goals refer to a person's intention to engage in a particular activity or to produce a specific outcome. People are seen as more than just mechanical responders to deterministic forces. People set goals, organize and guide their behavior in response, can sustain the goals over long periods of time, and even without external reinforcement.

Having goals is a way of exercising agency in educational and occupational pursuits. A reciprocal influence exists between self-efficacy and outcome expectations which then influence the selected goals (Lent, Brown, & Hackett, 1994; 2002; Lent & Hackett, 1994; Lent, 2013a). For example, the decision to engage in a particular activity or to affect a particular future outcome requires symbolic representation of the desired future outcome and the ability to self-evaluative one's behavior based on internal standards for performance (Bandura, 1986). Goals create self-motivating action by linking self-satisfaction to goal fulfillment and by enacting behaviors that meet internal self-standards. Goals can exert a strong motivation influence on behavior as long as they are clear, specific, perceived as challenging yet attainable, proximal to behavior, and set in relation to behavior that is susceptible to agentic control.

In addition to cognitive-person variables, SCCT also accounts for the influence of performance, interest, and choice on career development (Lent, Brown, & Hackett, 1994; 2002; Lent & Hackett, 1994; Lent, 2013a). Performance refers to the task accomplishments by an individual, whether educational, work related, or the degree to which a person persists at particular career paths, especially when encountering obstacles. Self-efficacy influences performance attainment and the subsequent behavior based on performance histories that either confirm or revises existing self-efficacy beliefs and outcome expectations.

When considering the development of interests, SCCT acknowledges both the contributing experiential and cognitive factors which shape career interests (Lent, Brown, & Hackett, 1994; 2002; Lent & Hackett, 1994; Lent, 2013a). Young people are directly and vicariously exposed to a variety of activities which create the foundation for future career options. By practicing and modeling different activities with ongoing positive and negative feedback, individuals gradually refine skills, develop preferences, and form self-efficacy beliefs

and outcome expectations. As self-efficacy and outcome expectations regarding interests emerge, this then encourages goals. Personal and contextual influences such as gender, race, ethnicity, physical health, disability, genetic endowment, and socioeconomic conditions interact and therefore, also shape the development of interest. For example, social, cultural, and economic factors shape the opportunities people are exposed to and even if they operate in the background, these conditions are powerfully influential (Lent, Brown, & Hackett, 1994; 2002; Lent & Hackett, 1994; Lent, 2013a).

Career choice is influenced by contextual and learning opportunities. Over time, certain paths become viable and others less appealing. Career choices are continuously revised as people interact with their environment. Through the choice process, people do not only choose a career, but environments also choose people. SCCT acknowledges that career choice may be constrained. Therefore, SCCT takes into account multiple variables such as family influences, influential adults, economic realities, and quality of the educational experience which in turn, can influence educational and career choice (Lent, Brown, & Hackett, 1994; 2002; Lent & Hackett, 1994; Lent, 2013a). Therefore, SCCT helps explain the formation and elaboration of career-relevant interests, the selection of academic and career choice options, and the performance and persistence in educational and occupational pursuits.

### **Self-Efficacy Beliefs**

Self-efficacy beliefs are one of the most critical determinants of thought and actions (Bandura, 1977; 1986), especially in situations that call for complex skills or potentially costly or difficult courses of action. Self-efficacy beliefs reflect a person's self-appraisal in a specific domain (Bandura, 1977; 1986; Farrington, et al., 2012; Nagaoka, et al., 2013; Lent, Brown, & Hackett, 1994) and are pivotal for achieving the social-cognitive benchmarks which support the

development of CCR (Farrington, et al., 2012; Nagaoka, et al., 2013; Høigaard, Kovač, Øverby, & Haugen, 2015). Self-efficacy beliefs impact outcome expectations and therefore, influences personal agency (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001). Self-efficacy beliefs influence choices and courses of action such as approach or avoidance behaviors and is an influential factor guiding academic, and career development (Pajares, 1996; Zimmerman & Cleary, 2006).

According to Bandura (1977; 1986), individuals have a self-system which allows them some degree of control over thoughts, feelings, and actions. Self-systems refer to sources of cognitive and affective structure, the ability to symbolize, learn from others, plan alternative strategies, regulate one's behavior, and engage in self-reflection. Self-systems allow for the evaluation of behavior without losing sight of the interplay between personal and environmental sources of influence. Therefore, the beliefs about oneself are key elements in the exercise of personal agency over thoughts, feelings, and actions. Additionally, self-referent thoughts mediate between knowledge and action. Consequently, it powerfully influences behavior. For example, performance is dependent upon both competent skills and self-efficacy beliefs to be effective. Self-reflection is a form of self-referent thought where people evaluate their thinking and behavior, including perceptions of self-efficacy beliefs. Thus, self-efficacy beliefs are subjective judgments of one's capabilities to organize and execute courses of actions to attain designated goals (Bandura, 1977; 1986).

Self-efficacy beliefs affect behavior in a variety of ways (Bandura, 1977; 1986). Self-efficacy influences choices individuals make. It influences the courses of action that individuals pursue as they engage in things they feel competent and confident in but avoid things that are not. Self-efficacy beliefs can determine how much effort people expend on an activity which

further impact self-efficacy. For example, the more effort you spend on an activity, the more skills you build, and as a result of the continued effort, the more skilled you are in a task, this strengthened skill reinforces and increases one's self-efficacy beliefs. Hence, self-efficacy can influence how long an individual will persevere when confronting obstacles and how resilient they will prove in the face of adverse situations. The higher the self-efficacy beliefs, greater effort, persistence, and resilience is demonstrated. Self-efficacy also influences thought patterns and emotional reactions. For example, individuals with low self-efficacy beliefs may believe a situation is tougher than it is when in turn fosters stress, depression, and a constriction when trying to resolve the situation (Bandura, 1977; 1986).

Self-efficacy entails perceived capabilities to perform an activity rather than relying on personality or personality traits and characteristics (Pajares, 1996; Zimmerman & Cleary, 2006). Self-efficacy entails motivation, thought processes, and affective states and actions. It is dependent on a mastery criterion of performance such as how well an individual may write at a certain level of performance rather than if the individual can write better than a peer. Self-efficacy reacts to the environmental conditions, actual task, context, specific situation, and the type of goal which in turn affects task choice, effort, persistence, and achievement (Schunk & Meece, 2005)

Self-efficacy beliefs are acquired and modified via four experiential sources depending on how the individual attends to and interprets them which in turn contributes to resilience, and the ability to overcome obstacles through perseverant efforts (Lent, Brown, & Hackett, 1994; 2002). Personal performance accomplishments, the most powerful experiential source, reflects the personal attributions made by an individual. Vicarious learning is provided by social models and refers to seeing people similar to oneself succeed by sustained effort and therefore, can raise

the observer's beliefs. Verbal or social persuasion reflects situations when a person is socially encouraged or discouraged regarding the question of whether they have what it takes to succeed. People who are persuaded verbally that they have the skills to succeed at a task are likely to mobilize greater effort and sustain it then if they have self-doubt. Physiological and affective states refer to positive or negative emotions associated with performing a particular task. People rely on their somatic and emotional state to judge their capability. Thus, they interpret stress as a reaction to the poor performance. For example, if a person feels nervous before a presentation, they may judge themselves as incapable of conducting the presentation despite their knowledge. Therefore, self-efficacy beliefs are a strong predictor and determinant of the level of accomplishment, is a key factor influencing human agency and are also prominent for academic motivation (Pajares, 1996; Zimmerman & Cleary, 2006).

### **Academic Self-Efficacy**

Academic self-efficacy refers to an adolescents' level of confidence or belief that she or he can accomplish educational assignments and tasks (Zimmerman & Cleary, 2006). Academic self-efficacy provides students with a sense of agency to motivate their learning through the use of self-regulatory processes such as goal setting, self-monitoring, self-evaluation, and use of strategies. It reflects self-perceptions, associated beliefs, attitudes, and behaviors related to an individual's academic identity, an individual's perception of who they are as a learner, and their intellectual capacities (Farrington et al., 2012; Nagaoka et al., 2013; Bandura, Barbaranelli, Caprara, & Pastorelli, 2001; Pajares, 1996; Pajares & Schunk, 2001a; Pajares & Schunk, 2001b). Academic self-efficacy is related to increased perseverance, resilience, more appropriate academic behaviors, and improved strategies to resist adverse academic influences of lower achieving peers with low self-efficacy beliefs (Zimmerman & Cleary, 2006).



Academic self-efficacy is an important social-cognitive factor related to educational and career outcomes (Farrington, et al., 2012; Zimmerman & Cleary, 2006; Pajares, 1996) and a key factor in an individual's career development process (Lent, Brown, & Hackett, 1994, 2002; Lent & Hackett, 1994; Tang, Pan, Newmeyer, 2008). Learning experiences can either nurture or stifle academic self-efficacy beliefs throughout development in that perceived areas of strength or inadequacy impacts the scope of interest and the effort towards pursuing a particular educational or career goal (Gottfredson, 2002; 1996). This low self-efficacy belief may result in an individual forfeiting the pursuit of a particular academic or career goal (Gottfredson, 2002; 1996).

Cognitive-person variables operate in concert with other important aspects of the person, their environment, and the various learning experiences to help shape academic and career development. For example, individuals will develop personal interests and goals in line with their academic self-efficacy beliefs and outcome expectation which in turn, leads to career interests and goal development (Lent, Brown, & Hackett, 1994; 2002). Thus, in response to experiences in the learning environment, an individual's academic self-efficacy beliefs and outcome expectations influences the motivation of an individual in developing career interests and career goals which reflect high self-appraisal and confidence or influence the forfeit of career interests and goals due to their low self-appraisal and low confidence.

Academic self-efficacy beliefs are related to important academic variables such as academic motivation, goal-directed behavior that is instigated and sustained (Zimmerman & Cleary, 2006 Pajares & Schunk, 2001a; Pajares & Schunk, 2001b). Evidence of academic motivation includes effort (work harder, more engaged), persistence (sustained high effort), and choice of activities. These behaviors are not only hypothesized to influence self-efficacy beliefs

(Bandura, 1977) but confirmed to be consistently associated with academic competence (Bandura, 1997; Pajares, 1996; Schunk, 1981; Schunk & Meece, 2005).

Academic self-efficacy beliefs are also related to academic achievement (Zimmerman & Cleary, 2006; Pajares & Schunk, 2001a; Pajares & Schunk, 2001b). Cognitive potential does not always translate into attained success. For example, IQ is only moderately correlated with achievement, whereby, possessing knowledge and skill does not mean one will use it under difficult conditions (Zimmerman & Cleary, 2006). Self-efficacy beliefs help explain how students are able to achieve under difficult situations because academic self-efficacy beliefs mediate between skill and performance (Pajares, 1996). The acquisition of cognitive skills, modeling effects, attributional feedback, and goal setting influence the development of academic self-efficacy belief and all these, in turn, influence academic performance. The direct effect of self-efficacy on performance was as strong as the effect of ability (Pajares & Kranzler, 1995). Self-efficacy leads to increased coping strategies, which in turn, leads to higher performance.

Self-regulated learners feel a sense of personal agency for effectively and responsibly managing their behavior and actions in the world they live in. Self-regulated learners are independent, proactive and efficient in managing their lives to achieve self-set goals such as entering college or the workforce. Their confidence is seen in a stronger work ethic, more frequent self-evaluation of their progress, increased use of self-regulatory strategies, self-monitoring of work time, and more effective problem-solving. The following self-regulatory skills have been identified as important for success in school: goal setting, self-monitoring, time management, self-evaluation, strategies to enhance various forms of learning (for example, note-taking, reading, recalling, etc.), strategies to manage out of school clubs, sports, etc., and coping

strategies to manage failure without experiencing a loss of self-efficacy (Pajares, 1996; Zimmerman & Cleary, 2006).

In a review of the literature, feeling encouraged is a positive predictor of academic self-efficacy beliefs (Uwah et al., 2008) in that the perceptions of the learning environment positively predicted academic self-efficacy beliefs. Not only does academic self-efficacy directly enhance academic achievement, but it also influences achievement indirectly by reducing depression, increasing pro-social behavior, and increasing academic aspirations (Pajares, 1996; Zimmerman & Cleary, 2006). For example, the influence of anxiety and self-concept on academic performance diminishes when self-efficacy is included in a model (Pajares, 1996; Zimmerman & Cleary, 2006). High academic self-efficacy is linked to higher academic aspirations and hence improved quality of experience (Bassi et al., 2007). Increased academic self-efficacy beliefs can ameliorate sex, racial, and ethnic disparities (Peguero & Shaffer, 2015).

Academic self-efficacy beliefs predict college outcomes related to success (Gore, 2006) and they can mediate school psychological climate (Høigaard, Kovač, Øverby, & Haugen, 2015). There is a strong link between self-efficacy beliefs and college major and career choice (Pajares, 1996) and is associated with higher college and career readiness (College Board, 2012a; ACT, 2007). Academic self-efficacy is a robust predictor of academic achievement (Farrington, et al., 2012; Nagaoka, et al., 2013; Dixson, Worrell, Olszewski-Kubilius, & Subontnick, 2016) even across multiple academic domains such as writing and math (Zimmerman & Cleary, 2006) and impacted academic achievement in chemistry (Boz, et al., 2016).

## Outcome Expectations

Outcome expectations refer to beliefs about the consequences or outcomes of performing particular behaviors and involves the imagined results of a specific set of actions (Lent, Brown, and Hackett, 1994; 2000; 2002). Outcome expectations help individuals decide on which interests, actions, or goals to pursue and can include positive, negative or neutral outcome (Found & Guillen, 2006; Betz & Voyten, 1997). Therefore, self-efficacy and outcome expectations help determine a number of important aspects of human behavior such as activities they choice to pursue and those they choose to avoid which in turn, influence academic and career choice behavior (Bandura, 1977; 1986; Lent, Brown, and Hackett, 1994; 2000; Betz & Voyten, 1997). Outcome expectations do not rise in a social vacuum or operate alone in shaping interests and vocational outcomes (Lent, Brown, & Hackett, 1994; Lent & Hackett, 1994; Hackett and Betz, 1995; Betz and Hackett, 1981; Betz & Voyten, 1997; Lent, 2013a; Lent, 2013b). Outcome expectations function in the context of other aspects of the person and their environment which can play an important role within their career development process to include gender, race/ethnicity, genetic endowments, physical health, disability status, and socioeconomic conditions. Therefore, person, environment, learning, experiential variables contribute to interests and other career outcomes.

People may have positive outcome expectations about pursuing a particular career (there is a lot of prestige to becoming a lawyer) but low-self-efficacy (I have doubt in my skills to pursue this career) or may have high self-efficacy (a highly capable math student) yet have low outcome expectations (students will make fun of me for taking advanced math classes). Bandura (1986) describes three types of outcome expectations: physical outcomes (receiving a tangible expectations such as when an individual expects to receive a trophy for successful performance),

social outcomes (such as when an individual expects to receive peer approval), and self-evaluative outcomes (pride in oneself for mastering a challenge or task). They help influence which activities an individual will pursue and which they might avoid. (Lent, Brown, & Hackett, 1994; 2002; Lent & Hackett, 1994; Lent, 2013b). Over time, these tangible, social, and self-evaluative outcomes inform career behaviors.

Outcome expectations develop from several sources (Found & Guillen, 2006). One source is symbolic thinking which reflects what could happen given a course of action by allowing for imagined possible consequences and in turn, impacts the adjustment of one's behavior accordingly. Vicarious experiences and modeling provide the individual with the opportunity to see what could happen with regard to expected outcomes. Incentives, yet another source, produce a value for the outcome or consequence, either positive or negative. For example, an individual will engage in actions they perceive will produce positive and desirable outcomes and avoid engaging in actions that will produce negative outcomes.

### **Academic Outcome Expectations**

Academic outcome expectations refer to the belief about the consequences of pursuing and practicing academic behaviors. Academic outcome expectations involve beliefs in the consequences of performing academic behaviors, the probability that certain academic behaviors will lead to certain academic outcomes. Outcome expectations develop from a variety of direct and vicarious learning experiences (Lent, Brown, & Hackett, 1994; 2002; Lent & Hackett, 1994; Lent, 2013a). For example, learning experiences vary from adolescent to adolescent based on a variety of contextual factors. As such, regardless of an adolescents' unique abilities, aptitude, or interests, their expectation can create a barrier to fulfilling career goals, and as a result, a student may discontinue the pursuit of a career goal based on perceived academic outcome expectations

without investigating all options. Therefore, the academic outcome expectations which would encourage an individual to pursue a desired career would be negatively impacted by contextual factors resulting in a further lack of agency.

Individuals will develop personal interests and goals in line with their academic self-efficacy beliefs which in turn, influences academic outcome expectation which in turn, lead to exploration, decidedness, career interests and goal development (Lent, Brown, & Hackett, 1994; 2002; Betz & Vuyten, 1997). So in addition to academic self-efficacy beliefs, the expectations of the outcomes influence the development of interests. Interests, in turn, inform students' willingness to engage in the activities required for success in the task. As such, the student may foreclose on goals which do not match their perception of their academic skills or may lose interest to pursue a career. Thus, in response to experiences in the learning environment, an individual's academic self-efficacy beliefs and academic outcome expectations influences the motivation of an individual in developing career interests and career goals, which reflect high self-appraisal and confidence or influence the forfeit of career interests and goals due to their low self-appraisal and low confidence (Lent, Brown, & Hackett, 1994; 2002).

### **Interest Development**

Interest refers to an individual's pattern of likes, dislikes, and indifferences regarding activities (Lent and Brown, 2006). Interest development is shaped by experiential and psychosocial or social-cognitive factors (Lent, Brown, & Hackett, 1994; Lent & Hackett, 1994; 2002; Lent, 2013a). Self-efficacy and outcome expectations are examples of the types of social-cognitive factors which influence the development of interest (Lent, Brown, & Hackett, 1994). According to the SCCT model of Interest Development, self-efficacy beliefs, outcome expectations, and interest are linked. Perception of self-efficacy and outcome expectations

influence the formation of interest. Emergent interest leads to intentions or goals for further activity exposure. Activity exposure increases the likelihood of subsequent task selection and practice. Activity involvement or practice, in turn, produces particular performance attainment such as success and failures resulting in the revision of self-efficacy and outcome expectations estimates. In the course of interest formation, it is likely that the outcome expectations will be partly determined by self-efficacy beliefs. Outcome expectations may affect activity goal directly and indirectly through interest because people develop goals for activity involvement due to interest and rewards they anticipate. Outcome expectations may also contribute directly to activity choice in that they are assumed to exert direct effects on activity selection and practice.

Interest, in turn, promote career choice goals, intentions, plans, aspirations to engage in a particular career direction which increases the likelihood of choice-action such as declaring an academic major (Lent, Brown, & Hackett, 1994; 2000; 2002; Lent & Hackett, 1994; Hackett and Betz, 1995; Betz and Hackett, 1981; Lent, 2013a; Lent, 2013b). Choice action then leads to particular performance domains and achievement experiences which may support or weaken efficacy and outcome expectations and ultimately, persistence in that choice action. Self-efficacy and outcome expectations exert a direct effect on choice goals and on choice actions in that the more valued the perceived outcome, the more likely that people will adopt particular career goals and action courses.

People will aspire to enter occupations or academic fields that are consistent with their primary interest area and that are consistent with their choice goals, provided that they are committed to their goals. Hence, interest affects action through their influence on choice goals (Lent, Brown, & Hackett, 1994; 2000; 2002; Lent & Hackett, 1994; Hackett and Betz, 1995;

Betz and Hackett, 1981; Lent, 2013a). Home, educational, and community environments expose children and adolescents to an array of activities. In turn, children and young people are selectively encouraged to pursue certain activities by adults and are directly and vicariously exposed to a variety of activities which create the foundation for future career options from sources such as the home. By practicing and modeling different activities, with ongoing positive and negative feedback, children and adolescents gradually refine skills, develop personal performance standards, and form self-efficacy beliefs and outcome expectations regarding specific tasks and domains of behavior.

Self-efficacy and outcome expectations regarding particular activities help to mold career interest (Lent, Brown, & Hackett, 1994; 2000; 2002; Lent & Hackett, 1994; Hackett and Betz, 1995; Betz and Hackett, 1981; Lent, 2013a). Interest blossoms and endures when people see themselves as competent and anticipate a positive outcome. As interest emerges, they along with self-efficacy and outcome expectations encourage goals for sustaining involvement with the activity. Goals then increase the likelihood of practice and with continued practice, the likelihood of better performance, which in turn, revises self-efficacy and outcome expectations. The basic process is seen repeating itself continuously before entry to work. SCCT assumes interest will crystalize and solidify, but if changes so occur, it may be due to exposure to new experiences, re-thinking, or an expanding sense of capacities. Therefore, shifts in interest are due largely to changing self-efficacy beliefs and outcome expectations (Lent, Brown, & Hackett, 1994; 2002).

SCCT also takes into account other aspects of people and their environment that affects the acquisition and modification of interests (Lent, Brown, & Hackett, 1994; 2000; 2002; Lent & Hackett, 1994; Hackett and Betz, 1995; Betz and Hackett, 1981; Lent, 2013a). For example,



abilities and values are seen as funneled through self-efficacy and outcome expectations.

Objective abilities such as test scores serve to raise or lower self-efficacy beliefs, which in turn influence interests. Self-efficacy is the intervening link between ability and interests. Career-related values fall within the concept of outcome expectations. Values are preferences for particular work conditions and may serve as a reinforcement such as money for choosing a particular career. In a meta-analytic review of the SCCT model of Interest Development, self-efficacy and outcome expectations were both good predictors of occupational interests (Lent, Brown, & Hackett, 1994). However, the relation of ability to interests was mediated by self-efficacy beliefs (Rottinghaus, Larson, & Borgen, 2003).

### **Academic Interests and College Persistence**

According to SCCT, self-efficacy beliefs and outcome expectations are theorized to influence interest development such as academic interests (Lent, Brown, & Hackett, 1994, 2002; Lent & Hackett, 1994; Lent, 2013a). Academic interest at any point in time is reflective of an individual's concurrent self-efficacy beliefs and outcome expectations and individual's academic interests also are influenced by academic relevant abilities, but this relation is mediated by one's self-efficacy beliefs (Lent, Brown, & Hackett, 1994; 2000; 2002; Lent & Hackett, 1994). Lent & Brown (2006) recommend assessing interest at a level of greater specificity rather than assessing interest through the use of broader, traditional measure of social or investigative interest. Measuring a students' intention for persisting towards completing their college degree is one important measure of academic interest because intention is a powerful predictor of behavior (Thomas, 2014). Tinto's (1993; 1987) model of student retention aimed to determine which aspects of a student's college experience was associated with a smooth academic transition to college. Factors such as participation in multiple college supports such as organizations, work

study, on-campus living, living-learning communities resulted in better social and academic transition to college (Inkelas et al., 2007).

SCCT assumes people are drawn toward activity niches or subspecialties partly on the basis of their particular interest. According to SCCT, self-efficacy beliefs help determine outcome expectations, self-efficacy and outcome expectations are both precursors of interest; interest, self-efficacy, and outcome expectations jointly lead to “choice” goals. Lent, Miller, Smith, Watford, Lim, & Hui (2016) conducted a study using path analysis where their results suggested that persistence intention, self-efficacy, and social support produced a direct path to persistence. Individuals will develop personal interests and goals in line with their academic self-efficacy beliefs and academic outcome expectations which in turn, will lead to career interests and goal development (Lent, Brown, & Hackett, 1994). Thus, in response to experiences in the learning environment, an individual’s academic self-efficacy beliefs and outcome expectations influences the motivation of an individual in developing career interests and career goals which reflect high self-appraisal and confidence or influence the forfeit of career interests and goals due to their low self-appraisal and low confidence.

The role of the school and school structures affect student’s judgment of intellectual self-efficacy and teacher operating within the school system help to create a school culture that vitalizes or demoralizes a student. Student’s belief in their capabilities to master academic activities affects their aspiration, level of interest in academic activities, and their academic accomplishments (Bandura, 2005; Pajares & Schunk, 2001a; 2001b). Additionally, school practices can weaken academic self-efficacy beliefs (Pajares, 1986). Educational institutions are able to provide the type of environmental supports for building student’s academic, emotional, and social needs which can lead to greater persistence behaviors which in turn, supports college

completion (Thomas, 2014; Fish, Gefen, Kaczetow, Winograd, & Futtersak-Goldberg, 2016; Friedman & Mandel, 2009; Tinto, 1975; 1987).

A major policy concern is related to addressing the increased skill level required for most jobs, and a college degree serves as a critical pathway to economic and social mobility (Borgen & Borgen, 2016; Garriott & Nisle, 2017). Slightly over 50% of students of students finish bachelor's degree at their same institution within six years (Reason, 2009) while the estimated attrition rate can reach more than 40% at any given university per year (Oliveira, 2017). The U.S. Department of education (2015) has pushed colleges to achieve higher graduation rates. However, retention and persistence do not refer to the same concept; retention is an organizational phenomenon, persistence is an individual phenomenon (Reason, 2009). Retention is defined as the process that leads students to remain within the study program and institution with which they enroll and earn a higher education degree (Borgen & Borgen, 2016).

Persistence refers to the student's ability stay the course, not give up in the face of obstacles, so that they may achieve their goals. Lack of academic interest resulting in diminished perseverance, resilience, persistence, and motivation can lead to eventual withdrawal from school (Davidson & Beck, 2006; Davidson, Beck, & Milligan, 2009; Bean & Eaton, 2001). For example, student engagement leads to improving persistence behaviors and student satisfaction (Shinde, 2010). Additionally, faculty reporting humanistic orientation, faculty morale, and institutional structures evidenced by priority on teaching and learning, multicultural environment, and active learning significantly impacted student persistence behaviors (Oseguera & Rhee, 2009). Hence, there appears to be a positive relationship between quality of student experience, self-beliefs, and persistence (Reason, 2009; Robbins et al., 2004; Brown et al., 2008). If persistence and retention behaviors correlate positively with quality of student

experience, socialization, social involvement, and sense of belonging (Oliveros, 2017), then understanding the learning environment where the quality of experience occurs is a necessary next step.

### **Social Cognitive Career Theory and the Domain of Academic Readiness**

Academic readiness reflects a student preparation with the necessary academic skills, knowledge, and abilities to meet the rigorous demand of pursuing a postsecondary education without remediation (Porter and Polikoff, 2012; Hooker and Brand, 2009). Academic readiness is an important factor associated with becoming CCR (US Department of Education, 2010; Achieve, 2017; Hooker & Brand, 2009; Farrington et al., 2012; College Board, 2012a; 2012b; ACT, 2015). SCCT (Lent, Brown, & Hackett, 1994) can provide a conceptual explanation for the development of academic readiness because SCCT is relevant to both academic and career behavior. Academic development dovetails career development (Bandura, 1996). Interests and skill development resulting from experiences in the school become translated into career choice behaviors. Therefore, career interest influences academic readiness. SCCT theorizes that engaging in choice behaviors, such as academically related behaviors has the potential to influence subsequent outcome expectations and interests (Lent, Brown, & Hackett, 1994; 2000; 2002). Choice behaviors can include any behavior that helps an individual achieve academic readiness.

### **Academic Readiness and Academic Self-Efficacy**

Academic self-efficacy is a key building block for developing academic readiness (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001; Farrington, et al., 2012; Nagaoka, et al., 2013; Pajares, 1996; Lent, Brown, & Hackett, 1994; 2002; Lent & Hackett, 1994; Lent, 2013a; Artino, 2012; Høigaard, Kovač, Øverby, & Haugen, 2015; Rocchino, Dever, Telesford, &

Fletcher, 2017) which in turn, impacts future career outcomes (Bondy, Peguero, & Johnson, 2017). Academic readiness requires that a student has developed their academic skills, knowledge, and abilities so they are prepared to meet the rigorous demand of pursuing a postsecondary education without remediation (Porter and Polikoff, 2012; Hooker and Brand, 2009). That same individual will have a level of confidence or belief that they can accomplish educational assignments and tasks. An individual with a strong sense of academic self-efficacy will have the type of thoughts which activate behaviors as well as coping strategies which facilitate becoming academically ready. Academic self-efficacy reflects an individual who believes they can achieve academically and therefore, this individual demonstrates appropriate academic behaviors such as effort, persistence, resiliency, and other choice behaviors while developing strategies which resist adverse academic influences (Zimmerman & Cleary, 2006; Pajares, 1996; Pajares & Schunk, 2001a; Pajares & Schunk, 2001b).

### **Academic Readiness and Academic Outcome Expectations**

Academic outcome expectations impact academic readiness through its influence on student's belief regarding the kinds of behaviors that lead to certain outcome (Sharma & Nasa, 2014). Outcome expectations reflect beliefs about the consequences or outcomes of performing particular behaviors and involves imagined results of particular courses of actions (Lent, Brown, and Hackett, 1994; 2000; 2002). Academic self-efficacy beliefs are relevant to understanding academic outcome expectations in that academic self-appraisals help determine the academic outcome one expects, that is, lead to specific academic behavior and motivations that can encourage or discourage effective performance (Bandura, 1977; 1984; Pajares, 1996; Schunk & Meece, 2005). Therefore, the outcomes an individual expects is mostly dependent on their judgment of what they can accomplish. Not only must an individual believe that they can

become academically ready, but an individual must also believe that the outcome of becoming academically ready is usefully enough, that the benefits are sufficient to impact future behavior. The anticipation of success or failure, and of trial and error, reinforce attempting, continuing, or discontinuing activities that eventually lead to goals which in turn, impact career development (Lent, Brown, & Hackett, 1994; 2002). For example, the more confident students are in their belief about their ability to be academically ready and their belief that the outcomes associated with being academically ready are worthwhile, the more likely the students will persist when challenges arise. And in turn, develop and persist in interests that align with those beliefs such as attending college, persisting to earn a diploma, completing a career training program, or pursue a certain career path.

### **Academic Readiness and Persistence**

Academic readiness requires that students have developed their academic skills, knowledge, and abilities so that they are persisting to meet the rigorous demand of pursuing postsecondary education (Porter and Polikoff, 2012; Hooker and Brand, 2009). Some potential indicators of academic readiness lead to persistence (Porter & Polikoff, (2012). One indicator is freshman GPA due to its predictive validity. Additionally, the freshman year is critical for success throughout college and requires only one year of longitudinal tracking to measure. A second indicator is the absence of remedial work. When students are unable to enroll in credit-bearing courses, then it takes a student longer to graduate which in turn, decreases the likelihood of earning a degree. Other potential indicators include completion of the degree, completion of a degree in four years, and cumulative grade point average.

An individual who can persist is demonstrating interest. Intended persistence and academic satisfaction have a reciprocal relationship in that, students who are satisfied with

school tend to persist in school (Navarro, Flores, Lee, & Gonzalez, 2014). Students who persist, feel connected and supported by their academic institutions and are having their academic, social, and emotional needs addressed (Thomas, 2014; Fish, Gefen, Kaczetow, Winograd, & Futtersak-Goldberg, 2016; Friedman & Mandel, 2009; Tinto, 1975; 1987). It takes persistence to complete a college degree. College performance is strongest when students demonstrate persistence behaviors, academic self-confidence, and achievement motivation, which in turn, links to improved retention (Lotkowski, Robbins, & Noeth, 2004). A student who eventually withdraws from school is unable to demonstrate resiliency, motivation and eventually loses persistence (Davdison & Beck, 2006; 2007; Bean & Eaton, 2001). Therefore, persistence, evidenced by resiliency and motivation are linked to academic self-efficacy and academic outcome expectations. Academic self-efficacy and academic outcome expectations are linked to academic readiness (Bandura, 1997, Pajares, 1996; Schunk, 1981; Schunk & Meece, 2005).

### **Learning Environment**

An essential factor in the educational process is the influence of the learning environment in the attainment of education goals (Moos, 1980; Allodi, 2010; Doppelt, & Schunn, 2008). The learning environment has a powerful influence on the physical activities in the classroom, the type of teaching methods used, as well as students' perception on the learning environment which in turn, influences behavior (Greenwood, 2002 Doppelt, & Schunn, 2008). The environment in which the learning occurs is important to the development of self-efficacy beliefs and outcome expectations (Lent, Brown, & Hackett, 1994). The learning environment provides the context for adolescents to acquire academic and cognitive knowledge and skills in preparation to take on more responsibilities as they transition into adulthood. As adolescent develop more sophisticated cognitive and academic skills, they in turn, also develop a more

sophisticated sense of academic self-efficacy. For example, the learning environment is an important motivational factor creating the social setting and psychological landscape which can provide the context for quality learning experiences (Moos, 1980; Bassi, Steca, Delle Fave & Caprara, 2007; Lent, Brown, & Hackett, 1994; 2000; 2002; Krumboltz 1979; 1994; 1996). The learning environment is considered to be an influential socio-cognitive factor influencing self-efficacy beliefs, outcome expectations, and interests.

It is through the innumerable direct and instrumental learning experiences, both positive and negative experiences within the learning environment that an individual develops preferences for activities as they are reinforced (Lent, Brown, & Hackett, 1994; 2000; 2002; Krumboltz 1979; 1994; Krumboltz & Vosvick, 1996). When considering factors which are associated to the adolescents' career development, the literature provides evidence for linking the quality of the learning environment (Moos, 1980; Ramsden & Entwistle, 1981; Entwistle, 2007) facilitated by support from the teacher (Liberante, 2012; Lizzio, Wilson, & Simons, 2002) and the institution (Bliss & Sandiford, 2004) as pivotal for student success as well as providing the types of experiences which develop self-efficacy beliefs, outcome expectations, and interests (Lent, Brown, & Hackett, 1994; 2000; 2002; Krumboltz 1979; 1994; Krumboltz & Vosvick, 1996). The American Youth Policy Forum (Hooker & Brand, 2009) posits that quality of supports provided to students will lead to improved attainment of knowledge, skills, abilities and in return, will lead to positive outcomes at every stage of the student's educational and developmental processes which taken together, will contribute to achieving CCR. Therefore, school structures are key to cultivating academic self-efficacy (Bandura et al., 2001). School structures affect children's judgment of their intellectual self-efficacy and teacher operate within the school's system helping to create a school culture that vitalizes or demoralizes a student. In



turn, the students' belief in their capabilities to master academic activities will affect their aspirations, level of interest in academic activities and their academic accomplishments (Lent, Brown, & Hackett, 1994; 2000; 2002; Krumboltz 1979; 1994; Krumboltz & Vosvick, 1996).

### **Teachers Support**

An essential component of the learning environment is the teacher-student relationship. Teacher support refers to the quality of the teacher-student relationship. The theoretical foundation for the study of teacher support in the classroom learning environment is based on Moos' (1974, 1976, 1979; 1980; 1987; 2000) classification of learning environments. Moos' (1974, 1976, 1979) classification reflects psychosocial qualities of the learning environment conceptualized into three broad dimensions: Relationship, Personal Development, and System Maintenance and Change (Moos, 1974, 1976, 1979). Relational Dimension reflects the nature of involvement, intensity, and quality of the personal relationship and the quality of involvement in their environment. It is described as the extent to which help, interest, trust, and friendship is demonstrated within the teacher-student relationship. Relationship Dimension also includes the quality of the communication within the teacher-student relationship characterized by an atmosphere of free and open expression within the classroom environment. Personal Development dimension reflects opportunities for personal development and self-enhancement found within the classroom environment and focuses on the classroom members' individual characteristics. System Management and System Change dimensions examine the learning quality of the environment such as orderliness, clear expectations, organization, clarity, teacher control, and responsiveness to change. This is related to keeping a functioning classroom, orderly, clear, and in a coherent manner. The implication of these three components is a positive context that facilitates learning in the classroom (Moos; 1974, 1976, 1979; 1980; 1987; 2000).

Student perception of a caring and supportive teacher-student relationship impacts academic outcomes such as improved achievement and behavior (Hughes, et al., 2008; Schunk & Meece, 2005; Liberante, 2012). Caring and supportive interpersonal relationships with teachers related to more positive academic attitudes and beliefs as well as more satisfaction with school (Battistich, Solomon, & Kim, 1995; Klem & Connell, 2004; Shouse, 1996; Solomon, Battistich, Watson, Schaps, & Lewis, 2000; Muller, 2001). In a large-scale study of students at an Australian University, positive perception of the teacher environment directly influenced academic achievement and quality of learning outcomes (Liszzio, Wilson, & Simons, 2002). Perception of the teacher-student relationship exerts a strong influence on academic motivation and interest and disinterest in learning (Moos, 1980; Hughes & Chen, 2011; Hughes & Kwok, 2007). On the other hand, when the teacher-student relationship is characterized by conflict, students are more likely to drop out, be retained, experience peer rejections, or an increase in externalizing behaviors (Ladd et al., 1999; Pianta, Steinberg, & Rollins, 1995; Silver, Measelle, Armstrong, & Essex, 2005; Muller, 2001).

The quality of the teacher-student relationship promotes student morale, interest, and sense of academic self-efficacy (Moos, 1980). Teacher support and academic self-efficacy interacted to increase reading and math measures for low achieving students who are often the students who most need the support (Mercer, Nellis, Martinez, and Kirt, 2011). Additionally, the perception of the learning environment is associated with academic self-efficacy beliefs and attitudes related to science (Dorman, Fisher, & Waldrip, 2006). Higher levels of perceived teacher support were associated with better attitude and higher perception of the math-science abilities (Rice, Barth, Guadagno, Smith, & McCallum, 2013). Of the school belonging components, feeling encouraged to participated positively predicted academic self-efficacy (Uwah, McMahon

Furlow, 2008). Findings highlight the importance of perceptions of teacher support and the structure of those perceptions for children's social and academic outcomes. (Im, Hughes, Kwok, Puckett, & Cerda, 2013; Hallinan, 2008).

Perception of the teacher-student relationship is an indicator of student engagement (Quin, 2017; McClure, Yonezawa, Jones, 2010; Patrick, Ryan, & Kaplan, 2007). Students' perceptions of teacher relationships were associated with three types of academic engagement: cognitive, behavioral, and emotional engagement. (Collie, Martin, Papworth, & Ginns, 2016). Academic success (Klem & Connell, 2004; Kelly & Zhang, 2016) was linked to student engagement and a positive student identity which in turn, links to achievement (Hughes & Chen, 2011; McClure, Yonezawa, & Jones, 2010; Quin, 2017). School engagement and better psychological well-being (Battistich et al., 1995) such as happiness, satisfaction, effective peer conflict resolution (Wang, Wang, Gu, Zhan, Yang, & Barnard, 2014), impacts social and emotional adjustment (Hughes & Chen, 2011).

A student who reports preferring a more supportive environment have more positive attitude, higher academic press, and increased interest for that subject matter (Moos, 1980; Perry, Donohue & Weinstein, 2007; Phillippo & Stone, 2013). A supportive classroom environment is one in which students are engaged with the teacher and each other, where there is a sense of fairness and opportunities to cooperate, when in place, the experience of the learning environment is beneficial to the student (Thomas, 2014; Moos; 1979; 1980; 1987; 2000). Aspects of the supportive teacher-student relationship include valuing a student's idea which is reflected when a teacher makes an effort to convey the value of the student's thought in the classroom, treating students with respect and fairness regarding academic evaluation and monitoring student behavior, setting expectations of success which conveys a perception of adult

support, and making efforts to aid comprehension and interest in topics and assignments students find challenging (Kong, 2008; Kelly & Zhang, 2016). As a result, this evidence suggests that examining the student-teacher relationship continues to be an area of continued research given its importance to the learning environment.

### **Institutional Support**

Another essential component of the learning environment is the student-institution relationship. It has been suggested that students in higher education are affected by the institutional culture and its climate (Papageorgiou et al., 2010a; 2010b; Bliss & Sandiford, 2004). Perceived institutional support refers to the degree to which a person feels supported by their academic institution (Whitmore, 2017; Thomas, 2014). Institutional support includes resources, opportunities, privileges, and services which institutions transmit to students which in turn, contributes to the social and academic development (Stanton-Salazar, 2011). Institutional support provides resources (Gonzales, 2013; Stanton-Salazar, 2011; Schunk & Meece, 2005), keys sources of knowledge (Gonzales, 2013; Stanton-Salazar, 2011; Schunk & Meece, 2005; Roberts, Dunworth, and Boldy, 2018), and corresponding academic and emotional support (Gonzales, 2013; Stanton-Salazar, 2011; Schunk & Meece, 2005) designed to promote effective communication, relational competencies, effective help-seeking behavior so students can navigate effectively and successfully within the institution.

Valverde and Rodriquez (2002) identified key factors to be included when considering determining the presence of institutional support. They include financial support and opportunities, emotional support from numerous sources, mentorship from university faculty and other significant individuals in the profession, technical support from a variety of sources. Bond and her colleagues (2008; Bond; 2014; 2015) adapted this list after consultation with Valverde

and Rodriguez (2002) after an extensive review of the literature. Changes included making advising and mentoring into separate factor as well as adding professional socialization as a factor. The new model of institutional support comprises of financial support (money to pay for tuition), emotional and moral support (relationships with individual faculty, family, and students), mentoring (long-term relationship with a role model usually a cultural match), technical support (access to and assistance with computers, equipment, and skills needed to conduct research), academic advising (guidance for plan of study and specific courses), and professional socialization (activities to enhance skills and abilities as a professional) (Bond, Cason, & Gray, 2015). This model has been applied to study Hispanic nursing student's persistence as well as other programs of higher education and found to be a valid list of factors which constitutes strong institutional support (Bond et al., 2008; Bond, Cason, & Gray, 2015; Bond & Cason, 2014).

Studies indicate that institutions need to provide for the social and emotional needs of their students (Walsh, Larsen, & Parry, 2009; Rong & Preissle, 2009) in that if students have a perception that the school supports them, it may have a powerful influence on their desire to complete college. Schools that make a deliberate effort to support students through their policies may help increase graduations (Thomas, 2014). Tinto's (1975) seminal study demonstrated that commitment from institution to the student might influence his intention to dropout out. Institutional support impacts institutional climate by providing a protective effect resulting from the perception of positive institutional support on students' social-cognitive development (Battistich et al., 1995). Institutional support provides a sense of school belonging, a model of positive school climate appraisals, and evidenced by feelings of encouragement to participate in school as well as the presence of educational aspirations positively predicted academic self-

efficacy (Uwah et al., 2008). Institutional support impacts engagement and success for ethnically diverse students (Bottiani, Bradshaw, & Mendelson, 2016; Cornell, Shukla, & Konold, 2016; Kotok, Ikoma, & Bodovski, 2016). Institutional support also provides students with a network to assist them in overcoming challenges and barriers which impact self-appraisals and psycho-social well-being (Stanton-Salazar, 2011).

Social climate in the learning environment is neglected in the education literature in reference to quality, quantity, and direction of its relationships to Institutional Support (Allodi, 2010). Social climate contributes to the learning environment and is relevant to self-efficacy, well-being, quality of school life, and achievement (Allodi, 2010). Social climate is closely related to the psychosocial environment of educational settings such as a positive school culture created by adults in the school (Allodi, 2010). When students experience greater exposure to clear organized institutions, they perceive their faculty as being more invested in their learning and development, and they report being more academically motivated and engaged in their studies (Roksa, Trolian, Blaich, & Wise 2017). Not all students utilize institutional supports on a college campus, so focusing on perceived institutional support might be more important for student outcome (Whitmore, 2017).

Perceived institutional support is linked to psychological resiliency and well-being of students (Sung & Yang, 2009; Tinto, 1993, Osequera & Rhee, 2009), and self-esteem and psychological disposition (Gottfried, Fleming, and Gottfried, 2001). Perceived social support refers to the existence of or availability of people on whom an individual can rely on, as well as people who let others know that they are cared about, valued, and loved (Whitmore, 2017; Nicolas, 2009) Positive effects of social support include improved coping with the environment and protection against mental health issues (Lee et al., 2014; Merienos et al., 2013).

Perceived institutional support is linked to academic resiliency (Fike and Fike, 2008; Summers, 2003; Turner and Berry, 2000; Inkelas et al., 2007; Shapiro & Levine, 1999). Aspects of institutional support can positively impact academic outcomes such as student persistence. For example, greater persistence is reported when students work collaboratively with faculty (Purdie and Rosser, 2011). Perceived institutional support linked to academic resiliency regarding academic outcomes, student engagement, and positive campus environment (Tinto, 1993; Upcraft et al., 2004).

### **Academic Self-Efficacy, Academic Outcome Expectations, Academic Interest, and the Learning Environment**

Learning experiences within the learning environment teach an individual about their likes, dislikes, what they are good at, and what they can expect from the world. As skills, values, beliefs, personality traits, and decision-making behaviors are acquired and developed, academic and career preference trajectories are put into place which shapes the formation of career identity and career decision-making for an adolescent. Whether learning occurs from the consequences of one's actions, associative learning experiences, instrumental learning experiences or from experiences which result in approach or avoidance responses, the influence of learning experiences which cause individuals to generalize and develop self-beliefs well as beliefs about expected outcomes cannot be denied (Krumboltz, 1979; 1994; Krumboltz & Vosvick, 1996). The result of these complex sequence of learning experiences, innumerable, and over time, is a direct influence on an individual's career development trajectory (Krumboltz, 1979).

According to SCCT, self-efficacy and outcome expectations are important predictors of eventual career interest, choice, and action. There is consistent evidence that successful experiences in the learning environment help to promote self-efficacy and outcome expectations, which in turn, direct vocational choices, interests, goals, and actions. More research is needed to

expand current knowledge of predictors of self-efficacy beliefs and outcome expectations in SCCT and in linking learning experiences to self-efficacy and outcome expectations, in the academic domains. Institutional support contributed to the intention to complete, persistence to finish college (Thomas, 2014), and institutional commitment is reported as a strong predictor of persistence (Beck & Davidson, 2010). Self-efficacy beliefs may be influenced by perceived institutional support (Dyk, Chaffe-Stengel, Sanchez, & Olson-Buchanan, 2007; Yost et al., 2010). Institutional support may be especially important to address diversity in the workforce by evaluating the environment for potential barriers and help to establish benchmarks against which to assess progress towards diversity goals.

Self-efficacy beliefs may be influenced by perceived classroom learning environment (Luzzo et al., 1999; Siegelman & Rider, 2014). The classroom learning environment has a powerful influence on learning and students' perception of the learning environment influence behavior (Greenwood, 2002). Teachers support plays an influential role in impacting student expectations and self-efficacy belief regarding school ability (Moos, 2000). Self-efficacy beliefs, in turn, support learning through its impact on task persistence (Multon, Brown, & Lent, 1991). For example, in the domain of math, teacher support was linked to the nourishment of math self-efficacy beliefs (Olle & Fouad, 2015). Teacher support positively related to career decision-making self-efficacy and career outcome expectations in students (Metheny, McWhirter, & O'Neil, 2008; Gushue & Whitson, 2006), and sense of academic self-efficacy (Moos, 1980).

### **Summary of Chapter Two**

The review of the literature in this chapter provides the basis for examining the role of the learning environment on adolescent academic self-efficacy beliefs, academic outcome expectations, and academic interest. This chapter also presented a literature review on



educational and career choice, college and career readiness, adolescent development, and career development for adolescents. Additionally, the theoretical foundation of the study, and on the construct of Academic Self-Efficacy, Academic Outcome Expectations, Academic Interest, Teacher Support, and Institutional Support were presented. Chapter Three provides the methodology of the study.

## **CHAPTER THREE:**

### **METHOD**

This chapter presents the methodology utilized in this study, including the research questions, and hypotheses, the research design, selection of participants, the participants, the procedures, the instrumentation, and the data analyses.

#### **Research Questions and Hypotheses**

This study examines the differences in Academic Self-Efficacy, Academic Outcome Expectations, Academic Interests, and Academic Learning Environment (Teacher Support and Institutional Support) for undergraduate college students. Social Cognitive Career Theory (SCCT; Lent, Brown, & Hackett, 1994) provided the lens through which to explore the relationship among these constructs, and a modified version of SCCT was the prediction model for the outcome variable of Academic Interest. SCCT and the modified model are grounded in Bandura's (1986; 1977) Social Cognitive Theory. The theoretical basis for the construct of Teacher Support emerged from Moos' (1979) classification of the learning environment. The construct of Institutional Support emerged from Gottfredson's' (2002; 1996) emphasis of the importance of the cultural landscape, a reflection of the learning environment. The following research questions guided this study.

#### **Research Question 1**

Are there differences in Academic Self-Efficacy, Academic Outcome Expectations, Academic Interest, Teacher Support, and Institutional Support among undergraduate college students by academic level?

**Hypothesis 1:** There are differences in Academic Self-Efficacy, Academic Outcome Expectations, Academic Interest, Teacher Support, and Institutional Support among undergraduate college students by academic level.

**Research Question 2**

Does Teacher Support and Institutional Support explain a significant amount of the variance in Academic Self-Efficacy for undergraduate college students?

**Hypothesis 2.** Teacher Support explains a significant amount of the variance in Academic Self-Efficacy for undergraduate college students.

**Research Question 3**

Does Teacher Support and Institutional Support explain a significant amount of the variance in Academic Outcome Expectations for undergraduate college students?

**Hypothesis 3.** Teacher Support and Institutional Support explain a significant amount of the variance in Academic Outcome Expectations for undergraduate college students.

**Research Question 4**

Does Academic Self-Efficacy and Academic Outcome Expectations explain a significant amount of the variance in Academic Interest for undergraduate college students?

**Hypothesis 4.** Academic Self-Efficacy and Academic Outcome Expectations explains a significant amount of the variance in Academic Interest for undergraduate college students.

**Research Question 5**

Does the data fit the modified model of Social Cognitive Career Theory for undergraduate college students?

**Hypothesis 5.** The data fit the modified model of Social Cognitive Career Theory for undergraduate college students.

## **Research Design**

### **Cross-Sectional Design**

In response to the research questions presented in Chapter One, in order to make comparisons about the participants, the research design of this dissertation study was cross-sectional. The data was collected from one specific point in time from a subset of the population, without manipulating the environment (Kazdin, 2003). The purpose of this study was to examine relationships among the social-cognitive factors as conceptualized by the modified SCCT model. Thus, the cross-sectional nature of this study allowed for the simultaneous comparison of the several different variables (Academic Self-Efficacy, Academic Outcome Expectations, Academic Interest, Teacher Support, and Institutional Support), which the literature identified these variables as relevant factors in career development; creating a snapshot of the relationship that existed among these factors. Given that a cross-sectional design is appropriate when assessing relationships among variables as well as group differences in a population (Visser, Krosnick, & Lavrakas; 2000), using this research design was selected to identify correlations and associated features among these variables (Kazdin, 2003).

### **Descriptive Non-Experimental Survey**

The research design of this dissertation is an explanatory non-experimental survey. This study investigated the strength and direction of relationships among the five variables. Because the five variables under investigation were naturally existing, no manipulation of any parts of the environment occurred. Participants were not randomly assigned to groups because all participant possessed varying levels of their perceptions regarding the strength and direction of the variables in this study.

## Selection of Participants

### Participant and Site Selection

This study examined the relationship among Academic Self-Efficacy, Academic Outcome Expectations, Academic Interest, Teacher Support and Institutional Support of college students. Therefore, a sample of undergraduate college students was obtained using a convenience sampling approach (Babbie, 1990). No differences were expected from using a convenience sampling approach for this study as the participants were anticipated to represent a homogeneous sample representing the larger American general population.

**Inclusion and Exclusion Criteria.** The focus of this study was to examine the perceptions regarding five socio-cognitive factors of students at the upper range of the P-20 academic level. Therefore, the inclusion criteria for this study were as follows: full-time undergraduate college student between the age of 18-22 attending the university through their residential program. Participants were excluded if they were not an undergraduate college student, younger than 18, or older than 22. Because individuals ages 18-22 represent the majority of undergraduate college students and because it is estimated that between 30- 40% of undergraduate students do not complete college based on post-graduation rates reported by NCES (2018), knowledge of factors that help support individuals in this age group persist in college through graduation will be useful to inform policy and intervention programs.

**Approach.** Participants were invited to participate via a recruitment letter posted on the psychology department online blackboard page at the site the study was conducted. Students opting to participate in the study followed the link as indicated on the recruitment letter to access the research study using the online survey platform Qualtrics<sup>®</sup>. Once on the site, participants were provided general information about the study followed by information related to the

informed consent, inclusion criteria, potential risks and benefits of the study, anonymity, confidentiality, and compensation. Participants were informed that their participation was voluntary, and they could discontinue at any time. Contact information about the researcher and university IRB was also provided. After the participant read and clicked yes to the informed consent prompt in the general information section, the participants then were directed to complete the demographic questions related to participant's age, ethnicity, gender, educational level (number of credits), GPA, and academic major. After the demographic information was completed, participants had access to the five instruments used for this study. At the end of the study, a participant had the option to submit their email address to be entered in a random drawing of five \$25.00 e-gift cards.

### **Effect Size, Statistical Power, and Sample Size**

In order to address the potential of a Type I error, the standard level of statistical significance, a p-value of .05 as the criterion (Clark-Carter, 1997) was adopted. During the statistical analysis, if the p-value were greater than .05, then the null hypothesis would be rejected. Therefore, the probability of making a Type I error was .05 or 5%, the p-value selected for this study. In order to minimize the potential of making a Type II error, a priori analysis resulted in the following recommendation in order to increase power. An effect size of .50 was selected because it is considered the minimum needed to detect either clinical or practical meaning (Tellez, Garcia, & Corral-Verdugo, 2015; Clark-Carter, 1997). Moreover, a power level of .80 was adopted based on Cohen's (1992a; 1992b) recommendation for studies in which the research hypothesis presents an independent variable as potentially affecting a dependent variable. Under these criteria, a minimum sample of  $N = 64$  was required for each group (freshman, sophomore, juniors, and seniors).

## **Instrumentation**

A survey method (Creswell, 2009) was utilized to collect data on the perceptions of the identified population for the variables chosen for a study. The study consisted of five Likert scale instruments designed to measure Academic Self-Efficacy, Academic Outcome Expectations, Academic Interest, Teacher Support, and Institutional Support. Administration of the surveys was conducted using Qualtrics<sup>®</sup>, an online survey platform. Permission was obtained to use the scales selected for the study from the authors (IRB Approval 3195.040618).

### **Academic Self-efficacy**

The Academic Self-efficacy was measured using the College Academic Self-Efficacy Scale (CASE, Owen & Froman, 1988). The CASE instrument consists of 33 items (Appendix B) designed to measure the perceived level of Academic Self-Efficacy, i.e., the participants' expectations of positive results if performing academic-related behavior. Psychometric properties of the CASE indicated that this scale was appropriate for use with undergraduate participants. Reliability of this scale ranged from 0.90 and 0.92, with a re-test reliability of 0.85 (Martin, Goldwasser, & Harris, 2017; Faramarzi & Khafri, 2017; Fonteyne, Duyck, & De Fruyt, 2017; Owen & Froman, 1988).

### **Academic Outcome Expectations**

The Academic Outcome Expectations was measured using the College Outcome Expectations Questionnaire (COE, Flores, Navarro, & DeWitz, 2008; Ojeda, Flores, & Navarro, 2011; Ojeda, 2009; Robitschek & Flores, 2007). The COE instrument consists of 19 items (Appendix C) designed to measure the perceived level of Academic Outcome Expectations, the participants' perceived outcomes from obtaining a college education. Psychometric properties of the CASE indicated that this scale was appropriate for use with undergraduate participants.

Reliability of this scale in prior studies ranged from .90 to .94 (Robitschek & Flores, 2007; Flores, Navarro, & DeWitz, 2008; Ojeda, Flores, & Navarro, 2011; and Ojeda, 2009).

### **Academic Interest**

The Academic Interest was measured using the College Persistence Questionnaire Version 3, short form (CPQ-V3 SF), (Davidson, Beck, & Milligan, 2009; Beck & Milligan, 2014; Davidson, Beck, & Grisaffe, 2015). The CPQ-V3 SF consists of 32 items (Appendix D) designed to measure student's reaction to the school or program's academic and social environment. The four items from the Institutional Commitment Scale was used in this study. The scores on the Institutional Commitment Scale provides insight on participants who may be at greater risk of withdrawing from college (Davidson et al., 2009). Psychometric properties of the CPQ-V2 indicate that all estimated construct loading was statistically significant at the  $p < .01$ . Evidence of discriminant validity was demonstrated by the correlation between latent variables at  $\phi = .549$ .

### **Teacher Support**

The Teacher Support was measured using the Teacher Support Scale; (TSS, McWhirter, 1996; McWhirter, Rasheed, & Crothers, 2000; Metheny, McWhirter, & O'Neil, 2008). The TSS consists of 27 items (Appendix E) designed to measure students' perceptions of their experience of teacher support. Psychometric properties of the TSS in prior studies have yielded Cronbach's alpha of .96 to .97 and evidence of concurrent validity was obtained with a correlation of  $r = .79$  ( $p < .001$ ) between the TSS and Farmer (1983) scale which also measures teacher support (Metheny, McWhirter, & O'Neil, 2008; McWhirter, Rasheed, & Crothers, 2000; McWhirter, 1996).



## **Institutional Support**

The Institutional Support was measured using the Institutional Support Survey (ISS, Whitmore, 2017). The ISS consists of 10 items (Appendix F) designed to measure students' perceived level of institutional support by targeting the degree to which a student feels supported by their educational institution and the services the institution provides. Psychometric properties of the ISS in one prior study yielded a Cronbach's alpha internal consistency of 0.84 (Whitmore (2017). Additionally, the ISS was reported to have a small to moderate correlation with social desirability ( $r = 0.23, p < .05$ ).

## **Research Procedures**

This study for approval by the Institutional Review Board of Liberty University prior to collecting data. After receiving IRB approval for the study (IRB Approval 3195.040618), the Chairperson of the Department of Psychology was contacted, and the final approval to recruit undergraduate students was obtained. Once approved, the department posted the recruitment information on the psychology department's online blackboard page at the institution where the researcher conducted the study. To encourage students to participate, an incentive drawing of five \$25.00 e-gift cards was included. Students opting to participate in the study followed the link as indicated in the recruitment posting to access the research study using the online survey platform Qualtrics<sup>®</sup>. A four-week access period was provided in order to give sufficient time for data collection. At the end of four weeks, the department deactivated the link and removed the recruitment information from the psychology department's online blackboard page.

## **Survey Completion Protocol**

Students opting to participate in the study followed the link as indicated on the recruitment letter to access the research study using the online survey platform Qualtrics<sup>®</sup>. Once on the site, general information was provided about the study followed by information related to the informed consent, which included information about the study, potential risks for participating, and directions for continuing should they choose to participate in the study. Participants needed to click “yes” on the informed consent box before they could proceed to the demographic information and the instruments. The instructions for taking the instruments included a reminder that there were no “right or wrong” answers to any of the questions and a request to answer all questions as honestly as possible in relation to their current thoughts or feelings.

To ensure the anonymity of participants, no personal information was collected at any time during the survey. Those participants who wanted to be entered in the random drawing to win an e-gift card or receive a summary of the results of this study were provided with a blank line that was dissociated from the data where they could provide their email address. This information was maintained in a secure location.

## **Ethical Considerations**

Appropriate protocols were followed in order to ensure that each participant was protected from potential harm. Sufficient information on the study was provided to obtain their informed consent. Also provided for were considerations for diversity issues in the selection of the scales and security protocols for the protection of data collected and analyzed to be in place (ACA, 2014, Section G). Furthermore, participants were not coerced in any manner to participate in this study nor were they penalized if they declined to participate in this study.

### **Analysis Procedure**

To address the quantitative research questions, the Multivariate Analysis of Variance (MANOVA), Multiple Linear Regression, and Path Analysis was utilized. Data used to answer the research questions were analyzed using SPSS GLM version 24 statistical software program. The program conducts the appropriate analysis which includes preliminary data screening, screening for violations of assumptions, calculate effect size and perform statistical analysis. The accepted probability of Type I error (alpha) was set at .05.

The first research question addressed differences among groups. This question was addressed using MANOVA, with academic level as the independent variable. A one by two factorial MANOVA was used to examine differences by groups.

The second, third, and fourth research question was addressed using the explanatory power of combinations of the independent variables to explain the dependent variables Academic Self-Efficacy, Academic Outcome Expectations, and Academic Interest. Correlation and multiple linear regression were used to examine the explained variance of the dependent variable accounted for by the independent variable.

The fifth research question used path analysis to examine the relationships within the SCCT modified model (Figure 1). Path analysis allowed the researcher to examine the relationships in the model among the variables studied. The analyses used for each research question is presented in Table 1.

Table 1:

*Research Questions and Statistical Analyses*

Research Questions	Independent Variables	Dependent Variables	Statistical Analysis
RQ1: Are there differences in Academic Self-Efficacy, Academic Outcome Expectations, Academic Interest, Teacher Support, and Institutional Support among undergraduate college students by academic level?	Academic Level	Academic Self-Efficacy Academic Outcome Expectations Academic Interest Teacher Support Institutional Support	MANOVA
RQ2: Does Teacher Support and Institutional Support explain a significant amount of the variance in Academic Self-Efficacy for undergraduate college students?	Teacher Support Institutional Support	Academic Self-Efficacy	Multiple Linear Regression
RQ3: Does Teacher Support and Institutional Support explain a significant amount of the variance in Academic Outcome Expectations for undergraduate college students?	Teacher Support Institutional Support	Academic Outcome Expectations	Multiple Linear Regression
RQ4: Does Academic Self-Efficacy and Academic Outcome Expectations explain a significant amount of the variance in Academic Interest for undergraduate college students?	Academic Self-Efficacy Academic Outcome Expectations	Academic Interest	Multiple Linear Regression
RQ5: Does the data fit the modified model of Social Cognitive Career Theory for undergraduate college students?		Academic Self-Efficacy Academic Outcome Expectations Academic Interest Teacher Support Institutional Support	Path Analysis

### **Summary of Chapter Three**

This study explored Teacher Support and Institutional Support in relation to early adolescents' Academic Self-Efficacy, Academic Outcome Expectations, and Academic Interest. Chapter Three provides the methodology for this research, including the research questions and hypotheses, the research design, the participants, the procedures, the instrumentation, and the data analyses. Chapter Four presents the results and findings of the analyses described in Chapter Three.

## **CHAPTER IV:**

### **RESULTS**

This study examined the role of the Teacher Support and Institutional Support on college student's Academic Self-Efficacy, Academic Outcome Expectations, and Academic Interest. Chapter One provided the reader with the rationale for the study, the need, purpose, and significance of the study, the research questions, and the definition of terms. Chapter Two presented a review of the literature on the theoretical foundations of the study, and on Academic Self-efficacy, Academic Outcome Expectations, Academic Interest, Teacher Support, and Institutional Support. Chapter Three provided the research methodology for this study. This chapter will present the results and findings of the analyses described in Chapter Three. This chapter describes the data preparation, and item and scale analyses, followed by a presentation of the results of the analyses used to address the research questions.

#### **Participants**

The survey data were collected from 179 participants during a four-week window. After the data were imported to SPSS, the surveys were examined for missing items, incomplete surveys, and participants who did not meet the criteria for participation. Of the 179 participants, 11 were ineligible because they were not in the targeted age group, one participant was not a full-time student, and nine participants did not complete enough of the surveys. After removing the nine participants, there were 158 usable student surveys.

The number of female participants (79.1%;  $n = 125$ ) was greater than the number of male participants (20.9%,  $n = 33$ ). Most students reported their ethnicity as Caucasian (91.1%;  $n = 144$ ); and the remaining students African American/Black (2.5%;  $n = 4$ ), Hispanic/Latino ( $n = 2$ ), or Other ( $n = 8$ ). The majority of participants were 20 years old (30.4%,  $n = 48$ ) and then 21

years old (29.1%, n = 46), and the rest were 19 years old (19.0%, n = 30), 22 years old (12.7%, n = 20), or 18 years old (8.9%, n = 14). The average participant age was 20.17 years (SD = 1.14).

The academic level of most of the participants were Seniors (48.7%, n = 77) or Juniors (30.4%, n = 48). The other participants were Sophomores (17.1%, n = 27) or Freshmen (3.8%, n = 6). More broadly, Upperclassman (79.1%; n = 125) outnumber Underclassmen (20.9%, n = 33). Over three quarters of the participants reported a GPA of 3.5 or higher (55.7%; n = 88) or 3.0-3.49 (27.2%; n = 43). The remaining students reported GPA's of 2.5-2.99 (11.4%; n = 18), 2.0-2.49 (3.2%; n = 5), or 1.0-1.99 (2.5%; n = 4). The characteristics of all participants are presented in Table 2 through Table 6.

Table 2:

*Participant Age Level*

Grade Level	Frequency	Percent
18 years old	14	8.9
19 years old	30	19.0
20 years old	48	30.4
21 years old	46	29.1
22 years old	20	12.7
Total	158	100.0

Table 3:

*Participant Gender*

Gender	Frequency	Percent
Female	125	79.1
Male	33	20.9
Total	158	100.0

Table 4:

*Participant Race or Ethnicity*

Race / Ethnicity	Frequency	Percent
African-American/Black	4	2.5
Caucasian	144	91.1
Hispanic/Latino	2	1.3
Other	8	5.1
Total	158	100.0

Table 5:

*Academic Level*

Level (Credits Earned)	Frequency	Percent
Freshman (0-23.99 credits)	6	3.8
Sophomore (24.00-47.99 credits)	27	17.1
Junior (48.00-71.99 credits)	48	30.4
Senior (72.00 or more credits)	77	48.7
Total	158	100.0

Table 6:

*Underclassman vs. Upperclassman*

Gender	Frequency	Percent
Underclassman (0 - 47.99 Credits)	33	20.9
Upperclassman (48 - 72+ Credits)	125	79.1
Total	158	100.0

Table 7:

*GPA*

Gender	Frequency	Percent
3.50 - 4.00 GPA	88	55.7
3.00 - 3.49 GPA	43	27.2
2.50 - 2.99 GPA	18	11.4
2.00 - 2.49 GPA	5	3.2
1.00 - 1.99 GPA	4	2.5
Total	158	100.0

### Preparation of Scales

Prior to addressing the research questions, the data was prepared for analysis.

Appropriate items were reverse coded, and then the descriptive statistics, univariate outliers, and univariate normality were determined. After the analyses, missing data were replaced using multiple imputations. IBM SPSS version 24 was used for all analyses.

### Item-Level Analysis

The descriptive statistics (mean, standard deviation, skewness, and kurtosis) for the 93 items were determined; they incorporated the five measures which represent the constructs of the



study and were discussed in Chapter Three. All data fell within the expected range (1 to 5). To determine the presence of univariate outliers, the standard residual was calculated for each item. Examination of standardized Z scores for each item revealed no items values greater than 3.29 or less than -3.29 indicating no univariate outliers (Tabachnick & Fidell, 2007). The item univariate normality was examined for skewness and kurtosis values and through visual inspection of the histogram. There were two statistically significant outliers, but visual inspection of the data suggested it is a result and not an outlier. Skewness and kurtosis for all items were within acceptable limits ( $< .01$ ) (Tabachnick & Fidell, 2007).

### **Missing Data Imputations**

Once it was determined that there were no univariate outliers and that all items were normally distributed, the data were examined for missing values. There were ten data points missing from the data set with no participants missing more than one data point. Consistent with current practice in behavioral science research, the single imputation technique was used to address the ten missing data points and insert the mean standard of non-missing data (Scholomer, Bauman, & Card, 2010).

### **Item Correlations**

The five scales used in this study included the College Academic Self-Efficacy Scale (CASE), College Outcome Expectations Scale (COE), Teacher Support Scale (TSS), Institutional Support Scale (ISS), and the subscale from the College Persistence Questionnaire (CPQ). Before beginning analyses, the psychometric properties of each of the five scales were examined.

**Academic Self-Efficacy.** The Academic Self-Efficacy was measured using the College Academic Self-Efficacy Scale (CASE; Owen & Froman, 1988). The College Academic Self-

Efficacy Scale (see Appendix B1) is a 33-item instrument designed to measure the participants' perceived level of Academic Self-Efficacy, i.e., the participants' expectations of positive results in performing academic-related behavior. In examining item correlations, several of the scale items were not correlated. Decisions were made to remove items based on inconsistency with the theoretical grounding of the Academic Self-Efficacy construct that was examined. For example, any item that was domain specific (ex. math, science, library) was removed. Any item that reflected an external activity or action from the classroom was removed. Finally, any item that reflected teacher relationship covered in the teacher support scale was removed. The remaining 14 items were correlated with each other, with correlations from .403 to .765 (see Appendix G1) and item-total correlations from .424 to .778 (see Appendix H1). Cronbach's alpha for the Academic Self-Efficacy Scale was .902 (see table 8).

**Academic Outcome Expectations.** The Academic Outcome Expectations was measured using the College Outcome Expectations Questionnaire (COE; Flores, Navarro, & DeWitz, 2008; Ojeda, Flores, & Navarro, 2011). The College Outcome Expectations Questionnaire (see Appendix B2) is a 19-item instrument designed to measure participants' perceived outcomes from obtaining a college education. A decision was made to remove one item which was reverse coded as it did not correlate with the other items in the scale. Four other items were removed because they were variations of other items yet did not correlate with other items within the scale. The remaining 14 items were correlated with each other, with correlations from .284 to .737 (see Appendix G2) and item-total correlations from .446 to .752 (see Appendix H2). Cronbach's alpha for the College Outcome Expectations Questionnaire was .932 (see table 8). Specifically, item-correlations, internal consistency, and item-total statistics were examined.

**Academic Interest.** The Academic Interest was measured using the Institutional Commitment Scale from the College Persistence Questionnaire Version 3, Short Form (CPQ) (Davidson, Beck, & Milligan, 2009). The Institutional Commitment Scale consists of 4-items (see Appendix B3) and is designed to measure students at greater risk of withdrawing from college. The four items were correlated with each other, with correlations from .234 to .616 (see Appendix G3) and item-total correlations from .453 to .676 (See Appendix H3). Cronbach's alpha for the Institutional Support Scale was .711 (Table 8).

**Teacher Support.** The Teacher Support was measured using the using the Teacher Support Scale; (TSS; McWhirter, 1996; McWhirter, Rasheed, & Crothers, 2000; Metheny, McWhirter, & O'Neil, 2008). The Teacher Support Scale (see Appendix B4) is a 27-item instrument designed to measure perceived Teacher Support. The Teacher Support Scale was originally designed for use with high school students. In adapting the questionnaire for a college student population, one item was not relevant to an undergraduate population. The remaining 26 items were correlated with each other, with correlations from .210 to .688 (see Appendix G4) and item-total correlations from .459 to .805 (see Appendix H4). Cronbach's alpha for the Teacher Support Scale was .963 (see table 8).

**Institutional Support.** The Institutional Support was measured using the Institutional Support Scale (ISS; Whitmore, 2017). The Institutional Support Scale (see Appendix B5) is a 10-item instrument designed to measure perceived Institutional Support by targeting the degree to which a student feels supported by their educational institution and the services the institution provides. For the purposes of the SCCT model, two items were removed from analysis because they described departments that were not part of the institutional support construct that was examined. The remaining eight items correlated with each other, with correlations from .256 to

.670 (see Appendix G5) and item-total correlations from .518 to .664 (see Appendix H5).

Cronbach's alpha for the Institutional Support Scale was .865 (see table 8).

Table 8: *Reliability Statistics for Study Scales*

Scale	Cronbach's Alpha	No. of Items
CASES	.90	14
COEQ	.93	14
AIS	.71	4
TSS	.96	26
ISS	.87	8

Note. CASES = College Academic Self-Efficacy Scale, COEQ = College Outcome Expectations Questionnaire, AIS = Academic Interest Scale (Institutional Commitment Scale); TSS = Teacher Support Scale, ISS = Institutional Support Scale

**Summary.** Examination of the Pearson product-moment, item-total correlations, and reliability statistics for the College Academic Self-Efficacy Scale, College Outcome Expectations Scale, College Persistence Questionnaire, Teacher Support Scale, and from the Institutional Support Scale indicated that the items for each scale demonstrated good internal consistency. Specifically, there were statistically significant correlations among the items within each scale. The item-total correlations indicated adequate internal consistency. Cronbach's alpha for the scale ranged from .71 to .96. Scale items were reduced from 93 items to 66 items for the five scales of this study.

### **Factor Analyses**

Factor analysis was conducted to examine the factor loading of the scale items and to confirm the validity of the scales. Because so much of behavioral science research results in correlations among scales, the Maximum-Likelihood extraction with Direct Oblimin rotation was used for all factor analyses (Tabachnick & Fidell, 2007). To determine the number of factors to retain, the results were evaluated against the following criteria: (a) Total score variance; (b) Number and strength of factor loadings; (c) Internal consistency of resultant factors; and (d) Theoretical considerations and interpretability. Those items with low factor loading (<.40) or

low item-total correlations (Garcon, 2011a; 2011b) were assessed for removal. Once the number of factors to extract and the items to retain were determined, the internal consistency of the identified factors was also ascertained. The total variance and factor matrices, pattern matrices, and scree plot for the study scale are presented in Appendix I through Appendix M.

**Academic Self-Efficacy.** Factor analysis was conducted using Maximum-Likelihood extraction with Direct Oblimin rotation on the 14-items in the College Self-Efficacy Scale. Factor analysis extracted one factor (see Appendix I and Appendix J, Table 1). All items had acceptable factor loading (.439 to .852). Items demonstrated good internal consistency.

**Academic Outcome Expectations.** Factor analysis was conducted using Maximum-Likelihood extraction with Direct Oblimin rotation on the 14-items in the Academic Outcome Expectations Scale. Factor analysis extracted one factor (see Appendix I and Appendix J, Table 2). All items had acceptable factor loading (.518 to .781). Items demonstrated good internal consistency.

**Academic Interest.** Factor analysis was conducted using Maximum-Likelihood extraction with Direct Oblimin rotation on the 4-items Institutional Commitment Scale from the College Persistence Questionnaire. All items loaded onto one factor (see Appendix I and Appendix J, Table 3). Items demonstrated good internal consistency. All items had factor loading (.408 to .862).

**Teacher Support.** Factor was conducted analysis using Maximum-Likelihood extraction with Direct Oblimin rotation on the 26-items Teacher Support Scale. All items loaded onto one factor (see Appendix I and Appendix J, Table 4). Items demonstrated good internal consistency. All items had factor loading (.518 to .849).

**Institutional Support.** Factor analysis was conducted using Maximum-Likelihood extraction with Direct Oblimin rotation on the 8-items Institutional Support Scale. All items loaded onto one factor (see Appendix I and Appendix J, Table 5). Items demonstrated good internal consistency. All items had factor loading (.507 to .721).

**Scale Correlations.** The Pearson product moment correlations among the scales was computed to examine the relationship among the study scales. The results indicated correlations were statistically significant ( $p < .05$ ). Correlations among the scales ranged from .16 to .50 (see table 9). Descriptive statistics for the standardized sum of each study scale suggest that there is sufficient variability to individual scores of all scales to detect an effect (see Table 9).

Table 9:

*Descriptive Statistics and Correlations of Scale Sum Totals of Study Scales*

Measure	M	SD	1	2	3	4	5
1. CASES	357.83	63.40	—				
2. COEQ	415.73	52.78	.36	—			
3. AIS	433.39	73.87	.16	.32	—		
4. TSS	401.06	51.77	.38	.39	.28	—	
5. ISS	395.81	53.63	.21	.36	.31	.50	—

Note. All correlations are statistically significant,  $p < .05$  (2-tailed). CASE = Academic Self-Efficacy, COE = College Outcome Expectations, TSS = Teacher Support, ISS = Institutional Support, AIS= Academic Interest

### Results of Analyses by Research Question

This section deals with the results of the analyses by the research question. The scales in this study for analyses include the College Academic Self-Efficacy Scale (CASE), College Outcome Expectations Scale (COE), Teacher Support Scale (TSS), Institutional Support Scale (ISS), and the College Persistence Scale (CPQ). IBM SPSS version 24 was used for all analyses.

#### Research Question 1

The first research question asks: Are there differences in Academic Self-Efficacy, Academic Outcome Expectations, Academic Interest, Teacher Support, and Institutional Support

among undergraduate college students by academic level? There was an uneven number of participants by academic level, so two subgroups were created, underclassman (N=33) and upperclassman (N=125) for the purposes of analysis. The differences in Academic Self-Efficacy, Academic Outcome Expectations, Academic Interest, Teacher Support, and Institutional Support for underclassman and upperclassman were examined using MANOVA.

Prior to conducting the analyses to answer the first research question, the five dependent variables of interest in this study (Academic Self-Efficacy, Academic Outcome Expectations, Academic Interest, Teacher Support, and Institutional Support) were examined for their compliance with the assumptions underlying multivariate analyses of variance. All variables were examined separately for the two groups used to answer the first research question. Groups for testing the assumptions were as follows: underclassman and upperclassman. Univariate outliers within each group were examined. Descriptive statistics for the summed totals for the five dependent variables were run using SPSS 24. The statistical program saved standardized scores as new variables for each variable. To detect univariate outliers, the z-scores for each score in the five variables (Tabachnick & Fidell, 2007) was examined, and there were no outliers.

### **Multivariate Analysis of Variance**

A multivariate analysis of variance (MANOVA) was used to determine if there were differences between the two academic levels (Underclassman and Upperclassman) in participants reported perceptions of the following dependent variables: Academic Self-Efficacy, Academic Outcome Expectations, and Academic Interest.

**Academic Level.** Examination of the tests of between-subject effects indicated that there was a significant difference in Academic Interest by academic level (see Table 10). Post hoc

analyses for the main effect of academic level consisted of conducting pairwise comparisons using Turkey HSD (see Table 11). Significant differences in Academic Interest were found between the upper and underclassmen academic level,  $P = .01$ . Table 12 contains the means and standard deviations of the dependent variables by academic level.

Table 10:

*Tests of Between-Subjects Effects (Academic Level)*

Source	Dependent Variable	<i>df</i>	<i>Error df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Academic Level	ASE	1	154	2,58	0.03	.86
	AOE	1	154	10.24	0.19	.67
	TS	1	154	51.48	0.28	.60
	IS	1	154	1.88	0.06	.80
	AI	1	154	41.27	4.38	.04*

Note. ASE = Academic Self-Efficacy, AOE = Academic Outcome Expectations, TS = Teacher Support, IS = Institutional Support, AI= Academic Interest

Table 11:

*Multivariate Test by Academic Level*

	$\lambda$ Value	<i>F</i>	<i>df</i>	<i>Error df</i>	<i>p</i>	$\eta^2$
Level	.88	2.34 <sup>a</sup>	12	434	.01	.12

Table 12:

*Descriptive Statistics (Academic Level)*

Dependent Variable	Upperclassmen (n=122)		Underclassmen (n=33)		Total (n=155)	
	M	SD	M	SD	M	SD
ASE	50.16	8.55	49.85	10.14	50.10	8.88
AOE	58.07	7.46	58.70	7.21	58.20	7.39
AI	17.84	2.63	16.58	4.34	17.34	2.95
TS	104.57	13.89	103.17	11.87	104.27	13.46
IS	38.55	5.32	38.82	5.46	31.66	4.29

## Summary of Results

There was one statistically significant result for the Multivariate Analyses of Variance. When compared to underclassmen, upperclassmen reported a statistically significant higher level of Academic Interest.



## Research Question 2

The second research question asks: Does Teacher Support and Institutional Support explain a significant amount of the variance in Academic Self-Efficacy for undergraduate college students? Table 13 summarizes the descriptive statistics and analysis results. The mean score ( $M = 50.09$ ,  $SD = 8.87$ ) suggests the mean perceived level of Academic Self-Efficacy as reported by participants. A Multiple Linear Regression was conducted to examine the relationship between Academic Self-Efficacy based on Teacher Support and Institutional Support. The predictors included Teacher Support and Institutional Support. The multiple regression model with the two predictors produced adjusted  $R^2 = .129$ ,  $F(12.413)$ ,  $p < .001$ . The overall model was significant, accounting for 12.9% of the variance and consistent with the theoretical foundation of this study. As can be seen in Table 14, the results indicated that Teacher Support was a significant predictor of Academic Self-Efficacy. The results indicated that Institutional Support was not a significant predictor of Academic Self-Efficacy.

Table 13:

### *Summary for Combined Independent Variables Regressed on Academic Self-Efficacy*

Model	<i>R</i>	<i>R</i> <sup>2</sup>	<i>Adj. R</i> <sup>2</sup>	<i>SE Est.</i>	$\Delta R^2$	$\Delta F$	df1	df2	Sig. $\Delta F$
1	.375 <sup>a</sup>	.14	.129	8.283	.14	12.413	2	152	.000 <sup>b</sup>

a. Independent Variables: (Constant), Teacher Support, Institutional Support

b. Dependent Variable: Academic Self-Efficacy

Table 14:

### *Coefficients of Regression Equation for Combined Independent Variables*

Model	<i>B</i>	<i>SE B</i>	<i>B</i>	<i>t</i>	<i>p</i>
1 (Constant)	24.072	5.85		4.115	.000
TS	.244	.057	.370	4.305	.000
IS	.014	.143	.009	.100	.921

a. Dependent Variable: Academic Self-Efficacy

## Summary

Results partially supported the hypothesis for the second research question. Teacher Support explained a significant amount of variance in Academic Self-Efficacy. Therefore, the Teacher Support to Academic Self-Efficacy path coefficient is statistically significant. Institutional Support did not add anything beyond Teacher Support to explain Academic Self-Efficacy. Teacher Support and Institutional Support explained 12.9% of the variance in Academic Self-Efficacy.

### Research Question 3

The third research question asks: Does Teacher Support and Institutional Support explain a significant amount of the variance in Academic Outcome Expectations for undergraduate college students? A Multiple Linear Regression was conducted to examine the relationship between Academic Outcome Expectations based on Teacher Support and Institutional Support. Table 15 summarizes the descriptive statistics and analysis results. The mean score ( $M = 58.20$ ,  $SD = 7.38$ ) suggests the mean perceived level of Academic Outcome Expectations as reported by participants. The predictors included Teacher Support and Institutional Support. The multiple regression model with the two predictors produced adjusted  $R^2 = .171$ ,  $F(16.858)$ ,  $p < .001$ . The overall model was significant accounting for 17.1% of the variance. As can be seen in Table 16, the results indicated that Teacher Support was a significant predictor of Academic Outcome Expectations. The results indicated that Institutional Support was a significant predictor of Academic Outcome Expectations. These results were consistent with the theoretical foundation of this study, Social Cognitive Career Theory (SCCT, Lent, Brown, & Hackett, 1994) and strong empirical support from previous work that Teacher Support (see chapter two) and Institutional Support (see chapter two) are predictors of Academic Outcome Expectations.

Table 15:

*Summary for Combined Independent Variables Regressed on Academic Outcome Expectations*

Model	<i>R</i>	<i>R</i> <sup>2</sup>	<i>Adj. R</i> <sup>2</sup>	<i>SE Est.</i>	$\Delta R^2$	$\Delta F$	df1	df2	Sig. $\Delta F$
1	.426 <sup>a</sup>	.182	.171	6.729	.426	16.858	2	152	.000 <sup>b</sup>

a. Independent Variables: (Constant), Teacher Support, Institutional Support  
b. Dependent Variable: Academic Outcome Expectations

Table 16:

*Coefficients of Regression Equation for Combined Independent Variables*

Model		<i>B</i>	<i>SE B</i>	<i>B</i>	<i>t</i>	<i>p</i>
1	(Constant)	30.826	4.753		6.486	.000
	TS	.161	.046	.293	3.488	.001
	IS	.275	.116	.198	2.361	.019

a. Dependent Variable: Academic Outcome Expectations

### Summary

The hypothesis for the third research question was fully supported. Teacher Support explained a significant amount of variance in Academic Outcome Expectations, therefore, the Teacher Support to Academic Outcome Expectations path coefficient is statistically significant. Institutional Support explained a significant amount of variance in Academic Outcome Expectations, therefore, the Institutional Support to Academic Outcome Expectations path coefficient is statistically significant. Teacher Support and Institutional Support explained 17.1% of the variance in Academic Outcome Expectations.

### Research Question 4

The fourth research question asks the question: Does Academic Self-Efficacy and Academic Outcome Expectations explain a significant amount of the variance in Academic Interest for undergraduate college students? A Multiple Linear Regression was conducted to examine the relationship between Academic Interest based on Academic Self-Efficacy and Academic Outcome Expectations. Table 17 summarizes the descriptive statistics and analysis

results. The mean score ( $M = 17.56$ ,  $SD = 3.10$ ) suggests the mean perceived level of Academic Interest as reported by participants.

The predictors included Academic Self-Efficacy and Academic Outcome Expectations. The multiple regression model with the two predictors adjusted produced  $R^2 = .100$ ,  $F(9.509)$ ,  $p < .001$ . The overall model was significant accounting for 10% of the variance. As can be seen in Table 18, the results indicated that Academic Self-Efficacy was not a significant predictor of Academic Interest. However, Academic Outcome Expectations was a significant predictor of Academic Interest. These findings are not consistent with the theoretical foundation of this study, Social Cognitive Career Theory (SCCT, Lent, Brown, & Hackett, 1994) and strong empirical support from previous work (see chapter two) that both Academic Self-Efficacy and Academic Outcome Expectations can predict Academic Interest.

Table 17:

*Summary for Combined Independent Variables Regressed on Academic Self-Efficacy*

Model	<i>R</i>	<i>R</i> <sup>2</sup>	<i>Adj. R</i> <sup>2</sup>	<i>SE Est.</i>	$\Delta R^2$	$\Delta F$	df1	df2	Sig. $\Delta F$
1	.333 <sup>a</sup>	.111	.100	2.941	.333	9.509	2	152	.000 <sup>b</sup>

a. Independent Variables: (Constant), Academic Self-Efficacy, Academic Outcome Expectations

b. Dependent Variable: Academic Interest

Table 18:

*Coefficients of Regression Equation for Combined Independent Variables*

Model	<i>B</i>	<i>SE B</i>	<i>B</i>	<i>t</i>	<i>p</i>
1 (Constant)	9.006	2.015		4.469	.000
ASE	.021	.029	.061	.749	.455
AOE	.129	.034	.307	3.748	.000

a. Dependent Variable: Academic Interest

## Summary

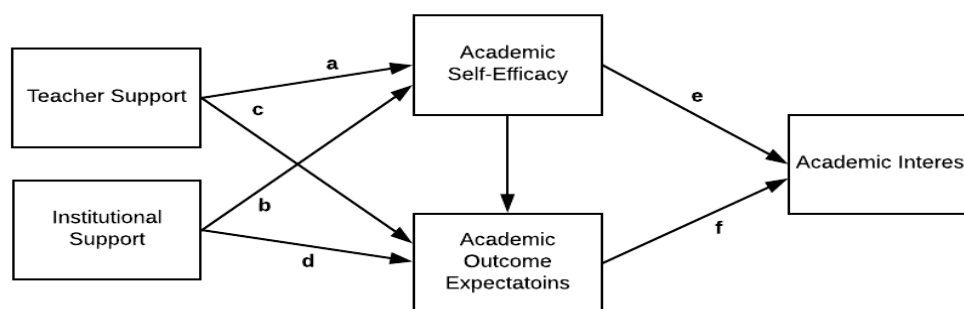
Results partially supported the hypothesis for the fourth research question. Academic Self-Efficacy did not explain a significant amount of variance in Academic Interest therefore, the Academic Self-Efficacy to Academic Interest path coefficient is not statistically significant.

Academic Outcome Expectations explained a significant amount of variance in Academic Interest, therefore, the Academic Outcome Expectations to Academic Interest path coefficient is statistically significant. Academic Self-Efficacy and Academic Outcome Expectations together explained 10% of the variance in Academic Interest.

### Research Question 5

The fifth research question asks the question: Does the data fit the modified model of Social Cognitive Career Theory for undergraduate college students? To answer the question, linear regression was used to calculate the path coefficients in the modified SCCT model below.

**Modified Social Cognitive Career Theory Model**



*Figure 1: Modified Social Cognitive Career Theory Model*  
(Adapted from Lent, Brown, & Hackett, 1994)

### Path Analysis

To conduct path analysis, a linear regression analysis was run for each endogenous variable using the following endogenous variables in the model: Academic Self-Efficacy (ASE), Academic Outcome Expectations (AOE), Teacher Support (TS), Institutional Support (IS), and Academic Interest (AI). The standard coefficients of the regression analysis were used for the path coefficients in the model. To determine the path coefficients of the model, three linear regression analyses were run with the endogenous variable as the dependent variable, and the

variables that had a direct effect on the dependent variable as the independent variable(s) as follows:

1. Academic Interest = e (ASE) + f (AOE)
2. Academic Self-Efficacy = a (TS) + b (IS)
3. Academic Outcome Expectations = c (TS) + d (IS)

### **Path Analysis Calculations**

Multiple linear regression was conducted using Academic Self-Efficacy and Academic Outcome Expectations as the independent variables and Academic Interest as the dependent variable (see Table 19). The results indicated the following regression equation: Academic Interest = .06 (ASE) + .31 (AOE). The path coefficient was statistically significant for AOE. The path coefficient was not statistically significant for ASE.

Multiple regression was conducted using Teacher Support and Institutional Support as the independent variable and Academic Self-Efficacy as the dependent variable (see Table 19). The results indicated the following regression equation: Academic Self-Efficacy = .37 (TS) + .009 (IS). The path coefficient was statistically significant for TS. The path coefficient was not statistically significant for IS.

Multiple regression was conducted using Teacher Support, Institutional Support as the independent variable and Academic Outcome Expectations as the dependent variable (Table 19). The results indicated the following regression equation: Academic Outcome Expectations = .29 (TS) + .20 (IS). The path coefficients were statistically significant for both TS and IS.

Table 19:

*Coefficients of Regression Equation for Full Model*

Dependent Variable			<i>B</i>	<i>t</i>	<i>p</i>
1	ASE	(Constant)		4.115	.000
		TS	.370	4.305	.000
		IS	.009	.100	.921
1	AOE	(Constant)		6.486	.000
		TS	.293	3.488	.001
		IS	.198	2.361	.019
1	AI	(Constant)		4.469	.000
		ASE	.10	.749	.455
		AOE	.48	3.748	.000
1	ASE	(Constant)			.000
		AOE	.356		.000

The full model, with all path coefficients entered, is presented in Figure 2. The regression equation above was used to determine the path coefficients of the model.

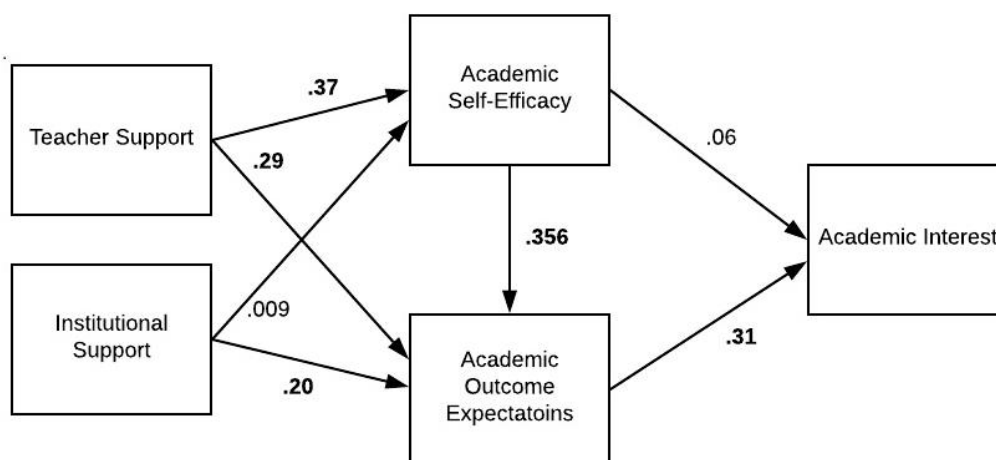


Figure 2: Revised Modified Social Cognitive Career Theory Model Path Coefficients.

### Calculation of Total Effects

Once all the path coefficients were entered into the model, the total effect for those independent variables that had an indirect effect on Academic Interest was calculated. The path coefficient was used to obtain the direct effect of TS and IS on ASE and AOE and of ASE and

AOE on AI. The following are path coefficients used for the calculations of total effect: (a) TS to ASE = .37\*; (b) IS to ASE = .009; (c) TS to AOE = .29\*; (d) IS to AOE = .20\*; (e) ASE to AI = .06; (f) AOE to AI = .31\*

To determine the total effects of the mediator variables, Academic Self-Efficacy, Teacher Support, and Institutional Support on Academic Interest, a correlation analysis was first conducted. The results are presented in Table 20.

Table 20:

*Correlations of Scale Sum Totals of Study Scales*

Measure	1	2	3	4	5
1. ASE	—				
2. AOE	.356**	—			
3. TS	.375**	.389**	—		
4. IS	.189*	.341**	.486**	—	
5. AI	.171*	.329**	.307**	.315**	—

\*\*Correlations are statistically significant,  $p < .01$  (2-tailed).

\*Correlations are statistically significant,  $p < .05$  (2-tailed).

**Academic Self-Efficacy.** Academic Self-Efficacy did not have a direct effect on Academic Interest. The path from Academic Self-Efficacy to Academic Interest was not statistically significant so it did not contribute to the total correlation between Academic Self-Efficacy and Academic Interest ( $r = [.17][.06]$ ). There was an indirect effect by Academic Self-Efficacy on Academic Interest through Academic Outcome Expectations ( $r = [.36][.31] = .112$ ). The total indirect effect of Academic Self-Efficacy on Academic Interest was .112. Academic Self-Efficacy contributed .112 of the total correlation between Academic Self-Efficacy and Academic Interest.

**Teacher Support.** Teacher Support had an indirect effect on Academic Interest. The indirect effect of Teacher Support on Academic Interest through Academic Self-Efficacy and then Academic Outcome Expectations ( $r = [.37][.356][.31] = .041$ ) and through Academic



Outcome Expectations ( $r = [.29][.31] = .090$ ) was .09. While there was a statistically significant path from Teacher Support to Academic Self-Efficacy, the path from Academic Self-Efficacy to Academic Interest was not statistically significant. The total indirect effect of Teacher Support for Academic Interest was .131. Teacher Support contributed .131 of the total correlation between Teacher Support and Academic Interest ( $r = .301$ ).

**Institutional Support.** Institutional Support had an indirect effect on Academic Interest. The indirect effect of Institutional Support on Academic Interest through Academic Outcome Expectations ( $r = [.20][.31]$ ) was .062. The path from Institutional Support to Academic Self-Efficacy was not statistically significant. Therefore, the total indirect effect of Institutional Support through Academic Outcome Expectations contributed .062 of the total correlation between Institutional Support and Academic Interest ( $r = .315$ ).

### **Model Adequacy**

Multiple linear regression analysis was run to determine the model adequacy of the modified SCCT model to answer the question: Did the direct effect paths hypothesized in the modified SCCT model explain a statistically significant portion of the variance observed in the endogenous variables: Academic Interest, Academic Self-Efficacy, Academic Outcome Expectations? For each endogenous or dependent variable, the amount of observed variance explained by the model's hypothesized independent variables was determined. The Analysis of Variance  $F$  statistic was examined to determine significance.

In the modified SCCT model, Academic Self-Efficacy and Academic Outcome Expectations accounted for 10% of the variance observed in Academic Interest (see Table 21). Using Cohen's (1988) suggested guidelines, this equates to a small effect size ( $R^2 = .10$ ). The corresponding  $F$ -statistics was significant  $F(2, 152) = 9.51, p < .001$ , indicating that the

independent variables in the modified SCCT model, Academic Self Efficacy and Academic Outcome Expectations explained a statistically significant amount of variance observed in Academic Interest. However, this small effect size reflects the fact the path coefficient between Academic Self Efficacy and Academic Interest was not statistically significant.

In the modified SCCT model, Teacher Support and Institutional Support accounted for 12.9% of the variance observed in Academic Self-Efficacy (see Table 21). Using Cohen's (1988) suggested guidelines, this equates to a small effect size ( $R^2 = .13$ ). The corresponding F-statistics was significant  $F(2, 152) = 12.41, p < .001$ , indicating that the independent variables in the modified SCCT model, Teacher Support and Institutional Support explained a statistically significant amount of variance observed in Academic Self-Efficacy. However, this small effect size reflects the fact that path coefficients between Institutional Support and Academic Self-Efficacy were not statistically significant.

In the modified SCCT model, Teacher Support and Institutional Support accounted for 17.1% of the variance observed in Academic Outcome Expectations (see Table 21). Using Cohen's (1988) suggested guidelines, this equates to a medium effect size ( $R^2 = .17$ ). The corresponding F-statistics was significant  $F(2, 152) = 16.86, p < .001$ , indicating that the independent variables in the modified SCCT model, Teacher Support and Institutional Support explained a statistically significant amount of variance observed in Academic Outcome Expectations.

Table 21:

*Model Summary for All SCCT Model Endogenous Variables*

Independent Variable	<i>R</i>	<i>R</i> <sup>2</sup>	<i>R</i> <sup>2</sup>	<i>F</i>	<i>df 1</i>	<i>df 2</i>	<i>p</i>
AI	.33	.11	.10	9.51	2	152	.000
ASE	.38	.14	.13	12.41	2	152	.000
AOE	.43	.18	.17	16.86	2	152	.000

## **Summary**

The results generally supported the hypothesis for the fifth research question. Path analyses indicated that the data did fit the SCCT model. Significant path coefficients indicated that Academic Outcome Expectations exerted a direct effect on Academic Interest and Academic Self-Efficacy exerted an indirect effect on Academic Interest through Academic Outcome Expectations. Institutional Support exerted a direct effect on Academic Outcome Expectations. Institutional Support exerted an indirect effect on Academic Interest through Academic Outcome Expectations. Significant path coefficients indicated that Teacher Support exerted a direct effect on Academic Self-Efficacy and Academic Outcome Expectations and both exerted an indirect effect on Academic Interest.

## **Chapter Summary**

In this chapter, the results and findings of the analyses described in Chapter Three were presented. A description of the data preparation and item and scale analyses were provided. Then the results of the analyses used to address the research questions were presented. Chapter Five presents the results of the analyses by research question, an overall discussion of important findings, the implications of these findings for researchers, theorists, counselors, and counselor educators, and the limitations of the study.

## **CHAPTER V: DISCUSSION**

This study examined the differences in Academic Self-Efficacy, Academic Outcome Expectations, Academic Interests, and Academic Learning Environment (Teacher Support and Institutional Support) for undergraduate college students. Chapter One provided the reader with the rationale for the study, the need, purpose, and significance of the study, the research questions, and the definition of terms. Chapter Two presented a review of the literature on the theoretical foundations of the study, and on Academic Self-Efficacy, Academic Outcome Expectations, Academic Interests, and Academic Learning Environment (Teacher Support and Institutional Support). Chapter Three provided the methodology for this research. Chapter Four presented the results and findings of the analyses. This chapter covers the results of the analyses by research question, an overall discussion of important findings, and the implications of these findings for researchers, theorists, counselors, and counselor educators. The limitations of this study are also included.

### **Discussion of Results**

This section discusses the results for each research question. The results will be regarded in the context of prior research studies, indicating ways this study supports previous findings, ways it contradicts previous findings, and areas in which more research is needed.

#### **Bivariate Correlations**

There were positive correlations among all study variables. There were strong relationships ( $r = .17$  to  $.48$ ) among the five variables to include Academic Self-Efficacy, Academic Outcome Expectation, Academic Interest, Teacher Support, and Institutional Support. The positive relationships among all scales found in this study are consistent with Lent et al.'s

(1994) hypothesized relationships among variables in their SCCT model. While there was a strong correlation among variables, subsequent analyses determined there was no multicollinearity among the variables.

### **Research Question 1**

The first research question asks, “Are there differences in Academic Self-Efficacy, Academic Outcome Expectations, Academic Interest, Teacher Support, and Institutional Support among undergraduate college students by academic level?” Because less than one-fourth of the participants were freshman or sophomores, two subgroups were created, underclassman and upperclassman to compare the academic levels. The results of the multivariate analysis of variance (MANOVA) indicated statistically significant differences in Academic Interest in mean scores between underclassman and upperclassman. There were no differences in the mean scores when comparing underclassman and upperclassman for these variables Academic Self-Efficacy, Academic Outcome Expectations, Teacher Support, and Institutional Support.

In this particular sample, the majority of the participants reported high GPAs and reported upperclassman status, therefore, a homogeneous group. A high GPA is reflective of the positive outcomes which result from academic commitment as well as the history of established performance attainment. Upperclassman status is also reflective of persistence behaviors and evidence of interest. According to SCCT (Lent, Brown, & Hackett, 1994; 2000; 2002), interest develops and remains constant in light of individuals’ positive beliefs about being competent and concurrent beliefs regarding the anticipated outcome. In this sample, the high GPA is evidence of successful performance attainment which in turn, according to the SCCT, motivates continued interest.

The presence of a low GPA may result in lower interest which in turn, may result in diminished perseverance, resilience, persistence, and motivation and can lead to eventual withdrawal from school (Davidson & Beck, 2006; Davidson, Beck, & Milligan, 2009; Bean & Eaton, 2001). Individuals will develop personal interests and goals in line with their Academic Self-Efficacy beliefs and outcome expectation which in turn, leads to career interests and goal development in line with those academic beliefs (Lent, Brown, & Hackett, 1994; 2002). Upperclassman student have persisted in college and are closer to fulfilling their career choice, reaching their career aspirations, and embarking on a selected career, which in turn supports their Academic Interest (Lent, Brown, & Hackett, 1994; 2000; 2002; Lent & Hackett, 1994; Hackett and Betz, 1995; Betz and Hackett, 1981). Therefore, the upperclassman status reflects prior behaviors that have resulted in the completion of over half of their degree requirements.

### **Research Question 2**

The second research question asks, “Does Teacher Support and Institutional Support explain a significant amount of the variance in Academic Self-Efficacy for undergraduate college students?” The results of the multiple linear regression analysis found that students’ perception of support provided by the teacher and the institution explained 13% of the variance in their reported Academic Self-Efficacy which is statistically significant. The path coefficient between Teacher Support and Academic Self-Efficacy was statistically significant; therefore, Teacher Support explains a significant amount of variance in Academic Self-Efficacy. The path coefficient between Institutional Support and Academic Self-Efficacy was not statistically significant, which indicated that for this population, Institutional Support did not explain a significant amount of variance in Academic Self-Efficacy.

The findings of this study revealed that positive perceptions of Teacher Support appear to be related to increased levels of Academic Self-Efficacy. This is significant given that in this particular sample, the majority of the participants reported high GPAs and also reported upperclassman status. Consequently, even for high achieving students and students who are well underway to fulfilling their career choice goals, their perception of the support provided by a teacher exerts a significant influence on Academic Self-Efficacy. Therefore, this finding suggests that even for high achieving students, the perception of Teacher Support influences self-efficacy beliefs. These findings are consistent with prior research where the quality of the teacher-student relationship has been linked to promoting a sense of self-efficacy in one's academic abilities (Moos, 1980), promoting Academic Outcome (Im, Hughes, Kwok, Puckett, & Cerda, 2013; Hallinan, 2008), and promoting student engagement (Collie, Martin, Papworth, & Ginns, 2016). Students who report preferring a more supportive teaching environment facilitated by the teacher also report more positive attitude, higher academic press, and increased interest for the subject matters facilitated by the teacher (Moos, 1980; Perry, Donohue & Weinstein, 2007; Phillippo & Stone, 2013). A supportive classroom environment is one in which students are engaged with the teacher and each other, where there is a sense of fairness and opportunities to cooperate, and the experience of the learning environment is beneficial to the student (Thomas, 2014; Moos; 1979; 1980; 1987; 2000).

The findings of this study revealed that positive perceptions of Institutional Support appear not to be linked with Academic Self-Efficacy beliefs in this sample of participants. Institutional Support in this study was conceptualized as non-academic supports outside the classroom. School structures, the representation of Institutional Support provide students with the necessary knowledge and resources for achieving academic success (Gonzales, 2013;

Stanton-Salazar, 2011; Schunk & Meece, 2005) by providing a network of resources, knowledge, and corresponding emotional support to navigate effectively and successfully within the institution. Academic Self-Efficacy was defined as self-perceptions, associated beliefs, and attitudes related to an individual's academic identity, an individual's perception of who they are as a learner, and their intellectual capacities (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001; Farrington et al., 2012; Nagaoka et al., 2013; Pajares, 1996). Therefore, Academic Self-Efficacy in this study was conceptualized as their perception of their ability to succeed at academic tasks within the classroom. Given these conceptualizations, it would appear that the influences of institutional academic support reported in the literature exerts its influence through different pathways other than students' self-efficacy beliefs about their academic ability.

Overall, these results support Lent, et al.'s (1994) premise that the learning environment, specifically Teacher Support influences the development of Academic Self-Efficacy in this population. In response to experiences within the learning environment, an individual develops Academic Self-Efficacy beliefs. Within the school, a supportive learning environment created through positive perceptions of Teacher Support can facilitate the types of learning experiences that are pivotal for developing Academic Self-Efficacy.

### **Research Question 3**

The third research question asks, "Does Teacher Support and Institutional Support explain a significant amount of the variance in Academic Outcome Expectations for undergraduate college students?" The results of the multiple linear regression analysis found that students' perception of support provided by the teacher and the institution together explained 17% of the variance in their perception of their Academic Outcome Expectations, therefore, both Teacher Support and the Institutional Support path coefficient to Academic Outcome



Expectations were statistically significant. Given this homogeneous sample, even for high achieving students and those who have reached upperclassman status, their perception of support provided by both the teacher and the institution has a significant influence on their perceptions of Academic Outcome Expectations.

The findings of this study suggest that positive perceptions of Teacher Support are related to positive Academic Outcome Expectations. Consistent with SCCT, outcome expectations develop from a variety of direct and vicarious experiences as well as modeling experiences (Lent, Brown, & Hackett, 1994; 2002; Lent & Hackett, 1994; Lent, 2013a). For example, a student's perception of a caring and supportive teacher-student relationship impacts academic attitudes and self-efficacy beliefs (Moos, 2000; Battistich, Solomon, & Kim, 1995; Shouse, 1996; Solomon, Battistich, Watson, Schaps, & Lewis, 2000) and self-efficacy beliefs in turn, influences outcomes expectations.

The findings of this study also suggest that positive perceptions of Institutional Support also influenced Academic Outcome Expectations. This is consistent with the literature suggesting that Perceived Institutional Support impacts student attitudes towards their Academic Outcome Expectations and student persistence. For example, perceived Institutional Support is related to academic resiliency regarding Academic Outcomes, student engagement, and positive campus environment (Tinto, 1993; Upcraft et al., 2004). In the literature, climate and engagement are important components of Institutional Support. Institutional Support provides resources (Gonzales, 2013; Stanton-Salazar, 2011; Schunk & Meece, 2005), keys funds of knowledge (Roberts, Dunworth, and Boldy, 2018), and corresponding academic and emotional support (Gonzales, 2013; Stanton-Salazar, 2011; Schunk & Meece, 2005) designed to promote effective communication, relational competencies, and effective help-seeking behavior so

students can navigate effectively and successfully within the institution. This, in turn, supports the outcome a student expects as a result of these perceived supports, whether they expect positive or negative outcomes. These results support Lent et al.'s (1994) premise that the learning environment of the individual, notably Teacher Support and Institutional Support, can influence the development of outcome expectations.

#### **Research Question 4**

The fourth research question asks, "Does Academic Self-Efficacy and Academic Outcome Expectations explain a significant amount of the variance in Academic Interest for undergraduate college students?" The results of the multiple linear regression analysis found that students' perception of their Academic Self-Efficacy and Academic Outcome Expectations explained 10% of the variance in their perception of their Academic Interest, which was statistically significant. However, the path coefficient between Academic Self-Efficacy and Academic Interest was not statistically significant. The path coefficient between Academic Outcome Expectations and Academic Interest was statistically significant and explained a significant amount of variance in Academic Interest.

Academic Self-Efficacy did not directly explain Academic Interest in the sample of participants in this study. According to SCCT (Lent et al., 1994), a primary source of self-efficacy beliefs is performance attainment, which holds that success at a task increases an individual's perception of their ability to perform the task. Given the fact that participants in this study were largely homogeneous, with over 80% of the participants reporting a GPA B+ or higher, which suggests a high level of performance attainment, there may not have been sufficient variability in the perceptions of Academic Self-Efficacy in the sample to account for variability found in Academic Interests. Also, the high level of upperclassmen in the study would

suggest that there was already a high level of persistence (Academic Interest) in these participants given their advanced academic standing. This is consistent with research suggesting that students with low-efficacy beliefs were more likely not to return to college (Davidson & Beck, 2006; Beck & Milligan, 2014). These results do suggest that given the participants' GPA's and advanced academic status, their high levels of perceived Academic Self-Efficacy during their college trajectory resulted in high levels of Academic Interests, as seen in their college persistence behaviors. Thus, the results for this sample of participants are consistent with SCCT, which holds that the Academic Self-Efficacy is the strongest predictor of Academic Interest. The lack of variability in the population's Academic Self-Efficacy would result in a lack of variability in their Academic Interests. Additionally, because prior research indicates that performance attainment may not exert the same effect on more diverse populations and because according to SCCT, there is a direct effect between self-efficacy beliefs and interest, it would be important to conduct further with more diverse populations to understand this relationship.

This study found that Academic Outcome Expectations explained a significant amount of variance in Academic Interest for this sample of participants. These results are consistent with SCCT literature where perceptions of positive outcomes can motivate an individual to develop interest and goals in line with those outcome expectations (Lent, Brown, & Hackett, 1994; 2002; Betz & Vuyten, 1997). Outcome expectations are beliefs about the consequences or outcomes of performing particular behaviors (Lent, Brown, & Hackett, 1994; 2002; Lent & Hackett, 1994; Lent, 2013a). The outcomes can be in the form of tangible rewards such as earning a college diploma or earning an honor award, a social benefit such as a certain status for having a college diploma, or self-evaluative reward such as pride in oneself for doing well in college. If these

expectations are positive, then the individual will likely exhibit academic behaviors in line with these positive expectations. From the college persistence literature, some important academic behaviors which reflect Academic Interest include persistence, motivation, and resilience, which in turn, results in college persistence rather than thoughts about college withdrawal (Davidson & Beck, 2006; Beck & Milligan, 2014; Bean & Eaton, 2001). Therefore, outcome expectations beliefs can support continued motivation, persistence, and resiliency behaviors to pursue potential interests, actions, and goals.

The overall results of this research question support Lent et al.'s (1994) choice model where both self-efficacy beliefs and outcome expectations are theorized to influence the development of interest. Academic Self-Efficacy is linked to Academic Outcome Expectations in that academic self-appraisals help determine the Academic Outcome one expects, which in turn, lead to specific academic behaviors and motivations that can encourage or discourage effective performance (Bandura, 1977; 1984; Pajares, 1996; Schunk & Meece, 2005). In response to a multitude of experiences in the learning environment, an individual's Academic Self-Efficacy beliefs and Academic Outcome Expectations influences the motivation of an individual in developing interests and goals, which either reflect high self-appraisal and confidence or influence the forfeit of career interests and goals due to their low self-appraisal and low confidence (Lent, Brown, & Hackett, 1994; 2002).

### **Research Question 5**

The fifth research question asks, "Does the data fit the modified model of Social Cognitive Career Theory for undergraduate college students?" The results of the path analysis for this study appears to support the use of a modified SCCT choice model to explain Academic Interest in college undergraduate students (see figure 2).

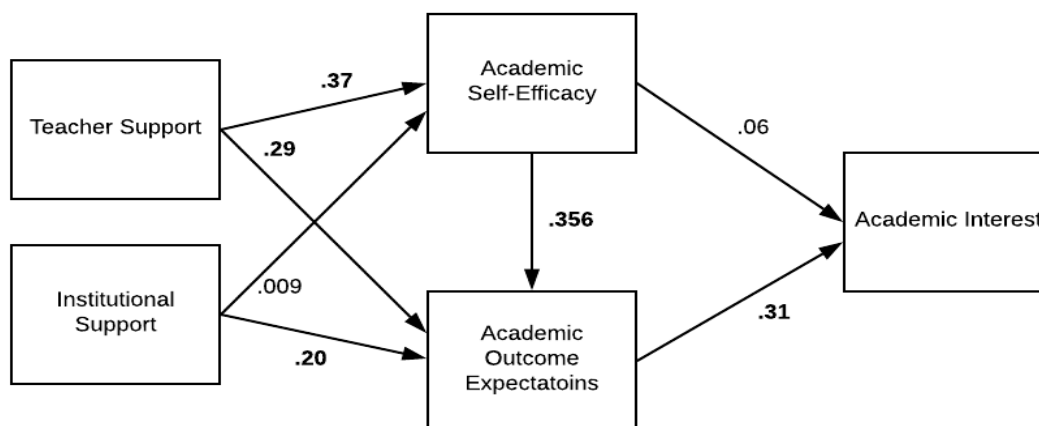


Figure 2: Revised Modified Social Cognitive Career Theory Model Path Coefficients.

When examining the individual path coefficients in this study, Academic Outcome Expectations exerted a direct effect on Academic Interest. According to the SCCT choice model, outcome expectations are generated through both direct and vicarious experiences with educational and occupational relevant activities. Once developed, outcome expectations may exert a direct effect on choice actions in that the more valued the perceived outcome, the more likely that a person will adopt particular academic or career goals and course of action (Lent, Brown, & Hackett, 1994; 2002; Lent & Hackett, 1994; Lent, 2013a). Outcome expectations affect choice goals and actions both directly and indirectly to include influencing the formation of interests. This may help explain the association between Academic Outcome Expectations and Academic Interest found in this sample of participants.

While Academic Self-Efficacy did not exert a direct effect on Academic Interest, it did have an indirect effect mediated through Academic Outcome Expectations. This is consistent with the SCCT choice model (Lent, Brown, & Hackett, 1994, 2002; Lent & Hackett, 1994), which holds that self-efficacy beliefs also influence the choice process through indirect routes via outcome expectations on interest. The results of the path analysis found that Academic Self-

Efficacy had an indirect influence on Academic Interest. However, as discussed in Research Question Four, the homogeneity found in the population, including high GPA's and advanced academic status, may explain the lack of a direct effect between Academic Self-Efficacy and Academic Interest. These findings are consistent with SCCT that Academic Interest reflects concurrent self-efficacy beliefs and outcome expectations (Lent, Brown, & Hackett, 1994).

The path coefficient from Academic Self-Efficacy to Academic Outcome Expectations was statistically significant in exerting a direct effect. According to the SCCT choice model, Academic Interest at any point in time are reflective of concurrent self-efficacy beliefs and outcome expectations. In the course of interest formation, self-efficacy beliefs will help inform outcome expectations, particularly when outcomes (success, failures) are closely tied to the quality or level of one's performance, would influence outcome expectations (Lent, Brown, & Hackett, 1994; 2002; Lent & Hackett, 1994; Lent, 2013a). The results of the study support the direct effect that Academic Self-Efficacy had on Academic Outcome Expectations.

### **Learning Environment and Academic Self-Efficacy**

The path coefficient between Teacher Support to Academic Self-Efficacy was statistically significant, indicating that Teacher Support is exerting a direct effect on Academic Self-Efficacy. These results are consistent with the theorized relationship between the learning environment and self-efficacy beliefs. The influence of the learning environment on self-efficacy beliefs is well documented as part of the SCCT choice model (Lent, Brown, & Hackett, 1994; 2002; Lent & Hackett, 1994; Lent, 2013a). This study examined the learning environment facilitated by perceived Teacher Support as defined by the quality of the teacher-student relationship since this type of relationship is known to promote a sense of self-efficacy in one's academic abilities (Moos, 1980). Thus, these results appear to support the use of the modified

SCCT choice model to include the effect of the learning environment on the domain of Academic Self-Efficacy (Lent, Brown, & Hackett, 1994; 2002; Lent & Hackett, 1994; Lent, 2013a).

The path coefficient between Institutional Support and Academic Self-Efficacy was not statistically significant. According to the SCCT choice model, self-efficacy beliefs derive from performance accomplishments, vicarious learning, social persuasion, and physiological reactions (emotional arousal) in relation to particular educational and occupationally relevant activities. (Lent, Brown, & Hackett, 1994; 2002; Lent & Hackett, 1994; Lent, 2013a). Therefore, given the nature of Institutional Support, while it influences the overall learning environment, the results suggest that the instructional learning environment where the academic performance occurs influences academic self-efficacy beliefs; the larger institutional learning environment does not directly influence academic self-efficacy beliefs. Therefore, the fact that institutional support does not directly influence the behaviors that inform self-efficacy would explain the lack of a direct effect found between Institutional Support and Academic Self-Efficacy in this sample of participants.

### **Learning Environment and Academic Outcome Expectations**

The path coefficient between Teacher Support to Academic Outcome Expectations exerted a direct effect. The path coefficient between Institutional Support to Academic Outcome Expectations also exerted a direct effect. According to Social Learning Theory (Bandura, 2001) of which SCCT emerged (Lent, Brown, & Hackett, 1994), people construct outcome expectations from observed conditional relations between environmental events in the world around them and the outcomes those actions produce. In this sample, Academic Outcome Expectations appear to be linked to perceived Teacher Support (quality of the teacher-student

relationship) and to perceived Institutional Support (school structures which provide a network of resources, knowledge, and corresponding emotional support to help students navigate effectively and successfully within the institution). The presence of positive support systems would, in turn, would facilitate a higher expectation of a positive outcome based on this support. These results are also consistent with SCCT choice model where the influence of the learning environment on outcome expectations is well documented in the literature (Lent, Brown, & Hackett, 1994; 2002; Lent & Hackett, 1994; Lent, 2013a).

### **Learning Environment: Academic Interest**

Teacher Support and Institutional Support each exerted an indirect effect on Academic Interest mediated through Academic Outcome Expectations. Academic Interest conceptualized as college persistence appears to be influenced indirectly by perceived Institutional Support. Because school structures are one source of support capable of providing a network of resources, knowledge, and corresponding emotional support to help students navigate effectively and successfully within the institution (Gonzales, 2013; Stanton-Salazar, 2011; Schunk & Meece, 2005), this support would, in turn, increase the anticipated outcomes of remaining at the institution, which would, in turn, facilitate persistence behaviors measured by Academic Interest.

The result of the overall path analysis generally supports Lent et al.'s (1994) SCCT choice model. According to SCCT, the premise is that an individual's learning environment (found from Teacher Support and Institutional Support) can influence the development of Academic Self-Efficacy for performing academic-related activities or action. Additionally, occupational and Academic Interest at any point in time is reflective of concurrent self-efficacy beliefs and outcome expectations; therefore, self-efficacy beliefs and outcome expectations jointly give rise to interests. Finally, the effect size for the study was strong. Results indicate a



moderate effect size for Institutional Support in that Institutional Support (.20) mediated through Academic Outcome Expectations (.31) appears to moderately influence Academic Interest. Results indicate a moderate effect size for Teacher Support in that Teacher Support (.37); (.29) mediated through Academic Self-Efficacy (.35) and Academic Outcome Expectations (.31) appears to moderately influence Academic Interest.

### **Limitations**

There are several limitations to this study. First, the study participants were limited to those individuals who participated via the online survey platform. Also, given the average GPA of the students, it appeared that students who volunteered to participate had higher levels of academic achievement and motivation. As such, this sample may not accurately represent the undergraduate student population at large. Furthermore, all participants were from one university, which may not be representative of other universities across different regions of the country. Additionally, there was not a lot of variability in the participants in terms of age, ethnicity, and gender, with most of the participants reporting as 20-21-year-old white females. However, interpreting the results in light of the demographic information still provide researchers and educators with results that inform further research and practice.

The use of cross-sectional data is another limitation of this study. The results reflected the participants' perceptions of Academic Self-Efficacy, Academic Outcome Expectations, Academic Interests, and Academic Learning Environment (Teacher Support and Institutional Support) for undergraduate college students at one particular university. As a result, no inferences can be made of the trajectory of the constructs. However, the study provides valuable information regarding undergraduate college students' perception of Academic Self-Efficacy,

Academic Outcome Expectations, Academic Interests, and Academic Learning Environment (Teacher Support and Institutional Support) at one point in their career development.

The length of the five instruments may have presented the potential that respondent fatigue affected the participant's responses, particularly during the items towards the end of the instrument. Participants were asked to complete five surveys with a total of 93 items. However, there were no patterns of straight-line responses during the scale validation process, when calculating item correlations, item-total correlations, and factor loading analysis.

While the scale items were reduced from 93 to 66 items for the five scales used in this study, all eliminated items were done so on the basis of theory and construct definitions for the study. Of the 66 items retained, 14 items measured Academic Self-Efficacy, 14 items measured Academic Outcome Expectations, 26 items measured Teacher Support, 8 items measured Institutional Support, and 4 items measured Academic Interest. This resulted in Cronbach's Alpha for the scales to range from .711 to .963.

Despite the limitations, the study provides important information about the association of undergraduate college students' perception of the academic learning environment with Academic Self-Efficacy, Academic Outcome Expectations, and Academic Interest. Given that Academic Outcome Expectations explains Academic Interest, the knowledge gained about the explanatory power of the learning environment on Academic Outcome Expectations gives researchers, counselors, and counselor-educators information about factors that help explain decreases in Academic Self-Efficacy and Academic Interest. The study also provides information about the predictive power of Academic Outcome Expectations in Academic Interest. Thus, the examination of Teacher Support and Institutional Support and social-cognitive factors associated with Academic Interest adds to the research literature about adolescent and young adult career

development, providing schools, mental health counselors, and counselor educators with information about factors that may keep adolescents from equitably reaching career fields that require academic readiness.

### **Implications for Researchers**

Based on the findings, this study has several implications for future research. First, further research is needed to examine the nature of the relationship between Academic Self-Efficacy Beliefs and Academic Interest. Given the high GPA and upperclassman academic status of most of the participants, using a larger sample size with a broader range of academic achievement and academic status would help provide the variability needed to examine the relationship between Academic Self-Efficacy Beliefs and Academic Interest. Furthermore, for future research, it may be important to consider using an Academic Interest scale with more than four-items that could measure this construct more broadly and robustly. Additionally, there were not many scales available which could measure the various aspects of Academic Interest in terms of college persistence behaviors nor scales available to measure Institutional Support. It may be beneficial for the future researcher to develop additional assessments to measure these constructs.

Second, SCCT holds that students' learning experiences are instrumental in the development of Academic Self-Efficacy and Academic Outcome Expectations and indirectly influences students' interest in pursuing academic related courses and corresponding careers. While learning experiences are critical for both understanding the initial development of self-efficacy and designing interventions to increase self-efficacy, learning experiences are not typically operationalized for research (Betz, 2007). A strength of this study was the inclusion of Teacher Support and Institutional Support for consideration as components of the learning

environment as well as the operationalizing of Teacher Support and Institutional Support as supporting the posited relationship among the SCCT constructs. Further research is needed to operationalize other aspects of the learning environment using the SCCT model.

Third, using the SCCT model in educational and career counseling research can provide a bridge between two large bodies of research that are relevant to the development of Academic Interest which support college and career readiness, career development research, and the role of the learning environment in the academic setting. Presently, the college and career readiness literature has primarily focused on the influence of academic factors in the development of academic readiness (Congress, 2015; US Department of Education, 2010; 2015; Achieve, 2017; Aldeman & Carey, 2009; Hooker & Brand, 2009; Conley, 2008; 2013; Camara, 2013; Tierney & Sablan, 2014; Farrington, et. al., 2012; College Board, 2011; 2012a; ACT, 2015; 2016). Yet, non-academic readiness skills that students must acquire to complete a post-secondary education successfully is also an area of important focus in understanding the nuances that impact college and career readiness (Hooker & Brand, 2009). Further research using the modified SCCT model in academic learning environment research would allow researchers to investigate the influence of Academic Self-Efficacy on Academic Interest. Academic Interest is a factor in subsequent academic and career choice, goals, performance, and persistence in academic related-behaviors. Using the modified SCCT model would allow researchers exploring learning environment to examine Academic Outcome Expectations and Academic Interest, both important components of motivation and choice behavior, especially using a more diverse population of students representing a variety of academic levels and grade point averages.

Fourth, the results of this study were consistent with SCCT theory, which states that Academic Self-Efficacy beliefs and Academic Outcome Expectations play an important role in

the development and continued growth of Academic Interest (Lent, Brown, & Hackett, 1994; 2002; Lent & Hackett, 1994; Lent, 2013a). The study utilized five survey instruments which provided good measures of the five constructs identified in the modified SCCT choice model. The psychometric properties of the scale suggest that they were an appropriate measure to use with undergraduate college students to measure Academic Self-Efficacy, Academic Outcome Expectations, Academic Interest (in terms of college persistence), Teacher Support, and Institutional Support. However, while there were several scales available that measured Academic Self-Efficacy, Academic Outcome Expectations, and Teacher Support, there were limited measures of Academic Interest (in terms of college persistence) and Institutional Support and Institutional Support. Further research is needed to develop scales that measure these constructs.

Finally, the present research finding indicated statistically significant results with regards to the role of Academic Outcome Expectations in supporting Academic Interest, both directly and as a mediator for Academic Self-Efficacy, Teacher Support, and Institutional Support. This is particularly relevant given that there was an effect seen a sample of students who reported high levels of Academic Self-Efficacy and had achieved high academic achievement and upperclassman status. Future research is needed to understand the role of Outcome Expectations in college persistence behaviors.

### **Implications for Practitioners**

The results of this study suggest the importance of viewing Teacher Support and Institutional Support as factors which influence Academic Self-Efficacy, Academic Outcome Expectations, and Academic Interests. Specifically, these findings suggest that student's perception of Teacher Support and Institutional Support influences, Academic Self-Efficacy,

Academic Interest, and Academic Interest in the modified SCCT choice model. The current study provides evidence that school counselors, teachers, and counselor educators can use to understand the factors that influence college and career readiness and develop interventions to help students gain greater access and preparation for achieving academic readiness. This, in turn, will promote greater equity, broaden career options for a large portion of our citizens, and improve the effectiveness of interventions to assist all students with their career development and decision-making (Betz & Hackett, 1997; Lent & Brown, 2006).

### **School Counselors**

An essential role of the school counselor is to address the career development needs of all students. The American School Counselor Association (ASCA, 2014) has outlined professional competencies which address the knowledge, abilities, skills, and attitudes needed to meet the needs of all students effectively. Additionally, ASCA (2014) has identified mindsets and behaviors which contribute towards student success with regards to college and career readiness. An important professional behavior regarding career development standard indicates that school counselors help students plan for and make a successful transition from school to postsecondary education or world of work. School counselors have the training, skills, and knowledge to support students with the goal of increasing their non-academic skills which support CCR.

By conceptualizing career development in terms of SCCT, school counselors can develop research-based interventions that can facilitate the development of academic readiness and career interest. Specifically, learning experiences within a supportive academic environment are crucial for both understanding the initial development of Academic Self-Efficacy and Academic Outcome Expectations and designing interventions to increase Academic Self-Efficacy and

Academic Outcome Expectations. These, in turn, increases Academic Interest, which can help increase persistence, resilience, and academic press for all students.

As noted previously, learning experiences in the learning environment are crucial for understanding the development of and designing interventions to increase Academic Self-Efficacy and Academic Outcome Expectations. As leaders in their schools, school counselors can inform best practices related to learning experiences in the school, which can facilitate the development of Academic Self-Efficacy and Academic Outcome Expectations and when necessary, provide social advocacy for a student who is marginalized by practices which provide barriers to student's career development. In working with teachers, school counselors as school leaders can facilitate professional growth opportunities to educate teaching staff regarding the critical role of perceived support as paramount to the development of Academic Self-Efficacy beliefs and Academic Outcome Expectations. Furthermore, school counselors can work with teachers to provide new learning experiences to students in the form of classroom guidance lessons which can increase their sense of Teacher Support and Institutional Support. School counselors can sit on leadership teams within the school to address barriers related to perceived lack of Teacher Support and Institutional Support. School counselors may be perceived as part of the institution and reflect Institutional Support for students. School counselors should seek opportunities to actively engage with their school community in order to improve the institutional climate for students as well as increase student engagement within their institution.

### **Administrators**

The results of this study found that Institutional Support was linked to Academic Outcome Expectations and Academic Outcome Expectations was linked to Academic Interest. School administrators are critical members on leadership teams influencing the development of

policy, procedures, and best practices which can provide Institutional Support to students which in turn, help students feel important and thus, supported. For example, administrators can become active student advocates, providing support especially to students who have been historically underrepresented. Additionally, administrators can inform school practices in an advocacy capacity, a critical support for students especially those which have been historically underrepresented. From a social justice advocacy perspective, administrators can address biased practices which cause students to feel unsupported. Feelings of support have the potential to increase persistence and resilience behaviors by increasing the students' perceptions of a positive outcome from completing their course of study and earning a diploma. Finally, administrators through the climate they establish as leaders in their schools can affect the quality of student's perception of their experience which in turn, can increase student engagement.

### **Teachers**

The results of this study found that perceived Teacher Support had a direct effect on Academic Self-Efficacy and Academic Outcome Expectations. These findings are consistent with previous research which speaks to the critical role of the teacher-student relationship in supporting students in multiple areas such as promoting academic abilities (Moos, 1980), promoting Academic Outcome (Im, Hughes, Kwok, Puckett, & Cerda, 2013; Hallinan, 2008), and promoting student engagement (Collie, Martin, Papworth, & Ginns, 2016). Teachers can create classroom cultures which allow the student to feel supported and this perception of Teacher Support will continue to be instrumental in continuing to strengthen Academic Self-Efficacy beliefs and Academic Outcome Expectations of their students. Additionally, teachers can participate in professional development opportunities or coursework to increase their knowledge in the area of developing relationships with the students within the classroom.



## **Counselors Educators**

Counselor educators have the critical task of training new professional, the future school counselors by providing for the academic and clinical development of future school counselors with the knowledge, skills, and training in order to develop as leaders in their role as school counselors and develop professional attitudes and behaviors which support student developmentally. Counselor educators must design curriculums which reflect the latest knowledge in supporting career development for students. From a social justice advocacy perspective, counselor educators cannot be indifferent to the obstacles faced by many student groups such as undocumented students, students of color, and lower-income students disproportionately face in becoming ready for college and career. (Castro, 2013). Counselor educators can train future school counselors as social justice advocates who can effectively address biased practices which cause students to feel unsupported.

## **Conclusion**

Given the growing importance of achieving academic readiness which in turn, supports college and career readiness that expands academic and career options and the persistence of student behaviors, the knowledge gained by investigating student's perceptions of Teacher Support and Institutional Support will help educators and counselor understand factors associated with increasing Academic Self-Efficacy, Academic Outcome Expectations, and Academic Interests. This knowledge can help school counselors, administrators, teachers, and counselor educators develop research-based interventions for a diverse population of students, especially students who have disproportionately faced challenges in becoming ready for college and career, therefore, facilitate more equitable participation of all students. This research will thus help school counselors, administrators, teachers, and counselor educators promote academic

equality, broaden career options for a large portion of our students, and thus advance social justice.

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## Appendix A:

### Written Permission to Use Scales

#### Permission to use the College Academic Self-Efficacy Scale

11 October 2015

Dear Researcher,

Thank you for your inquiry about the College Academic Self-Efficacy Scale (CASES). You are welcome to use CASES. I've included a copy of the scale below. Here are a few summary points about the scale.

Items are scored as A (“quite a lot”) = 5...E (“very little”) = 1. On the other hand, because we read from left to right, data entry is faster letting A = 1, and E = 5. If you enter data with A = 1, then let the computer recode the values so that A becomes 5, B becomes 4, etc.

In calculating an overall CASES score, we prefer calculating a mean rather than a sum.

You may wish to modify questionnaire instructions to best fit your application. For example, if you need informed consent, you might say something like “Filling out this questionnaire is completely voluntary and confidential. There are no penalties for not participating, and you may quit at any time.”

The next page shows the CASES items. Following that is a conversation about scoring CASES, plus some normative data.

Best wishes in your research.

Sincerely,

Steven V. Owen, Professor (retired)  
Department of Epidemiology & Biostatistics  
University of Texas Health Science Center at San Antonio  
7703 Floyd Curl Dr., MC 7802  
San Antonio, TX 78229-3900

Internet: [svo@vbbn.com](mailto:svo@vbbn.com) OR [steven.owen@uconn.edu](mailto:steven.owen@uconn.edu)

**Permission to use the College Outcome Expectations Questionnaire**

From: "Flores, Lisa Y." <floresly@missouri.edu>  
Subject: RE: College Outcome Expectations  
Date: February 7, 2018 at 1:47:55 PM EST  
To: "Ponce, Maureen Quiles" <mponce@liberty.edu>

Absolutely. -LYF

**From:** Ponce, Maureen Quiles [mailto:mponce@liberty.edu]

**Sent:** Wednesday, February 07, 2018 12:47 PM

**To:** Flores, Lisa Y. <floresly@missouri.edu>

**Subject:** Re: College Outcome Expectations

Thank you so much Dr. Flores, Do I have your consent to utilize in my dissertation? Maureen

On Feb 7, 2018, at 1:30 PM, Flores, Lisa Y. <[floresly@missouri.edu](mailto:floresly@missouri.edu)> wrote:

Maureen,

I'm attaching a copy of the College Outcome Expectations measure (the last item, #19 should be reverse scored). Good luck w/ your dissertation!

-Lisa

## Permission to use the College Persistence Questionnaire

**From:** Bill Davidson <William.Davidson@angelo.edu>  
**Subject:** Re: College Persistence Questionnaire  
**Date:** February 24, 2018 at 1:45:40 PM EST  
**To:** "Ponce, Maureen Quiles" <mponce@liberty.edu>

Thanks for asking but no, you do not need to provide us with anything.

William B. Davidson, PhD  
 Professor of Psychology  
 Angelo State University  
 Department of Psychology, Sociology, and Social Work  
 ASU Station #10907  
 San Angelo, TX 76909  
 Phone: 325-227-1016 (mobile)  
[bill.davidson@angelo.edu](mailto:bill.davidson@angelo.edu)

**From:** Ponce, Maureen Quiles <mponce@liberty.edu>  
**Sent:** Saturday, February 24, 2018 6:46:26 AM  
**To:** Bill Davidson  
**Subject:** Re: College Persistence Questionnaire

Good Morning Dr. Davidson,

Thank you so much for providing your consent so that I may use the CPQ in my dissertation research. I am very grateful. Is there anything additionally I need to provide to you?

Maureen Quiles Ponce,  
 Doctoral Student, Liberty University

On Feb 24, 2018, at 9:39 AM, Bill Davidson <[William.Davidson@angelo.edu](mailto:William.Davidson@angelo.edu)> wrote:

Thank you for your interest in the CPQ, Maureen, I am attaching a copy and the scoring instructions. Best wishes in your doctoral research,  
 Bill

William B. Davidson, PhD  
 Professor of Psychology  
 Angelo State University  
 Department of Psychology, Sociology, and Social Work  
 ASU Station #10907  
 San Angelo, TX 76909  
 Phone: 325-227-1016 (mobile)  
[bill.davidson@angelo.edu](mailto:bill.davidson@angelo.edu)

## Permission to use the Teacher Support Scale

**Subject:** Teacher Support Scale

On Jan 25, 2018, at 11:52 AM, Ellen McWhirter <[ellenmcw@uoregon.edu](mailto:ellenmcw@uoregon.edu)> wrote:

Dear Maureen,

I have attached the measure and the articles referenced. If you decide you wish to use the measure, I will give my permission with the agreement that you will cite it as indicated, send me a copy of the translation if you should translate it (with the understanding that I would acknowledge your translation if it ever relevant, and send me a brief, informal description of your sample & the psychometric properties of the measure in your sample, just for my tracking purposes. If you agree to those things then you can use it! Best wishes in your dissertation research!

Best,  
Ellen

\*\*\*\*\*

Ellen Hawley McWhirter, Ph.D.  
Ann Swindells Professor of Counseling Psychology  
Director, Spanish Language Psych. Services & Research Specialization  
Counseling Psychology Program  
5251 University of Oregon  
Eugene, OR 97403-5251  
(541) 346-2443 (office)  
(541) 346-6778 (fax)  
<https://education.uoregon.edu/users/emcwhirter>

**Permission to use Institutional Support Scale**

From: "Alina C. Whitmore" <[alina.whitmore@gmail.com](mailto:alina.whitmore@gmail.com)>  
Subject: Re: Institutional Support Scale  
Date: February 19, 2018 at 8:03:34 PM EST  
To: "Ponce, Maureen Quiles" <[mponce@liberty.edu](mailto:mponce@liberty.edu)>

Hello Maureen,

It is a pleasure hearing from you. Yes, you may use the Institutional Support Scale (ISS) in your study. Because the measure was recently developed, it needs further validation in terms of convergent and divergent validity, so its use in your study would help contribute to that. Please let me know if you choose to include the ISS in your study, and if so, what you find!

Please see the attached measure.

Best,  
Alina

**Appendix B:**  
**Scale Items Correlation of Study Scales**

Table B1

*Item Correlations on Academic Self-Efficacy*

	SE1	SE5	SE6	SE7	SE8	SE12	SE13	SE20	SE21	SE26	SE30	SE31	SE32
SE1	1												
SE5	.200	1											
SE6	.262	.260	1										
SE7	.293	.290	.514	1									
SE8	.445	.265	.279	.381	1								
SE12	.309	.569	.255	.440	.378	1							
SE13	.378	.386	.341	.343	.306	.731	1						
SE20	.363	.392	.373	.418	.398	.586	.586	1					
SE21	.390	.348	.307	.436	.509	.442	.359	.653	1				
SE26	.337	.327	.407	.455	.395	.359	.390	.473	.422	1			
SE30	.286	.473	.213	.345	.306	.813	.626	.602	.588	.285	1		
SE31	.276	.259	.254	.297	.298	.404	.474	.294	.318	.312	.422	1	
SE32	.322	.261	.454	.552	.410	.535	.555	.700	.446	.566	.426	.357	1
SE33	.236	.325	.250	.358	.370	.502	.395	.402	.364	.323	.306	.384**	.373

Note. All correlations are significant at the 0.05 level (2-tailed).



Table B2

*Item Correlations on Academic Outcome Expectations Scale*

	OE1	OE2	OE3	OE4	OE5	OE6	OE7	OE8	OE10	OE11	OE12	OE13	OE16	OE18
OE1	1													
OE2	.641	1												
OE3	.528	.444	1											
OE4	.581	.696	.506	1										
OE5	.473	.417	.343	.476	1									
OE6	.564	.536	.470	.504	.534	1								
OE7	.562	.593	.440	.645	.457	.558	1							
OE8	.549	.528	.527	.525	.431	.548	.765	1						
OE10	.558	.656	.425	.612	.377	.524	.697	.587	1					
OE11	.457	.445	.433	.499	.376	.451	.581	.617	.621	1				
OE12	.490	.666	.363	.553	.441	.537	.702	.569	.711	.544	1			
OE13	.504	.488	.515	.457	.380	.544	.379	.398	.453	.408	.524	1		
OE16	.332	.325	.316	.393	.380	.319	.250	.321	.285	.384	.314	.438	1	
OE18	.332	.299	.410	.388	.320	.357	.309	.355	.343	.454	.321	.510	.454	1

Note. All correlations are significant at the 0.05 level (2-tailed).

Table B3

*Item Correlations on Academic Interests*

	Int1	Int2	Int3	Int4
Int1	1			
Int2	.290	1		
Int3	.265	.381	1	
Int4	.569	.440	.378	1

Note. All correlations are significant at the 0.05 level (2-tailed).

Table B4

*Item Correlations on Teacher Support Scale*

	TS3	TS4	TS5	TS6	TS9	TS10	TS11	TS12	TS13	TS14	TS15	TS16	TS17	TS18	TS19	TS20	TS21	TS23	TS24	TS25	TS26	TS27	
TS3	1																						
TS4	.564	1																					
TS5	.343	.385	1																				
TS6	.410	.549	.533	1																			
TS9	.331	<b>.225</b>	.660	.379	1																		
TS10	.573	.415	.275	.514	<b>.242</b>	1																	
TS11	.471	.389	.411	.507	.324	.667	1																
TS12	.417	.331	.487	.351	.438	.412	.468	1															
TS13	.377	.435	.448	.463	.336	.326	.502	.372	1														
TS14	.545	.477	.265	.465	.337	.509	.331	.330	.443	1													
TS15	.386	.463	.438	.496	.302	.458	.298	.485	.426	.442	1												
TS16	.342	.342	<b>.200</b>	.294	.326	.435	.334	.329	.416	.364	.317	1											
TS17	.395	.420	.273	.445	.328	.389	.305	<b>.139</b>	.531	<b>.229</b>	.338	.515	1										
TS18	<b>.207</b>	.325	.333	.442	<b>.121</b>	.410	.417	.324	.564	.332	.419	.310	.263	1									
TS19	.254	<b>.146</b>	.611	<b>.189</b>	.456	<b>.145</b>	<b>.211</b>	.517	.288	.286	.374	.272	<b>.146</b>	.297	1								
TS20	.608	.570	.420*	.464	.397	.492	.500	.452	.385	.421	.352	.415	.383	.305	.304	1							
TS21	.483	.527	.589	.654	.491	.540	.568	.409	.527	.385	.387	.322	.479	.377	.302	.735	1						
TS23	.352	.407	.437	.513	.300	.484	.349	.456	.412	.570	.700	.374	.321	.415	.344	.486	.493	1					
TS24	.484	.604	.313	.405	.352	.466	<b>.223</b>	.382	<b>.210</b>	.554	.451	.353	.310	<b>.146</b>	<b>.227</b>	.498	.393	.551	1				
TS25	.512	.330	.404	.463	.296	.608	.544	.482	.427	.372	.433	.351	.330	.569	.346	.575	.518	.439	.367	1			
TS26	.429	.334	.429	.436	.375	.497	.706	.509	.392	.402	.422	.428	.254	.370	.355	.612	.504	.439	.350	.534	1		
TS27	.564	.420	.446	.504	.347	.712	.530	.521	.345	.396	.474	.406	.406	.375	.388	.568	.604	.436	.429	.630	.605	1	

Note. Bold correlation is not significant. All other correlations are significant at the 0.05 level (2-tailed).

Table B5

*Item Correlations on Institutional Support Scale*

	IS3	IS4	IS5	IS6	IS7	IS8	IS9	IS10
IS3	1							
IS4	.442	1						
IS5	.480	.417	1					
IS6	.431	.476	.494	1				
IS7	.427	.359	.402	.445	1			
IS8	.493	.433	.538	.532	.496	1		
IS9	.474	.450	.414	.530	.437	.506	1	
IS10	.573	.416	.509	.492	.380	.546	.573	1

Note. All correlations are significant at the 0.05 level (2-tailed).

### Appendix C:

#### Reliability and Item-Total Statistics for Study Scales

Table C1

*Reliability and Item Total Statistics for Academic Self-Efficacy*

	Corrected Item- Total Correlation	Cronbach's $\alpha$ if Item is Deleted
SE1	.424	.911
SE5	.548	.907
SE6	.504	.909
SE7	.606	.905
SE8	.556	.907
SE12	.725	.902
SE13	.778	.900
SE20	.763	.901
SE21	.677	.904
SE26	.567	.906
SE30	.703	.902
SE31	.463	.911
SE32	.730	.901
SE33	.601	.905

Table C2

*Reliability and Item Total Statistics for Academic Outcome Expectations*

	Corrected Item- Total Correlation	Cronbach's Alpha if Item is Deleted
OE1	.718	.926
OE2	.752	.925
OE3	.594	.929
OE4	.716	.926
OE5	.535	.931
OE6	.676	.927
OE7	.734	.926
OE8	.695	.927
OE10	.750	.926
OE11	.717	.926
OE12	.743	.925
OE13	.711	.926
OE16	.548	.931
OE18	.608	.929

Table C3

*Reliability and Item Total Statistics for Academic Interest*

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
INT1	.676	.559
INT2	.578	.642
INT3	.478	.741
INT4	.453	.675

Table C4

*Reliability and Item Total Statistics for Teacher Support*

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
TS1	.459	.963
TS2	.534	.962
TS3	.718	.961
TS4	.650	.961
TS5	.751	.961
TS6	.772	.960
TS7	.656	.961
TS8	.636	.962
TS9	.657	.961
TS10	.767	.960
TS11	.707	.961
TS12	.731	.961
TS13	.780	.960
TS14	.724	.961
TS15	.743	.961
TS16	.683	.961
TS17	.638	.962
TS18	.695	.961
TS19	.703	.961
TS20	.805	.960
TS21	.766	.960
TS23	.755	.961
TS24	.622	.962
TS25	.736	.961
TS26	.713	.961
TS27	.684	.961

Table C5

*Reliability and Item Total Statistics for Institutional Support*

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
IS3	.549	.856
IS4	.555	.856
IS5	.518	.858
IS6	.621	.850
IS7	.525	.857
IS8	.664	.847
IS9	.578	.853
IS10	.664	.846

### Appendix D:

#### Total Variance Explained for Study Scale

Table 1

*Total Variance Explained for Academic Self-Efficacy*

Scale	Factor	Eigenvalue	% of Variance	Cumulative %
ASE	1	6.469	46.205	46.205
AOE	1	6.678	47.701	47.701
	2	1.162	8.301	56.002
	3	1.018	7.275	63.277
AI	1	2.148	53.688	53.688
TS	1	12.233	47.050	47.050
	2	1.560	5.998	53.048
	3	1.198	4.609	57.657
	4	1.048	4.031	61.688
IS	1	3.797	47.461	47.461

Note. AI = Academic Interest Scale, ASE = Academic Self-Efficacy Scale, AOE = Academic Outcome Expectation Scale, TS = Teacher Support Scale, IS = Institutional Support Scale

Extraction Method: Maximum Likelihood

**Appendix E:**  
**Factor Matrices for Study Scale**

Table E1

*Factor Matrix for Academic Self-Efficacy Scale*

	Factor
	1
SE_1	.398
SE_5	.603
SE_6	.519
SE_7	.608
SE_8	.543
SE_12	.781
SE_13	.815
SE_20	.817
SE_21	.716
SE_26	.542
SE_30	.756
SE_31	.495
SE_32	.738
SE_33	.604

Extraction Method: Maximum Likelihood.  
1 factor extracted. 5 iterations required.

Table E2

*Factor Matrix for Academic Outcome Expectations Scale*

	Factor		
	1	2	3
OE10	<b>.778</b>		
OE2	<b>.768</b>		
OE12	<b>.761</b>		
OE7	<b>.746</b>	-.332	
OE4	<b>.727</b>		
OE1	<b>.694</b>		
OE13	<b>.693</b>	.441	
OE6	<b>.692</b>		
OE8	<b>.686</b>		
OE11	<b>.675</b>		.366
OE3	<b>.582</b>		
OE18	<b>.481</b>		.346
OE16	<b>.476</b>		
OE5	<b>.463</b>		

Extraction Method: Maximum Likelihood.  
1 factor extracted. 4 iterations required.



Table E3

*Factor Matrix for Academic Interest Scale*

	Factor
	1
INT1	.818
INT3	.658
INT2	.519
INT4	.442

Extraction Method: Maximum Likelihood.  
1 factors extracted. 7 iterations required.

Table E4

*Factor Matrix for Teacher Support Scale*

	Factor			
	1	2	3	4
TS11	<b>.999</b>			
TS10	<b>.629</b>	.395		
TS26	<b>.582</b>	.429		
TS12	<b>.567</b>	.485	-.361	
TS13	<b>.542</b>	.524		
TS25	<b>.524</b>	.449		
TS2	<b>.520</b>			
TS7	<b>.518</b>	.408		.327
TS8	<b>.474</b>	.416		
TS4	<b>.450</b>	.397		
TS23	.415	<b>.627</b>		
TS20	.458	<b>.621</b>		-.321
TS14	.401	<b>.593</b>		
TS15	.450	<b>.587</b>		
TS24		<b>.582</b>		
TS6	.508	<b>.569</b>		
TS19	.390	<b>.567</b>	-.363	
TS21	.482	<b>.566</b>	.311	
TS5	.478	<b>.564</b>		
TS3	.388	<b>.545</b>		
TS9	.390	<b>.541</b>		
TS27	.395	<b>.527</b>		
TS16	.406	<b>.523</b>		
TS18	.438	<b>.521</b>		
TS17	.390	<b>.459</b>		

Extraction Method: Maximum Likelihood.  
4 factors extracted. 10 iterations required.

Table E5

*Factor Matrix<sup>a</sup> for Institutional Support Scale*

	<u>Factor</u>
	<u>1</u>
IS8	.705
IS6	.669
IS10	.634
IS4	.634
IS9	.630
IS5	.612
IS3	.586
IS7	.582

Extraction Method: Maximum Likelihood.

1 factors extracted. 3 iterations required

## Appendix K:

### Pattern Matrices of the Study Scales

Table F1

#### *Pattern Matrix of Academic Self-Efficacy Scale*

Note: Only one factor was extracted. Since the solution cannot be rotated, there is not a pattern matrix for this variable.

Table F2

#### *Pattern Matrix<sup>a</sup> of Academic Outcome Expectations Scale*

	Factor		
	1	2	3
OE2	.862		
OE4	.806		
OE1	.681		
OE6	.622		
OE13	.535	.316	.358
OE12	.504	-.323	
OE5	.504		
OE16	.483		
OE3	.469		
OE7	.325	-.474	.317
OE10	.355	-.401	.353
OE11			.727
OE18			.615
OE8		-.340	.510

Extraction Method: Maximum Likelihood.

Rotation Method: Oblimin with Kaiser Normalization

Rotation converged in 15 iterations

Table F3

#### *Pattern Matrix of Academic Interest Scale*

Note: Only one factor was extracted. Since the solution cannot be rotated, there is not a pattern matrix for this variable.

Table F4

*Pattern Matrix<sup>a</sup> of Teacher Support Scale*

	Factor			
	1	2	3	4
TS8	.569			
TS13	.458			
TS1	.447			
TS14	.400		-.320	
TS18	.392			
TS11		-.956		
TS2	.365	-.371		
TS10		-.333		
TS19			-.798	
TS12			-.722	
TS9			-.636	
TS15	.317		-.591	
TS24			-.576	
TS5			-.563	
TS23			-.513	
TS7	.381		-.479	
TS16			-.463	
TS17				
TS21				-.821
TS20				-.758
TS3				-.581
TS27			-.347	-.483
TS26				-.476
TS25				-.443
TS4				-.411
TS6	.358			-.371

Extraction Method: Maximum Likelihood.

Rotation Method: Oblimin with Kaiser Normalization

Rotation converged in 21 iterations

Table F5

*Pattern Matrix<sup>a</sup> of Institutional Support Scale*

Note: Only one factor was extracted. Since the solution cannot be rotated, there is not a pattern matrix for this variable.

## Appendix G:

### Structural Matrices of the Study Scales

Table G1

*Structural Matrix of Academic Self-Efficacy Scale*

Note: Only one factor was extracted. Since the solution cannot be rotated, there is not a structural matrix for this variable.

Table G2

*Structure Matrix of Academic Outcome Expectations Scale*

	Factor		
	1	2	3
OE2	.805		.492
OE4	.756	-.308	.455
OE1	.723		.544
OE13	.717		.698
OE12	.707	-.448	.575
OE6	.698		.528
OE10	.684	-.510	.638
OE7	.644	-.573	.588
OE3	.595		.536
OE16	.514		.419
OE5	.490		.333
OE11	.546		.747
OE8	.570	-.421	.644
OE18	.424		.622

Extraction Method: Maximum Likelihood.

Rotation Method: Oblimin with Kaiser Normalization

Table G3

*Structural Matrix of Academic Interest Scale*

Note: Only one factor was extracted. Since the solution cannot be rotated, there is not a structural matrix for this variable.

Table G4

*Structure Matrix<sup>a</sup> of Teacher Support Scale*

	Factor			
	1	2	3	4
TS8	<b>.708</b>	-.442	-.453	-.492
TS13	<b>.694</b>	-.501	-.623	-.594
TS18	<b>.605</b>	-.396	-.565	-.568
TS1	<b>.485</b>			
TS11	<b>.450</b>	-.997	-.479	-.509
TS2	<b>.508</b>	-.511		-.326
TS12	<b>.302</b>	-.527	-.796	-.571
TS19		-.346	-.778	-.513
TS5	<b>.456</b>	-.433	-.731	-.591
TS15	<b>.572</b>	-.406	-.724	-.537
TS23	<b>.535</b>	-.365	-.712	-.602
TS9	<b>.335</b>	-.346	-.707	-.526
TS16	<b>.387</b>	-.362	-.644	-.558
TS24			-.633	-.502
TS14	<b>.614</b>	-.354	-.614	-.590
TS7	<b>.591</b>	-.491	-.610	-.414
TS17	<b>.468</b>	-.353	-.532	-.503
TS20	<b>.378</b>	-.397	-.633	-.836
TS21	<b>.503</b>	-.425	-.519	-.830
TS26	<b>.346</b>	-.540	-.601	-.695
TS3	<b>.450</b>	-.337	-.518	-.690
TS6	<b>.632</b>	-.459	-.610	-.685
TS25	<b>.313</b>	-.481	-.606	-.668
TS27		-.345	-.625	-.665
TS10	<b>.434</b>	-.592	-.608	-.635
TS4	<b>.458</b>	-.413	-.443	-.578

Extraction Method: Principal Components.

Rotation Method: Oblimin with Kaiser Normalization

Table G5

*Structural Matrix of Institutional Support Scale*

Note: Only one factor was extracted. Since the solution cannot be rotated, there is not a structural matrix for this variable.

**Appendix H:**  
**Scree Plots for Study Scale**

Figure H1

*Scree Plot for Academic Self-Efficacy Scale*

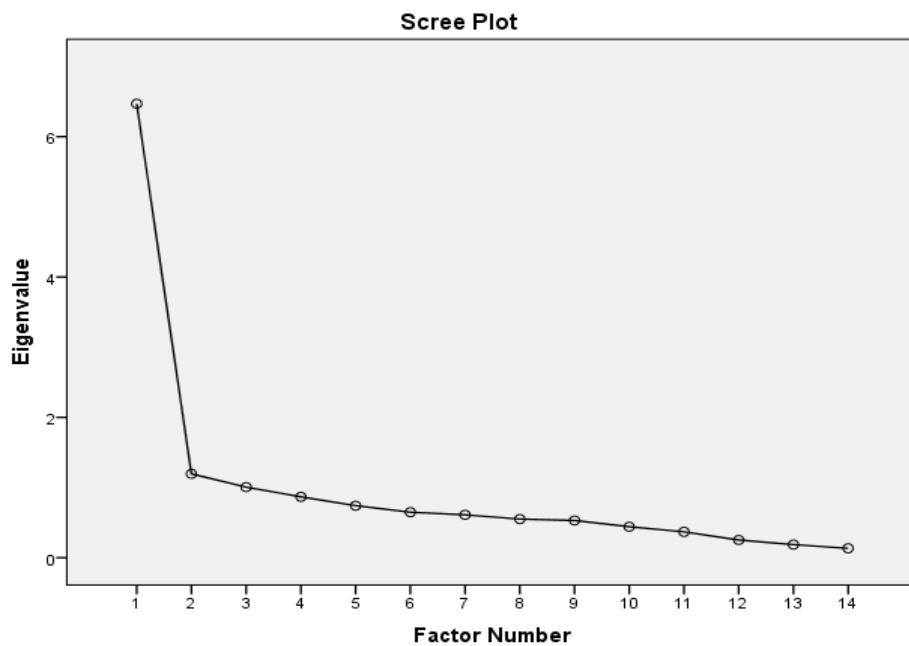


Figure H2

*Scree Plot for Outcome Expectations Scale*

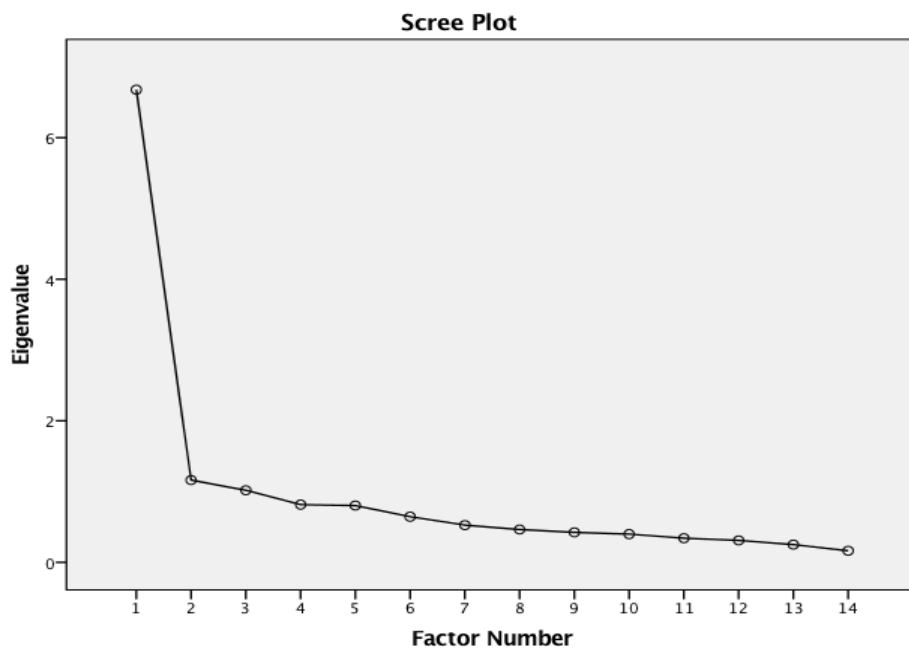


Figure H3

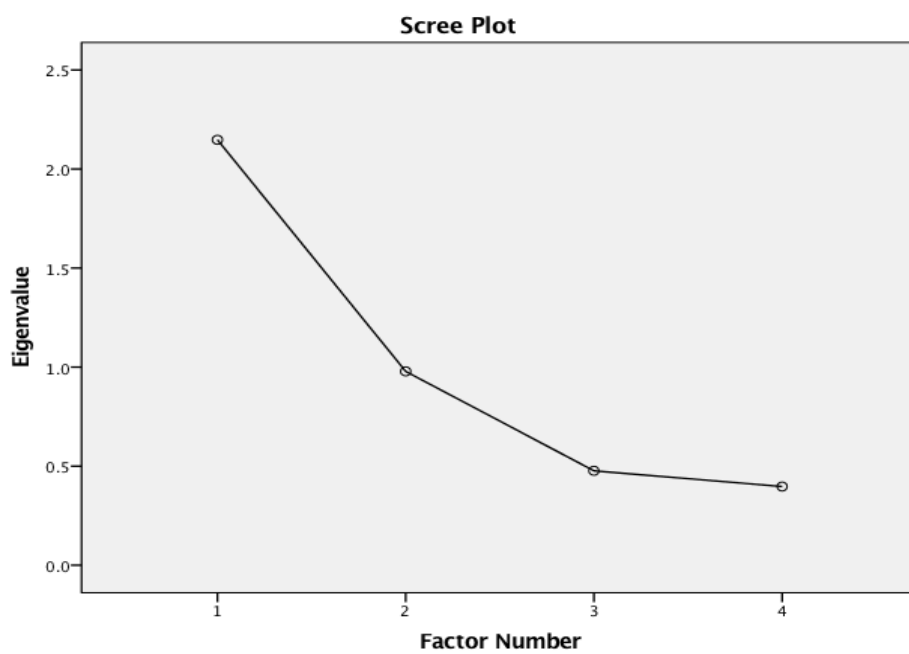
*Scree Plot for Academic Interest*

Figure H4

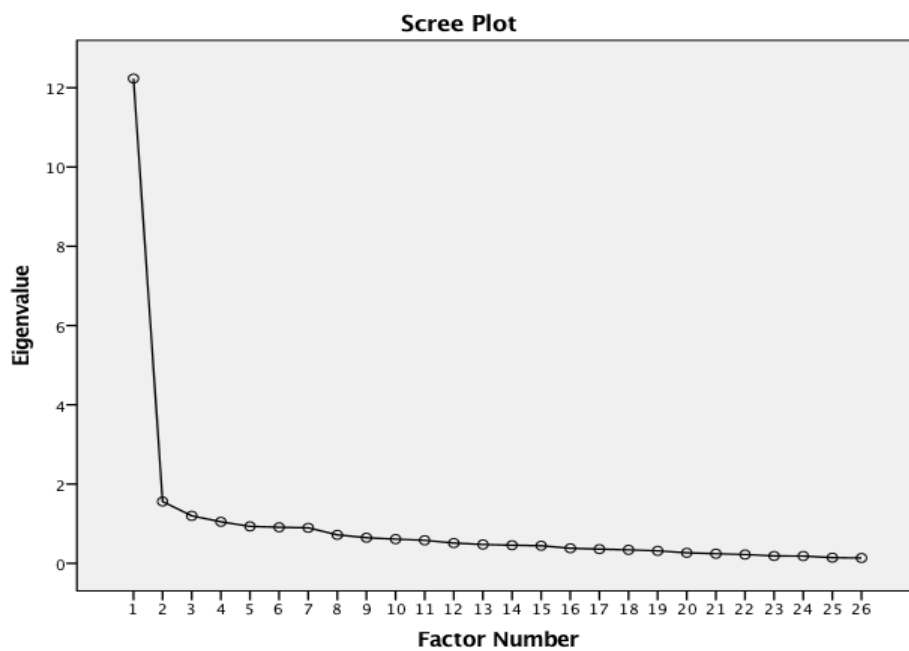
*Scree Plot for Teacher Support Scale*



Figure H5

*Scree Plot for Institutional Support Scale*