ABSTRACT

MCKNIGHT, TWANA MICHELLE. Dispositional Factors: Predicting Academic Achievement and Persistence of Low-skilled Adults Enrolled in Community College Adult Basic Education Programs. (Under the direction of Dr. James Bartlett).

Compelling arguments acknowledged deficiencies in traditional ABE programs to include low persistence and lack of educational skill gains among low-skilled adults (Alssid, Goldberg & Klerk, 2010). The purpose of this quantitative research study is to examine the influence of dispositional factors - self-efficacy, attribution beliefs and attitude towards school - on academic achievement and persistence among low-skilled adults enrolled in North Carolina community college ABE programs, within a model that also incorporates student demographics factors - age, gender, ethnicity and labor force status. The study is grounded on the assumption that beliefs that students create, develop, and hold to be true about themselves are powerful forces in their successes or failures in educational activities (Pajares, 1996).

Attention to the study of the relationship between dispositional variables and academic achievement for this population intends to provide adult educators with an understanding of the role that these variables play in the lives of adult learners. Understanding how such variables influence academic achievement can provide input into designing interventions that will strengthen students' self-beliefs and adult educators' roles in addressing academic achievement in ABE programs. The implications from this research advises practitioners on how to structure ABE programs and address concerns with current funding and accountability systems.

The researcher investigated the relationship between self-efficacy, attitude towards school, attribution beliefs, demographics and academic achievement using the following research questions:

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RQ#1: Is there a relationship between self-efficacy, attribution beliefs and attitude towards school among low-skilled adults enrolled in community college adult basic education programs?

RQ#2: Is there a relationship between academic achievement (learning and level gains in reading and math) and age, gender, ethnicity, and labor force status among low-skilled adults enrolled in community college adult basic education programs?

RQ#3: Do self-efficacy, attribution beliefs, attitude towards school, and demographics (age, gender, ethnicity, labor market status) explain a significant amount of variance in academic achievement as measured by learning gains (increase in math and reading scores)?

RQ#4: Do self-efficacy, attribution beliefs, attitude towards school, and demographics (age, gender, ethnicity, labor force status) explain a significant amount of variance in academic achievement as measured by level gains (advancement of one or more educational functioning levels)?

Correlation analyses using Pearson product-moment correlation coefficients were conducted to identify the relationship between demographic factors and academic achievement as well as the relationships existing among self-efficacy, attitude towards school and attribution beliefs. Linear and logistic regression analyses were employed to investigate the relationship between self-efficacy, attitude towards school, attribution beliefs and demographics (age, gender, ethnicity and labor force status) on academic achievement. Results identified a negligible relationship between demographic factors and academic achievement. Self-efficacy was moderately correlated with attitude towards school as evidence by the correlation coefficient, r =.342. Interestingly, self-efficacy had a low association with attribution beliefs as evidenced by the correlation coefficient, r = .161. The results of linear and logistic regression analyses found that self-efficacy, attribution beliefs, attitude towards school and demographics did not predict

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academic achievement in math for this population. Self-efficacy was a significant predictor of learning gains in reading, B =.147, p = .042, although it did not predict learning or level gains in math. These results demonstrate that self-efficacy beliefs are important determinants of academic performance. The findings have important educational implications for adult education practice. Adult educators can use this information to support self-efficacy for ABE students, develop intervention strategies, and implement teaching practices that cultivate self-efficacy beliefs in low-skilled adults.

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Dispositional Factors: Predicting Academic Achievement and Persistence of Low-skilled Adults Enrolled in Community College Adult Basic Education Programs

by
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DEDICATION

This dissertation is dedicated to my husband Cory and sons Ayinde', Zion and Jayden whose unyielding patience, love, support, and encouragement have enriched my soul and inspired me to stay the course and complete my journey.

To my parents, who unknowingly instilled in me a tireless work ethic and persistent determination to be whatever I want to be without limitations.

To my "Village" who were the ultimate "Cheerleaders", thank you for the words of encouragement.

To my Almighty God, who is the source of my life, strength, knowledge and wisdom, thank you for answering my calls in the morning, the middle of the day and late at night.

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BIOGRAPHY

Twana McKnight is currently employed as a Dean at Sandhills Community College in Pinehurst, NC. Twana worked for Sandhills Community College for 14 years in various capacities. During her tenure, she served as a Basic Skills Instructor, Basic Skills Coordinator, and Retention Assessment Specialist-Transition Coordinator in the Continuing Education and Workforce Development Department.

Twana is a doctoral student at North Carolina State University, pursuing a Doctor of Education degree in Adult and Community College Education. Her research investigates the influence of dispositional factors on academic achievement of low-skilled adults enrolled in community college Adult Basic Education programs. Twana holds a MEd in Community College Educational Administration from Western Carolina University. She also holds a BA from Duke University in Psychology.

Aside from the above, Twana volunteers and is involved in several civic and community organizations. She is an avid reader and enjoys spending time at home with her family.

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CHAPTER 1

INTRODUCTION

Current economic and workplace pressures have focused a great deal of attention on low-skilled adults (O'Neill & Thomson, 2013). Gvaramadze (2010) describes low-skilled adults as individuals with insufficient academic backgrounds and little to no work experience. Many low-skilled adults lack basic employability skills, interpersonal skills and credentials required to compete for jobs that pay family supporting wages (McDowell & Soricone, 2014). These low-skilled individuals possess low educational levels at grade eight or below, have poor literacy and numeracy skills, and are either unemployed or underemployed. Most low-skilled adults, who are seeking employment, are in an unstable and insecure position in the labor market (Gvaramadze, 2010). Low-skilled adults act on the margins of the labor market and face daily unemployment threats, even in low-skilled jobs.

Exacerbating the problem is the fact that labor markets have increased the demand for skilled labor, which further affects low-skilled workers and their participation in the labor market. Due to technological changes and globalization, there is a decline in the demand for manual skills and a rise in demand for higher skill requirements. Many modern jobs are seeking individuals who possess basic skills such as language proficiency, mathematical, computing, problem solving and communication skills, social skills and ability to follow certain instructions (Gvaramadze, 2010). Therefore, low-skilled adults, that are lacking these high demand skills, remain outside the labor market. To take advantage of these modern job opportunities requires expanded education and training opportunities, and this is especially true for low-skilled adults.

Marked changes in the industrial workplace over the past decade have put more low-skilled adults out of work who now require education, training and the credentials to build or

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provide evidence of their abilities to earn family-sustaining wages (O'Neill & Thomson, 2013). A highly skilled and adaptable workforce is often seen as the solution to challenges associated with a globalized, knowledge driven economy (Daehlen & Ure, 2009). Literature has documented that returning to education for low-skilled adults is consistent with an upward shift in the demand for skilled labor and creates economic mobility for this unemployed or under-employed group. Adult educators understand the necessity of education and training for this population and are working hard to expand access to educational programs for low-skilled adults and their families across the country, to help increase their basic skills and training opportunities (O'Neill & Thomson, 2013). For many low-skilled adults, participation in adult basic education programs increases their opportunities to enter the labor market. As a result, each year approximately 1.4 million adults with limited literacy or low educational attainment enroll in adult basic education and adult secondary (ABE/ASE) programs authorized under the Workforce Innovation and Opportunity Act (Mellard, Krieshok, Fall, & Woods, 2013). These adults enroll with plans to increase their literacy, and math skills; acquire a high school credential; and move on to postsecondary education or skilled-job training (Comings, Parrella & Soricone, 1999).

In North Carolina, Community College ABE programs are available for low-skilled adults to gain the skills they need to progress successfully in education and the workplace. North Carolina Community Colleges provide opportunities for adults, who have literacy skills below the ninth grade to increase their literacy and math skills, earn a high school diploma, gain a High School Equivalency (HSE) credential (formally known as General Educational Development (GED) certificate) or complete a combination of these goals. However, many adult learners fail to earn a credential and produce academic outcomes that translate into measurable gains in literacy and math skills required for full participation in economic and civic life (Mellard et al.,

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2013). One often cited reason for this lack of success is insufficient learner persistence in ABE programs (Comings, 2007; National Research Council, 2012). These students do not persist long enough to demonstrate measurable educational gains in their basic skills, earn a high school diploma, or gain an HSE credential.

For low-skilled adults who do not possess basic literacy and math skills, a high school diploma or HSE credential, obtaining educational skills and credentials can take an exceptionally long time. Technology becomes an additional hurdle, since low-skilled adults arrive to academic institutions that use computers and other technology tools that create an environment that is significantly different from what they have experienced in the past. Additionally, many of these adults arrive at school with certain attitudes towards school, personal values, and unstated self-beliefs of their lack of ability and the outcomes of their efforts (O'Neill & Thomson, 2013; Pajares, 1996; Quigley, 1997). Low-skilled adults, particularly those enrolled in ABE programs, often experience considerable anxiety and apprehension in returning to school. They often bring weak self-beliefs and mixed emotions about education, many of which are negative, borne of past schooling experiences and based on past outcomes, such as the fact that they did not finish high school (O'Neill and Thomson, 2013; Quigley, 1997). These individuals can bring negative preconceptions and feelings such as they are too old to learn or believe they will experience high levels of difficulty comprehending new material. Often times, these individuals have false perceptions about their ability to accomplish particular academic tasks such as mathematics or reading. For many low-skilled adults, these self-beliefs play a negative role in academic success and low-skilled adults' decision not to persist (Beder, 1990, 1991; Quigley, 1997, 2000).

Given the importance of low-skilled adults' participation in ABE programs, the need to understand the factors that influence persistence and academic achievement among this group is

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vital. In North Carolina, the viability of ABE programs is dependent upon meeting performance outcomes. Failure to understand and identify actions to improve student persistence and academic achievement among this group may lead to loss of funding for ABE programs, and will limit the options of low-skilled adults to improve their quality of life, including participation in civic life and their opportunities for upward economic mobility.

This study focuses on students' self-beliefs, referred to as dispositional factors, as a principal component of academic achievement and persistence. The study is grounded on the assumption that beliefs that students create, develop, and hold to be true about themselves are powerful forces in their successes or failures in educational and employment activities (Pajares, 1996). The study examines the influence of three specific dispositional factors (self-efficacy, attribution beliefs and attitude towards school) on academic achievement and persistence among low-skilled adults enrolled in community college ABE programs. These dispositional variables have been examined extensively as predictors of academic achievement and persistence. Two measures of academic achievement, learning gains (increase in math and reading scores on TABE assessments), and level gains (advancement of one or more educational functioning levels), are the primary focus of this study. Although persistence is a great concern in ABE programs, this study does not investigate it as an outcome due to the high rate of attrition among the target group and the restricted period in which the study is conducted. Nonetheless, persistence is integrated extensively throughout this study.

Background of Study

Adult Basic Education (ABE) programs are available to those individuals who need to gain basic skills to succeed. ABE programs serve three primary groups: 1.) those with minimal literacy skills who lack a high school diploma or High School Equivalency credential, 2.) high

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school graduates who are not college ready, and 3.) students with limited English language proficiency. The role of ABE programs has traditionally focused on providing basic skill instruction in preparation for the High School Equivalency credential or general learning gains. Compelling arguments acknowledged deficiencies in traditional ABE programs to include low persistence of adult students, lack of educational skill gains, the absence of employability skills and the limited attention paid to increasing the skill gap through credential attainment (Alssid, Goldberg & Klerk, 2010). Although there are many low-skilled adult students who enroll in traditional ABE programs, weak academic performance and high attrition rates remain persistent problems among this student population.

The persistence rate of low-skilled adult learners enrolled in ABE programs is suggested to be far too low (McDowell & Soricone, 2014).

- In ABE programs, 50 percent of adults who enroll in ABE classes drop out before completing 35 hours (10 weeks) of instruction (McDowell & Soricone, 2014)
- Only about 11 percent of ABE students attend classes continuously for a year (Comings et al., 1999)
- 70 percent or more students enrolled in ABE classes do not earn a High School Equivalency credential (Strawn, 2007)
- Less than 3 percent of High School Equivalency graduates who start in Adult Basic Education move into credit courses and complete an associate's degree (McDowell & Soricone, 2014)

Low-skilled adults, with minimal literacy skills, enroll in ABE programs with goals that require hundreds, if not thousands of hours of learning to achieve. Despite their intent, many of these adults fail to stay long enough to increase their basic skills or earn a high school diploma or High

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School Equivalency credential, while others struggle to achieve measurable skill gains toward a credential or employment. As a result, low persistence rates among ABE students place a severe limitation on how much academic progress these students can make (Comings et al., 1999).

Researchers have suggested various models for understanding learner persistence and academic achievement (Beder, 1991; Comings et al., 1999; Quigley & Uhland, 2000; Tracy-Mumford, 1994; Ziegler, Bain, Bell, McCallum & Brian, 2006), yet these issues continue to plague adult basic education programs. One model for understanding persistence and academic achievement in adult basic education reflects the interaction of societal structures, institutional processes, and individual attitudes and attributes. Most literature on the topic of persistence and academic achievement identifies perceived barriers to persistence and academic achievement in educational programs, divided into situational, institutional, dispositional and demographic factors (Cross, 1981). Situational factors are external to the individual and have to do with facts such as cost, time or transportation. Common situational factors cited in the literature include family limitations, employment or unemployment, childcare, lack of support, adult responsibilities and health care concerns (Comings et al., 1999; Cook & King, 2004; Gvaramadze, 2007; Johnstone & Rivera, 1965). Institutional factors relate to the mismatch between the characteristics of the institutional offerings - including procedures and organizational practices. Examples of these barriers commonly noted in the literature include inconvenient schedules, inaccessible locations, unclear procedures, time dedicated to studying and cost of courses (Bosworth et al., 2007; Cook & King, 2004; Cross, 1981). Dispositional barriers, also referred to as psychosocial or internal barriers, are those related to the individuals' attitude toward education, perceptions and expectations (Cross, 1981; Darkenwald & Merriam, 1982; Johnstone & Rivera, 1965; Quigley, 1997; Ziegler et al., 2006;). Dispositional barriers

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include concerns students have about their ability to succeed, hostility towards school, low self-esteem, and past negative educational experiences. Other examples of dispositional barriers include worrying about not fitting in, feeling alienated from the dominant culture, and believing that one is too old to learn (Porras-Hernández & Salinas-Amescua, 2012). Finally, nationwide studies have also identified demographic variables such as age, gender, race, ethnicity and economic status to impact persistence and academic achievement (Desjardins, Rubenson, & Milana, 2006; Porras-Hernández & Salinas-Amescua, 2012).

Research on persistence and academic achievement in adult basic education has focused primarily on situational and or institutional barriers. The literature tends to underrepresent the construct of dispositional factors. Adults identify dispositional factors less frequently as being an obstacle to persistence and academic achievement in educational programs. Nonetheless, substantial evidence from studies exists concluding that dispositional variables are central to fostering students' persistence and academic achievement, and the study of these psychosocial and subjective issues is important (Quigley, 1997; Ziegler et al., 2006).

The dispositional constructs used for this study are self-efficacy, attribution beliefs and attitude towards school. Self-efficacy is the belief about one's abilities: an estimate of one's confidence for accomplishing a particular task such as reading and mathematics. Attribution is the belief about the cause of one's success or failure. Attitude towards school is the belief about the efficacy of attending school, which results from past schooling experiences that help shape adult's perceptions (Ziegler et al., 2006). Research indicates that students with strong self-efficacy and attribution beliefs and a positive attitude towards school are more likely to complete their education successfully and are better equipped for a range of occupational options in today's competitive society (Bandura, Barbaranelli, Caprara & Pastorelli, 2001; Zimmerman,

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1990). Conversely, research shows that students who have a low sense of self-efficacy and attribution beliefs, and a negative attitude towards school are more likely to drop out of school, jeopardizing their chances of academic success and subsequent employment prospects (Bandura, 1991, 1997).

According to Beder (1991), specific characteristics of individual adults influence different barriers. As with other studies in the area of persistence and academic achievement, previous research was not focused directly on the low-skilled population, and the characteristics of this less-educated group might lead to a different list of barriers. Consequently, the current study makes use of the focus on dispositional variables and intends to examine the relationship among three dispositional variables - self-efficacy, attribution beliefs and attitude towards school - and their influence on academic achievement and persistence for low-skilled adults enrolled in community college adult basic education programs. These specific constructs were chosen because of their documented impact on academic achievement and student persistence. According to Quigley (1997), dispositional factors have promising potential to improve persistence rates and academic achievement. Understanding the predictability of dispositional variables on academic achievement and persistence could have an important impact on student success in adult basic education programs and will further the inquiry of dispositional variables as factors that show association with student success and persistence.

Problem Statement

Recent research has strongly challenged ABE programs, revealing weak academic performance and high attrition rates among low-skilled adults. Research reports that many low-skilled adults already enrolled in ABE programs are making little to no gains in reading and math competencies because they do not persist long enough to make significant academic progress.

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Hundreds, if not thousands of hours of study and practice are required to raise their skills to a level that would make dramatic changes in their ability to perform the roles of high-skilled workers and citizens (Comings et al., 1999). Repeatedly, persistence is described as the number one problem in adult basic education programs. Drop out rates are as high as 70 percent in state and federal basic education programs (Quigley, 1995). Furthermore, it is not uncommon to have 50% of ABE students leave a program before they achieve their educational goals (McDowell & Soricone, 2014).

Considerable research and theoretical work on academic achievement and persistence in education programs exist. While much focus has been on higher education and school age children, minimal attempts were made to explain and investigate academic achievement and persistence of low-skilled adults, particularly those enrolled in adult basic education programs. Moreover, the research that has generally been conducted focused on academic achievement and persistence as supported by motivation and hindered by situational and institutional barriers (Cross, 1981; Darkenwald & Valentine, 1985) with little attempt to understand the crucial role that dispositional factors play in supporting adult learner achievement and persistence. Although the other research is informative, some researchers (Quigley, 1997; Ziegler et al., 2006) suggest that the study of dispositional and psychosocial factors, as opposed to situational and institutional factors, could yield new insight into the behaviors of low-skilled adults.

The study of dispositional factors could explain reasons adults, who had sufficient motivation to enroll in ABE programs, are not successful and do not persist in ABE programs (Mellard et al., 2013). The research presented in this study will examine the influence dispositional factors have on academic achievement and persistence. Given the challenges of adult basic education program attrition, policy makers, program administrators, adult educators,

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and intervention developers may benefit from understanding the role these factors play in the academic achievement and persistence of low-skilled adults. A greater understanding of dispositional factors could provide a place from which focused efforts in program reform might begin to affect persistence and academic achievement among low-skilled adults (Quigley, 1997).

Purpose of Study

The purpose of this quantitative research study is to investigate the influence of dispositional factors measured by self-efficacy beliefs, attribution beliefs and attitude toward school on academic achievement among low-skilled adults enrolled in adult basic education programs at two community colleges in North Carolina, within a model that also incorporates student demographic factors (age, gender, ethnicity and labor force status). Thus, based on empirical and theoretical antecedents, the study starts with the premise that dispositional variables (self-efficacy, attribution beliefs and attitude towards school) are associated with academic achievement and persistence.

The theoretical support to study the influence of these dispositional factors on academic achievement and persistence can be found in social cognitive theory. According to social cognitive theory (Bandura, 1977), self-efficacy beliefs and other related psychosocial constructs are hypothesized to predict persistence and academic achievement in pursuing educational accomplishments (Lent, Brown & Larkin, 1984). The analysis of these factors became a relevant research problem, given that few empirical studies focus on the use of dispositional factors of low-skilled adults to explain persistence and academic achievement. Specifically, research on dispositional variables has been largely concentrated on the study of school-age or college-level students. Furthermore, most research on dispositional factors has neglected to examine how dispositional variables influence academic achievement and persistence among low-skilled

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adults enrolled in community college ABE programs. Attention to the study of the relationship between dispositional variables for this population will help to clarify adult educators' understanding of the role that these variables play in the lives of adult learners. Understanding how such variables influence academic achievement and persistence can provide input into designing interventions that will strengthen students' self-beliefs and adult educators' roles in addressing persistence and academic achievement in ABE programs. This research can also be used as a tool to develop advice for practitioners on how to structure programs to address current funding and accountability systems.

This research study aims to provide empirical evidence relating to dispositional factors for low-skilled adults enrolled in two community college ABE programs. Data is obtained through a *revised- Adult Education Persistence Scale* which measures perceived self-efficacy, attribution beliefs and attitude towards school. A demographic information survey is used to capture descriptive information of the sample population, and student academic data that already occurred at the time the study was initiated, in this instance, TABE pre- and post-test assessment scores is used to measure academic achievement. Pearson correlations and linear and logistic regression analyses are used to analyze the data. Conclusions are drawn and recommendations are formulated from the study for policies and practices in education. This study also extends previous research on dispositional and psychosocial variables and bridges educational and psychological literatures.

Theoretical Framework

Current research has generated multiple theories and theoretical models to frame and help explain the interrelationship of factors that contribute to adult learner persistence and academic achievement (O'Neill and Thomson, 2013). Early work in social cognitive theory has paved the

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way for the theoretical framework of this study, which intends to explain the relationship between and/or among three dispositional factors on persistence and academic achievement. Social Cognitive Theory integrates some discrete concepts into an overall framework for understanding human functioning. According to this theory, behavior is regulated antecedently through cognitive processes and psychosocial experiences. What people think, believe, and feel, affects how they behave (Bandura, 1986). These processes and experiences affect self-efficacy, that is, beliefs in one's capabilities to carry out particular behaviors and determine the response consequences (Pajares, 1996). These beliefs of personal competence affect the behaviors individuals choose to perform, how much effort they will expend on an activity, how much or to what degree they exercise a degree of perseverance, and how resilient they will prove in the face of adverse situations. It has been noted in the literature that the higher the sense of efficacy, the greater the effort, persistence, and resilience (Pajares, 1996). Thus, the construct of self-efficacy is a way to understand and predict individual behavior.

As applied to this study, particular attention is paid to the construct of self-efficacy as a prominent and influential concept within Social Cognitive Theory. In an attempt to understand and predict human behavior, many studies explore the self-efficacy construct. The mediating role of perceived self-efficacy has proven useful for understanding students' motivation and achievement in academic contexts and has been demonstrated empirically.

Multiple studies have investigated the links between self-efficacy and various performance outcomes. For example, Schunk (1995) provides research that evaluates how self-efficacy influences motivation and performance as well as goals and achievement outcomes. In addition, numerous research studies demonstrated that self-efficacy beliefs could predict college students' academic performance and persistence including their success in the academic and

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practice setting. In a meta-analysis of the self-efficacy literature, Multon, Brown and Lent (1991) found an overall effect size of .38, indicating that self-efficacy accounted for approximately 14% of the variance in students' academic performance. Self-efficacy also accounted for 12% of the variance in academic persistence (Solberg, O'Brien, Villareal, Kennel & Davis, 1993) across a variety of student samples, experimental designs, and criterion measures. Across all school levels (elementary through college), self-efficacy was also found to be moderately correlated with persistence on a given task (r=.34) (Solberg et al., 1993). Self-efficacy holds promise for its predictability of persistence, academic motivation, learning and achievement in academic environments (Bandura, 1997; Chemers, Hu, & Garcia, 2001; Pintrich & Schunk, 1995; Robbins et al., 2004).

Consistent with the tenets of Social Cognitive Theory, self-efficacy views a product of individuals' past performance, the observation and verbal persuasion of others in the environment, and individuals' on-going physiological state (Bandura, 1997). Research has shown self- efficacy to be malleable and susceptible to the influence of other psychosocial variables, such as perceived reasons for success and failure (Weiner, 1991), goal orientation, cognitive engagement (Schunk, 1995), and attitudes towards school (Quigley, 1997). Many factors including gender roles, cultural stereotypes, and several other internal or external factors influence self-efficacy (O'Neill and Thomson, 2013). The role that other psychosocial variables play in persistence and academic achievement is the primary focus of theoretical perspectives other than those of social cognitive theory. These include theories about self-concepts, attributions of success and failure, expectancy value, goals, self-schemas and attitudes towards school stemming from past schooling experiences. Rather than directly affecting one's self-

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efficacy, these related psychosocial constructs are weighed and filtered through a process known as a cognitive appraisal (Pajares, 1996).

To better understand the role that self-efficacy and other related psychosocial constructs play in academic settings, researchers have investigated the relationships between these constructs and various academic performances as well as the relationships among the constructs themselves with grade school children and students enrolled in college. Results support the contentions of social cognitive theory in regards to the role of self-efficacy beliefs on performance and persistent variables in academic contexts (Multon et al., 1991). In adult basic education, the number of self-efficacy studies is very limited and only relate to specific areas of the educational experience. More research is needed to study how self-efficacy beliefs interact with other psychosocial constructs to influence academic performance and persistence among this population. The model developed for this study intends to expand the study of self-efficacy through a study, which investigates the influence of self-efficacy, attribution beliefs and attitudes towards school on persistence and academic achievement.

Conceptual Framework

Bandura (1997) and Schunk (1995) use Social Cognitive theory in a conceptualized model to frame and explain the challenges that adult learners face when returning to school in order to gain a better understanding of the psychosocial demands on adult learners. Few models associated with academic success point to a variety of factors that determine persistence and academic achievement, including various background characteristics, and dispositional variables (Ziegler et al., 2006). F*igure 1* summarizes the model tested in the current research study, and arguments and support for the hypothesized relationship which follow draw from research on Social Cognitive Theory. This study suggests the potential importance of examining the

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predicted relationships between and/or among self-efficacy beliefs, attitude towards school, attribution beliefs and persistence and academic achievement. In particular, a logical inference is that self-efficacy, attitude towards school and attribution beliefs are positively related to persistence and academic achievement. These constructs have documented impact on student learning, performance, and persistence.

The study also takes into account students' demographic characteristics. Previous research has concluded that demographic characteristics of students are inconsistently related to academic outcomes. Four demographic variables - age, gender, ethnicity and labor force status (employed, unemployed and not in the labor force) - documented in the literature are potential confounds of the relationships in the proposed model. The model is tested using linear and logistic regression analyses. In accordance with the model, the study posits the following structural relations among the factors as depicted in Figure 1. The arguments and support for the hypothesized relationships which follow draw from research on self-efficacy, attitude towards school, and attribution beliefs.

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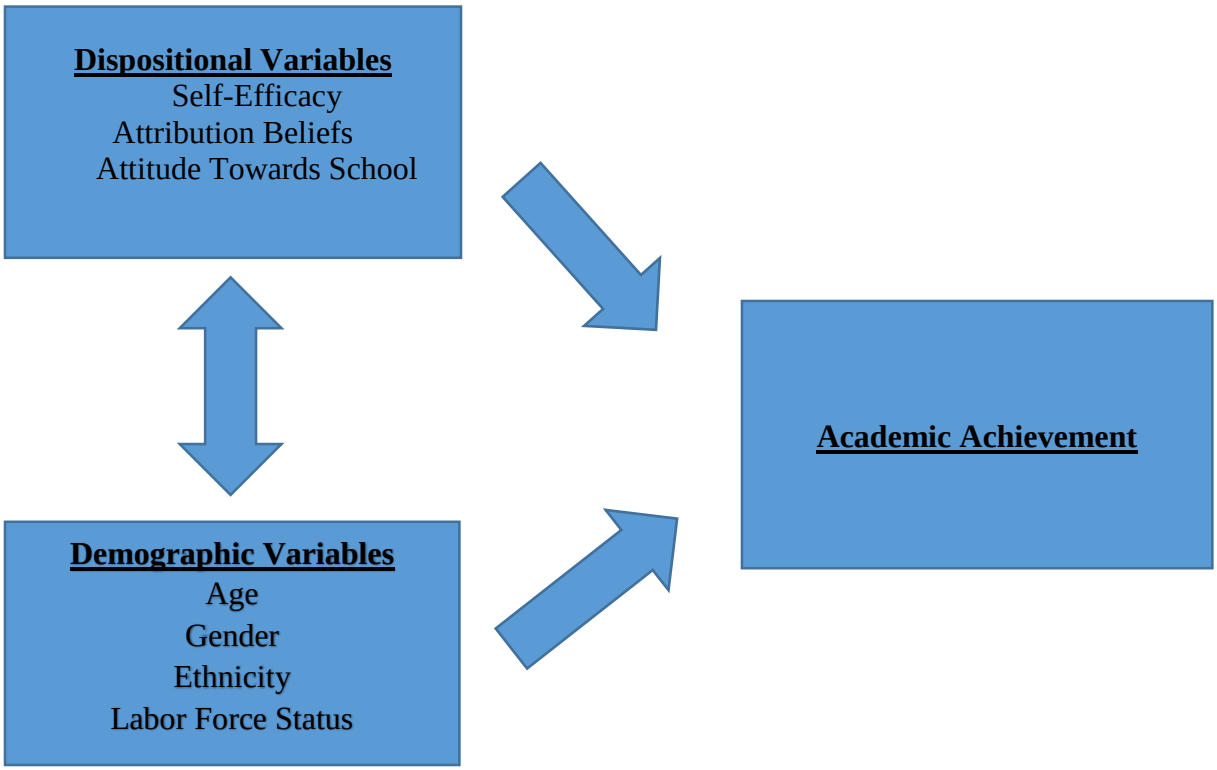

Figure 1 Conceptual Framework: Dispositional Factors in Relation to Academic Achievement

First, self-efficacy beliefs, attitude towards school and attribution beliefs are all positively correlated. Second, demographic variables have differential relationships with academic achievement. Third, self-efficacy, attribution beliefs and attitude towards school influence academic achievement among low-skilled adults enrolled in community college adult basic education programs.

Self-Efficacy

As a psychological construct, self-efficacy was first described by Bandura (1977, 1978, and 1986) as a person's belief in their ability to complete or accomplish a given task. It is best conceived as a differentiated set of self-beliefs specific to different areas of functioning (e.g. social self-efficacy, academic self-efficacy) and is considered a domain-specific concept (Bandura, 1997; Maddux, 1995; Valentine, DuBois, & Cooper, 2004). Self-efficacy has been

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studied within a variety of specific domains such as academic, social, career, clinical, athletic, and health areas (Bandura, 1997).

Across different domains of functioning, studies support that self-efficacy holds greater explanatory and predictive power for academic outcomes than many other determinants (Pajares & Miller, 1995). Self-efficacy is related to a number of educational and psychological constructs. Specifically, self-efficacy has been linked to motivational constructs such as persistence and goals/goal setting (Multon et al., 1991), the use of strategies such as self-regulated learning (Pintrich & De Groot, 1990), academic achievement (Pajares & Miller, 1995), and affective constructs such as stress, distress and anxiety (Solberg et al., 1993). Research indicates that students who possess strong self-efficacy beliefs are better able to manage their learning. They tend to display more effort, try harder in difficult situations and sustain more realistic and flexible attributions. Students with strong self-efficacy beliefs use more strategies, have higher achievement, and experience less stress and anxiety. As a result, students with strong self-efficacy beliefs are more likely to complete their education successfully and are better equipped for a range of occupational options in today's competitive society (Bandura et al., 2001; Zimmerman, 1990).

Conversely, research shows that students who have a low sense of self-efficacy exert less persistence and effort expenditure, lack intentionality, avoid uncertain and challenging tasks and possess nonrealistic and maladaptive attributions (Pajares, 1996). These students are more likely to drop out of school and have increased incidences of school failure (Bandura, 1997; Bandura, Barbaranelli, Caprara & Pastorelli, 1996; Bandura et al., 2001), jeopardizing their chances at academic success and subsequent employment prospects. Most of the research done on self-efficacy, in the academic domain in particular, was conducted using college students enrolled in

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4-year colleges and universities as well as grade school students. Self-efficacy was not explored as a predictor of academic achievement and persistence for low-skilled adults enrolled in adult basic education programs.

Attitude Towards School

Attitude towards school (school beliefs) result from past schooling experiences that influence perceptions about the efficacy of attending school, the likelihood that attendance will increase one's academic skills, the ability of the teacher to provide effective instruction, and the potential return on the investment of time in school. Quigley (1997) and Ziegahn (1992) note that many low-skilled adults equate adult basic education programs with school and they resist schooling because of the failure they experienced in the past. Furthermore, undereducated adults are assumed to lack self-esteem, and fear that the teacher will be unresponsive to their personal needs and goals (Beder, 1990; Malicky & Norman, 1994; Quigley, 1997). Beder (1990, 1991) and Quigley (1997, 2000) argue that prior school experiences play an important role in an adult's decision not to persist. Hayes (1988) offers empirical support for the view that past schooling experiences can influence perceptions and success in current school experiences. Hayes developed and administered the Deterrents to Participation Scale to 160 adults currently enrolled in basic education classes who were reading below the sixth grade level to assess their past reasons for nonparticipation. A factor analysis shows there are five deterrents including "negative attitude toward class." Beder (1989) surveyed 175 Iowa residents about reasons for nonparticipation in adult literacy programs and identified four factors for nonparticipation, one being a dislike of school. Finally, Baldwin (1991) conducted a factor analysis and identified seven categories that identified the main reason GED graduates left school. Three related to past school experiences.

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Attribution

Attribution is the belief about the cause of one's success or failure. Individuals may attribute their success or failure to their ability, their effort, and the context of the situation including task difficulty or luck (Weiner, 1985; Ziegler et al., 2006). In attribution theory, the causal attributions or explanations individuals make for events in their lives are presumed to influence their subsequent performance, expectancies and achievements (Weiner, 1986). Research demonstrates convincingly that causal attributions influence the likelihood of individuals' undertaking achievement activities, the intensity of work at these activities, and the degree of persistence in the face of failure. These behaviors manifestly will influence the degree of learning in academic settings (Weiner, 1985).

A strong body of research indicates that higher achieving and better adjusted persons attribute their academic successes to internal causes, such as ability and failures due to external causes, such as low effort or task difficulty or chance. Conversely, lower achieving and more poorly adjusted students attribute their failures to internal causes, such as low aptitude and successes to external causes, such as ease of task or chance (Bell & McCallum, 1995). It is considered healthy for an adult to attribute personal success to internal causes and personal failures to external causes. However, an extreme tendency to attribute successes to internal causes and failure to external causes is related to paranoid thinking and behavior (Carroll et al., 2009). The opposite is true for attributing success to external causes and failure to internal causes, a mindset which relates to depression (Bell, McCallum & Doucette, 2004; Seligman, 1991).

Research added to the attribution literature by Holschuh, Nist and Olejnik (2001) applied to academic success and failure confirms a relationship between attribution beliefs and self-

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efficacy. Attributions are often reported as correlated with self-efficacy or a learner's belief about his or her ability to perform a particular task, and is reported to influence emotional experiences and persistence largely through the mediational role of self-efficacy (Bandura, 1995; Schunk, 1991, 1995; Weiner, 1985). Conceptualizing attributions for academic success includes the four most common attributions: effort, ability, task difficulty, and luck (Ziegler et al., 2006). Ziegler et al., (2006) postulates that some attributions may contribute to individual breakdowns or obstacles, which in turn contribute to poor academic performance in ABE programs.

Seligman (1991) and Weiner (1979) demonstrates the relationship between attributions and persistence under experimental conditions. In several studies, Weiner (1979) demonstrates that subjects who attributed failure on a task deemed beyond their control made less effort in subsequent situations. There is also evidence that persons who fail to persist tend to blame their failure on events beyond their control and individuals who drop out of college tend to make external attributions for their leaving (Shields, 1995). In sum, the attribution process appears to be a significant determinant of learning and performance in the classroom. The explanations adults make for the events in their lives may well influence their persistence and academic achievement in educational programs.

Research Questions

The following research questions were used to guide this study:

RQ#1: Is there a relationship between self-efficacy, attribution beliefs and attitude towards school among low-skilled adults enrolled in community college adult basic education programs?

RQ#2: Is there a relationship between academic achievement (learning and level gains in reading and math) and age, gender, ethnicity, and labor force status among low-skilled adults enrolled in community college adult basic education programs?

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RQ#3: Do self-efficacy, attribution beliefs, attitude towards school, and demographics (age, gender, ethnicity, labor market status) explain a significant amount of variance in academic achievement as measured by learning gains (increase in math and reading scores)?

Criterion variable: The dependent variable for this study is academic achievement. Academic achievement is measured by learning gains (increase in math and reading scores).

Predictor variables: The independent variables for this study are self-efficacy, attribution beliefs, attitude towards school, and demographic variables (age, gender, ethnicity, labor force status).

RQ#4: Do self-efficacy, attribution beliefs, attitude towards school, and demographics (age, gender, ethnicity, labor force status) explain a significant amount of variance in academic achievement as measured by level gains (advancement of one or more educational functioning levels).

Criterion variable: The dependent variable for this study is academic achievement. Academic achievement is measured by level gains (advancement of one or more educational functioning levels).

Predictor variables: The independent variables for this study are self-efficacy, attribution beliefs, attitude towards school, and demographic variables (age, gender, ethnicity, and labor force status).

Significance of Study

Although there is a large body of research having to do with persistence and academic achievement at the college level, there is not an equal amount of empirical research on the population which is the focus of this study- the low-skilled adult who is functioning at fourth to eighth grade level. Within the last decade, educational researchers have become more concerned about the lives of low-skilled adults and about how ABE programs can aid them to become more

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qualified for participation in the new global economy. Nonetheless, there is still a substantial gap in the research pertaining to factors that influence persistence and academic achievement among this group, which goes beyond situational or institutional factors. This study will assist in informing the current gap in research on the influence of dispositional factors on academic achievement and persistence among low-skilled adults. Dispositional factors have proven to have a significant impact on low-skilled adults' persistence and academic achievement, although it has not been noted much in literature. Further study into the influence of dispositional factors on persistence and academic achievement could add valuable knowledge to research on this topic. It may also provide practitioners and policy makers with a body of knowledge they can use to improve the learning experiences of low-skilled adult learners in adult basic education programs. A better understanding of adult learners' dispositions would likely help ABE programs improve their contributions to learners' educational persistence and achievements.

Implications of this study can be used to gain a better understanding of the various forms of dispositional factors that together provide adequate explanations of behaviors of low-skilled adult learners (Bandura, 1986; Pintrich & Schunk, 1995). Results of this study may have practical significance for program administrators, adult educators, and students alike. For example, adult basic educators might find results from an initial self-assessment of low-skilled adult learners useful in identifying groups of low-skilled adults likely to persist in the program long enough to meet their academic goals. Alternately, the results can help to identify those students who are at risk of not persisting and may need extra resources to complete the program successfully. In this case, adult educators can use the essential knowledge garnered from this study to nurture the self-beliefs of these students and provide additional resources needed to help them successfully complete the adult basic education program (Ziegler et al., 2006).

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Working on the assumption that students with strong self-efficacy, attribution beliefs and positive school experiences are more likely to experience academic achievement, educators can use this study to develop ways to identify inaccurate judgments and aid in designing and implementing appropriate interventions and classroom strategies in a manner to alter these judgements and increase students' likelihood of achieving educational success. The implications of this study may also serve adult educators well by providing them with the understanding that it is important to pay attention to students' perceptions of competence as those perceptions relate to actual competence, for it is the perceptions that more accurately predict students' motivation (Hacket & Betz, 1989). For example, unrealistically low self-efficacy beliefs, low attribution beliefs, and a negative attitude towards school, not lack of capability or skill, may provide an explanation for why a sizeable number of low-skilled adults do not persist in adult basic education programs or avoid educational programs altogether (O'Hare, 1992).

This study is particularly significant in light of current national attention directed towards redesigning adult basic education programs to include more workforce development and strategies aimed at accelerating the progress of adult learners through basic skills and into post-secondary education for college or career training. As the economic landscape changes, academic achievement has become a more important measure of program accountability in ABE programs. In fact, funding for ABE programs is directly connected to academic achievement in terms of level gains as a performance measure. This research study could provide insight on different approaches to improving program practice with the aim of increasing academic achievement. Effective methods and practices supporting student academic achievement and persistence will benefit not only the students but also the programs designed to serve them.

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Definitions of Terms

The following terms will be used throughout this study:

Adult Basic Education (ABE), as defined by the National Reporting System for Adult Education (2001), is "a state and federal funded program designed to provide instruction for an adult who has minimal competence in reading, writing, and computation, is not sufficiently competent to meet the educational requirements of adult life in the United States, or is not sufficiently competent to speak, read, or write the English language to allow employment commensurate with the adult's real ability."

Attitude Towards School refers to school beliefs resulting from past schooling experiences that influence perceptions about the efficacy of attending school, the likelihood that attendance will increase an individual's academic skills, the ability of the teacher to provide effective instruction, and the potential return on the investment of time in school (Quigley, 1997).

Attributions are beliefs about the causes of one's personal success or failure (Ziegler et al., 2006).

Academic Achievement refers to 1.) learning gains (increase in math and reading scores), and 2.) level gains (the advancement of one or more educational functioning levels) (National Reporting System for Adult Education, 2001).

Educational Functioning Level refers to literacy levels that describe a set of skills and competencies that students demonstrate in specific areas to include reading, writing, mathematics, writing, English language acquisition, and problem solving (National Reporting System for Adult Education, 2001).

Persistence refers to number of hours of attendance over a period of time (Comings,

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2009).

Self-Efficacy refers to the belief in an individual's capability to organize and execute a course of action required to produce given attainments (Bandura, 1997).

Test of Adult Basic Education (TABE) is a norm-referenced, multiple-choice test that measures the skills adults need to succeed on the job and in life. The assessment measures basic skills in the context of life skills. This assessment extends from basic literacy and numeracy up to advanced literacy and numeracy skills, such as those on a High School Equivalency exam (National Reporting System for Adult Education, 2001).

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CHAPTER 2

LITERATURE REVIEW

Introduction

Much is at stake for low-skilled adults as the U.S. struggle to meet the vast educational needs of this population. Attaining a high school credential may have a significant impact on low-skilled adults' job prospects, job security, economic stability and earning power. However, it is not unusual to find that less than 50% of adult students remain in school after enrollment in an adult basic education program (U.S. Department of Education, National Center for Education Statistics, 2006). Given the challenges of attrition in adult basic education programs, this literature review focuses on research that explores dispositional variables and its relationship to persistence and academic achievement for adult learners in ABE programs. Several studies have concluded that dispositional factors influence persistence and academic performance and are critical to success in academic institutions (Chemers et al., 2001; Robbins et al., 2004).

This literature review will first examine the challenges facing low-skilled adults as they respond to changes to the US economic structure. Second, the review will discuss the role of community colleges in meeting the educational needs of low-skilled adults. Third, this literature review will examine the contributions made by the self-efficacy component of Bandura's (1986) social cognitive theory to the study of motivation and academic achievement in academic settings. Key findings on the role of self-efficacy in academic settings will be summarized. Fourth, the review will present a comprehensive overview of research on the attribution construct and explore its impact on persistence and academic achievement. Fifth, this literature review will examine the research that supports the tenant of persistence, linking attitude towards school to the studies on nonparticipation and persistence. Finally, the literature review will discuss the

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relationship between academic achievement and the funding and accountability systems of ABE programs. The chapter concludes with a summary.

Challenges Facing Low-skilled Adults

A 2010 report by the Federal Reserve Bank of Boston summarized the challenge facing America in this way:

"The structure of the U.S. economy has changed dramatically over the past few decades, leading to an increase in the demand for more highly educated workers. The reduced role of the manufacturing sector, the increased importance of the professional service and knowledge sectors, advancements in technology, and the spread of globalization are evidence that the ways in which we 'do work' have fundamentally changed."

In the past, low-skilled adults were able to tap into an ample supply of well-paying jobs in such fields as manufacturing, construction and agriculture. Today, however, many of these jobs are in short supply or have moved overseas (National Commission on Adult Literacy, 2008). Industry has changed markedly over the past decade due to globalization of the economy and technological changes in the workplace, putting more low-skilled adults out of work and requiring a more skilled and educated workforce. To cite a few examples, computerization and globalization have changed manufacturing enormously. Technological developments within the industry, such as computer-controlled lathes, automated assembly lines, and robotic quality control have altered automobile production so that significantly fewer, but higher skilled workers are needed to produce a fixed number of vehicles. International trade agreements accelerated these shifts and increased the share of imports in the industry further reducing domestic employment. In other areas such as textiles, large international wage differentials and dramatic reductions in the cost of shipping make it possible to send raw materials halfway around the

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world, use them to manufacture garments, and return the completed garments to the United States at a fraction of what it would cost to manufacture the same garments on United States shores (National Commission on Adult Literacy, 2008).

These changes in the occupational structure of the United States have important consequences for the educational requirements of job holders and for those seeking employment. Low-skilled adults often find themselves moving from job to job, displaced due to their lack of academic training or academic credentials (O'Neill & Thomson, 2013). As many as 80-90 million adults lack a high school diploma and two-thirds of all new jobs require some level of post secondary education and/or the minimum of an industry-recognized credential or certification. This means more low-skilled adults, including those who struggled in or dropped out of high school, will need to go back to school to complete unfinished high school diplomas and acquire the education, training and the credentials to build or demonstrate evidence of their abilities in order to bolster their job prospects or increase their earning capacity (Alssid, Goldberg, & Klerk, 2010).

Improving the educational achievement of low-skills adults in the United States has become increasingly more important. According to the American Community Surveys of 2009-2012, there were nearly 14 million U.S. adults age 20-64 who lacked a high school diploma or High School Equivalency credential in recent years and another 5 million who only held a High School Equivalency credential (Khatiwada, Sum & Palma, 2014). According to Khatiwada et al. (2014), the employment rates of the nation's 20-64 year olds in 2009-2012 varied quite widely across educational attainment groups ranging from a low of just 53% for those persons lacking a high school diploma and a High School Equivalency credential to 68% for high school graduates, to nearly 78% for associate degree holders, and to a high of nearly 85% for those with

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a master's or higher degree. The overall unemployment rate for all workers (16+) in the civilian labor force was 7.8% during 2012-2013. High school dropouts, however, faced an unemployment rate of 16%, while the unemployment rate of high school graduates and High School Equivalency credential recipients who did not go to college fell to under 10%, 6% for those with an associate's degree, and only 3 to 4 percent among those with a bachelor's or higher degree. These statistics illustrate that individuals without a high school diploma are less likely to be employed than others who hold a high school diploma, High School Equivalency credential, or a higher credential. Khatiwada et al. (2014) also indicated that when employed, less educated adults earn substantially less per year than those peers with better educations. Consequently, the mean annual earnings of adults rose steadily and strongly with their level of formal schooling. The mean annual earnings of adults ranged from $14,600 for those without a high school diploma, $19,600 for those with a High School Equivalency credential, $24,600 for those with a regular high school diploma, $35,900 for those with an associate's degree, nearly $54,000 for those with a bachelor's degree and $81,000 for those with a master's or higher degree. The association between educational attainment, employment and earnings for low-skilled adults underscore the importance of an education, particularly for individuals without a high school diploma (Khatiwada et al., 2014).

The consequences of persistently low educational attainment are dire for low-skilled adults, the states in which they live, and the nation as a whole (Foster, Strawn, & Duke-Benfield, 2011). Adults without a high school diploma can cost the federal government $671 each year in temporary cash assistance and in-kind benefits such as Medicaid, food stamps, and housing subsidies. If these individuals do obtain a high school diploma or High School Equivalency credential and training this negative revenue could turn into an increase of over $5,400 in net

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taxes collected per person (that is total federal and state taxes less the value of cash and non-cash transfers). Over a lifetime, students with at least a high school diploma will contribute at least $300,000 more than high school dropouts. The lifetime contribution balloons to nearly $900,000 for students with a bachelor's degree (Foster et al., 2011).

Low-skilled Adults and Community College

Across the US, many low-skilled adults who lack a high school diploma or High School Equivalency credential are taking advantage of educational programs offered through community colleges. Community colleges have a long history as leaders in workforce development, as collaborators with business and industry to meet local employment needs, and as institutions that are ideally positioned to serve individual education and training needs. In fact, approximately 13 million students representing diverse population groups and communities attend 1,132 institutions representing diverse population groups and communities (McDowell & Soricone, 2014). No other entity matches these schools' combination of scope and scale, offering basic skills, remedial education, career and technical training and traditional post-secondary education. In addition, these institutions offer career and technical education programs on a for-credit basis and a non-credit basis. Community colleges have a number of characteristics that make them highly effective economic development engines with the potential to play a central role in preparing low-skilled adults for the workforce. Their open-door policy makes them available to students of all educational backgrounds. They provide opportunities for students leaving high school, those that did not complete the high school diploma, older adults, low income and minority students, and working adults (McDowell & Soricone, 2014). They offer affordable tuition, open admissions, flexible course schedules and convenient locations. They are also flexible enough to develop and offer programs much more quickly than four-year colleges,

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allowing for nimble adjustments to the changes in the marketplace (Alssid et al., 2010). In reality, community colleges are not just feeder institutions for higher levels of education. They are primary job training, literacy and adult education providers. They now provide a third of adult education services in the country (National Commission of Adult Literacy, 2008). Community colleges attract and serve an increasingly large population of low-skilled adults through Adult Basic Education (ABE) programs. Nonetheless, in order to meet the educational and training needs of low-skilled adults, persistence in the program must be assumed.

Self-Efficacy and Social Cognitive Theory

A review of the literature reveals how widely the construct of self-efficacy has been adopted by different disciplines. This literature review is a testament to the application of self-efficacy as a possible predictor of students' academic performance and persistence. While many studies on self-efficacy exist, few have focused on the low-skilled ABE population. This lack of research limits a full understanding of the relative predictive validity of this psychosocial construct highlighted in emergent educational persistence models. Most studies involving the self-efficacy construct in academic settings have used middle and high school students, or college students enrolled in 4-year colleges and universities as the participants. A major drawback of this approach is that it does not allow for generalizability to students not enrolled in these academic programs (Lent, Brown & Larkin, 1984). Thus, there is a need to extend these findings to other populations. Because of the lack of research on the specific population that is included in the present study, the research included in this section provides a cross section of studies on self-efficacy. Studies across both psychological and educational literature were viewed that had both a measure of the psychosocial self-efficacy construct and an outcome

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measure of academic performance and persistence and when possible, had a population coinciding with the population of interest to this study.

Bandura (1977, 1982, 1986) proposed a theoretical framework to explain and predict behavior. Essentially, he suggested that behavior changes are mediated by a common cognitive mechanism called self-efficacy. Bandura (1986) defined self-efficacy as people's beliefs about their ability to perform a given task or behavior successfully, determine whether certain behavior will be initiated, explore how much effort will be expended, and predict how long effort will be sustained in the face of obstacles and aversive experiences (Lent et al., 1984). He summarized a theory and provided empirical evidence that suggests perceived self-efficacy feeds into human cognitive processing (how humans think), humans' motivations, and how they deal with emotions. Self-efficacy beliefs provide the foundation for human motivation, well-being, and personal accomplishment. Unless people believe that their actions can produce the outcomes they desire, they have little incentive to act or to persevere in the face of difficulties.

These beliefs of personal competence affect behavior in several ways. Much empirical evidence supports Bandura's contention that self-efficacy beliefs touch virtually every aspect of people's lives—whether they think productively, self-debilitatingly, pessimistically or optimistically; how much effort they put into given endeavors; how well they motivate themselves and persevere in the face of adversities; their resilience to adversity; their vulnerability to stress and depression, and their life choices and the courses of action (Bandura, 1986). People engage in tasks in which they feel competent and confident and avoid those in which they do not (Pajares, 1996). Those who have a strong sense of self-efficacy in a particular situation are hypothesized to devote their attention and effort to the demands of the situation, and when faced with obstacles and difficult situations these individuals will try harder and persist

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longer (Lee & Bobko, 1994). Self-efficacy beliefs also influence individuals' thought patterns and emotional reactions. People with low self-efficacy may believe that things are tougher than they are, a belief that fosters stress, depression, and a narrow vision of how best to solve problems. High self-efficacy, on the other hand, helps to create feelings of serenity in approaching difficult tasks and activities. Because of these influences, self-efficacy beliefs are strong determinants and predictors of the level of accomplishments individuals realize (Pajares, 1996).

Self-efficacy is best conceived as a differentiated set of self-beliefs specific to different areas of functioning and is considered a domain-specific concept, as no person can feel competent at all tasks (Bandura, 1997; Maddux, 1995; Valentine et al., 2004). The concept of self-efficacy as domain or task-specific has been proven to be a better predictor of actual behavior than a general self-efficacy concept (Bandura, 1986, 1997; Multon et al., 1991; Valentine et al., 2004). People form their self-efficacy perceptions by interpreting information from four sources.

According to Pajares (2003), the most influential source is the interpreted result of personal performance or mastery experience. Mastery experiences are those that allow an adult to be successful in learning and to have authentic evidence of that success. Outcomes interpreted as successful raise self-efficacy; those interpreted as failures lower it. The second source of self-efficacy information is the vicarious experience individuals undergo when they observe others performing tasks. Vicarious experiences involve the social comparisons made with other individuals who are similar to them, much like social models. These role models, both through the knowledge they share directly and through the indirect teaching of their behavior, help adult students acquire the skills to manage the many demands of the learning task. These comparisons

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can be powerful influences on developing self-perceptions of competence (Pajares, 2003). Third, individuals also develop self-efficacy beliefs because of verbal messages and social persuasions they receive from others such as teachers, staff, counselors, a fellow student, family and friends that reinforce self-efficacy. Positive persuasions may work to encourage and empower; negative persuasions can work to defeat or weaken self-beliefs. Fourth, physiological states such as anxiety and stress also provide information about self-efficacy beliefs. Addressing physiological and emotional states help students to deal with the tension, stress, and other negative emotional states that can result from poor self-efficacy and can lead to low self-efficacy. Self-efficacy is assumed to be responsive to changes in personal context and outcomes, whether experienced directly, vicariously, verbally or physiologically. Because of this sensitivity, researchers study self-efficacy beliefs as indicators of change during instructional interventions as well as indicators of initial personal differences (Zimmerman, 2000).

The tenets of self-efficacy theory have been studied in various disciplines and settings and have received extensive support from a growing body of findings from diverse fields. For example, self-efficacy has been the focus of studies on clinical problems such as phobias, depression, social skills, and assertiveness; on smoking behavior; on pain control; on health; and on athletic performance (Pintrich & Schunk, 1995). During the past decade, self-efficacy beliefs have received increasing attention in educational research, primarily in the area of academic achievement (Pintrich & Schunk, 1995). Substantial research has provided a background for the conceptual framework regarding studies of self-efficacy that examined outcomes from two distinct domains: college major and career choices, and performance and persistence. The self-efficacy research explored the link between self-efficacy beliefs and college major and career choices, particularly in the areas of science and mathematics. In the first theoretical paper on this

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topic, Hacket and Betz (1981) hypothesized that people's self-efficacy expectations will determine both their range or perceived career and academic options and their persistence and succession in chosen options. In subsequent research, undertaken primarily with college students and appearing largely in counseling and vocational psychology journals, researchers tested these hypotheses regarding choice and performance (Multon et al, 1991). Results show that self-efficacy beliefs are related to various indices of career choice and decisional behaviors (Betz & Hackett, 1983; Bores-Rangel, Church, Szendre, & Reeves, 1990; Farmer, Wardrop, Anderson, & Risinger, 1995; Hacket, 1995; Lent et al., 1986) and are predictive of success and persistence in certain academic majors (Brown, Lent, & Larkin, 1989; Lent et al., 1984, 1986; Lent & Hacket, 1987). For example, researchers have reported that the mathematics self-efficacy of college undergraduates is more predictive of their mathematics interest and choice of math-related courses and majors than either their prior math achievement or math outcomes expectations. This line of inquiry has important implications for counseling and vocational psychology theory and practice and can be used to develop career intervention strategies (Pajares, 1996).

Several other studies focused on the role of self-efficacy beliefs in predicting performance and persistence (Bandura & Schunk, 1981; Bouffard-Bouchard, 1989; Brown et al., 1989; Lent et al., 1984, 1986; Schunk & Hanson, 1985; Siegel, Galassi, & Ware, 1985). Lent et al. (1986) designed a study that investigated the degree of the relationship between self-efficacy beliefs and academic success and persistence among students considering science and engineering careers. Self-efficacy for completing the educational requirements and job duties of technical/scientific careers were obtained at three different points; the beginning of, the end of, and 3 months following a 10-week academic course in career planning. It was expected that those reporting high academic self-efficacy at the follow up would be more likely to remain in

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and succeed at a technical/scientific major during subsequent academic quarters than would those with relatively low ratings. Persistence was assessed from one to four quarters following a career-planning intervention. Indices of self- efficacy were completed during the first and final weeks of class sessions and 8 weeks after the final session. Self-efficacy measures were constructed based on procedures by Betz and Hackett (1981). Other data was also collected such as PSAT scores, high school ranks, college grades and declared majors for the quarter. The results of this study indicated that the high self-efficacy groups achieved higher grades and persisted longer in technical majors than did the low self-efficacy group.

Multon et al. (1991) conducted a meta-analysis of the relationships between students' self-efficacy beliefs for academic tasks and their academic performance and persistence. Data was collected primarily in elementary school settings with high and low achieving students. They found an average correlation of .38 between self-efficacy beliefs and academic achievement. They also identified 18 studies looking at persistence, measured as either time spent on task or number of items completed. They found a similar mean correlation of .34 (Robbins et al., 2004).

Many other researchers reported a direct positive relationship between academic self-efficacy and academic achievement (e.g. Bandura et al., 1996; Caprara et al., 1998; Chemers et al., 2001; Greene, Miller, Crowson, Duke & Akey, 2004; Pintrich & De Groot, 1990; Schunk, 1995; Zimmerman & Bandura, 1994). For example, Greene et al. (2004) tested a model explaining the impact of 220 high school students' perceptions of classroom structures on their academic self-efficacy, instrumentality, and academic achievement. Self-efficacy had a direct positive relationship, thereby demonstrating the importance of self-efficacy for successful learning.

A number of other studies have demonstrated that self-efficacy beliefs are critical to

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success in the university setting (Chemers et al., 2001; Kahn & Nauta, 2001; Lopez, Lent, Brown, & Gore, 1997; Pajares & Miller, 1995; Krumrei-Mancusco, Newton, Kim & Wilcox, 2013). Kahn & Nauta (2001) tested a social learning theory model of first-year college persistence using hierarchical logistic regression analysis to test precollege and first-semester college performance predictors. They found that past performance (i.e. high school rank and ACT scores) and first semester GPA significantly predicted persistence to the second year of college. Contrary to their hypothesis, they did not identify a significant role of first semester self-efficacy beliefs, outcome expectations, or performance goals. However, Kahn and Nauta (2001) did find that second semester self-efficacy beliefs and performance goals were significant predictors of return to college the second year. These findings suggest that self-efficacy beliefs are most salient once students have attended college and that the pre-college academic markers remain the most likely predictors of persistence to the second year.

Furthermore, research shows self-efficacy has been shown to be incrementally predictive of academic retention and performance even while controlling for traditional predictors of college success, institutional effects and demographic factors (Krumrei-Mancusco et al., 2013). In an attempt to understand college performance and persistence effects, Robbins et al. (2004) conducted a meta-analysis of 109 studies that examined the extent to which academic performance (cumulative grade point average, GPA) and retention (the length of time a student remains enrolled) are predicted by psychosocial and study skills factors. Based on educational persistence and motivational theory models, the psychosocial and study skill factors were categorized into nine constructs: achievement motivation, academic goals, institutional commitment, perceived social support, social involvement, academic self-efficacy, general concept, academic-related skills, and contextual influences. Additional analysis using multiple

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regression models based on meta-analytical results were carried out to examine the extent to which retention and GPA are predicted by the psychosocial factors after controlling for SES, high school GPA, and ACT/SAT scores. The results concluded that most of the psychosocial variables tested (academic goals, institutional commitment, social support, social involvement, academic self-efficacy, academic-related skills, and two contextual constructs, financial support and institutional selectivity) were found to correlate positively with retention. Academic-related skills, academic self-efficacy, and academic goals are noted to be the strongest predictor of college retention. In addition, academic self-efficacy was found to be the best predictor of both persistence and academic achievement (Robbins et al., 2004). This study was limited to full time students at a 4-year, higher education institution within the United States.

Findings from these studies and others were consistent and supportive of relationships between and among self-efficacy beliefs and (a) college performance, (b) college persistence, and (c) the range of perceived career options (Gore, 2006). Furthermore, each of these studies demonstrated how self-efficacy beliefs could account for variance in college outcomes (performance and persistence) beyond that accounted for by more traditional predictors (e.g. standardized achievement/aptitude measures). Researchers have reported that self-efficacy beliefs are also correlated with other self-beliefs, motivation constructs and academic choices, changes and achievement (Pajares, 1996). Self-efficacy has been prominent in studies that have explored its relationship with attributions (Schunk, 1981), anxiety and self-concept (Pajares & Miller, 1994, 1995), and varied academic performances (Bouffard-Bouchard, 1989; Hackett & Betz, 1989 on mathematics; Pajares, 1993 on writing and literacy; Zimmerman, Bandura & Martinez-Pons, 1992), across academic domains.

Critiques of the self-efficacy construct have been published in the literature as well

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(Bandura, 1984; Eastman & Marzillier, 1984). The first issue concerns the limited range and representativeness of populations studied. Most studies have sampled college and grade school students. Only one study investigated disadvantaged students, and these students were a select group participating in a pre-college program for those interested in science and mathematics (Bores-Rangel, Church, Szendre & Reeves, 1990). Additional studies of minorities and other disadvantaged individuals seem especially important. A second issue is that most self-efficacy research has focused on the simple relationships between self-efficacy and career or academic behavior and has not included additional variables expected to moderate these relationships. A third consideration, according to Bandura (1977), is that self-efficacy is likely to influence people's choices, efforts, persistence, and achievement, assuming they have sufficient abilities and incentives to choose or perform the relevant activities.

Two decades of research have clearly established the validity of self-efficacy as a predictor of students' motivation and learning. Although self-efficacy correlates with other related constructs, it has shown discriminant validity by its unique predictability of motivation and learning when included in multiple regression analysis. It has shown convergent validity in predicting diverse forms of motivation such as students' activity choices, effort, persistence, and emotional reactions. Self-efficacy has proven to be responsive to improvements in students' methods of learning and predictive of achievement outcomes (Zimmerman, 2000).

Attribution

Attribution theory, first developed by Weiner (1985), investigates the perception of causality, or the judgment of the cause of one's success or failure. According to attribution theory, causal attributions are often classified by two causal dimensions: 1.) locus of causality, which differentiates between causes that are within a person (internal) versus outside a person

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(external) and 2.) stability, which establishes the cause as either subject to change over time (unstable) or not (stable). From these dimensions, Weiner (1985) identifies four potential achievement-related attributions: (a) effort (internal/unstable), (b) ability (internal/stable), (c) task difficulty (external/stable), and (d) luck/chance (external/unstable). The basic premise of this perspective is that individuals' causal explanations for their successes and failures affect future expectancies, affect, and ultimately, behavior. Individuals who are internally motivated attribute their success to ability or effort and take personal responsibility for their performance. On the other hand, individuals who are externally motivated attribute their success to factors outside of their control, such as task difficulty or luck (Shores & Smith, 2010). Attribution researchers such as Weiner (1985) have identified ability and effort as perceived causes of individual success or failure. Success is often seen as the result of personal competence and hard work, whereas failure is attributed to low ability and the absence of trying. The ability can be characterized as consisting of aptitude and learned skills while the effort is the level of exertion applied to a situation. An individual who believes both that ability is responsible for past success and that ability is stable will most likely expect success on similar tasks in the future (Weiner, 1985). Expectancy of future success may be somewhat reduced, however, when previous successes are attributed to effort because most people perceive the effort to be a variable trait. When failure is attributed to stable causes such as ability, it is frequently accompanied by a low sense of self-efficacy, and motivation is diminished because future performances cannot be expected to improve. Continual attributions of failure to stable, uncontrollable factors can also lead to the reduction of effort in challenging tasks, unproductive strategies for seeking academic help and reduced intentions of pursuing further coursework in the academic area of failure (DeBoer, 1985). The allocation of responsibility manifestly guides subsequent behavior.

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Many investigations have been conducted that examine causal perceptions, particularly the perceived causes of success and failure in achievement related situations. Weiner (1985) using different experimental procedures, noted that high achieving individuals ascribe success to high ability and positive effort and ascribe failure to a lack of support. On the contrary, low achieving individuals attribute their failure to low ability and low effort. Research demonstrates that causal attributions influence the likelihood of undertaking achievement activities, the intensity of work at these activities, and the degree of persistence in the face of failure. The main behavioral differences found between individuals high and low in achievement are that individuals in the high achievement group are more likely to initiate activities; they work with greater intensity, persist longer in the face of failure, and choose more tasks of intermediate difficulty, than persons low in achievement. Students who are low in achievement may be less persistent, extend less effort, and avoid academic tasks. This, in turn, can decrease performance on academic related coursework, reinforcing the negative attribution perceptions. These behaviors influence the degree of learning in academic settings. Several studies were conducted in the area of attribution and mathematics achievements (Wentzel & Wigfield, 1998; Platt, 1988). These studies support Weiner's (1985) findings which indicated that students who attributed their academic success in mathematics at school to external factor (such as good luck) tended to earn lower math grades and show lower achievement, than students who attribute their success to factors they believe are internal or that they control, while students who reported that they enjoyed learning mathematics tended to show higher test scores.

Studies document that individuals differ in their predispositions to attribute achievement outcomes to ability and/or effort. A variety of environmental factors alter the likelihood that these elements will be inferred as causal factors of achievement outcomes. For example, it has

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been demonstrated that percentage and number of prior successes and failures experiences, primacy and recency, social norms, maximum level of performance, time spent on task, and a multitude of other factors are among the cues one uses to infer attributions of causality (Weiner, 1985). Thus, it is relevant to consider factors related to poor attributes and how they can be overcome. In sum, the attribution process appears to be a significant determinant of learning and performance in the classroom. These findings suggest that addressing attributes early in a student's academic career is the most advantageous means of influencing academic achievement and persistence.

Persistence

Persistence is commonly defined as hours of attendance (intensity) over a period of time (Mellard et al., 2013). Adult educators devoted considerable attention to the general phenomenon of participation and persistence in adult education programs. For many years, adult educators have been trying to understand and identify the factors that make persistence among this population so challenging. The demographic and educational characteristics of adult students participating in adult basic education programs is unique. As is often the case for low-skilled adults in the US, the students enrolled in adult basic education programs are low income and vulnerable to the challenges associated with poverty including domestic violence, fragile housing situations, unreliable transportation, child care needs; negative experiences with formal education; poor mental health; and limited knowledge about and experience in the labor market. These significant life challenges faced by low-skilled adults - coupled with economic, cultural, social or other factors - create obstacles that can deter the students from enrolling in the program, impede their participation in and have the ongoing potential of derailing a students' persistence in education (Foster et al., 2011).

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The tenets of persistence have been studied in various disciplines and settings and have received support from a growing body of findings from diverse fields. However, new research on persistence is hampered by the limited amount of previous research in adult education. Much of the adult literature on persistence or related topics draws on research with adults who have sufficient literacy skills, have high school diplomas, and are enrolled in college degree programs. Although this research is informative, it may not be directly applicable to low-skilled adult students who are enrolled in ABE programs and those who are seeking their high school equivalency credential and adult high school diploma (Comings et al., 1999).

Several researchers conducted studies to examine why adult education students drop out of literacy programs (Cross, 1981; Darkenwald & Merriam, 1982; Darkenwald & Valentine, 1985; Hayes, 1988), and approached the issue by looking at barriers and deterrents to participation. From these studies, different factors were identified that affect students' participation and persistence in educational programs. These factors were grouped into four broad categories including demographic characteristics such as age and prior educational level; situational factors such as work schedule, transportation, and childcare; institutional factors such as instruction and class time; and dispositional or psychological factors such as attitude towards school, self-efficacy and self-esteem (Cross, 1981; Quigley, 1997). Nationwide studies identify demographic variables as economic status, age, gender, ethnicity, race and consumer aspirations (Porras-Hernandez & Salinas-Amescua, 2012). Situational barriers are external to the individual and have to do with practical facts. Common situational barriers cited in the literature included family responsibility, child care, work demands, cost, time, transportation, lack of support, adult responsibilities and health concerns (Comings et al., 1999; Cook & King, 2004; Quigley, 1997). Institutional barriers relate to the mismatch between the characteristics of institutional offerings-

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including procedures and organizational practices- and the characteristics of socially disadvantaged groups (Porras-Hernandez & Salinas-Amescua, 2012). Examples of these barriers commonly noted in literature include inconvenient schedules, time dedicated to studying and cost of courses; weak connections with employment; and course schedule and selection (Cook & King, 2004; Kazis et al., 2007; Quigley, 2007). Finally, dispositional barriers also referred to as psychosocial or internal barriers are those related to the individual's attitude towards education, perceptions, and expectations. Dispositional barriers include concerns students have about their ability to succeed, negative past experiences with education, worries about not fitting in, low self-esteem, feelings of alienation from the dominant culture, and believing that one is too old for school (Cook & King, 2004).

Using a variety of factors within the four broad categories, education researchers conducted studies to investigate nonparticipation among adult learners (Beder & Valentine, 1987, 1990; Cross, 1981; Darkenwald & Merriam, 1982; Darkenwald & Valentine, 1985). Darkenwald and Merriam (1982) connected psychological barriers with low socioeconomic status, breaking the concept down even further to include adults' negative evaluations of the usefulness and pleasurable nature of education, a fear of failure, and low self-efficacy. Darkenwald and Merriam (1982) also suggested that individuals at lower socioeconomic levels and with lower levels of educational attainment tend to have less positive attitudes toward adult education and to have lower participation levels. The notion of barriers to participation eventually ceded to the concept of "deterrents". In 1988, Hayes conducted an analysis to investigate reasons for nonparticipation with respect to ABE students. Hayes looked more specifically at deterrents to participation in ABE classes. Findings, which derived from a sample of 160 ABE students, indicated that there were five basic deterrents to participation: Low Self-

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confidence, Social Disapproval, Situational Barriers, Negative Attitude to Classes, and Low Personal Priority.

Similarly, the Iowa ABE study conducted by Beder (1990, 1991), yielded four factors influencing nonparticipation: low perception of need, the perception that participation would entail too much effort, dislike for school, and situational barriers. Beder (1990) further determined that the stigma of illiteracy in itself was a barrier to participation, with a focus on the phenomenon of nonparticipation in adult literacy by addressing such questions as "Why do adults who are eligible for adult basic education fail to attend?" "Is there any underlying structure to the reasons why persons who are eligible fail to attend?" and "What socio-demographic and background variables are associated with the reasons why those who are eligible fail to attend ABE programs?". In his analysis of the Iowa study and the Hayes study, Beder (1991) concluded that structural barriers relating to lack of time, information, transportation, and child care; and more important, attitudes towards participation are two major reasons for nonparticipation. These findings are roughly consistent with Hayes' (1988) research. Although Hayes' work contributed to the analytical depth of nonparticipation study, the fact that the research subjects were all participants in ABE programs constitutes a limitation of the study (Beder, 1990). While varying slightly in title from study to study most of the factors are similar to those listed by Hayes (1988): low self-confidence, social disapproval by friends and family, situational barriers, negative attitude toward adult literacy classes, and low personal priority. Together, these studies point to perceptions by some adults that they may not benefit from participation, may not be able to learn, do not like participating in formal learning programs, and are unwilling to overcome the many barriers to participation. This describes a powerful set of negative forces that keep adults from entering or persisting in adult education programs

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(Comings et al., 1999). Quigley (1997) viewed persistence as significantly affected by the negative schooling experiences that adult learners had when they were younger. He focuses his attention on adults who drop out in the first few weeks of a program and to the dispositional influences that he believes cause the drop out.

Tinto (1987) observed that efforts to promote student success should focus on student retention. A wide range of psychological, social, behavioral and contextual factors are included in the theories of Tinto (1975, 1993) and Bean (1980), who focused on predicting student retention or persistence through incorporation of precollege student characteristics, goals and institutional commitments, institutional contextual variables, and academic and social integration factors. Both Tinto (1993) and Bean (1980) talked about aptitudes and capabilities as contributing to a sense of academic confidence or efficacy that helps to determine goal commitment. Pascarella and Terenzini (1991) were two of the first researchers to test Tinto's model. Their findings agreed with Tinto's interactionalist theory that unless a student is thoroughly integrated into the life of the institution, both socially and academically, he/she may not persist and may depart from an institution before earning a degree.

Academic Achievement and Accountability

For decades ABE program data show patterns of poor persistence as many adult literacy learners do not persist or participate in enough instruction to improve their literacy skills measurably. Adult educators recognize that participation in an adult education program needs to be long enough for the adult learner's skills in the area of study to increase a measurable amount. According to Mellard et al. (2012), about a quarter of learners separate from these programs before completing even one educational functioning level. After one full year, only 37-38% of the ABE and low ASE learners, whose literacy skills range from no reading ability to 8th grade

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level, gain one or more educational functioning levels; and 42-45% of high ASE learners, whose literacy skills are 9th to 12th grade levels, earn a high school diploma or its equivalency (Mellard et al., 2012). Several studies support the relationship between persistence and learning and suggest that adult students might demonstrate learning gains at specific intervals of instruction. As indicated in these studies, the adults' program participation, which includes approximately 100 hours of instruction as the minimum, is necessary for them to achieve an increase of one grade-level equivalent on a standardized test of reading and math comprehension (Comings, 2009).

In the past, learning in adult basic education programs was calibrated almost entirely by persistence, the length of time adults attend class. Funding and accountability systems were structured in ways that supported persistence. Research has shown that the longer a student persists the more learning will take place. Thus, the emphasis of ABE programs was focused on keeping students in their programs for as long as was needed to assure progress. The contemporary ABE programs promote learning as outcome-focused and competency based. There is less emphasis on persistence and more on student academic achievement.

The 2014 Workforce Innovation and Opportunity Act (WIOA) regulates ABE program operations and provides federal funding to these programs. WIOA has six core performance measures used to evaluate programs: four related to employment, one related to postsecondary credentials, and one related to measurable skills outcomes (Pickard, 2016). As it relates to this study, contemporary ABE programs are evaluated based on the percentage of participants who demonstrate measurable skills outcomes, defined as documented achievement of at least one educational functioning level and/or documented attainment of a secondary school diploma or its equivalent, of a participant who is receiving instruction below the postsecondary level (Pickard,

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2016). Demonstrating measurable skills outcomes has long been a federal requirement of the National Reporting System and provides an opportunity to track and report gains in reading, writing, mathematics and English proficiency. Consequently, programs funding and existence are dependent on their learners' ability to demonstrate outcomes. If these accountability measures are not met, programs are penalized and risk losing funding. Thus, in North Carolina, the viability of ABE programs is dependent upon meeting performance outcomes.

Summary

The theoretical foundation for this study includes social cognitive theory. The social cognitive perspectives about self-beliefs and other psychosocial constructs are part of the conceptual framework. Academic achievement and persistence may be understood in terms of students' dispositional factors. Research supports the need to include dispositional variables as major factors in the success of low-skilled adults enrolled in adult basic education programs. This framework provides a schema for conceptualizing and assessing factors that could be used to predict persistence and academic achievement. Traditional predictors have been used most commonly in research to predict persistence and academic performance. These include standardized test scores on ACT and SAT and high school GPA (Terenzini, Pascarella, Theophilides, & Lorang, 1985; Tinto, 1975, 1993). Grades were traditionally viewed as the most important indicator of retention and have been used as a criterion in psychological literature for almost a century. Students' demographic factors, such as age, gender, ethnicity, financial status, and whether they are first-generation students, have also been used in research studies and have been shown to relate to persistence and academic performance. According to Robbins et al. (2004), traditional predictors nor demographic predictors are useful as points of intervention for increasing success among students because these predictors offer little room for change. For

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these reasons, the focus of the current study may contribute to practice and policy in the area of adult basic education and lend some insight about how dispositional factors can be used to promote persistence and academic performance among adult basic education learners.

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CHAPTER 3

METHODS

Introduction

This chapter presents the research methods used for this study. The research study used a quantitative research design to examine the relationship of dispositional factors and demographics on academic achievement among low-skilled adults. The research methods include the research questions, research design, participants, instruments and measures, data collection and data analysis sections.

Research Questions

The purpose of this quantitative research study is to investigate the influence of self-efficacy, attribution beliefs, and attitude towards school on academic achievement among low-skilled adults enrolled in adult basic education programs at Community Colleges in North Carolina, within a model that also incorporates student demographic factors (age, gender, ethnicity and labor force status). The research questions that guide this study follow:

RQ#1: Is there a relationship between self-efficacy, attribution beliefs and attitude towards school among low-skilled adults enrolled in community college adult basic education programs?

RQ#2: Is there a relationship between academic achievement (learning and level gains in reading and math) and age, gender, ethnicity, and labor force status among low-skilled adults enrolled in community college adult basic education programs?

RQ#3: Do self-efficacy, attribution beliefs, attitude towards school, and demographics (age, gender, ethnicity, labor force status) explain a significant amount of variance in academic achievement as measured by learning gains (increase in math and reading scores)?

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RQ#4: Do self-efficacy, attribution beliefs, attitude towards school, and demographics (age, gender, ethnicity, labor force status) explain a significant amount of variance in academic achievement as measured by level gains (advancement of one or more educational functioning levels).

Research Design

This study used a non-experimental quantitative research design to determine the relationship of individual dispositional factors (self-efficacy, attribution beliefs and attitude towards school) and demographics (age, gender, ethnicity, labor market status) on academic achievement among low-skilled adults enrolled in adult basic education programs at Community Colleges in North Carolina. Psychometrically sound and theory-based measures of dispositional factors were used to advance the understanding of the role of dispositional factors on academic achievement. To inform the research question, a revised-*Adult Education Persistence Scale (AEPS)* developed by Ziegler et al. (2006) was used to examine the power of self-efficacy, attribution beliefs and attitude towards school to predict academic achievement as measured by (a) learning gains (increase in math and reading scores), and (b) level gains (the advancement of one or more educational functioning levels).

This study posed questions about outcomes of interest and used student academic data that already occurred at the time the study was initiated, in this instance, TABE pre- and post-test assessment scores. The data collected from the study, along with ABE program data, enabled the researcher to explore retrospectively academic achievement during learning. Such a study allowed the researcher to formulate ideas about possible associations and investigate potential relationships among variables using linear and logistic regression and correlation analyses. The study gave rise to the hypothesis that self-efficacy, attribution beliefs, attitude towards school,

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and demographics (age, gender, ethnicity, labor force status) statistically predict academic achievement among low-skilled adults enrolled in community college adult basic education programs.

Participants

Participants were recruited from students enrolled in ABE classes that are part of adult basic education programs at two community colleges in North Carolina. These institutions are two-year, public, open admission schools whose purpose is to prepare students for a career and for completing the first two years of a four-year degree. In addition to offering associate's degrees, certificates and diploma programs, these colleges accept the charge of offering adult basic education programs for individuals who did not complete high school and are seeking to acquire a high school diploma or its equivalent. The colleges vary in geographical location, although they are both considered midsize schools. These schools were specifically chosen in efforts to capture a representative sample of North Carolina ABE students. Furthermore, by selecting these two community colleges, the researcher intends to increase the generalizability of the findings to make judgments of the ABE adult student population.

The participants were among ABE students seeking basic skills remediation in preparation for a High School Equivalency Diploma. Participants were between the ages of 18 and 65 years of age with at least 12 hours of participation, were enrolled in a program at least one full semester, had withdrawn from secondary education without earning a secondary credential, possessed both pre- and post-test scores on the TABE assessment in math and reading, and were registered in a basic skills course of study. English language learners were excluded from the study because the study is more concerned with adult literacy interventions

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than language acquisition. This purposeful sampling consists of ABE students whose reading and math abilities range from grade 4.0 to 8.9 grade equivalents.

The National Reporting System (NRS) levels of each learner, using the Test of Adult Basic Education (TABE), was used to determine a learner's eligibility to participate in the study. For the purposes of testing and instruction, ABE students are placed into six categories, called levels. The NRS levels are Level 1 Adult Basic Education (ABE) Beginning Literacy, Level 2 Beginning ABE, Level 3 Low Intermediate ABE, Level 4 High Intermediate ABE, Level 5 Low Adult Secondary Education (ASE), and Level 6 High Adult Secondary Education. Each NRS level describes a set of skills and competencies that students entering at that level can perform in the areas of reading, writing, numeracy, speaking, listening, and functional and workplace areas. As noted in Table 1 below, each NRS level is also associated with a grade equivalent, which spans about two K-12 grade levels. The US Department of Education (USDE) requires literacy programs to measure and report participants' skill levels and gains based on these educational functioning levels.

Table 1

National Reporting System (NRS) Level

NRS Level	Grade Equivalent
Level 1- Beginning ABE Literacy	Grad level 0-1.9
Level 2- Beginning ABE	Grade level 2.0-3.9
Level 3- Low Intermediate ABE	Grade level 4.0-5.9
Level 4- High Intermediate ABE	Grade level 6.0-8.9
Level 5- Low Adult Secondary Education	Grade level 9.0-10.9
Level 6- High Adult Secondary Education	Grade level 11.0-12.0

The sample for this study included learners from each site with reading and math scale scores that placed them at NRS levels 3 and 4, which are equivalent to grade levels 4.0-8.9. These two levels were chosen to limit the effects of variability in student characteristics that is

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common in adult education populations. The researcher chose to limit this variability by concentrating data collection on a population that was in the middle of the range of instructional levels, each of which approximate two K-12 levels (e.g. Level 1 is roughly 1st and 2nd grade equivalent; Level 6 is roughly 11th and 12th grade level equivalent). Level 6 students were eliminated because many would have completed their High School Equivalency tests and graduated before the study was completed. Students in Levels 1 and 2 usually have very low reading skills and may have a high incidence of learning disabilities. This group usually needs years of study to reach a significant goal such as passing the High School Equivalency test (Comings et al., 1999). By focusing on the mid-range, the investigator hoped to have findings that would be applicable to the widest group of participants.

Instruments and Measures

In the study, relevant variables are used to answer research questions. To measure self-efficacy beliefs, attitude towards school and attribution beliefs, the *Adult Education Persistence Scale* (Ziegler et al., 2006) was used. To measure academic achievement, educational gain status is measured by (a) learning gains, as determined by an increase in math and reading scores on the TABE assessment, and (b) level gains, the advancement of one or more educational functioning levels. A background questionnaire was developed to administer to all study participants to measure demographic variables to include age, gender, ethnicity and labor force status (employed, unemployed and not in labor force). These instruments and variables are described below.

The Adult Education Persistence Scale (AEPS) by Ziegler et al. (2006), which measures judgments of schooling attitudes, self-efficacy, resilience, and attributions for success and failure, was adopted for this study. The instrument used in this research study is a revised and

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reduced version of the AEPS. The AEPS was initially developed to measure variables that might impede or enhance persistence- including scales measuring attitude towards school, self-efficacy, resilience, and attributions in the context of adult education activities- and the relative power of these variables (among other demographic variables) to predict persistence for welfare participants who enroll in adult basic education classes. The original AEPS includes two components. The first includes items that assess self-report of educational school experience, self-efficacy, and resilience and is referred to as the Attitude Component; the second assesses attributions (e.g., luck, task difficulty, effort, and ability) regarding adult education failure situations and is referred to as the Attribution Component. The Attitude Component was developed using expert opinion and results of item and factor analyses. Fourteen items were chosen for the Attitude scale, which demonstrated means between 2.6 and 3.6 and corrected item-total correlations between .35 and .60. A measure of internal consistency for the Attitude scale was computed and a reliability estimate (Cronbach alpha) of .82 was obtained. The Attribution Component included eight items for the external attribution portion assessing luck and context. The items demonstrated means between 1.8 and 2.5 and corrected item-total correlations between .27 and .59. A measure of internal consistency for the scale was computed and a reliability estimate (Cronbach alpha) of .72 was obtained. Eight items were chosen for the internal attribution portion of the Attribution Component assessing ability and effort. The items had means ranging from 1.9 to 2.30 and corrected item-total correlations between .40 and .71. A reliability estimate of .77 was obtained for this scale.

The revised-AEPS includes two components and is comprised of 27 items. Unlike the original study by Ziegler et al. (2006), the construct of resilience was omitted since it is not one of the factors assessed in the present study. The first component includes seven items that were

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adopted from the educational school experiences scale of the Adult Education Persistence Scale (AEPS). These seven items measure attitude towards school as a result of previous failures in school. Four additional items were adopted from the self-efficacy scale, which measures an individual's belief about his or her ability to perform in a specific context, task or domain. Collectively, this component is referred to as the Attitude Component, as noted earlier. The second component includes 16 items adopted from the attribution scale and measures the causality for academic success (e.g., luck, task difficulty, effort, and ability). This component is referred to as the Attribution Component, as noted earlier.

Cronbach's Alpha was used to provide an estimate of reliability and a factor analysis was conducted on the items that made up the three scales to provide an understanding of the validity and stability of the scales used in this study. The results of the factor analysis are found in Appendix C. Only items that loaded in the factors significantly were retained for each subscale. Results of the reliability analysis for each scale varied. Attitude towards schools had a mean of M=17.65 (SD=2.05). The Cronbach's alpha reached a high internal consistency, alpha = .75. The attribution scale yielded a mean of M=26.64 (SD= 3.39). The Cronbach alpha had an acceptable internal consistency, alpha = .68. Self-efficacy had a mean of M=8.97 (SD=1.34). The Cronbach's alpha on this factor demonstrated a lack of internal consistency of the scale items, alpha = .079. The low alpha could be a result of the low number of survey items associated with this scale, as well as poor inter-relatedness between items within the scale or heterogeneous constructs. To increase the Cronbach's alpha for self-efficacy, the removal of self-efficacy survey item 1 from the scale would increase the Cronbach's alpha from .079 to .241.

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For each of the 27 items, participants self-reported based on their perceptions of each item in relation to their attitudes towards school, self-efficacy, and attribution beliefs. Each item was rated on a 4-point Likert-type scale with responses ranging from 1-4, with 1.) representing Strongly Disagree, 2.) Disagree, 3.) Agree and 4.) Strongly Agree. A description of each subscale is presented below. The revised-AEPS with each of the 27 items is shown in Appendix B.

Attitude towards school. The attitude toward school subscale consists of seven items, each referring to students' perceptions about the efficacy of attending school, the likelihood that attending school will increase one's academic skills, the ability of the teacher to provide effective instruction, and the potential return of the investment of time in school. Examples of items include "Most teachers don't know how to teach reading" and "Teachers can help you learn reading."

Self-efficacy beliefs. Four self-efficacy items measure adults' perceived capability to perform a given task. Examples of items include "My faith in myself helps me to improve my math skills" and "I am able to sit and work on math problems for a long time."

Attribution beliefs. Sixteen items are designed to tap each of the ability, effort, task difficulty and luck attributions. These scales measure beliefs about causes of one's success or failure. Examples of items include "If I have to repeat a math assignment, it is probably because I am unlucky" and "If I get a low score on a test, it is probably because I am having a bad day."

Academic Achievement (NRS level and educational gain status)

The NRS levels of each learner were used, as indicated by the program's periodic reassessment using the TABE assessment, at the time of the study. All literacy providers are required to assess students using standardized pre-post assessments approved by the National Reporting System (NRS) to place students in federal Education Functioning Levels (EFL's) and

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report gain measures for the National Reporting System (NRS). TABE is one of the three most prevalent assessments used in ABE programs. TABE provides valid competency levels and measures progress among native English-speaking adult learners with limited literacy skills. The assessment measures academic content categories that reflect current trends in adult education, national standards, and adult curricula. This assessment extends from basic literacy and numeracy up to advanced literacy and numeracy skills, such as those on a High School Equivalency exam. The internal consistency reliability for all levels is acceptable (.88-.95).

Educational gain is a key outcome in the NRS which provides a measure of student literacy gains resulting from instruction. To determine this measure, local programs assess students on intake to determine their educational functioning level. Programs determine the appropriate initial level at which to place a student using a standardized test or assessment such as the TABE assessment. This initial assessment is known as a pre-test. After a predetermined amount of instruction or time period determined by the state (50-60 hours), the program administers follow-up assessments to students in the same skill area, using a different form, to determine whether the students have advanced one or more levels or are progressing within the same level. This latter assessment is known as a post-test. Educational gain is measured by (a) learning gains (the increase in math and reading scores from pre and post-tests), and (b) level gains (the advancement of one or more educational functioning levels). Table 2 illustrates the TABE scores that a participant must attain to advance from one educational functioning level to the next in Reading and Math.

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Table 2

TABE Scale Scores Per Educational Functioning Level in Reading and Math (NC Assessment Manual 2015-2016)

TABE (9-10)	NRS Level	Grade Equivalent
(Reading) 367 and below (Math) 313 and below	Beginning Literacy	Grade level 0.0-1.9
(Reading) 368-460 (Math) 314-441	Beginning ABE	Grade level 2.0-3.9
(Reading) 461-517 (Math) 442-505	Low Intermediate ABE	Grade level 4.0-5.9
(Reading) 518-566 (Math) 506-565	High Intermediate ABE	Grade level 6.0-8.9
(Reading) 567-595 (Math) 566-594	Low Adult Secondary	Grade level 9.0-10.9
(Reading) >596 (Math) >595	High Adult Secondary	Grade level 11.0-12

Background and descriptive characteristic measures

Descriptive measures are student demographic and status information in specific areas. These measures allow for a description and understanding of who attends adult basic education programs and for what reasons. The measures also allow for analysis of the performance of specific groups of students attending adult basic education programs, such as unemployed students or students receiving public assistance. The demographic measures included in this study are age, ethnicity, gender and labor force status (employed, unemployed and not in labor force). Background and descriptive data was collected from the participants using an information survey created by the researcher. A copy of the survey is found in Appendix A.

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Data Collection

Once Institutional Review Board approval was obtained, data collection procedures began. The researcher contacted vice presidents, deans or directors of Adult Basic Education programs and the Office of Institutional Research at select institutions via e-mail to describe the purpose of the study and to obtain permission to undertake the research at their respective schools. Following approval, the researcher met with students during their class time. The researcher explained the purpose and nature of the study, the procedures used to collect the data from the participants and their records, assurances of confidentiality and anonymity, voluntary nature of participation, benefits and risks that could arise from participation, and provided a telephone number of the researcher, the Dissertation Chair and IRB Director in the event the participant had questions regarding his/her role in the research. Students who volunteered to participate were given consent forms to review and sign. The participants completed self-report indices of the revised –*Adult Education Persistence Scale (AEPS)* to elicit their attitudes towards school, self-efficacy, and attribution beliefs. The scores from each survey item of the revised-AEPS generated total scale scores representative of each component for each participant. A basic information survey was also used to gather demographic and labor force information. Students who were identified by school personnel as experiencing literacy difficulties were administered the scale and basic survey information in small groups, where the researcher read the scales and survey items aloud verbatim to the participants. Participants were told to record their names on the survey sheet to assure that the data remained together for each participant and to allow the researcher to match TABE assessment scores with each survey.

Participants completed the surveys within the allotted time. The researcher returned to some of the classrooms to obtain data from students who were not in attendance when the

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original data was collected. The researcher met with the LEIS Coordinator or Director of the Adult Basic Education program to obtain TABE pre- and post-test scores for each participant. This information was used to measure educational learning and level gains. After the TABE scores were recorded on the survey document the students' names were removed from the survey document and replaced with a student ID number. All information gathered in the study was kept confidential, with no reference made in written or oral material linking the participants to the study.

Data Analysis

The data collected from the surveys and the participants' records were entered into Statistical Package for the Social Sciences (SPPS) Graduate Pack 26 for Windows for statistical analysis. Descriptive statistics were conducted to explain the demographic information collected in the study. A correlation analysis using Pearson product-moment correlation coefficient was conducted to answer Research Question Number 1, identifying relationships that exist among self-efficacy, attribution beliefs, and attitude towards school. A second correlation analysis using Pearson product-moment correlation coefficient was conducted to answer Research Question Number 2, identifying the relationship between demographic factors (age, gender, ethnicity, labor force status) and academic achievement (learning and level gains) in math and reading.

To further examine the quantitative data, a block-wise entry approach for linear regression analysis was used to answer Research Question Number 3, and two academic domains were tested. Two linear regression analyses were carried out to determine if self-efficacy, attitude towards school, attribution beliefs, and demographics (age, gender, ethnicity, labor force status) explain a statistically significant amount of variance on academic achievement in reading and math, after accounting for all variables. Academic achievement as measured by an increase

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in math and reading scores was the criterion variable for the two linear regression analyses. Predictor variables that include demographic variables (age, gender, ethnicity), labor force status and the AEPS scale scores- representing self-efficacy, attitude towards school and attribution beliefs- were entered into the linear regression analyses for both math and reading using the block-wise entry approach to enhance predictive accuracy. To start, demographic control variables were added to the model (Model 1) and made up the first block entry. This included such variables as gender, ethnicity, and age. In the next model (Model 2), labor force status was added. The final model (Model 3) included the AEPS scale scores, representing self-efficacy, attitude towards school, and attribution beliefs, to see if it predicts academic achievement above and beyond the effects of the demographic and labor force status variables. Each model was assessed by what it offered to the prediction of academic achievement that was different from the predictions offered by the other models. The models were analyzed at each step to determine the contribution of the predictor variable entered previously in the equation. This process enhanced predictive accuracy and helped determine which set of predictors created the best prediction equation. The equations for each model are listed below. The equations are the same for both math and reading domains, thus one equation is listed below and is reflective of both academic domains.

Model 1: Academic Achievement = Constant + (Y * Demographics)

Model 2: Academic Achievement = Constant + (Y * Demographics) + (Y * Labor Force Status)

Model 3: Academic Achievement = Constant + (Y * Demographics) + (Y * Labor Force Status) + (Y * Self-Efficacy) + (Y * Attitude Towards School) + (Y * Attribution Beliefs)

Similarly, a block-wise entry approach was performed for two logistic regression analyses used to answer Research Question 4, and investigated whether self-efficacy, attitude

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towards school, attribution beliefs, and demographics (age, gender, ethnicity, labor force status) explain a statistically significant amount of variance on academic achievement in reading and math, after accounting for all variables. The criterion variable for the logistic regression analyses was academic achievement as measured by the advancement of one or more educational functioning levels in math and reading. Predictor variables that include demographic variables (age, gender, ethnicity), labor force status and the AEPS scale scores, representing self-efficacy, attitude towards school and attribution beliefs, were entered into the logistic regression analyses for both math and reading using the block-wise entry approach. In the same manner as above, three models were generated and analyzed at each step to determine the contribution of the predictor variable entered previously in the equation. The equations for each model are listed below. The equations are the same for both math and reading domains, thus one equation is listed below and is reflective of both academic domains.

Model 1: Academic Achievement = Constant + (Y * Demographics)

Model 2: Academic Achievement = Constant + (Y * Demographics) + (Y * Labor Force Status)

Model 3: Academic Achievement = Constant + (Y * Demographics) + (Y * Labor Force Status) + (Y * Self-Efficacy) + (Y * Attitude Towards School) + (Y * Attribution Beliefs)

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CHAPTER 4

DATA COLLECTION AND ANALYSIS

Introduction

This chapter describes the demographics of the purposeful research sample used for the study, the statistical methods used to analyze the data, the results of the data analyses used to address the research questions posed for this study, and a summary of the study findings. The analysis is categorized and reported in two sections. The first section provides a profile of the participants, and the second section uses inferential statistical analyses to answer the research questions.

Description of the Sample

The participants for this study were selected from two Community College Adult Basic Education (ABE) programs serving adults seeking basic skills remediation in preparation for a High School Equivalency Diploma. The participants were located in North Carolina. For a person to be in this purposeful sample, he or she had to be an Adult Basic Education student who met the following criteria: 1.) must be between the ages of 18 and 65, 2.) be enrolled in a program at least one full semester, 3.) must have withdrawn from secondary education without earning a secondary credential, 4.) must possess both pre- and post-test scores on the TABE math and reading assessments, and 5.) must be registered in a basic skills course of study. A total of 230 students met these criteria and volunteered to participate. The ABE students participating in this study had reading and math abilities that ranged from grade 4.0 to 8.9. Of the 230 volunteers, four participants were removed from the research study for being 17 years old. Another six students did not fully complete the revised-AEPS survey and short demographic form. Eight students were eliminated from the study because they did not have both pre- and

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post-test scores on the TABE math and reading assessments. Of the original 230 students, the final delivered sample was 212 (92.2%) of those that volunteered to participate and to be included in the data analyses.

Details of Analysis and Results

The participants in the study were asked demographic questions on a short paper and pencil survey. The demographic information was matched with a data set that included student achievement measures and provided a more robust description of the participants in this study. The demographic questions were summarized using descriptive statistics, including frequency and percentages. In Table 3, the results of the demographic characteristics of the participants are presented, including their gender, ethnicity, age and status in the labor force. There was an almost equal distribution of males (49.1%, n = 104) and females (50.9%, n= 108). Age was categorized into five groups. The age group 20-29 had 84 (39.6%) individuals, followed by the next largest age group being 30-39, which had 49 individuals (23.1%). The smallest group had 20 (9.4%) and were individuals in the 50 and over group. Of the sample, students aged 18-19 made up 17% (n=36) of the sample. The majority of the participants reported their ethnicity as Black/African American (34%, n = 72), with 24.5% (n= 52) reported American Indian/Alaskan Native. Fifty (23.6 %) students reported their ethnicity as White and another 38 (17.9%) as Hispanic/Latino. Of the 212 participants, 141 (66.5%) were unemployed and 65 (30.7%) reported being employed. Six (2.8%) participants indicated they were not in the labor force.

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Table 3

Demographic Characteristics of Survey Participants by Gender, Ethnicity, Age and Labor Force Status

Demographic	F	%
Gender		
Male	104	49.1
Female	108	50.9
Ethnicity		
White	50	23.6
Black/African American	72	34.0
American Indian/Alaskan Native	52	24.5
Hispanic/Latino	38	17.9
Other Pacific Islander	0	0.0
Age		
18-19	36	17.0
20-29	84	39.6
30-39	49	23.1
40-49	23	10.8
50 and over	20	9.4
Status in Labor Force		
Employed	65	30.7
Unemployed	141	66.5
Not in Labor Force	6	2.8

Table 4 shows the number of hours worked per week by the participants within three categories. Of the participants, 65 (31.0%) responded that they were employed. Of those participants, 52.3% (n=34) reported working 21-34 hours per week, 36.9% (n=24) reported working under 20 hours per week. Only 10.8% (n=7) of participants reported working more than 35 hours per week.

Table 4

Number of Hours Worked Per Week

Hours worked per week	n	%
Under 20 hours	24	36.9
21-34	34	52.3
Over 35 hours	7	10.8

Note. n=65

Table 5 provides data that describes the earnings for the 65 participants that reported being in the labor force. Participants were asked to provide their hourly or annual income. The hourly wage

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of employed participants ranged from a low of $8.00 per hour to a high of $15.00 per hour. The average hourly wage was $9.97 (SD=1.893). The annual salaries of the employed participants ranged from $4,320.00 to $28,800.00. The mean salary was $12,848.46 (SD=$5,129.57).

Table 5

Minimum, Maximum, Mean and Standard Deviation for Wage and Salary

	Minimum	Maximum	Mean	Std. Deviation
Hourly Wage	$8.00	$15.00	$9.97	$1.893
Annual Salary	$4,320.00	$28,800.00	$12,848.46	$5,129.57

Note. n=65, that provided hourly wage, n=65, that provided annual income

The data pertinent to the research questions were analyzed using inferential statistics including bivariate analysis such as Pearson product-moment correlation and multivariate analysis such as linear regression and logistic regression analyses. Four research questions were developed for this study to explore whether self-efficacy, attribution beliefs, attitude towards school and demographics explain academic achievement. Self-efficacy, attitude towards school, attribution beliefs, and demographic variables (age, gender, ethnicity, labor force status) were the independent or predictor variables and academic achievement was the dependent or criterion variable. Decisions on the statistical significance for the study were based on a p-value of .05.

The following four research questions were answered by the study:

RQ#1: Is there a relationship between self-efficacy, attribution beliefs and attitude towards school among low-skilled adults enrolled in community college adult basic education programs?

RQ#2: Is there a relationship between academic achievement (learning and level gains in reading and math) and age, gender, ethnicity, and labor force status among low-skilled adults enrolled in community college adult basic education programs?

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RQ#3: Do self-efficacy, attribution beliefs, attitude towards school and demographics (age, gender, ethnicity and labor force status) explain a significant amount of variance in academic achievement as measured by learning gains (increase in math and reading scores).

RQ#4: Do self-efficacy, attribution beliefs, attitude towards school, and demographics (age, gender, ethnicity, labor force status) explain a significant amount of variance in academic achievement as measured by level gains (advancement of one or more educational functioning levels).

Research Question 1

Correlation analysis using Pearson product-moment correlation coefficient was used to answer Research Question 1, identifying the relationships that exist among self-efficacy, attribution beliefs and attitude towards school.

Correlation Coefficients are generally interpreted in the following way in educational research (Davis, 1971):

Size of the Correlation Coefficient	Interpretation of effect size
.70 or higher	Very strong association
.50 to .69	Substantial association
.30 to .49	Moderate association
.10 to .29	Low association
.01 to .09	Negligible association

The results for the correlation analysis were provided using these same descriptors.

Correlation analysis using Pearson product-moment correlation coefficient revealed a positive correlation between self-efficacy, attribution beliefs and attitude towards school. Self-efficacy and attitude towards school were found to have a moderate association as evidenced by

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the correlation coefficient, r = .342. Self-efficacy had a low association with attribution beliefs as evidenced by the correlation coefficient, r = .161. This correlation is not high enough to indicate a significant influence of one variable on the other. Pearson correlation coefficients of the predictor variables are reported in Table 6.

Table 6

Pearson Correlation Coefficients Among Self-Efficacy, Attitude Towards School and Attribution Beliefs

Variable	Attribution Beliefs	Attitude Towards School	Self-Efficacy
Attribution Beliefs	1		
Attitude Towards School	0.058	1	
Self-Efficacy	.161*	.342*	1

*$p < .05$. Correlations are statistically significant at the .05 level (2-tailed).

Research Question 2

RQ#2: Is there a relationship between academic achievement (learning and level gains in reading and math) and age, gender, ethnicity, and labor force status among low-skilled adults enrolled in community college adult basic education programs?

Correlation analysis using Pearson product-moment correlation coefficient was used to answer Research Question 2, identifying the relationships that exist between academic achievement in math and reading and age, gender, ethnicity, and labor force status. The results of the correlation analyses found there was a negligible correlation between the demographic variables and academic achievement as measured by learning gains in reading and math. Similarly, the results revealed there was a negligible association between the demographic variables and academic achievement as measured by level gains in reading and math. There was a low association between Black/African Americans and reading level gains as indicated by a correlation coefficient, r =.127. The results are found in Table 7.

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Table 7

Pearson Correlation Coefficients for Academic Achievement, Age, Gender, Ethnicity and Labor Force Status

Variables	Math Learning Gains	Reading Learning Gains	Math Level Gains	Reading Level Gains
Male	-0.014	-0.017	0.010	-0.034
Black/African American	-0.072	0.019	0.088	0.127
White	0.019	-0.046	-0.088	-0.083
American Indian	0.046	-0.024	0.032	-0.009
Hispanic/Latino	0.017	0.054	-0.047	-0.055
Age 18-19	-0.050	-0.069	-0.035	-0.037
Age 20-29	-0.003	0.072	0.069	-0.086
Age 30-39	0.036	-0.010	-0.003	0.087
Age 40-49	0.019	0.068	-0.044	0.013
Age 50 and over	-0.003	-0.090	-0.020	0.052
Labor Force Status	0.025	0.080	-0.042	0.059

*$p < .05$. Correlations are statistically significant at the .05 level (2-tailed).

Research Question 3

RQ#3: Do self-efficacy, attribution beliefs, attitude towards school and demographics (age, gender, ethnicity and labor force status) explain a significant amount of variance in academic achievement as measured by learning gains (increase in math and reading scores).

In order to examine Research Question 3, a linear regression analysis was conducted to assess the amount of variance self-efficacy, attitude towards school, attribution beliefs, and demographics (age, gender, ethnicity and labor force status) explain in academic achievement as measured by an increase in test scores on the TABE math assessment. Academic achievement as measured by increase in math scores is the criterion variable for the linear regression analysis. Predictor variables that include demographic variables (age, gender, and ethnicity), labor force status, and the AEPS scale scores, representing self-efficacy, attitude towards school and attribution beliefs were entered into the linear regression analysis using a block-wise entry approach. The individual models were compared to test if successive models show a significant

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improvement in R^2. Model 3 was determined to yield the best prediction equation and the results of this linear regression analysis are based on this particular model. The prediction equation for Model 3 is as follows:

Academic Achievement = Constant + (Y * Gender, Age, Ethnicity) + (Y * Labor Force Status) + (Y * Self-Efficacy) + (Y * Attitude Towards School) + (Y * Attribution Beliefs)

The results of the regression predicting academic achievement in math did not produce a significant model (F=.789, (12,199), p =.661, R^2 = 4.5%). This model shows that self-efficacy, attitude towards school, attribution beliefs, and demographics (age, gender, ethnicity and labor force status) only explained 4.5% of the variance in the increased math score. Demographic variables, self-efficacy, attribution beliefs and attitude towards school were not significant predictors of academic achievement in math. Results of the linear regression predicting academic achievement in math as measured by math learning gains are presented in Table 8.

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Table 8

Linear Regression Analysis to Explore the Relationship between Demographics (Gender, Age, Ethnicity, Labor Force Status), Self-Efficacy, Attribution Beliefs, Attitude Towards School and Math Learning Gains

	Source of Variation	SS	df	MS	F	p	R^2
Model 1	Regression	125.669	8	15.709	.242	.982	.009
	Residual	13178.633	203	64.919			
	Total	13304.302	211				
Model 2	Regression	326.016	9	36.224	.564	.826	.025
	Residual	12978.286	202	64.249			
	Total	13304.302	211				
Model 3	Regression	604.545	12	50.379	.789	.661	.045
	Residual	12699.7575	199	63.818			
	Total	13304.302	211				

		β	St. Err	Stand. Beta	t	p
Model 1	Constant	11.623	1.810		6.420	.000
	Male	-.130	1.123	-.008	-.116	.908
	Black	-1.239	1.500	-.074	-.826	.410
	American Indian	.162	1.629	.009	.099	.921
	Hispanic	-.025	1.755	-.001	-.014	.989
	Age 20-29	.921	1.631	.057	.565	.573
	Age 30-39	0.990	1.810	0.053	0.547	.585
	Age 40-49	1.461	2.170	.057	.673	.502
	Age 50 and over	1.068	2.296	.039	.465	.642
Model 2	Constant	18.321	4.199		4.363	.000
	Male	-.228	1.119	-.014	-0.204	.839
	Black	-1.091	1.494	-.065	-.730	.466
	American Indian	.075	1.621	.004	.047	.963
	Hispanic	.145	1.748	.007	.083	.934
	Age 20-29	.917	1.622	.057	.565	.573
	Age 30-39	1.562	1.794	.083	.871	.385
	Age 40-49	1.718	2.164	.067	.794	.428
	Age 50 and over	-.966	2.558	-.036	-.378	.706
	Labor Force Status	-7.177	4.064	-.146	-1.766	.079
Model 3	Constant	7.555	8.203		0.921	.358
	Male	-0.027	1.123	-0.002	-0.024	.981
	Black	-0.792	1.510	-0.047	-0.525	.600
	American Indian	0.583	1.634	0.032	0.357	.722
	Hispanic	0.755	1.768	0.037	0.427	.670
	Age 20-29	0.580	1.634	0.036	0.355	.723
	Age 30-39	0.990	1.810	0.053	0.547	.585
	Age 40-49	1.308	2.201	0.051	0.594	.553
	Age 50 and over	-1.433	2.585	-0.053	-0.555	.580
	Labor Force Status	-6.977	4.172	-0.142	-1.672	.096
	Self-Efficacy	-0.026	0.169	-0.011	-0.154	.878
	Attitude Towards School	0.375	0.299	0.097	1.257	.210
	Attribution Beliefs	0.510	0.466	0.086	1.095	.275

Note. White and Age 18-19 are reference variables.

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Additionally, a second linear regression analysis was conducted to assess the amount of variance self-efficacy, attitude towards school, attribution beliefs, and demographics (age, gender, ethnicity and labor force status) explain in academic achievement as measured by an increase in test scores on the TABE reading assessment. Academic achievement as measured by increase in reading score is the criterion variable for the linear regression analysis. Predictor variables that include demographic variables (age, gender, ethnicity), labor force status and the AEPS scale scores (representing self-efficacy, attitude towards school and attribution beliefs) were entered into the linear regression analysis using a block-wise entry approach. The individual models were compared to test if successive models show a significant improvement in R^2. Model 3 was determined to yield the best prediction equation and the results of this linear regression analysis are based on this particular model. The prediction equation for Model 3 is as follows:

Academic Achievement = Constant + (Y * Gender, Age, Ethnicity) + (Y * Labor Force Status) + (Y * Self-Efficacy) + (Y * Attitude Towards School) + (Y * Attribution Beliefs)

The results of the linear regression predicting academic achievement in reading as measured by a learning gain was not statistically significant (F=.919 (12,199), p =.529, R^2 = 5.3%). This model shows that self-efficacy, attitude towards school, attribution beliefs, and demographics (age, gender, ethnicity and labor force status) only explained 5.3% of the variance in the increased reading score. Self-efficacy was the only predictor variable that was statistically significant in explaining the increased reading scores, B= .147, p = .042. This analysis indicates that self-efficacy influences academic achievement in reading, suggesting that as self-efficacy increases, learning gains in reading increase. None of the other variables were significant Predictors of academic achievement in reading. Results of the linear regression predicting

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academic achievement in reading are presented in Table 9.

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Table 9

Linear Regression Analysis to Explore the Relationship between Demographics (Gender, Age, Ethnicity, Labor Force Status), Self-Efficacy, Attribution Beliefs, Attitude Towards School and Reading Learning Gains

	Source of Variation	SS	df	MS	F	p	R^2
Model 1	Regression	248.552	8	31.069	.607	.771	.023
	Residual	10388.217	203	51.173			
	Total	10636.769	211				
Model 2	Regression	261.938	9	29.104	.567	.823	.025
	Residual	10374.830	202	51.361			
	Total	10636.769	211				
Model 3	Regression	558.441	12	46.537	.919	.529	.053
	Residual	10078.328	199	50.645			
	Total	10636.769	211				

		β	St. Err	Stand. Beta	t	p
Model 1	Constant	14.359	1.607		8.933	.000
	Male	-.133	.997	-.009	-.134	.894
	Black	.764	1.331	.051	.574	.567
	American Indian	.219	1.446	.013	.152	.880
	Hispanic	1.394	1.558	.076	.895	.372
	Age 20-29	1.789	1.448	.124	1.236	.218
	Age 30-39	.933	1.600	.056	.583	.561
	Age 40-49	2.406	1.927	.106	1.249	.213
	Age 50 and over	-.801	2.038	-.033	-.393	.695
Model 2	Constant	16.091	3.755		4.286	.000
	Male	-.159	1.000	-.011	-.159	.874
	Black	.802	1.336	.054	.600	.549
	American Indian	.197	1.449	.012	.136	.892
	Hispanic	1.438	1.563	.078	.920	.359
	Age 20-29	1.788	1.450	.123	1.233	.549
	Age 30-39	.962	1.604	.057	.600	.619
	Age 40-49	2.473	1.935	.109	1.278	.203
	Age 50 and over	-1.327	2.287	-.055	-.580	.562
	Labor Force Status	-1.855	3.634	-.042	-.511	.610
Model 3	Constant	1.730	7.308		0.237	.813
	Male	-0.022	1	-0.002	-0.022	.982
	Black	1.224	1.345	0.082	0.910	.364
	American Indian	0.416	1.456	0.025	0.286	.775
	Hispanic	1.616	1.575	0.088	1.026	.306
	Age 20-29	1.678	1.455	0.116	1.153	.250
	Age 30-39	0.802	1.613	0.048	0.498	.619
	Age 40-49	2.204	1.961	0.097	1.124	.262
	Age 50 and over	-0.874	2.303	-0.036	-0.380	.705
	Labor Force Status	-0.656	3.717	-0.015	-0.177	0.86
	Self-Efficacy	0.308	0.151	0.147	2.044	.042
	Attitude Towards School	0.201	0.266	0.058	0.754	.452
	Attribution Beliefs	.143	.415	.0270	.346	.730

Note. White and Age 18-19 are reference variables.

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Research Question 4

RQ#4: Do self-efficacy, attribution beliefs, attitude towards school, and demographics (age, gender, ethnicity, labor force status) explain a significant amount of variance in academic achievement as measured by (advancement of one or more educational functioning levels) in reading and math.

In order to examine Research Question 4, a logistic regression analysis was conducted to assess the amount of variance self-efficacy, attitude towards school, attribution beliefs, and demographics (age, gender, ethnicity and labor force status) explain in advancing one or more educational functioning levels in math. Academic achievement as measured by the advancement of one or more educational functioning levels is the criterion variable for the logistic regression analysis. Predictor variables that include demographic variables (age, gender, and ethnicity), labor force status, and the AEPS scale scores (representing self-efficacy, attitude towards school and attribution beliefs) were entered into the logistic regression analysis using a block-wise entry approach. The individual models were compared to test if successive models show a significant improvement in R^2. Model 3 was determined to yield the best prediction equation and the results of this logistic regression analysis are based on this particular model. The prediction equation for Model 3 is as follows:

Academic Achievement = Constant + (Y * Gender, Age, Ethnicity) + (Y * Labor Force Status) + (Y * Self-Efficacy) + (Y * Attitude Towards School) + (Y * Attribution Beliefs)

The results of the logistic regression predicting academic achievement in math did not produce a significant model (Cox and Snell, $R^2 = 2.1$), and only 2.1 % of the variance in math level gains was explained by self-efficacy, attitude towards school, attribution beliefs, and demographics (age, gender, ethnicity and labor force status). None of the variables were

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significant predictors of academic achievement in math. Although attribution beliefs were not statistically significant at p= .059, it is a variable that could be explored further since it is very close to being statistically significant. Results of the logistic regression predicting math level gains are presented in Table 10.

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Table 10

Logistic Regression Analysis to Explore the Relationship between Demographics (Gender, Age, Ethnicity, Labor Force Status), Self-Efficacy, Attribution Beliefs, Attitude Towards School and Math Level Gains

	Cox and Snell R^2
Model 1	1.27%
Model 2	1.27%
Model 3	2.1 %

		β	**St. Err**	**Wald**	**df**	**p**	**Exp(B)**
Model 1	Constant	-21.733	13106.213	0	1	0.999	
	Male	-.437	.678	.416	1	.519	.646
	White			2.253	3	.522	
	Black/African American	.011	1.111	.000	1	.992	1.011
	American Indian	.721	.962	.562	1	.454	2.057
	Hispanic/Latino	1.288	1.013	1.618	1	.203	3.627
	Age 18-19			2.745	4	.601	
	Age 20-29	20.898	13106.213	0	1	0.999	
	Age 30-39	20.262	13106.213	0	1	0.999	
	Age 40-49	19.133	13106.213	0	1	0.999	
	Age 50 and over	20.221	13106.213	0	1	0.999	
Model 2	Constant	-21.572	23058.821	0	1	0.999	
	Male	-.437	.678	.416	1	.519	.646
	White			2.253	3	.522	
	Black/African American	.011	1.111	.000	1	.992	1.011
	American Indian	.721	.962	.562	1	.454	2.057
	Hispanic/Latino	1.288	1.013	1.618	1	.203	3.627
	Age 18-19			2.745	4	.601	
	Age 20-29	20.738	23058.821	0	1	0.999	
	Age 30-39	20.102	23058.821	0	1	0.999	
	Age 40-49	18.973	23058.821	0	1	0.999	
	Age 50 and over	20.061	23058.821	0	1	0.999	
	Labor Force Status	-.231	28037.274	0	1	1	.794
Model 3	Constant	-32.817	21752.660	0	1	0.999	
	Male	-0.694	0.753	0.848	1	0.357	.500
	White			4.710	3	0.194	
	Black/African American	-1.214	1.396	0.756	1	0.384	0.297
	American Indian	1.228	1.083	1.285	1	0.257	3.413
	Hispanic/Latino	1.413	1.070	1.744	1	0.187	4.110
	Age 18-19			3.097	4	0.542	
	Age 20-29	20.750	21752.661	0	1	0.999	
	Age 30-39	19.564	21752.661	0	1	0.999	
	Age 40-49	18.391	21752.661	0	1	0.999	
	Age 50 and over	19.426	21752.661	0	1	0.999	
	Labor Force Status	-0.865	26789.902	0	1	1	0.421
	Attribution Beliefs	0.289	0.153	3.572	1	0.059	1.335
	Attitude Towards School	0.211	0.232	0.829	1	0.362	1.235
	Self-Efficacy	0.001	0.304	0	1	0.998	1.001

Note. White and Age 18-19 are reference variables.

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Additionally, a second logistic regression analysis was conducted to assess the amount of variance self-efficacy, attitude towards school, attribution beliefs, and demographics (age, gender, ethnicity and labor force status) explain in advancing one or more educational functioning levels in reading. Academic achievement as measured by the advancement of one or more educational functioning levels is the criterion variable for the logistic regression analysis. Predictor variables that include demographic variables (age, gender, and ethnicity), labor force status and the AEPS scale scores (representing self-efficacy, attitude towards school and attribution beliefs) were entered into the logistic regression analysis using a block-wise entry approach. The individual models were compared to test if successive models show a significant improvement in R^2. Model 3 was determined to yield the best prediction equation and the results of this logistic regression analysis are based on this particular model. The prediction equation for Model 3 is as follows:

Academic Achievement = Constant + (Y * Gender, Age, Ethnicity) + (Y * Labor Force Status) + (Y * Self-Efficacy) + (Y * Attitude Towards School) + (Y * Attribution Beliefs)

The results of the logistic regression model predicting academic achievement in reading as measured by the advancement of one or more educational functioning levels was not statistically significant. Only 1.0% of the variance in reading level gains was explained by self-efficacy, attitude towards school, attribution beliefs, and demographics (age, gender, ethnicity and labor force status). None of the variables were significant predictors of academic achievement in reading. Results of the logistic regression predicting academic achievement in reading are presented in Table 11.

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Table 11

Logistic Regression Analysis to Explore the Relationship between Demographics (Gender, Age, Ethnicity and Labor Force), Self-Efficacy, Attribution Beliefs, Attitude Towards School and Reading Level Gains

	Cox and Snell R2
Model 1	.7%
Model 2	.7%
Model 3	1.0%

		β	**St. Err**	**Wald**	**df**	**p**	**Exp(B)**
Model 1	Constant	-1.209	.989	1.493	1	.222	.299
	Male	.522	.513	1.038	1	.308	1.686
	White			2.324	3	.508	
	Black/African American	.342	.792	.187	1	.666	1.408
	American Indian	1.014	.725	1.956	1	.162	2.756
	Hispanic/Latino	.801	.778	1.061	1	.303	2.228
	Age 18-19			2.321	4	.677	
	Age 20-29	.408	1.014	.162	1	.688	1.503
	Age 30-39	.465	.860	.292	1	.589	1.592
	Age 40-49	-.089	.861	.011	1	.918	.915
	Age 50 and over	-.611	.892	.469	1	.494	.543
Model 2	Constant	-1.710	1.453	1.385	1	.239	.181
	Male	.511	.513	.990	1	.320	1.667
	White			2.381	3	.497	
	Black/African American	.336	.793	.180	1	.672	1.399
	American Indian	1.038	.727	2.036	1	.154	2.824
	Hispanic/Latino	.768	.780	.970	1	.325	2.156
	Age 18-19			2.473	4	.649	
	Age 20-29	.918	1.482	.384	1	.535	2.505
	Age 30-39	.971	1.374	.499	1	.480	2.640
	Age 40-49	.424	1.384	.094	1	.759	1.529
	Age 50 and over	-.109	1.386	.006	1	.937	.897
	Labor Force Status	.742	1.534	.234	1	.629	2.100
Model 3	Constant	-4.634	3.893	1.417	1	0.234	0.010
	Male	0.462	0.536	0.744	1	0.388	1.588
	White			1.616	3	0.656	
	Black/African American	0.174	0.865	0.040	1	0.841	1.189
	American Indian	0.787	0.790	0.991	1	0.319	2.196
	Hispanic/Latino	0.861	0.841	1.050	1	0.306	2.366
	Age 18-19			3.594	4	0.464	
	Age 20-29	1.536	1.585	0.939	1	0.332	4.647
	Age 30-39	1.120	1.424	0.619	1	0.432	3.066
	Age 40-49	0.292	1.425	0.042	1	0.838	1.340
	Age 50 and over	-0.055	1.439	0.001	1	0.969	0.946
	Labor Force Status	1.202	1.632	0.542	1	0.462	3.325
	Attribution Beliefs	-0.050	0.090	0.308	1	0.579	0.951
	Attitude Towards School	0.231	0.164	1.987	1	0.159	1.260
	Self-Efficacy	0.009	0.211	0.002	1	0.967	1.009

Note. White and Age 18-19 are reference variables.

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Summary

The primary purpose of this quantitative research study was to investigate the relationship of self-efficacy beliefs, attribution beliefs, attitudes towards school and demographics on academic achievement among students enrolled in Adult Basic Education (ABE) programs, within a model that also incorporates student demographic factors (age, gender, ethnicity and labor force status). This non-experimental quantitative research study used a non-randomized purposive sample, and conducted correlation, linear and logistic regression analyses to gain an understanding of the influence of self-efficacy, attitude towards school, attribution beliefs and demographic variables on academic achievement as measured by learning gains (increase in math and reading scores) and level gains (advancement of one or more educational functioning levels). Results of the statistical analyses used to describe the sample and address four research questions were presented in this chapter. The results found that attribution beliefs, attitude towards school and demographics did not significantly explain increased learning gains and level gains in math and reading for this population. Self-efficacy was the only predictor variable statistically significant to explain an increase in reading learning gains, although it did not explain learning and level gains in math.

A discussion about the major findings from this study in relation to preexisting research occurs in Chapter 5. The implications of practice for adult students and educators are also discussed. The limitations of the study design are discussed and recommendations are offered for further research. Chapter 5 concludes with a summary section.

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CHAPTER 5

RESULTS, CONCLUSIONS AND RECOMMENDATIONS

Introduction

Chapter 5 provides a discussion of the major findings from this study in relation to preexisting research. Additionally, a discussion on the implications for practice, the limitations of the research design and suggestions on how this study could be used for further research are discussed in this chapter. The chapter concludes with a summary explaining how this study contributes to the growing body of literature on the affects of dispositional factors on academic achievement of low-skilled adults.

Discussion of Findings

The discussion explores and provides a conversation based on the findings to better understand the dispositional factors and relationship to student achievement. The discussion is presented by research questions.

Research Question 1

RQ#1: Is there a relationship between self-efficacy, attribution beliefs and attitude towards school among low-skilled adults enrolled in community college adult basic education programs?

A Pearson correlation was conducted to assess the relationship between self-efficacy, attitude towards school and attribution beliefs. Self-efficacy and attitude towards school were found to be moderately associated, suggesting self-efficacy had some impact on attitude towards school. This positive correlation indicates that as self-efficacy improves, one's attitude towards school improves. The findings from this study support other studies that demonstrate how self-efficacy operates in concert with other socio-cognitive factors in regulating human well-being

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and attainment (Schunk, 1981). Previous studies conducted with self-efficacy constructs reported that self-efficacy beliefs are correlated with other self-beliefs, motivation constructs and academic choices, changes and achievement (Pajares, 1996), and varied academic performances (Bouffard-Bouchard, 1989; Pajares, 1993 on writing and literacy; Hackett & Betz, 1989 on mathematics; Zimmerman, Bandura & Martinez-Pons, 1992) across academic domains.

Self-efficacy had a low association with attribution beliefs suggesting that self-efficacy had very little impact on attribution beliefs. The correlation is not great enough to indicate much of an influence of self-efficacy on attribution beliefs. These results are surprising since studies by Schunk (1989), Schunk & Pajares, (2002) and Weiner (1985) reported that self-efficacy beliefs are affected by attributions that students make for their successes and failures. Attributions of success to stable factors such as high ability is noted to have the greatest impact on increases in subsequent self-efficacy.

In a previous study by Bong (2004), he noticed that students form motivational beliefs and attitudes that are subject-matter area specific and that some beliefs generalize more than others across different learning situations. The fact that the self-efficacy survey items on the revised- AEPS focused specifically on math may explain the modest correlation between self-efficacy and attribution beliefs in this study. If students attribute their success in math to luck instead of ability they may experience low self-efficacy in this academic area and may not try as hard on math assignments.

Research Question 2

*RQ#2***:** Is there a relationship between student demographic characteristics (age, gender, ethnicity and labor force status) and academic achievement among low-skilled adults enrolled in community college adult basic education programs?

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A Pearson correlation was conducted to assess the relationship between student demographic characteristics (age, gender, ethnicity and labor force status) and academic achievement. The results of the Pearson correlation were negligible, suggesting that the correlation was so small as to not be worth considering a relationship between demographic variables; gender, age, ethnicity and labor force status, and academic achievement, as measured by learning and level gains. These results support a study conducted by Comings et al. (1999) in which the study team found that the typical ways of classifying students in education research, such as gender, ethnicity, previous school experience, employment status, number of children, and parent's educational background, did not have a strong influence on persistence and academic achievement. This can be viewed as encouraging for learners, that their demographic profile and current economic situation does not influence their success or failure in adult education. Previous research has also concluded that demographic characteristics of students are inconsistently related to academic outcomes, such as the case in this study.

Research Question 3

RQ#3: Do self-efficacy, attribution beliefs, attitude towards school and demographics (age, gender, ethnicity and labor force status) explain a significant amount of variance in academic achievement as measured by learning gains (increase in math and reading scores).

A linear regression analysis was conducted to determine if self-efficacy, attribution beliefs and attitude towards school could predict academic achievement as measured by learning gains (increase in math and reading scores). The results indicated that self-efficacy, attitude towards school, attribution beliefs, and demographics (age, gender, ethnicity and labor force status) only explained a small amount of the variance in increased math scores. Demographic variables, self-efficacy, attribution beliefs and attitude towards school were not significant

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predictors of academic achievement in math, suggesting that these factors do not influence increased math TABE scores. In addition, the results of the linear regression predicting academic achievement in reading indicated that self-efficacy, attitude towards school, attribution beliefs, and demographics (age, gender, ethnicity and labor force status) only explained a small amount of variance in increased reading scores. However, self-efficacy was a significant predictor of academic achievement in reading and was the only predictor variable that was statistically significant in explaining increased reading scores. Demographic variables, attribution beliefs, and attitude towards school were not significant predictors of academic achievement in reading.

The results of the linear regression found that self-efficacy of low-skilled adults enrolled in ABE programs was more predictive of learning gains in reading than math. Self-efficacy is known to be best conceived as a differentiated set of self-beliefs specific to different areas of functioning and is considered a domain-specific concept (Bandura, 1997; Maddux, 1995; Valentine et. al., 2004). For example, an individual may have high self-efficacy regarding their ability in reading, but lower self-efficacy regarding performance in math (Mellard et al., 2013). Bandura (1989) suggested that students with weak academic self-efficacy might not expend as much effort or persist as long as those with strong academic self-efficacy. One can infer from this finding that students who perform well in reading are more likely to feel competent in this subject and enjoy assignments in this area, leading to increased skill and academic performance. Similarly, unrealistically low math self-efficacy perceptions not lack of capability or skill may be responsible for avoidance of math-related tasks, which may have a direct effect on academic performance in the math domain. This may explain the reason self-efficacy was predictive of gains in reading and not in math. Additionally, the questions on the self-efficacy measure of the revised- AEPS scale focused specifically on performance capabilities in relationship to math

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problems and everyday math tasks. This may have grave bearing on how students with low math self-efficacy perceptions responded to these questions, thereby affecting the relationship between self-efficacy and academic achievement in this academic domain.

Findings from this study are consistent and supportive of relationships between self-efficacy beliefs and academic achievement. This study corroborated with previous studies as it relates to the predictive power of self-efficacy on academic achievement (Bandura, 1986, 1989, 1993, 1997; Bandura et al., 1996; Comings et al., 1999; Hackett & Betz, 1989 on mathematics; Multon et al., 1991; Pajares, 1993 on writing and literacy; Robbins et al., 2004; Schunk, 1991; Ziegler et al., 2006; Zimmerman et al., 1992) across academic domains. The study supports the self-efficacy component within Bandura's (1986) social cognitive theory while demonstrating how self-efficacy beliefs could account for variance in academic achievement beyond that accounted for by more traditional predictors (e.g. demographics). Bandura (1986) observed that there are a number of conditions under which self-efficacy beliefs do not perform their influential, predictive, or mediational role in human functioning. In prejudicially structured environments, students may find that no amount of effort on their part will bring about desired outcomes. In such cases, students may possess the necessary amount of self-efficacy and skill required to achieve, but they may choose not to engage in a task because they lack the necessary incentives. Self-efficacy also has no relevance on performance if schools lack effective teachers, necessary equipment, or resources required to aid students in the adequate performance of academic tasks (Pajares, 1996). In situations when social constraints and inadequate resources impede academic performances, self-efficacy may exceed actual performance because students are unable to do what they know despite knowing what to do.

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Contrary to the researcher's initial beliefs, attitude towards school and attribution beliefs did not establish a significant role on academic achievement in reading or math. The researcher anticipated that both of these variables would have some influence on academic achievement based on research; however, they were not statistically significant in either academic domain. This finding is valuable because it gives input on what is important to adult students. Since negative school experience was not associated with academic achievement it may be that the students who were significantly affected by negative school experiences did not enroll in an adult education program or may have dropped out prematurely. In addition, entering an ABE program may signal that a student has overcome the influences of negative school experiences and is ready to restart his or her education. The researcher suspected that some attributions might facilitate or frustrate academic achievement in adult students. However, this study suggests that adult students' attributions of internal and external obstacles and success did not influence academic achievement among the sample population. The researcher suspected that demographic factors (age, gender, ethnicity and labor force status) would not influence academic achievement since Pearson correlations resulted in insignificant correlations between demographics and academic achievement variables.

Research Question 4

RQ#4: Do self-efficacy, attribution beliefs, attitude towards school, and demographics (age, gender, ethnicity, labor force status) explain if students make a level gain (advancement of one or more educational functioning levels) in reading and math.

A logistic regression analysis was conducted to assess whether self-efficacy, attitude towards school, attribution beliefs, and demographics (age, gender, ethnicity and labor force status) predict academic achievement as measured by a level gain in math. The results of the

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logistic regression predicting academic achievement in math indicated that a very small amount of the variance in math level gains was explained by self-efficacy, attitude towards school, attribution beliefs, and demographics (age, gender, ethnicity and labor force status) and none of the variables were significant predictors of level gains in math. Although the attribution belief variable was not statistically significant, it could be explored further. The results of the logistic regression model predicting academic achievement in reading as measured by level gains was not statistically significant. A small amount of variance in reading level gains was explained by self-efficacy, attitude towards school, attribution beliefs, and demographics (age, gender, ethnicity and labor force status) and like the math domain, none of the variables were significant predictors of level gains in reading.

The fact that none of the predictor variables have any predictive power on the advancement of one or more educational functioning levels in math or reading may suggest there are other factors that were not part of this study that determine level gains, such as initial test scores. Students who place at the lower end of a NRS level on the pre-test will have to perform extremely well on a post-test to advance an educational functioning level. If this is the case, it may take several attempts to advance a level. Additionally, the advancement of one or more educational functioning level in reading or math may depend on the starting educational functioning level of the ABE student and his/her learning abilities, as well as the amount of time the adult learner spends during instruction. Comings et al. (1999) found a strong correlation between length of time adults participated in an adult education program and students' success in their program. Comings et al. (1999) suggested that a student needed to participate actively in an adult education program for enough hours to achieve a measurable gain. Presently, 50-60 hours of instruction between pre-post testing is recommended for students to obtain valid gain scores.

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Some students may need more hours of instruction between these two assessments in order to obtain learning and level gains.

Implications for Practice

Attention to the study of dispositional variables and academic achievement for this population is intended to provide adult educators with an understanding of the role that these variables play in the lives of adult learners. The results of this study demonstrate that self-efficacy was positively associated with academic achievement and is an important determinant of academic performance among low-skilled adults enrolled in ABE programs. These findings have important educational implications for adult education practice. Adult educators can use the findings from the study to design strategies, tailor interventions and implement teaching practices that cultivate self-efficacy beliefs in the students they serve and ultimately help increase academic achievement. Past experiences, often times failures in different academic domains usually dictate student opinions concerning their perception of personal ability. Therefore, the role of adult educators should be to aid students in increasing their self-efficacy. Enhancing self-efficacy should be an important part of any effort to aid in the academic growth of students enrolled in adult basic education classes.

It is suggested that adult educators create a learning environment conducive to fostering self-efficacy in adult basic education programs. This may be accomplished in several ways. For example, adult educators should provide opportunities for adult students to succeed and demonstrate evidence of their success through mastery experiences during every lesson, as suggested by the social cognitive theories of Bandura (1986). These experiences are intended to help students create and maintain accurate beliefs about their abilities. The outcomes interpreted as successful may influence self-efficacy. Students can also benefit from positive verbal

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messages that relate to prior performance. These positive verbal messages may work to encourage and empower students. Negative language can work to defeat or weaken self-beliefs. Students can benefit from clear feedback on abilities, regular recognition of progress and celebrations of achievement (Schunk & Pajares, 2009). These efforts provide learners with opportunities to experience success. In a research experiment, Schunk (1982, 1983, 1984, 1985) showed that attributional feedback of prior performance raised the self-efficacy of elementary school children, which indirectly increased skill in performance of math problems.

Additionally, teachers should allow students to work with others that can model knowledge and academic behaviors through a peer-modeling process. Schunk (1981) used path analysis to show that modeling treatments increased persistence and accuracy on division problems by raising children's self-efficacy beliefs, which has a direct effect on performance. A significant model in a student's life can help instill self-beliefs that will influence the course and direction a student may take. These interactions can help individuals develop self-perceptions of competence and confidence.

Lastly, teachers should also address physiological states such as anxiety and stress early in the enrollment process. This may help students deal with tension, stress and other negative emotional states that can result from poor self-efficacy and can lead to low self-efficacy and impede academic performance.

Limitations

There are no perfect research designs. Though the results of this study are promising, limitations must be considered when evaluating the findings. The limitations of this study includes the study's specific timeframe; the non-experimental nature of the study; limited sample population available at the time of the study; non-random sampling method and the size of the

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sample. The use of purposive sampling limits the external validity of the study, making it hard to apply the results to situations beyond the study. Individual self-selection and self-reporting can confound data. The responses of the participants limit the study because of the perception of the individuals who choose to participate in the survey and their individual reasons for attending the ABE program during survey administration. Non-response bias is also a concern because there is no way of knowing if the individuals that respond to the survey are representative of the overall population targeted in this study. The geographic location of the adult basic education program creates a limitation to the study. The variability of the Adult Basic Education programs (to include curriculum, instructor qualifications, and program hours available for attendance, number of students enrolled in the class, location of the class) are limitations to the research study. It is not possible to statistically control for these differences (Mellard et al., 2013). In like manner, adult learners are usually diverse in their skills and knowledge depending on their life experiences. This variability could lead to different educational outcomes depending on the literacy background of the students in each class. The survey items were a limitation to the study. The self-efficacy survey item #1 on the revised –*Adult Education Persistence Scale* does not appear to be tailored to the self-efficacy domains being analyzed in this study and does not reflect the various task demands within the domain. The Cronbach's alpha on the self-efficacy factor demonstrated a lack of internal consistency of the scale items possessing an alpha = .079. When this item is removed from the scale, the Cronbach's alpha changes from .079 to .241. Moreover, the survey questions measuring self-efficacy focus on math specifically. This may cause students who have challenges with math to avoid answering these questions or answer them differently than they would if the questions were associated with another subject.

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Additional limitations include the fact that only certain dispositional factors were integrated into the current research, and the study did not control for other variables that may have an impact on academic achievement. Thus, there may be other factors that have a greater influence on academic achievement, and could be considered an important determinant in the regulation of human actions and performance levels. These other factors may also affect achievement outcomes and influence self-efficacy, attribution beliefs and attitudes towards school (Bandura et al., 1996; Carroll, Durkin, Hattie, & Houghton, 1997; Latham & Locke, 1991). Furthermore, while the TABE assessment scores provide an indication of the student's performance levels in specific competency areas, they may not adequately reflect whether a student is performing at the level of their ability. Consequently, the findings from this study can only provide insight within the limited period and may not be confirmed in replication studies.

Recommendations for Further Research

By focusing on individual's beliefs, education researchers can learn about the reasons why individuals choose to engage or disengage in schooling and how individuals' beliefs relate to their academic behavior. Various theoretical perspectives on these issues are highlighted in adult education literature. A growing body of literature supports the relationship between dispositional variables, persistence and academic achievement. However, most studies that investigated these variables focused on higher education and school age children. There has been limited research that considered these variables and their impact on academic achievement for students enrolled in adult basic education programs. Further study into the nature of academic achievement and the dispositional forces that influence it would add valuable knowledge to the literature of adult education. The following recommendations are suggested to continue the study of dispositional factors on adult learners' academic achievement. The recommendations include:

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Recommendation #1: Explore the relationship of other dispositional constructs with persistence and academic success on adult education students.

Recommendation #2: Investigate the influence of dispositional factors on other academic and nonacademic domains (i.e. career development) for this population.

Recommendation #3: Investigate the effects of self-efficacy on academic achievement for Adult Basic Education students at different educational functioning levels.

Recommendation #4: Investigate the impact of interventions tailored to cultivating self-efficacy, such as peer-modeling, on academic achievement for adults enrolled in Adult Basic Education programs.

Recommendation #5: Expand the sample populations studied to include minorities, individuals with learning disabilities and other disadvantaged individuals.

Recommendation #6: Investigate self-efficacy and other self-beliefs using research designs and statistical models that incorporate the various constructs operationalized and used in a manner consistent with the constructs theoretical frameworks.

Conclusion

In conclusion, the findings from this study contribute to the growing body of literature suggesting that self-efficacy can be used to predict academic achievement and persistence. The outcomes of the findings suggest the importance of fostering self-efficacy among low-skilled adults enrolled in ABE programs. Because self-efficacy is predictive of academic achievement (Bandura & Schunk, 1981; Lent et al., 1986; Pajares, 1996), building up self-efficacy in adult learners is crucial. It is suggested to cultivate self-efficacy early in a students' academic career, before engaging in the learning process, such as during intake, in order to facilitate self-beliefs and involvement in appropriate academic activities (Bandura, 1977, 1982, 1986; Comings, 2009;

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Quigley, 1997; Ziegler et al., 2006). Furthermore, as the economic landscape changes and programs are held accountable for funding based on student outcomes, effective interventions supporting academic achievement will benefit not only the current students but also provide resources for programs designed to serve them. In turn, this will provide a larger population of students that have the potential to complete postsecondary certificates, diplomas, and degrees. This will be a critical component for states like North Carolina to meet their postsecondary attainment goals, such as the one set by the myFutureNC Commission of having 2 million North Carolinas with a high quality credential or postsecondary diploma, certificate, or degree by 2030 (myFutureNC Commission, 2019).

Adult education continues to undergo many changes and much is at stake for the US as it struggles to meet the vast educational needs of its low-skilled adult population (O'Neill & Thomson, 2013). Identifying the needs of adult learners and developing strategies to support academic achievement must be grounded in research. Findings from this study should contribute to the field of adult education and make a tremendous difference.

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APPENDICES

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Appendix A

Demographic Information Survey

The following information will be used for research purposes only. The information provided here is anonymous, and will not be used for identification purposes.

Directions: Place an "X" in the applicable blank spaces below.

Gender:

____Male

____Female

Race:

____White

____Black/African American

____American Indian or Alaskan Native

____Hispanic/Latino

____Other Pacific Islander

Age:

____18-19

____20-29

____30-39

____40-49

____50 and over

Labor Force Status:

____Employed

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____Unemployed

____Not in Labor Force

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Appendix B

ADULT EDUCATION PERSISTENCE SCALE (AEPS)

We will use the opinions and answers you provide to determine how we can improve adult education programs. Please read each statement below carefully before answering. Fill in only the one circle that you think best shows how much you agree or disagree with that statement. There are no right or wrong answers.

	Strongly Disagree	Disagree	Agree	Strongly Agree
1. I am able to sit and work on math problems for a long time.	◯	◯	◯	◯
2. A GED can help you get a better job.	◯	◯	◯	◯
3. Getting better math skills is a waste of time.	◯	◯	◯	◯
4. It's good to get a chance to get back to school.	◯	◯	◯	◯
5. Most teachers don't know how to teach reading.	◯	◯	◯	◯
6. Teachers can help you learn math.	◯	◯	◯	◯
7. I am not good at trying something new.	◯	◯	◯	◯
8. Being good at reading can help you pass the GED.	◯	◯	◯	◯
9. Good reading skills are important.	◯	◯	◯	◯
10. My faith in myself helps me to improve my math skills.	◯	◯	◯	◯

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11. Teachers can help you learn reading. ◯ ◯ ◯ ◯

Please read each statement carefully before answering. Fill in only the one circle that you think best shows how much you agree or disagree with that statement. There are no wrong or right answers.

	Strongly Disagree	Disagree	Agree	Strongly Agree
1. If I have to repeat a math assignment, it is probably because I am unlucky.	◯	◯	◯	◯
2. If I get a low score on a reading test, it is probably because I am having a bad day.	◯	◯	◯	◯
3. If no one wants to work with me on a reading project, it is probably because the people in the class are unfair.	◯	◯	◯	◯
4. If I am late to school, it is probably because my ride did not show up.	◯	◯	◯	◯
5. If I cannot do a reading assignment, it is probably because I am unlucky.	◯	◯	◯	◯
6. If I get a low score on a math problem, it is probably because it just isn't my day.	◯	◯	◯	◯
7. If I need extra help in reading, it is probably because reading is hard for most people.	◯	◯	◯	◯
8. If I have to repeat a math assignment, it is probably because the teacher is unfair.	◯	◯	◯	◯
9. If I get a low score on a reading test, it is probably because I am not good at reading.	◯	◯	◯	◯
10. If I get a low score on a math problem, it is probably because I am not good at math problems.	◯	◯	◯	◯

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11. If I cannot do a reading assignment, it is probably because I do not work hard on reading.

12. If I cannot do a math assignment, it is probably because I am not good at math.

13. If no one wants to work with me on a Reading project, it is probably because I do not work hard on reading projects.

14. If I cannot do a reading assignment, it is probably because I am not good at reading.

15. If no one wants to work with me on a reading project, it is probably because I am not a good reader.

16. If I am late to school, it is probably because I am not good at being on time.

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Appendix C

Factor Analysis Component Matrix

Factor Analysis Component Matrix for Self-Efficacy, Attribution Beliefs, and Attitude Towards School

	Component		
	1	2	3
Attribution Beliefs 11	0.667	0.117	-0.279
Attribution Beliefs 9	0.619	0.274	-0.45
Attribution Beliefs 15	0.597	0.228	-0.101
Attribution Beliefs 10	0.573	0.167	-0.516
Attribution Beliefs 14	0.568	0.263	-0.158
Attribution Beliefs 13	0.561	0.155	-0.106
Attribution Beliefs 2	0.553	-0.141	0.28
Attribution Beliefs 1	0.546	-0.233	0.464
Attribution Beliefs 5	0.514	-0.269	0.485
Attribution Beliefs 6	0.502	-0.018	0.422
Attribution Beliefs 3	-0.429	0.384	-0.313
Attribution Beliefs 8	-0.379	0.335	-0.251
Attribution Beliefs 7	0.365	-0.11	-0.053
Self-Efficacy 7	0.33	0.111	0.229
Attitude Towards School 8	-0.029	0.822	0.214
Attitude Towards School 9	0.009	0.757	0.191
Attitude Towards School 11	0.099	0.719	0.272
Attitude Towards School 6	-0.214	0.651	0.093
Attitude Towards School 2	0.11	0.53	0.334
Self-Efficacy 10	0.004	0.362	0.327
Attitude Towards School 5	-0.155	0.332	-0.08
Attitude Towards School 4	-0.091	0.326	0.166
Self-Efficacy 3	0.01	0.295	-0.097
Attribution Beliefs 12	0.5	0.13	-0.553
Self-Efficacy 1	-0.053	-0.087	-0.325
Attribution Beliefs 16	0.137	-0.161	0.161
Attribution Beliefs 4	0.096	-0.127	0.158

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