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**PERSISTENCE OF GENERAL EDUCATIONAL DEVELOPMENT AND
ADVANCED DIPLOMA RECIPIENTS AT A SOUTHEASTERN PUBLIC
COMMUNITY COLLEGE**

by

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A Dissertation Submitted to the Faculty of Old Dominion University in Partial
Fulfillment of the Requirements for the Degree of

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ABSTRACT

PERSISTENCE OF GENERAL EDUCATIONAL DEVELOPMENT AND ADVANCED DIPLOMA RECIPIENTS AT A SOUTHEASTERN PUBLIC COMMUNITY COLLEGE

Ann Underwood Smith
Old Dominion University, 2014
Director: Dr. Dana Burnett

With the current emphasis on accountability and the importance of a college education in today's economy, the success of nontraditional students at community colleges is critical. How to improve the success of high-risk students such as GED recipients is a complex challenge for college leaders. While the GED is widely accepted for admittance to college, GED holders have experienced low levels of postsecondary success and clearly face many complex challenges. Lack of persistence has been found in most studies of all nontraditional adult college students, but there is no consensus on whether or not traditional high school graduates perform better in college than those with a GED credential. The purpose of this ex post facto study was to explore persistence to degree and certificate completion for adult learners who enter a community college with a GED credential and adult learners who enter with a traditional high school diploma, as related to length of enrollment and need for developmental education.

Descriptive and inferential statistical methods, namely frequency distributions, chi square, t-test, and logistic regression, were used to determine the existence, strength, and significance of relationships in data extracted from existing datasets. After analysis of these variables, high school credential was not found to have any direct impact on persistence to degree. The type of high school credential did impact the need for developmental education and students enrolled in developmental courses were less likely

to persist to degree; however, there was no significant impact of developmental level on persistence, as related to high school credential. The number of semesters a student attends college does effect persistence to degree, but the type of high school credential has no impact on persistence or the number of semesters a student attends college. Colleges cannot rely solely on a student's type of high school credential and must determine the specific student attributes that influence postsecondary success for GED recipients and other high-risk students in order to focus on those strategies which stand the best chance of being effective and successful.

For Mama and Daddy- you both always had complete faith in me, even when I didn't have any in myself. I still miss you every day.

For Nathan- I am truly blessed and so proud every single day to be your mother.

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Chapter I

Introduction

In today's increasingly complex global economy, America's growth, strength and competitiveness will depend on the education and knowledge of its workers. It is imperative, then, that America has a predictable and steady supply of workers with the necessary skills to perform well in entry-level technical and professional jobs. An effective educational pipeline is essential to maintain economic growth and to sustain this nation's competitiveness in a world market (Liebowitz & Taylor, 2004; Zhang, 2010). There is growing awareness of the vital role that postsecondary education, especially the community college, will play in promoting college participation as the gateway to career advancement and entry into the middle class. In fact, when announcing his American Graduation Initiative in July 2009, President Barack Obama promised unprecedented support for community colleges as he challenged them to implement the reforms needed to provide Americans of any age with the knowledge and skills necessary for the jobs of the future (American Association of Community Colleges [AACC], 2009a).

Postsecondary education has never been more important to the economic well-being of individuals and society than it is today. While there is renewed interest in the importance of postsecondary education, less attention has been focused on encouraging and supporting nontraditional adult learners, the majority of our workforce, in their pursuit of additional education. General Educational Development (GED) credential recipients account for a large proportion of this group and are often left out of the postsecondary education system. For many adults, the GED is not only a second chance to get their high school diploma, but also a gateway to further education and jobs with

family-sustaining wages. However, most adult basic education (ABE) and GED programs do not adequately prepare their students with the abilities and knowledge needed to succeed in postsecondary education (Liebowitz & Taylor, 2004). Approximately 75% of students who enter a GED program pass the examination, but only about one-third of them ever complete a postsecondary degree or credential (Guison-Dowdy & Patterson, 2011). This leaves them at a significant disadvantage in the workplace. These students will need considerable support from community colleges in order to secure the advanced skills and credentials that are essential for citizenship, economic security, and career advancement.

Background

Higher education's role has become particularly critical as the education and technical skills adults need to obtain employment and earn a living wage have increased in number and complexity. Community colleges have long understood the importance of postsecondary education and have provided open access to any student with a high school diploma or GED credential. For most nontraditional adult learners this open door is the only path to higher education available to them. Recent data from the Department of Labor suggest that occupations requiring a postsecondary degree for entry will be the fastest growing during the 2010-2020 decade, increasing more than 60% (College Board, 2013; U.S. Department of Labor, Bureau of Labor Statistics, 2012). This information provides a convincing argument for the enhancement of adult basic education and GED programs to include improved support and guidance for student transition to postsecondary education.

Student departure prior to graduation has serious economic and social consequences for students, colleges, communities and society in general. However, the national rate of student departure from all higher education institutions has remained consistently high for several decades despite prolonged national dialogue and research (Braxton, 2000; Educational Policy Institute, 2004; Guison-Dowdy & Patterson, 2011). While colleges strive to provide a quality education to those student populations in most critical need of the college's offerings, the increased attrition of those same students signifies an alarming trend. Of particular interest to community colleges is the fact that part-time, older, and low-ability students graduate at a lower rate (Burns, 2010; Educational Policy Institute, 2004). The very students who could most benefit from a community college education and who should become an integral part of the local workforce are arriving unprepared for college-level courses, and then are not succeeding to accomplish their academic goals.

Knowing the importance of degree attainment in the lives of their students, colleges are understandably concerned about the number of students who are in a position to actually graduate. This is especially true for community colleges, which enroll the majority of underprepared students and accept responsibility for educating these students. The skills required in today's complex work environments are similar to those required for success on campus. It is estimated that approximately 42% of all working-age adults-about 65 million- lack the skills needed to succeed in postsecondary education and the modern workplace (Liebowitz & Taylor, 2004). This number includes 23 million adults who did not graduate from high school as well as those with limited English proficiency and high school graduates with inadequate preparation (Leibowitz & Taylor, 2004).

Studies have shown that students in many states face a different set of expectations between high school and college and while they may successfully complete high school curricula or a GED program, many are not prepared to successfully perform college-level work (College Board, 2008). Many ABE programs that do currently provide college transition assistance have found that the math, reading, and writing classes routinely offered for GED preparation are not sufficient to prepare adults for postsecondary success (Alamprese, 2005). Consequently, ABE programs and colleges must work together to find strategies that will offer students the necessary math, writing, and reading content and support them through college-level work and graduation.

These problems are not academic alone in their implications. At a time when global competitiveness in today's knowledge-based economy is a national priority, the United States will face a cumulative 10-year shortage of 850,000 associate degrees, 3.2 million bachelor's degrees and 2.9 million graduate degrees (College Board, 2008, 2013). This shortage is especially concerning when one considers that a postsecondary credential is the gateway to a family-supporting career. For example, women who have earned an occupational associate's degree can earn up to 47% more than high school graduates with similar backgrounds (Liebowitz & Taylor, 2004). The societal benefits of a college-educated citizenry go well beyond personal economic gains. College graduates are more likely to be in the labor force, more likely to be employed, more likely to vote, more likely to be involved in service – in short, more likely to be engaged, productive members of our society (Wilds, 2000).

This is not to say that these adults have not sought to advance and improve themselves. About 3 million adults each year participate in adult basic education; while

more than 14 million more enter postsecondary education or work-related training (Liebowitz & Taylor, 2004). The problem is that, for a multitude of reasons, few of these students are able to complete a college degree. Although about 64% of adults preparing for the GED state they are doing so in order to go to college, only about 30% of them actually enroll in college, less than 15% successfully complete one year, and only 4% earn an associate's degree (American Council on Education, GED Testing Service [ACE GED], 2014a; Liebowitz & Taylor, 2004).

In the face of these unacceptably low graduation numbers, it is important to develop an understanding of the factors that play a role in students continuing their education beyond high school, especially those students most at-risk for failure. Who are these high-risk students? There are many classifications of high-risk students, such as minorities, low-income, low-skilled or first generation in college. Recent high school graduates are considered at high risk for failure as are nontraditional, older students who delayed their enrollment in college. About 41% of college students are older than 25, and many of these older students have a GED rather than a traditional high school diploma (Rao, 2004). They also tend to have many other nonacademic characteristics that make them more likely to be unsuccessful in college: low-income; lack of reliable transportation; financially independent with no extended family support; first generation in college; parents; and working full-time while attending school part-time (AACC, 2009b; Burns, 2010; Guison-Dowdy & Patterson, 2011; Rao, 2004). Some studies have shown that up to 70% of community college students have encountered at least one of these challenges, and up to 50% struggle with two or more (Burns, 2010). In addition, many of them do not fully grasp the importance of postsecondary education to enhancing

their career options. Others mistakenly think they are not “college material” or that college is not financially possible. There are also some who are so intimidated by the whole process that they do not even apply to college.

Statement of Problem

The issue of GED students entering and succeeding in postsecondary education is a complex and concerning one. GED recipients are more likely than other high school dropouts to attend college, but less likely than traditional high school graduates (Boesel, Alsalam, & Smith, 1998; Entwisle, Alexander & Olson, 2004; Guison-Dowdy & Patterson, 2011). While the primary economic value of the GED is verification of cognitive skills, improvement of job prospects, and access to college, only a small number of GED recipients enter college and an even smaller number are prepared for college-level work and persist to graduation (Liebowitz & Taylor, 2004; Guison-Dowdy & Patterson, 2011). Of all students who enter community colleges, close to 50% must take at least one developmental course. This number rises to as much as 70% in community colleges that serve more low-income, low-skilled adults, many of whom have obtained a GED (Liebowitz & Taylor, 2004). Unfortunately, remedial approaches are the least desirable and the most costly to students, parents, and society in time and money (Leal, 2008). These facts suggest a need for continued development and implementation of partnerships with secondary education programs and interdisciplinary approaches to teaching, learning, and student support services targeted at the highest-risk groups of students. A review of the literature suggests that institutional interventions to enhance student engagement and persistence have a larger impact on those students most at-risk,

although all students will benefit from these improvements (Adams, 2011; Carini, Kuh & Klein, 2005; Harvey-Smith, 2002; Jobs for the Future, 2010).

One of the current problems is that many traditional college degree programs were not designed for the hectic lives of today's adults, with full-time family and work responsibilities. These students face considerable institutional barriers to success, including inadequate access to affordable housing, childcare, transportation, and healthcare. The issues caused by these barriers are further compounded by the often fragmented and inaccessible nature of higher education; the pathway through admissions, financial aid, registration and the like is frequently incomprehensible for new students (Alamprese, 2005).

These large obstacles naturally weaken student persistence and success at every level. While many GED recipients may have the motivation and cognitive skills needed to succeed in college, these barriers seriously undermine their chances at obtaining a degree. Studies have found that while 30-35% of GED holders complete some postsecondary education, only 5-10% completes a minimum of one full year (Murnane, Willett & Tyler, 2000). The traditional two-year associate's degree takes many students up to six years of part-time work to complete (Guison-Dowdy & Patterson, 2011; Liebowitz & Taylor, 2004). In fact, up to 68% of community college students enrolled in occupational programs complete less than a year's worth of courses in five years (Silverberg, et al., 2004). Extending the time to degree decreases the chance of success for these students (Guison-Dowdy & Patterson, 2011; Silverberg, et al., 2004). Adults moving into postsecondary education from adult basic education and other GED

programs face considerable challenges and must learn to balance their education with their work and family obligations.

Providing these high risk students with the needed skills and knowledge while lowering barriers presents education professionals with a complicated dilemma. In many states, including the southeastern state where this study was conducted, ABE and GED programs are offered in the secondary school system and not within the community college. It is a large undertaking to even begin addressing the problems of GED students transitioning to the community college. Despite these challenges, community colleges have the obligation to address and overcome the unmet needs of GED holders. These students rely on the community college to help them reach their academic and career goals, and their ultimate success depends on their initial successful completion of developmental courses and their subsequent persistence to degree.

Purpose of Study

The purpose of this ex post facto study is to explore persistence to degree and certificate completion for adult learners who enter a community college with a GED credential and adult learners who enter with a traditional high school diploma. In addition, this study will examine the impact of initial COMPASS (Computer-adaptive Placement Assessment and Support System) scores and time to degree or certificate completion on persistence. Only students over the age of 24 years and who have completed their degree within a four year time frame will be included in this study. College enrollment of both GED holders and high school graduates tends to decrease as age increases, but GED recipients are more likely to enroll at older ages (Guison-Dowdy & Patterson, 2011; Zhang, 2010). Controlling for age will also assist in making the

sample more homogenous. Time to degree completion is included to further explore another potential confounding factor that is known to impact student persistence (Burns, 2010; Liebowitz & Taylor, 2004; Silverberg, et al., 2004).

A comparison of initial COMPASS scores is included to provide information on the number of students placed into developmental courses. These placement scores will help determine if there are any differences in persistence when both groups, regardless of high school setting, have arrived at college unprepared and require remedial coursework. The COMPASS test was developed by ACT, an independent, not-for-profit company that specializes in assessment, research, and program management products for higher education and workforce development (ACT, 2007). It was developed in response to requests from higher education practitioners for stronger student course placement tools and support for academic advising and learning support. The premise is that students who are properly placed into entry-level math, reading and writing courses according to their current literacy level are more likely to be successful (ACT, 2007). COMPASS is a computer-based test that quantifies students' skills in writing, reading, math (pre-algebra, algebra, college algebra, geometry and trigonometry), and ESL. The resulting data can be used by schools to place students in the appropriate remedial or college-level courses and direct them to the support services that will help them succeed. In addition to the placement tests, there are also multiple diagnostic tests available to give further detailed information on each student's exact skill on individual content areas, such as fractions or factoring polynomials (ACT, 2007).

Significance of Study

Over the past several years, the movement toward more rigorous national standards and greater accountability for high school and college education has gained momentum (Cowan, 2013; Joch, 2014). This active debate on what it means to be a high school graduate and what is needed to be college- and career-ready has a direct impact on the GED test (ACE GED, 2012). Therefore, the American Council on Education (ACE) has chosen to transition directly from the last test series, implemented in 2002, to a more challenging, comprehensive assessment. According to ACE, this new assessment is meant to dramatically increase the number of test-takers and GED recipients who are prepared to pursue postsecondary education (ACE GED, 2012). In addition to simply making the GED test more rigorous and comprehensive, ACE and other educators realize that academic preparation programs and post-credential college transition programs must be improved in order to better prepare and support these students as they move into postsecondary education and the workforce (ACE GED, 2012; Liebowitz & Taylor, 2004; Rao, 2004). These concerns have additional urgency now at a time when questions are being raised about the impact of more open and flexible admission procedures will have on higher education standards in general.

Many working adults with a GED credential who have managed to begin their college studies are only one crisis away from being forced to drop out of school. For these students, choices regarding work, school and home are highly interdependent. They often have substandard housing, inadequate healthcare coverage, unreliable transportation and childcare arrangements, and are in jobs with inflexible schedules and employers (Liebowitz & Taylor, 2004). This is especially true in households with single parents or

two parents both working full-time. As a result of these challenges, almost half of students who must drop out of adult basic education or the community college give nonacademic reasons for leaving: job or schedule change, lack of childcare, lack of reliable transportation, or personal or family illness (Guison-Dowdy & Patterson, 2011; Liebowitz & Taylor, 2004).

It is well-known which student groups are high-risk and that these students are less likely to enroll in college and persist to degree (Cuseo, 2002; Guison-Dowdy & Patterson, 2011; Liebowitz & Taylor, 2004; Rao, 2004). It is also well-known that the majority of GED recipients fit into one or more of these high-risk groups (Adams, 2011; Entwisle et al., 2004; Rao, 2004). Research has shown that these students require intensive, comprehensive support services for success, but what is more unclear is what exact services are needed and whether current services are effectively meeting the needs of the students and helping them overcome their individual barriers to success.

The majority of previous studies comparing GED holders and high school graduates did not control for such factors as placement test scores or the age of the students. Therefore, those results could be interpreted as showing the difference between older and traditional age students as much as between GED holders and high school graduates (Ebert, 2002). By including only students over the age of 24 and their entering COMPASS scores, this current study will provide more specific information and thus a greater understanding of GED holders' performance in comparison with high school graduates.

Research on transition to college for adult graduates of GED and adult basic education programs is an emerging field. Until fairly recently, this research information

has been embedded in more general discussions of youth transition, adult literacy, and nontraditional college students (Alamprese, 2005; Patterson, Song & Zhang, 2009).

While numerous studies have explored factors influencing completion of GED programs or the academic performance of GED recipients as compared to high school graduates, few studies have looked closely at specific academic or nonacademic factors influencing their access to and persistence in postsecondary education (Alamprese, 2005; Kist, 2003; Patterson, et al., 2009). This information is vital in order to determine an accurate picture of their college experience and success as well as specifically which support services would be of most benefit to these students. Colleges must recognize that students have different experiences and obstacles related to their personal life experiences, path to college, and the setting and quality of their secondary education and preparation. These different challenges certainly play a role in any discrepancies seen in the eventual success of the students. Some degree of student loss is inevitable. The fundamental question is why some students leave and some do not.

Research Questions

The topic of this study was chosen to allow the researcher to understand individual student's experiences during the transition to postsecondary education. While a significant amount of research explores college preparedness and the academic factors influencing student retention and college success, far less attention has been devoted to understanding the experience of GED holders and the impact of these factors on their eventual postsecondary retention and success. Even less research addresses exactly how these factors differ for students with a GED as compared to those with a traditional high school diploma or how other factors such as placement test scores or time to degree

impact persistence for these students. To make meaningful comparisons between students, it is necessary to focus on smaller subgroups such as those who entered college through a nontraditional route- like GED recipients. Few research studies to this point have focused solely on this group and indeed, few colleges even collect such cohort data (Liebowitz & Taylor, 2004). It is difficult, if not impossible, to reach any meaningful conclusions or provide suggestions for improvement on withdrawal rates without evidence on individual student profiles, qualifications and barriers to success. College personnel need to know the reality regarding the success of GED holders in order to learn what additional support services can realistically be provided to improve student success. This specific information has not been a research focus to date. To that end, this study will answer the following research questions:

1. Is there a significant difference in persistence to an Associate's degree based on an adult learner's attainment of a GED or high school diploma?
2. Is there a significant difference in persistence to a certificate based on an adult learner's attainment of a GED or high school diploma?
3. Do initial COMPASS placement scores impact this persistence to an Associate's degree based on an adult learner's attainment of a GED or high school diploma?
4. Do initial COMPASS placement scores impact this persistence to a certificate based on an adult learner's attainment of a GED or high school diploma?
5. Does time to degree completion impact this persistence to an Associate's degree based on an adult learner's attainment of a GED or high school diploma?
6. Does time to degree completion impact this persistence to a certificate based on an adult learner's attainment of a GED or high school diploma?

Methodology

Nonexperimental quantitative research designs are suitable, frequent choices in educational research projects because further study is needed on so many crucial independent variables that cannot be manipulated by researchers (Johnson, 2001). For example, manipulation and experimentation is not possible in the presence of such common variables as school choice, length of school year, state funding, learning styles or school dropouts. In these cases, the researcher must examine the independent variable in the setting as it naturally occurred.

This study was designed as an ex post facto investigation of the differences in the persistence of adult GED holders and high school graduates enrolled in a single community college in a southeastern state. A basic ex post facto study examines two groups that differ on one independent variable and further compares these groups on other independent and dependent variables (Cromwell, 1989). This type of design was appropriate since the independent variables had already occurred and could not be manipulated. Such a retrospective look at college student persistence includes quantitative variables and requires a specific set of statistical analysis models, such as logistic regression. This study will explore any possible relationship between the variables but not causality. It is difficult, if not impossible, to determine cause-effect relationships with this type of nonexperimental research due to the lack of randomization, manipulation, and control of possible confounding variables (Cromwell, 1989; Johnson, 2001).

For this type of research study, data must be collected on the independent and dependent variables along with relevant demographic information (Mertens, 2005). This study focused on one dependent variable and several independent variables.

The independent variables include:

- Type of high school diploma: GED credential or traditional high school diploma
- COMPASS scores: reading, writing, and mathematics score upon student's initial entry into the community college as recorded in PeopleSoft, the college's student information system
- Time to degree: total number of semesters enrolled in community college during study period or until degree completion

The dependent variable is:

- Completion of associate's degree or certificate during the study period

A full discussion of the study methodology is included in Chapter 3.

Limitations and Delimitations

This study will be narrowly focused on adult learners over the age of 24 during a specified four year time frame at a selected community college located in the southeastern United States. This will limit the generalizability of the findings as the demographics of this student population may not be representative of those at other institutions.

Another threat to the study's external and internal validity was the self-selection of the students in the choice of a GED vs. high school diploma. The comparison of the

initial COMPASS scores established whether or not the groups were equivalent at the beginning of the study in terms of prior reading, writing and math knowledge. However, college policies concerning the timing and necessity for COMPASS testing are not consistently applied and so not every student in the study was tested at the same time in his or her college experience.

Conclusion

Although the GED credential has been offered as an alternative path to a high school diploma since 1942, the transition of its graduates to postsecondary education remains a complex and concerning issue. Nationwide and statewide trends show that the majority of GED holders turn to the community college for access to further education and training (Guison-Dowdy & Patterson, 2011; Liebowitz & Taylor, 2004). However, research on retention and persistence patterns of those with GED credentials is limited, especially as compared to traditional high school graduates. This study examined precollege preparation and other academic factors that help predict persistence to better assist community college decision-makers improve graduation and retention rates. Furthermore, this study will assist faculty, advisors, and administrators in refining their current intervention programs to improve student success.

Chapter II

Review of Literature

In today's knowledge-based economy, education has become a critical link to economic security. A postsecondary degree or credential is now an essential qualification for the majority of jobs that offer family-sustaining wages. In fact, over the past three decades, the average wage for low-skilled workers with no high school degree declined by 19% while wages for college-educated workers increased an average of 16% (Waldron, Roberts, & Reamer, 2004). During the same time period, the median annual income for a high school graduate fell approximately 11% (Pew Research Center, 2014). Almost half of the expected job growth over the next 25 years will be in positions and industries requiring postsecondary education and credentials (U.S. Department of Labor, Bureau of Labor Statistics, 2009). Adults with associate degrees earn, on average, up to 25% more than those with a high school diploma, and this gap is expected to widen over the next two decades (U.S. Department of Education, Office of Vocational and Adult Education, 2007). Recent analyses by the United States Census Bureau and the Pew Research Center showed that the median earnings for those with a bachelor's degree were generally between 60-74% higher than the median earnings for workers with only a high school diploma (Crissey, 2009; Pew Research Center, 2014).

In response to these workforce changes, adult workers trying to improve their financial future are expressing interest in college education in greater numbers. Despite this increased interest from potential students and the clear importance of postsecondary education to the economic growth and health of individuals and the nation, the percentage of younger adults with a two-year or four-year college degree in the United States has

changed little in the past 20 years, although there has been a 2.5% increase since 2008 (Braxton, 2000; Lumina Foundation, 2014). For the 25-34 year old age group, there have only been small increases in high school graduation rates since 1990 and there has been no significant increase in college graduation rates in that same age group over the past decade (Crissey, 2009; Lumina Foundation, 2014). Sixty percent of Americans have no postsecondary credentials at all, and less than a third of Americans have bachelor's degrees (Lumina Foundation, 2014; U.S. Department of Education, Office of Vocational and Adult Education, 2007). In fact, the United States has gone from first in the world to tenth in the percentage of adults aged 25-34 with a postsecondary credential (Jobs for the Future, 2010). By 2025, it is estimated that America will be short approximately 16 million college degrees needed to meet workforce needs and keep up with other leading nations (Price & Roberts, 2008).

Expanded access to postsecondary education has never been as crucial to the economic health of American society as it is today. There is ample evidence that working adults will require postsecondary education to earn a family-supporting wage and have a chance at career advancement (Jobs for the Future, 2010; Purnell & Blank, 2004). In addition, America will need an educated workforce in order to remain competitive in the increasingly complex global economy. Unfortunately, at the same time that higher education is becoming more vital, high school dropout rates are rising and graduation and retention rates in postsecondary programs are declining (ACT, 2011; Reder, 2007; Tyler, 2003).

While there are a number of areas in both secondary and postsecondary education that are in need of focused research and improvement, this study focused on the success

of GED graduates in postsecondary education. In order to understand how to improve the support of GED graduates, and indeed all adult learners, the higher education community must first understand the current picture of their postsecondary experience, including academic preparation, barriers to success, and graduation rates.

History of GED

The General Educational Development test series was first implemented in the early 1940's to provide an alternative to returning to the high school classroom for veterans whose secondary education was interrupted with military service in World War II (Smith, 2003).

The original purpose was to allow these veterans to take advantage of the GI bill to enroll in postsecondary education programs upon their return from the service. This first credential was based solely upon measured educational maturity and competence, rather than a prescribed type or amount of knowledge (Smith, 2003). The American Council on Education (ACE) also prepared a civilian version intended for school use in developing local campus standards for admitting veterans who had not completed high school or who had done poorly in high school (Quinn, 2002). The first candidates' veteran status was crucial to the initial acceptance of the GED testing program. In 1947, ACE expanded the scope and marketability of the GED by convincing the New York Education Department to issue GED credentials to high school dropouts who had never served in the military and by the next year, 22 states were offering the GED to nonveterans (Quinn, 2002). During this same time, both supporters and critics of the idea of the GED as a high school equivalency clarified that the tests measured only a portion of the educational objectives of secondary schools and was not meant to be considered as a full equivalent of a high

school education. Instead, it constitutes an alternative pathway into further education or the workforce.

Steady growth in the GED testing program continued despite these concerns and in 1959, the number of civilians taking the GED surpassed the number of veterans for the first time (Quinn, 2002). Another period of rapid growth occurred in the 1960's as the federal government increased support of GED testing and adult education as part of their War on Poverty and new welfare initiatives (Quinn, 2002). By 1974, all 50 states were offering the GED (ACE GED, 2010a). In 1978 ACE released an officially sanctioned practice test that fueled controversy and criticism that it was intended to help GED instructors "teach to the test" (Quinn, 2002). Prior to this time, GED classes primarily focused on basic skills such as reading comprehension, vocabulary, grammar, and arithmetic, using a variety of resources and there had been no way to predict when a student was ready to pass the test.

There have been four previous generations of the GED test battery: the original test developed in 1942, and updated series introduced in 1978, 1988 and 2002. The fifth and newest iteration was implemented in 2014. As it is meant to evaluate the general knowledge and skills that are usually learned during high school, each new series has evolved along with changes in traditional secondary education. Since its inception, the GED test has been comprised of subtests in five content areas: reading, writing, mathematics, science and social studies. The new test is divided into four content areas: reasoning through language arts, mathematical reasoning, science and social studies (ACE GED, 2014b).

To be successful on the test series, GED candidates must obtain a minimum standard overall score as well as a minimum standard score in each content area. These scores are based on those earned by the top 60% of graduating high school seniors used to norm the test battery (ACE GED, 2010b). The 2014 test offers two scoring options: minimum passing score that demonstrates high school equivalency-level skills and abilities and the passing score with honors that demonstrates career- and college-readiness (ACE GED, 2014b). The GED test transcript provides standard scores and percentiles that can be used to compare the GED student's performance and skills with those of traditional graduating high school seniors (ACE GED, 2010b).

The first revision of the test series, in 1978, retained a focus on high school outcomes, but introduced real-life contextual knowledge and reading exercises more relevant to adults (ACE GED, n.d.). The 1988 revision began an emphasis on global awareness and technology, with enhancement of the contextual knowledge and introduction of critical thinking skills. This time period also experienced a shift in the reasons that candidates reported for taking the GED from primarily employment reasons to more interest in college education (ACE GED, n.d.). The 2002 revision continued the move towards global issues and further alignment with current secondary education trends, along with greater emphasis on higher cognitive functions such as analysis and synthesis of information (Smith, 2003). According to the GED Testing Service, the newest update represents a comprehensive and fundamental shift in the method of assessment for GED candidates and emphasizes alignment with national core secondary education standards (ACE GED, 2009b). Although a few new elements were introduced in 2010, the next-generation GED test with its complementary assessments was fully

implemented in 2014 as part of the new GED 21st Century Initiative (ACE GED, 2011). This recent project was established to convert the GED test into a more comprehensive program aimed at further supporting adult learners in their transition to postsecondary education, vocational training and better careers (ACE GED, 2011, 2012). It is comprised of three primary components: national programs that are more accessible and focus on quickly preparing adults to take the GED test; an assessment system that is aligned with the national core secondary education standards and measures college and career readiness along with high school equivalence; and a support network to connect GED holders with opportunities in postsecondary education and careers (ACE GED, 2011, 2012). It is delivered exclusively as a computerized test in a further effort to improve test consistency and passing rates (ACE GED, 2013).

Although the GED Testing Service of the American Council on Education, a nongovernmental agency, develops and disseminates the GED test, state agencies are tasked with administering the tests and awarding the credentials. Most states award an equivalency certificate while others award an adult-education diploma (Miller, 2006). The individual states make decisions and set policies regarding testing centers, passing standards, retesting, testing eligibility, testing fees, and mandatory test preparation. This state control means that variability among jurisdictions may impact program outcomes such as pass rates (ACE GED, 2010b). Depending on state law, GED preparation programs can be offered by a variety of agencies, such as secondary school systems, community colleges, prisons, or community-based organizations.

The southeastern state that is the setting for this study has set policies that are similar to most other states. There are currently 80 testing centers and candidates are

charged a \$30 per module fee and a modest retesting fee per subtest (ACE GED, 2014b). The minimum passing scores are identical in all states and the minimum testing age of 18 (with no waivers or exceptions) is also the same as the majority of other states (ACE GED, 2014b). GED candidates are not required to do any formal test preparation or take the official GED practice test. There is no time limit for completion of the entire GED test battery and test scores never expire except during the transition from one test series to the next (ACE GED, 2014b).

More than 19 million GED credentials have been awarded since 1943, with approximately 540,000 awarded nationwide in 2013 (ACE GED, 2014a). This number of successful applicants represented 75% of those who completed the tests. More than 87% of those who started the GED test battery completed all five sections (ACE GED, 2014a). Approximately thirteen percent of all high school credentials awarded by states in 2008 were GEDs, up from seven percent three decades earlier (ACE GED, 2009a; Crissey & Bauman, 2012). In many states, up to 25% of public high school credentials awarded each year are GED certificates (Smith, 2003).

In this study's targeted state in 2013, there were more than 942,000 citizens without a high school credential (ACE GED, 2014a). Of this target population, 2.5%, or about 24,000, attempted the GED test. Of these candidates, 89% completed all five sections and more than 15,000 were successful, for a 74% pass rate (ACE GED, 2014a). Over the past decade, the overall participation rate has increased by 1.1%, the number of successful candidates has increased by about 38%, and the pass rate has improved from 63% to the current 74% (ACE GED, 1999, 2010b, 2014a). A total of more than 450,000

GED certificates have been awarded to state citizens since the inception of its GED testing program (ACE GED, 2014a).

GED Credential Recipients

According to a 2007 United States Census Bureau report, 16% of the population over the age of 25 had not completed a high school education, were not currently enrolled in an education program, and did not have a high school credential of any type. Of the portion of the population living below the poverty line, 30% lacked a high school credential and of those adults with annual household incomes below \$40,000, nearly 20% had not graduated from high school (ACE GED, 2010b). Although there is variability across states, at least 10% of each state's population does not possess a high school credential and this figure is as high as 25% in 12 states (ACE GED, 2010b).

Unfortunately, these states with the highest percentage of citizens with less than a high school education do not have a corresponding higher percentage of candidates taking the GED (ACE GED, 2010b). Nationally, 1.8% of those without a high school diploma completed the entire GED test and 1.4% passed (ACE GED, 2014a).

The National Household Education Survey/Adult Education Component of 2005 estimated the number of GED holders at approximately 13.2 million and the National Assessment of Adult Literacy of 2003 estimated 14.5 million (Reder, 2007). These numbers are comparable to numbers published by the GED Testing Service (about 18 million) (ACE GED, 2014a). These same surveys show that about 6-7% of the population over the age of 16 holds a GED and 16% hold no secondary credential at all (Reder, 2007). Slightly more men (51%) have no secondary credential or have a GED while slightly more women (53%) hold high school diplomas (Reder, 2007). Less than 30% of

high school diploma recipients are ethnic or racial minorities. Between 35-50% of adults with a GED or without a secondary credential are minorities (Guison-Dowdy & Patterson, 2011; Reder, 2007).

Who are the GED recipients? In 2013, the mean age nationally was 26.5 years (ACE GED, 2014a). This figure has shown a slight increase over the past few years, the first change in the average age of test-takers for more than a decade (ACE GED, 2010b, 2012a, 2014a). At the same time, the number of applicants aged 16-18 has decreased about 5% since 2002 (ACE GED, 2010b, 2014a). The average number of years out of school before testing was nine years with 23% of students reporting they had been out of school for one year or less, while 33% waited more than ten years before attempting the GED test (ACE GED, 2014a). Some select groups, such as prisoners, had more than double the average time out of school (ACE GED, 2010b, 2014a).

The figures for our southeastern study state followed similar trends. The mean age is 27 years, with 26% of candidates aged 16-18 and 31% over the age of 30 (ACE GED, 2014a). All of these statistics are slightly increased over 2009 data (ACE GED, 2010b, 2014a). Twenty-six percent of this state's GED candidates reported being out of school one year or less, 37% for six to twenty years, and 16% had not had any formal education for more than 20 years (ACE GED, 2014a). The mean number of years out of school was approximately ten years (ACE GED, 2014a).

Candidates are asked to provide their reason for seeking the GED credential. The choices include educational, employment, military, social, personal, or other (ACE GED, 2010a, 2014a). Personal and other reasons for seeking the GED may include court order, encouragement from family members, coaches, or former teachers, or a requirement to

maintain welfare benefits (Bingham, 2002). Because students may choose more than one reason, it is not possible to distinguish the relative importance of each reason to the candidate. Over the past two decades, the general trend has been an increase in the number of candidates citing educational reasons for taking the GED test. In 2013, 65% of candidates indicated desire for further education as their primary motivation, a number that has increased slightly since 2006, when it was 59% (ACE GED, 2014a). A larger number of these candidates (33%) were planning on attending a two-year college as opposed to a trade program (25%) or a four-year institution (23%) (ACE GED, 2014a). A little more than half (53.5%) of the GED candidates in 2013 reported that they took the test for employment reasons, such as to keep current job or to obtain a better job (ACE GED, 2014a). In the studied state, the percentages were similar to the national trends with 53.5% citing employment reasons for attempting the GED, 58% reporting educational reasons, 32% interested in community colleges and less than 20% interested in either trade programs or four-year colleges (ACE GED, 2014a).

Benefits of Obtaining a GED

As the above statistics demonstrate, the GED Testing Service has clearly become a major source of secondary education in America, especially for adult learners. There are few community colleges or public school systems still offering programs for adults wishing to complete a traditional high school curriculum (Jobs for the Future, 2010; Quinn, 2002). The GED Testing Service asserts that today more than 96% of colleges, universities, and companies that require a high school diploma will accept the GED credential (ACE GED, 2010a; Crissey & Bachman, 2012). In fact, the GED was so closely equated to high school diplomas that before 1988 the United States Census

Bureau did not even distinguish between the two credentials (Crissey & Bachman, 2012; Smith, 2003). The Census Bureau still publishes data from several national surveys with GED holders and high school graduates grouped together when calculating high school completion rates (Crissey & Bachman, 2012). Nationally, GEDs are considered equivalent to traditional diplomas in regards to federal financial aid and welfare eligibility and in most measures of high school graduation rates (Smith, 2003). Many state governments equate GEDs with traditional diplomas when determining eligibility for certain economic and social programs (Smith, 2003). This state and national willingness to equate the GED with a traditional high school diploma demonstrates how ingrained this credential has become as an important component of American secondary education.

However, the actual economic and educational value of a GED is still debatable. Despite the aspirations and plans of the test-takers, there is evidence and concern that the GED credential is not equivalent to a high school diploma in the workforce or as a pathway to further education (Crissey & Bachman, 2012; Heckman & LaFontaine, 2010; Miller, 2006; Tyler, 2003). Some economic research reports that GED graduates have labor-market outcomes closer to high school dropouts than to graduates holding traditional diplomas (Cameron & Heckman, 1993; Guison-Dowdy & Patterson, 2011; Smith, 2003; Tyler, 2003). In fact, the wage and annual earnings advantages of GED holders become much smaller and often statistically insignificant when factors such as family background, years of completed secondary schooling, and measured cognitive skills are controlled (Murnane, et al., 2000; Tyler, 2003). The wage differences also decrease when years of work experience are considered (Murnane, et al., 2000).

However, if these GED holders can complete their associate's degree, they can earn between 20-30% more than their peers who stopped with a high school diploma (Bailey, 2005).

Some of these same studies suggest that while there seem to be sizable economic gains for high school dropouts with weak literacy and math skills who obtain the GED, there are little to no benefits to obtaining a GED for dropouts with stronger academic skills (Murnane, et al., 2000; Reder, 2007; Tyler, 2003). GED recipients with poor math skills have much higher earnings, up to 36% more, by age 27 than high-school dropouts with the same low level of math ability and similar demographics (Murnane, et al., 2000). This may be because weaker students gain more significant improvement in skills and knowledge desirable in the labor market while studying for the GED test (Tyler, 2003). Completion of a GED may also signal to employers that the recipient now has the motivation, work ethic, and basic literacy skills needed to be a good employee, characteristics that may have been lacking previously.

Acquisition of a GED is also meant to offer indirect economic benefits by increasing access to postsecondary education and thus to higher-paying jobs. In fact, for each year of college completion for a GED holder, there is an 11-20% median hourly wage increase (College Board, 2010; Tyler, 2003). Most postsecondary educational institutions and federal financial aid programs require completion of a high school diploma or GED credential for college admission. GED holders have higher participation rates in postsecondary education than high school dropouts, but lower rates than those with regular high school diplomas (Guison-Dowdy & Patterson, 2011; Murnane, et al., 2000; Patterson, et al., 2009; Reder, 2007; Smith, 2003). Recent nationwide studies by

the American Council on Education report that no more than 43% of GED recipients transition to college as compared to approximately 63% of high school graduates (Guison-Dowdy & Patterson, 2011; Reder, 2007). One earlier longitudinal study found that 78% of high school graduates were enrolled in postsecondary education within six years of graduation, while only 40% of GED holders had pursued further education by that time (Tyler, 2003).

These and other findings could be interpreted to imply at least a minimal positive relationship between obtaining a GED credential and enrolling in postsecondary education, especially as compared to high-school dropouts (Patterson, et al., 2009; Reder, 2007). However, the postsecondary participation rates of GED holders remain unacceptably low. Unfortunately, having the motivation and desire to pursue higher education is not always enough for many adult learners. This is especially true of traditionally underserved populations- minorities, low-income, first-generation, and older adults, many of whom are today's GED recipients.

Postsecondary Transitions for GED Recipients

The exact number of GED credential recipients currently pursuing postsecondary education is unclear (Guison-Dowdy & Patterson, 2011; Maralani, 2006). Depending on the sources of data reviewed and whether enrollment or completion is estimated, percentages of participation differ widely across studies. Depending on the population studied, somewhere between 10%-45% of GED recipients actually begin postsecondary education, the majority at two-year institutions (Guison-Dowdy & Patterson, 2011; Maralani, 2006; Ou, 2008; Reder, 2007; Tyler, 2003). Only about 30% of students who enroll in adult basic education programs with the ultimate goal of pursuing postsecondary

education every fulfill that dream (Duke & Ganzglass, 2007; Reder, 2007). This percentage is drastically lower when the entire population of adult basic education is considered, falling to less than 2% (Duke & Ganzglass, 2007). The National Household Education Surveys of 2001, 2003, and 2005 indicated that approximately one-fourth of GED credential recipients attended some college or completed an undergraduate degree; Reder (2007) reported estimates of 48% of GED credential recipients from the 2005 follow-up attended some college or completed an undergraduate degree. Some states such as Kentucky and Utah report higher percentages, with up to half of GED recipients enrolling in postsecondary education (Duke & Ganzglass, 2007; Hanni, 2008; National Commission on Adult Literacy [NCAL], 2008). Two years after their cohort had graduated from high school, dropouts who had acquired a GED by this time had considerably less postsecondary education than those regular high school graduates, and they spent more time in vocational or technical training instead of formal academic degree programs (Tyler, 2003). Students who delayed enrollment in college are also more likely to attend community and technical colleges to pursue short-term certificates or vocational training than those who enrolled in college immediately following high school graduation (Spellman, 2007). In terms of degree type, 93% of high school graduates chose a two- or four-year degree program, with only about 7% choosing a certificate or vocational training program, while the corresponding figures for GED holders were approximately 80% and 20% (Guison-Dowdy & Patterson, 2011).

Simply enrolling in a postsecondary education program in no way guarantees success. Regardless of the actual number of GED holders who enroll in college, studies overwhelmingly agree that few enrollees complete the first year of postsecondary

education or a degree program (Duke & Ganzglass, 2007; Murnane et al., 2000; NCAL, 2008; Reder, 1999; Tyler, 2005). An estimated 50% of students who begin postsecondary education at a community college will leave before completing a degree (Bailey, 2005; Duke & Ganzglass, 2007; Reder, 2007; Tyler, 2003). Bailey (2005) discovered that 20% of students who enroll in community colleges complete less than 10 credits. Other more recent analyses revealed that of all students who began at a community college, only between 25-27% completed their degree within three years (ACT, 2011; NCES, 2006). Several others studies have shown that almost half of students who enroll in two-year colleges leave during their first year (Braxton, Hirschy & McClendon, 2004; Purnell & Blank, 2004). The first year of college is the most critical to a student's success and eventual degree attainment (Patterson et al., 2009). Unfortunately, according to the National Center for Education Statistics (NCES), nearly half of first-time students who drop out of college by the end of their first year never return to higher education (U.S. Department of Education, National Center for Education Statistics [NCES], 2002).

The statistics for GED holders, older students, high school dropouts, and low-income, low-skilled adults are even more troubling. Nontraditional students seeking an associate's degree were less likely than their traditional peers to earn the degree (27% versus 53%) and more likely to leave without the degree (47% versus 22%) (NCES, 2002; Smith, 2003). Among this same group of students, those seeking an associate's degree were more likely than those seeking a bachelor's degree to leave without a degree (47% versus 33%) (NCES, 2002; Smith, 2003). Even though many GED candidates attended a semester, frequently at a public community or technical college, and nearly half attended at least full time or half time, more than three-quarters (77%) left after the

first semester (Patterson et al., 2009). One study found only 12% of GED holders completed one year of college within 10 years (Duke & Ganzglass, 2007). Among women who are at least 24 years of age and have a GED, 11% completed a year or more of college but have no degree, while less than 1% obtained a minimum of an associate's degree; corresponding figures for women at least 29 years of age are 20% and 3% (Tyler, 2003). All of the above statistics are not surprising as GED holders can have twice as many financial and personal risk factors for academic failure than high school graduates (Guison-Dowdy & Patterson, 2011; Reder, 2007).

Almost 40% of adult students who enter community colleges each year have annual incomes less than \$25, 000 (Cook & King, 2004). One recent study found that almost half of GED holders, compared to about 20% of traditional high school graduates, were living at or below the poverty level when they enrolled in college (Guison-Dowdy & Patterson, 2011). Low-income adult workers (those making less than about \$37,000 for a family of four) are almost three times more likely not to have finished high school than their peers (Waldon, Roberts & Reamer, 2004). More than 35% of working families have at least one parent who did not finish high school or obtain a GED; in our studied state, this percentage is a bit lower at 24% (Waldron et al., 2004). Only 15% of impoverished students who begin high school are likely to earn a college degree, compared with 50% of their wealthier peers (Jobs for the Future, 2010). About 60% of low-income students who do begin college do not complete a degree or transfer (Bailey, 2005).

These large disparities are explained by lower high school graduation and postsecondary enrollment rates, and are further compounded by large differences in the success rates of students who make it to college. College students from families in the

bottom 40% of the income spectrum are only half as likely to complete a two-year or four-year degree as other students (Jobs for the Future, 2010). When matched on basic literacy and math skills, GED and regular diploma graduates differ little on persistence rates. This fact highlights that for most GED recipients, it is the other barriers such as socioeconomic, employment, and family obligations that account for the differing levels of postsecondary attainment (Jobs for the Future, 2010; Reder, 2007). Although approximately 60% of candidates cited educational reasons for taking the GED Test, many do not continue their education because of adverse life circumstances or other barriers (ACE, 2009; Guison-Dowdy & Patterson, 2011; Maralani, 2006; Reder, 1999; Tyler, 2005).

Barriers to postsecondary success.

Community colleges have historically served the needs of nontraditional and high-risk students such as first-generation, low income, minorities, and older adults. However, graduation rates among these students are lower than the overall numbers (Fike & Fike, 2008; McCabe, 2000; Purnell & Blank, 2004). Such students are often not as academically or socially prepared for higher education and so are more likely to be unsuccessful (Purnell & Blank, 2004; Reder, 2007; Twigg, 2005). By definition, nontraditional students have outside priorities that directly compete with educational attainment. It is because of the need to balance their work, family, and school responsibilities that most adult students delay enrollment in college, attend school part-time and take longer to graduate (Bailey, 2005; Guison-Dowdy & Patterson, 2011; Ou, 2008). One-third of adult, community college students are parents and one-fourth of them are single parents (Spellman, 2007). More than one-half of these students work more than

20 hours a week, 36% of them while caring for dependents (Spellman, 2007). When looking at GED recipients specifically, recent findings show that these students tend to enroll in postsecondary education at older ages than traditional high school graduates (Guison-Dowdy & Patterson, 2011; Zhang, 2010).

The same barriers that prevent students from enrolling in college can also prevent them from staying in college. The most commonly cited nonacademic barriers to postsecondary success for nontraditional students are financial, employment, single parenthood, lack of stable transportation or housing, need to attend school part-time and the lack of a high school diploma (Bailey, 2005; Jobs for the Future, 2010; McCabe, 2000; Spellman, 2007). The U.S. Department of Education, Office of Vocational and Adult Education (2007) has recognized several organizational and student challenges in the GED to college transition pathway, such as: student difficulty in acquiring basic literacy skills; lack of college readiness support; lack of work release time for education; lack of tuition reimbursement for low-wage workers; differences in mission and instruction between adult basic education programs and postsecondary institutions; and a financial aid system not designed for nontraditional, adult learners.

There is no question that adult and other nontraditional students also face nonacademic barriers to success. They have tremendous time constraints because of their complex family and work responsibilities. These limitations significantly impact study and assignment time, as well as time available to become involved in extracurricular activities or interact one-on-one with faculty or peers. These students have been separated from a formal learning environment for an extended period of time and most never even considered college as a viable option, so the college setting can be especially

intimidating. All of these factors can lead to social isolation and lack of engagement on the part of the adult student. These students are not as influenced by the social networking and culture of the institution, but are primarily concerned with the course and program offerings that can lead to higher-paying employment (Bean & Metzner, 1985). This isolation can have a negative impact on their persistence since the greater their engagement, the greater their commitment to both the school and degree completion (Tinto, 1997, 1999).

Studies of student retention have long shown that a student's precollege schooling experiences as well as their family background, financial situation, and basic literacy abilities directly influence their commitment and engagement with an institution and to the goal of graduation (Fike & Fike, 2008; Tinto, 1997, 1999). Students' experiences in high school often serve to prepare them for college by allowing early success in college-like classes, allowing them to interact with others like themselves who have been successful in college, get active encouragement and support from teachers and counselors, and to develop positive feelings and attitudes towards college. This positive culture helps the students gain confidence, set higher goals and work harder to achieve these goals. They also know what work it takes to be successful and have been given the time and opportunities to acquire the necessary skills.

For GED students, however, past policies and practices have not gone far enough to bridge the gap between adult basic education programs and college. The process of developing an awareness of college as a place to which they might aspire, managing the college search process, or selecting a particular college begins as early as middle school when students realize that there is an academic opportunity beyond high school (Leal,

2008). This awareness can lead to a sense of academic purpose and focus in high school studies, which allow students to put themselves in a position academically, mentally, and emotionally to consider college. It is unclear how this process is different, or even exists, for students who drop out of school and later may pursue a GED. For first-generation and low-income college students, intensive support is essential to develop realistic college transition plans since they do not have the benefit of college-bound peer and family networks.

Most GED programs currently do not provide students these important opportunities to increase their college readiness, although the new 2014 testing program is an important first step in that direction. Without these opportunities, the adult students frequently do not believe that college is a real option- that meeting the perceived time commitment, expense, and academic difficulty is not possible for them. That perception is an insurmountable barrier for many potential students. Evaluation of past experiences gives rise to current attitudes; therefore, it is the students' past experiences, both in and out of school, which will influence their attitudes toward education and ultimately their decision to continue in school.

GED recipients and developmental education.

The unacceptably low success rates for nontraditional students in postsecondary education become even more troubling when one also considers the students who do not possess the basic math, writing and reading skills needed for college-level courses. There are only marginal differences in the number of GED holders needing remedial work as compared to high school diploma graduates (Reder, 2007). Studies have reported anywhere from 50-85% of both GED holders and high school graduates needed at least

one remedial course and the academic course completion ratio and the grade point average for GED holders were only slightly lower than for other students at the college (Jenkins, Jaggars, & Roska, 2009; Tyler, 2003). In fact, it seems the increased level of academic need in high risk students may be a far more important factor in their college persistence than their type of secondary credential (Reder, 2007; Tyler, 2003). These students must begin with developmental education courses, which can take more than a year to complete. Recent studies on student progress through developmental education showed that less than 40% of students complete their entire sequence of required courses and almost half failed to complete even one course (Bailey, Jeong & Cho, 2008). Students who lack the most fundamental skills in mathematics and writing find it difficult to manage a normal course load and thus have a lower persistence rate (Fike & Fike, 2008).

A longitudinal study conducted on a cohort of more than 24,000 community college students in the same state system as our study sample reported that more than half enrolled in at least one developmental course, but fully one-third never enrolled in the recommended developmental subject (Jenkins, et al., 2009). More students required remedial courses in math than in reading or writing and the numbers were similar for both transfer and career-technical students (Jenkins, et al., 2009). As with the previous studies discussed, these students also had less than satisfactory success: the majority of developmental students did not complete the entire sequence, either because they never enrolled in the recommended courses or because they failed the course (Jenkins, et al., 2009). As expected, students enrolled in the lowest level of remedial coursework had the lowest pass rate, with only 10% ever completing the required sequence (Jenkins, et al.,

2009). Only about 30% of the first-time community college students in this study earned a degree or certificate or transferred to a four-year school within the four year observation period (Jenkins, et al., 2009).

Similar patterns were observed with other outcomes such as number of credits accumulated, degree or certificate completion, and transfer to four-year institutions, with students with the poorest basic skills having the lowest success rates (Jenkins, et al., 2009). These findings agree with other studies that reported better prepared students have more success, both short- and long-term, than lesser prepared students (Noble & Sawyer, 2013). For decades, colleges have used placement tests to group students by ability and place them into the appropriate level courses on the premise that such entry-level testing improves student outcomes (Armstrong, 2000). COMPASS placement test scores for math were a stronger predictor for course success than were the writing or reading scores (Jenkins, et al., 2009). Both COMPASS and ACT scores have been found to have a fairly strong relationship with college-level algebra success (Donovan & Wheland, 2008). Only 18% of students who tested into arithmetic or pre-algebra ever completed an associate's degree or certificate, while almost 40% of students with higher math placement test scores completed a college credential (Jenkins, et al., 2009). When student demographics were controlled, the same outcomes were observed (Jenkins, et al., 2009). ACT scores have also been found to be predictive of college GPA and postsecondary success; although GED test scores were not (ACT, 2011; Patterson, et al., 2009; Rose, 1999). This data further supports the fact that the basic skill level of the student when entering postsecondary education, and not the secondary credential, is the more important factor in predicting their ultimate academic success.

Summary

Since its inception, the General Educational Development test series has evolved into its current comprehensive assessment of the skills and knowledge needed for learners to compete and succeed in a global economy (ACE GED, 2011). A review of the literature surrounding the use of the GED in today's society shows that while it is almost universally accepted as equivalent to a high school diploma for entry into college or the workforce, there remain concerns about its actual benefits to recipients. There are few clear economic benefits and there is conflicting research regarding its suitability in assessing or providing college-readiness skills.

Even though more than 60% of GED test-takers report that further educational attainment is their primary reason for taking the test, less than 5% of GED holders ever complete a postsecondary degree or certificate (Jobs for the Future, 2010). Considering the fact that the majority of today's careers that pay a family-sustaining wage require some college education, this is an unacceptable statistic. GED recipients who do enter postsecondary education do so without a traditional high school education, with delayed entry, and with multiple personal and academic barriers to success. In addition to encouraging adult basic education programs to improve the college-readiness of these students, it is incumbent upon higher education institutions to determine the specific student attributes that influence postsecondary retention for GED recipients. As described above, these students are quite similar to other nontraditional, high-risk students and often require developmental courses upon entering college. The question brought up by other studies is which has more impact on persistence: basic literacy skills and need for remediation or secondary credential? This study addresses this issue by attempting to

differentiate the characteristics of GED holders that have the most impact on their persistence to degree.

Chapter III

Methodology

As demonstrated by the literature review, there remains some controversy about the equivalency of the GED credential to a traditional high school diploma. While the early developers and proponents of the GED test agreed with critics that the simple preparation and passing of the GED test battery was never meant to equal the entire high school education experience, they did assert that GED holders are as ready for college-level study as those students with a high school diploma (Crissey & Bauman, 2012; Fisher, 2005; Quinn, 2002). However, past studies have revealed that while the GED is widely accepted for admittance to college, GED holders have experienced differing levels of economic and postsecondary success and clearly experience many complex barriers and challenges to their persistence in college (Adams, 2011; Crissey & Bauman, 2012; Ebert, 2002; Fisher, 2005; Kist, 2003; Patterson, Song, & Zhang, 2009; Smith, 2003). GED holders do tend to be more successful when they begin at a community college instead of a four-year institution (Fisher, 2005; Guison-Dowdy & Patterson, 2011). There is no consensus on whether or not traditional high school graduates perform better in college than those with a GED credential; studies have had mixed results and often use differing benchmarks to measure student success (Ebert, 2002; Fisher, 2005; Guison-Dowdy & Patterson, 2011; Liebowitz & Taylor, 2004). Lack of persistence has been found in most studies of nontraditional adult college students, regardless of their secondary education credential (Fisher, 2005; Patterson, et. al, 2009; Rath, Rock, & LaFerriere, 2013).

The purpose of this study is to explore the postsecondary success and persistence of at-risk adult GED holders at one suburban community college in a southeastern state. The objective is to gain a more in-depth understanding of their level of college-preparedness by comparing GED graduates with adult peers who have a traditional high school diploma. The inclusion of entering COMPASS scores is intended to explore the theory that the literacy and math skills of new college students has more impact on their academic achievement than their type of secondary credential. These initial COMPASS scores will offer details on the college readiness of each group of students by providing data on the number of students placed into developmental courses. This information will help determine if there are any differences in persistence when both groups, regardless of high school setting, have arrived at college unprepared and require remedial coursework. Time to degree completion is included to further investigate another potential confounding factor that is known to impact student persistence (Liebowitz & Taylor, 2004; Noble & Sawyer, 2013).

This chapter describes the site of the study, study population and sample, research design, data collection, and data analysis procedures. The following research questions will be used to focus data collection:

1. Is there a significant difference in persistence to an Associate's degree based on an adult learner's attainment of a GED or high school diploma?
2. Is there a significant difference in persistence to a certificate based on an adult learner's attainment of a GED or high school diploma?
3. Do initial COMPASS placement scores impact this persistence to an Associate's degree based on an adult learner's attainment of a GED or high school diploma?

4. Do initial COMPASS placement scores impact this persistence to a certificate based on an adult learner's attainment of a GED or high school diploma?
5. Does time to degree completion impact this persistence to an Associate's degree based on an adult learner's attainment of a GED or high school diploma?
6. Does time to degree completion impact this persistence to a certificate based on an adult learner's attainment of a GED or high school diploma?

Site

The community college site of this study is a public, associate-degree granting institution and part of a large state community college system in the southeastern United States. College transfer and workforce development are the college's main focus. The college offers more than 40 programs of study that lead to Associate of Arts, Associate of Science, and Associate of Applied Science degrees, as well as nearly 20 certificate programs. The college mission centers around providing accessible, affordable, high-quality educational programs that promote student success and community growth. This mission reflects both the long-term commitment of the college community and the daily practice on campus and mirrors the vision of the American Association of Community Colleges to embrace such areas as connectedness, diversity, access, teaching, and lifelong learning (American Association of Community Colleges, 2006). This site was chosen because it struggles with the same issues as other community colleges nationwide, such as improving student success in the face of inadequate student preparation for college-level work and need for developmental education, and students with multiple competing nonacademic obligations (Rath, et al., 2013).

Research Design

The general purpose of all quantitative research is explaining, predicting, or controlling phenomena through the focused collection of pertinent data (Gay, 1996). This

study was designed as an ex post facto investigation of the differences in the persistence of adult GED holders and high school graduates enrolled in a single community college in a southeastern state. A basic ex post facto study examines two groups that differ on one independent variable and further compares these groups on other independent and dependent variables (Cromwell, 1989). This type of design was appropriate since the independent variables had already occurred and could not be manipulated and so was studied as it naturally occurred. This study focused on one dependent variable and several independent variables. A dependent variable is a characteristic that is affected by the independent variable (Creswell, 2005). The dependent variable in this study was student persistence, defined as completion of an associate's degree or certificate. An independent variable is a characteristic that influences or impacts the dependent variable in some manner (Creswell, 2005). In the current study, three independent variables were included. These variables were type of high school credential, COMPASS scores, and time to degree completion. These were chosen because of their prevalence in the literature, and because they had been included in existing theoretical frameworks developed in recent years to explain the attrition and persistence behavior of non-traditional students (Fisher, 2005; Guison-Dowdy & Patterson, 2011; Patterson, Song, & Zhang, 2009).

Data collection

There were no actual active participants in this study. Extant data was collected from the community college system-wide PeopleSoft student information system by the studied college's office of institutional research. Individual student identifiers were removed from the data before being released to the researcher. Data was collected only

after approval was received from the Old Dominion University Human Subjects Review Committee and the studied college's office of institutional research. A query was used to gather the following data from each student record: age; gender; ethnicity; type of high school credential; initial reading, writing, and math COMPASS scores; degree obtained, if any; and number of semesters enrolled from admission to graduation. If the student did not graduate during the designated time frame, the number of semesters enrolled during the study period was calculated. Data was provided to the researcher in an Excel spreadsheet and was copied into a SPSS program for analysis.

Population and Sample

The population for this study could include all students who entered a state community college during the fall 2010 semester. However, a purposeful sample was taken of all new students over the age of 24 who entered the chosen college for the first time during the fall 2010 semester. Those students who did not disclose their type of high school credential, returning students, students with a previous college degree, and transfer students were excluded. Data was collected from the fall 2010 through the spring 2014 semesters.

A nonrandomized sample was appropriate for this study as the sample was chosen specifically to control for common confounding variables. Nonrandomized sampling has encountered some criticism for potential bias for not allowing generalization of study results to the entire population. However, the effects of such bias should be minimal because the intent of this study was not to establish a cause and effect relationship but rather to explore the postsecondary transition of adult GED holders for the purpose of

informing future practices designed to support all academically underprepared students (Scrivener & Coghlan, 2011).

Data Analysis

The researcher first examined descriptive statistics to provide a detailed demographic profile of the student sample and a simple summary of the extracted data. The characteristics of ethnicity, gender, age, duration of enrollment, degrees obtained, and attendance pattern were reported. These characteristics were selected for description to provide important information that may have influenced the outcomes of the study. Percentages, frequency distributions, and cross-tabulations were utilized for each group to form a general picture of the data.

Specifically to analyze the statistical differences between the selected variables of the study, three different tests were used: chi square, independent samples t-test, and logistic regression. The chi square is a nonparametric test that allows a researcher to examine a data set and establish whether variables are associated and whether any differences are significant (Hinton, 2014). The chi square test does not measure the degree of relationship between variables, but rather the likelihood that some factor other than chance accounts for an apparent relationship between variables (Best & Kahn, 2006). This test was used to analyze the statistical differences between the variables in the first four research questions (persistence to degree, type of high school credential, need for developmental education). Because these variables are all categorical with a nominal scale of measurement (GED vs. high school diploma, and persistence vs. nonpersistence to degree; developmental vs. non-developmental), chi square is the most appropriate statistical test for analyzing the study data (Hinton, 2014).

The last two research questions contain a continuous independent variable (time to degree) along with the categorical dependent variable (persistence to degree) and categorical independent variable (type of high school credential). Therefore, different statistical tests were required to answer those questions- independent samples t-test and logistic regression. A t-test is an inferential statistical test that determines whether there is a statistically significant difference between the means in two unrelated groups (Best & Kahn, 2006).

Next, a regression analysis was used to further investigate and quantify any possible relationships between students' type of high school credential, initial COMPASS scores, time to degree completion and their persistence to degree or certificate. Logistic regression, rather than multiple regression, was used because it has been found to be more appropriate for cases where the independent variables are continuous but the dependent variable is dichotomous (persist to degree/not persist to degree) (Tabachnick & Fidell, 2007). Regression analysis estimates how much of the dependent variable score is presumably due to each independent variable, while also describing the combined influences of all independent variables on the dependent variable (Kerlinger & Lee, 2000). It is the favored technique for exploring such complex inter-relationships between multiple variables and allowing the researcher to make predictions about the value of the dependent variable based on known independent variables (Kerlinger & Lee, 2000; Wallen & Fraenkel, 2000). For the current study, these tests allow the researcher to evaluate the nature of the relationship between the independent variables (type of high school credential, time to degree completion) and dependent variable (student completion of degree).

Conclusion

This study describes the relationships between selected academic factors and the persistence of GED recipients and high school graduates to a community college degree. Descriptive and inferential statistical methods, namely frequency distributions, chi square, t-test, and logistic regression, were used to determine the existence, strength, and significance of relationships in data extracted from existing datasets in the studied college's online student information system. The following chapter explains the data analysis process in more detail and presents the results of these analyses.

Chapter IV

Findings

The purpose of this study was to explore the postsecondary success and persistence of at-risk adult GED holders at one small, southeastern public community college. The objective was to gain a more in-depth understanding of their level of college-preparedness by comparing these GED graduates with adult peers who have a traditional high school diploma. Individual student's initial COMPASS placement scores were included to provide details on the college readiness of each group of students by indicating the number of students placed into developmental courses. The inclusion of entering COMPASS scores was intended to explore the theory that the literacy and math skills of new college students have more impact on their academic success than their type of secondary credential. This information will help determine if there are any differences in persistence when both groups, regardless of high school setting, have arrived at college unprepared and require remedial coursework. Time to degree completion, or total number of semesters enrolled for those who did not graduate, was included to further investigate another potential confounding factor that is known to impact student persistence (Bers & Schuetz, 2014; Liebowitz & Taylor, 2004). The researcher collected, analyzed, and integrated the gathered quantitative data for this ex post facto study. Each of the measures (persistence to degree, developmental level, and number of semesters attended) was considered separately for each of the high school credential groups in order to address all of the research questions completely.

In the fall 2010 semester, 5,551 students were enrolled in credit courses at the studied college (College Office of Institutional Research, 2010a). This number represents an increase in nearly all age groups over the previous year, with more than half

of all students under the age of 22 and a mean age of 25.6 (College Office of Institutional Research, 2010a). Eighteen percent of all students were taking at least one developmental course (College Office of Institutional Research, 2010a). During the fall 2010 semester, 77% of students attended school full-time, with the other 23% carrying only a part-time course load. Almost 60% of the student population that semester was female (College Office of Institutional Research, 2010a).

Of all students entering in the fall 2010 semester, 24% (1,340) were new students designated as degree- or certificate-seeking, who identified themselves as first-time college students with no previous college experience at this college or elsewhere (College Office of Institutional Research, 2010a). Sixty-nine of these new students entered with a GED credential. The study sample ($N=414$) was selected from this group of new students and consists of those over the age of 24. Of the students in the selected sample, 355 entered with a traditional high school diploma. Fifty-nine earned a GED credential, 41 in the studied state and 18 in other states.

Descriptive statistics were compiled to provide a picture of the demographics and other characteristics of the identified sample. Data description includes use of percentages, frequency distributions, and cross-tabulations. Percentages give the best description of categorical data because with unequal numbers in each group, the actual number counts alone do not provide a true representation of the situation (Hinton, McMurray, & Brownlow, 2014). The SPSS version 21.0 was utilized to measure, compute, and report statistical differences. Cross-tabulation tables were created to record frequencies and percentages of need for developmental-level courses, persistence to degree, and number of semesters attended. Basic demographics are summarized in Table 1.

Table 1

Study sample demographic information

	Total	GED holders <i>n</i> = 59	High School Diploma <i>n</i> = 355
Gender	61% female 39% male	58% female 42% male	61% female 39% male
Race	72% white 18% African- American 5% Hispanic 4% Asian 3% American Indian 2% unspecified 1% Native Hawaiian	70% white 31% African- American 5% Hispanic 3% Asian 3% American Indian 2% unspecified 0% Native Hawaiian	73% white 17% African- American 4.5% Hispanic 4.5% Asian 3% American Indian 2% unspecified 1% Native Hawaiian
Attendance	76% part-time 24% full-time	71% part-time 29% full-time	77% part-time 23% full-time
Age	Range 24-74 Mean 35	Range 24-62 Mean 35	Range 24-74 Mean 34

Research Questions 1 and 2

The first two research questions addressed the students' persistence to degree or certificate, as related to their type of high school completion credential:

1. Is there a significant difference in persistence to an Associate's degree based on an adult learner's attainment of a GED or high school diploma?
2. Is there a significant difference in persistence to a certificate based on an adult learner's attainment of a GED or high school diploma?

Review of the data showed only 76 credentials (certificate or associate's degree) were awarded to students in the study sample by spring 2014. Of the students who persisted to degree, 12 of them earned two credentials (degrees and/or certificates) during the study period. In those instances, only the highest degree was included in the data analysis; therefore, detailed inferential statistics were calculated based on 64 individual students in our sample having persisted to degree. These students earned six Associates of Arts degrees, 26 Associate of Applied Science degrees, 18 Associate of Science degrees, and 26 certificates. Ten students also earned career studies certificates, but those were not included in this study. Of particular note, only one GED holder persisted to complete a certificate and only three GED graduates completed an associate's degree during the study period. Thus, only 7% of GED holders actually persisted to degree as compared to 17% of high school graduates.

The frequencies for each outcome were entered into SPSS and a chi square test of independence was performed to examine the relationship between type of high school graduate credential and attainment of college degree. The relationship between these variables was not significant, $\chi^2(2) = 3.976, p > .05$. There is no statistically significant association between type of high school credential and persistence to associate's degree or certificate. So although the percentage of high school students who graduated was 10% higher than with the GED group, the differences in success as it relates to

persistence to degree or certificate was not statistically significant at the .05 level ($p = .137$)

Research questions 3 and 4

As noted in Table 1, in regards to ethnicity, gender and age distribution, the GED and high school diploma groups are similar. In addition to this basic demographic data, entering COMPASS placement test scores in math, reading and/or writing were also gathered. All students in the study sample were placed into one of two groups (developmental vs. non-developmental) based on these scores, in order to answer the second two research questions:

3. Do initial COMPASS placement scores impact this persistence to an Associate's degree based on an adult learner's attainment of a GED or high school diploma?
4. Do initial COMPASS placement scores impact this persistence to a certificate based on an adult learner's attainment of a GED or high school diploma?

For purposes of this study, any student who placed into at least one developmental-level course (math, reading or writing) was considered developmental. Out of the students in the sample, 267 took English and/or math COMPASS placement tests before they entered in fall 2010 or during the fall 2010 semester. Of those 267 students, 61 (23%) did not require any developmental course at all, and 206 (77%) placed into at least one developmental course in reading, writing, and/or math. The remaining 147 students in the sample were assigned to the developmental/non-developmental groups based on their course enrollments during the study period. Students who took a developmental course at any time during the study period were considered developmental students, even if they did not have placement test scores available. This resulted in a total

of 217 (52.4%) developmental students and 197 (47.6%) non-developmental students. This percentage of developmental students is significantly higher than that of the total population of new students from fall 2010, who, as noted previously, had only 18% developmental students (College Office of Institutional Research, 2010a). When looking at the GED and high school diploma groups, there were some differences in relation to the need for remedial education. With high school graduates, the group was divided almost evenly into developmental and non-developmental students (49% vs. 51%). However, the GED graduates were split with 74.5% developmental and 25.5% non-developmental.

After the cross-tabulation 2-by-2 table was utilized to determine the above frequencies, a chi square test was performed to explore any possible association between high school credential and the need for developmental-level education. This showed that the relationship between these variables was significant, $\chi^2(1) = 13.548, p < .001$. In other words, new adult students with a GED credential are more likely to require remedial coursework than their peers who received a traditional high school diploma ($p = .000$).

Next, in the interest of complete data analysis, the same tests were run on persistence to degree based on developmental level, with developmental level as the influencing variable. This report revealed that developmental students earned 16 associate's degrees and 11 certificates, while non-developmental students earned 30 degrees and seven certificates. Therefore, 12.4% of developmental students persisted to graduation while a slightly higher percentage of non-developmental students (18.8%) achieved a degree or certificate. The chi square test demonstrated another significant

result, $\chi^2(2) = 6.771, p < .05$. There is a statistically significant association between need for developmental education and persistence to associate's degree or certificate. The percentage of developmental students who graduated was about 6.5 % lower than with the non-developmental group and differences in success as it relates to persistence to degree or certificate was statistically significant at the .05 level ($p = .034$).

Finally, in order to adequately answer these two research questions, the students' developmental group membership was added as a third variable to the cross-tabulation and chi square calculations from the first questions. Results from this layered 2 x 2 x 3 cross-tabulation are illustrated in Table 2. From review of these results, it appears there was little change from adding in the variable of developmental vs. non-developmental in each groups' attainment of a degree. The largest change was with the traditional high school graduates in their persistence to an associate's degree. While 12.1% of the entire high school diploma cohort received their degree, this amount dropped to 8.1% with those needing developmental work but rose to 15.9% of those ready for college-level coursework.

Table 2

Persistence to degree as related to high school credential and developmental level

	GED N= 59			High school diploma N= 355		
	Whole group N= 59	Developmental n= 44	Non- developmental n=15	Whole group N=355	Developmental n=173	Non- developmental n= 182
Associate's degree	5.1%	4.5%	6.7%	12.1%	8.1%	15.9%
Certificate	1.7%	2.3%	0.0%	4.8%	5.8%	3.8%
No degree	93.2%	93.2%	93.3%	83.1%	86.1%	80.2%

The chi square test was once again utilized to discover any significant relationship and no significant differences were identified, either with developmental students ($\chi^2(2) = 1.649, p > .05$) or with non-developmental students ($\chi^2(2) = 1.652, p > .05$). There is no evidence that the need for developmental coursework, as identified by entering COMPASS placement test scores, significantly impacts persistence to associate's degree or certificate when based on the student's type of high school credential.

Research questions 5 and 6

This study also takes into consideration the time to degree, so the number of semesters enrolled from admission to graduation was also recorded. If the student did not graduate during the designated time frame, the total number of semesters enrolled during the study period was calculated. There were a total of 11 semesters of enrollment possible during the study period of fall 2010- spring 2014. A summary of this data is in Table 3.

Table 3

Number of semesters enrolled, Fall 2010- Spring 2014

	Total	GED holders	High School Diploma
1 semester	116 (28%)	25 (42.4%)	91 (25.6%)
2 semesters	95 (22.9%)	15 (25.4%)	80 (22.5%)
3 semesters	55 (13.3%)	3 (5.1%)	52 (14.6%)
4 semesters	33 (8%)	3 (5.1%)	30 (8.5%)
5 semesters	35 (8.5%)	3 (5.1%)	32 (9%)
6 semesters	27 (6.5%)	1 (1.7%)	26 (7.3%)
7 semesters	17 (4.1%)	4 (6.8%)	13 (3.7%)
8 semesters	18 (4.3%)	3 (3.4%)	16 (4.5%)
9 semesters	6 (1.4%)	0	6 (1.7%)
10 semesters	10 (2.4%)	3 (5.1%)	7 (2%)
11 semesters	2 (0.5%)	0	2 (0.6%)

Different statistical tests were necessary to answer the last two research questions:

5. Does time to degree completion impact this persistence to an Associate's degree based on an adult learner's attainment of a GED or high school diploma?
6. Does time to degree completion impact this persistence to a certificate based on an adult learner's attainment of a GED or high school diploma?

In reviewing the number of semesters attended by each group, it appears that a much larger majority of GED holders (67.8%) attended only one or two semesters compared to the high school graduates (48.1%). In order to further explore these apparent

differences, the independent-groups *t*-test was utilized. Generally, this test is used to examine the mean differences between two groups that are unrelated, with different members in each group (Hinton, McMurray & Brownlow, 2014). The *t*-test basically asks whether the differences seen between the groups is representative of a real difference and unlikely to have occurred because of random chance. A difference is more likely to be meaningful if the difference and sample sizes are large and the standard deviation is low (Hinton, 2014).

An independent-groups *t*-test was conducted to compare the number of semesters of college attendance by high school graduates and GED holders. There was no significant difference in the scores for diploma graduates ($M = 3.4$, $SD = 2.4$) and GED holders ($M = 2.9$, $SD = 2.6$); $t(412) = 1.47$, $p > .05$. These results suggest that the type of secondary education completion credential does not have an effect on the length of time an adult student attends college.

Logistic regression was next utilized to examine whether the value of the binary dependent variable (earned a degree or not) can be predicted by the scores of the independent variables (number of semesters attended and type of high school credential). When the independent variables are categorical, or a mix of continuous and categorical, and the dependent variable is categorical, logistic regression is necessary to predict the discrete outcome (Tabachnick & Fidell, 2007). For this study, logistic regression analysis was conducted to predict persistence to degree or certificate using type of high school credential and number of semesters of attendance as predictors. A test of the full model against a constant only model was statistically significant, indicating that the predictors

as a set reliably distinguished between completers and noncompleters of a degree, $\chi^2(2) = 50.089, p < .001$.

Nagelkerke's R^2 of .197 indicated a relatively weak relationship between prediction and grouping. Prediction success overall was 83.8% (9.4% for degree and 97.4% for no degree). The Wald criterion demonstrated that only number of semesters of attendance made a significant contribution to prediction ($p < .001$). Type of high school credential was not a significant predictor ($p > .05$). Therefore, the longer a student attends college, the more likely they are to attain a degree, but their type of high school credential has no significant impact.

Summary of findings

This study examined the primary variables found in previous research to have an impact on an adult student's persistence to an associate's degree or certificate: type of high school credential, need for developmental coursework, and number of semesters of college attendance during the study period (Guison-Dowdy & Patterson, 2011; Liebowitz & Taylor, 2004; Patterson, Zhang, Song, & Guison-Dowdy, 2010). After analysis of these variables, only a few significant effects were found. High school credential was not found to have any impact on persistence to degree. Although a much lower percentage of GED holders graduated than did traditional high school graduates (5% vs. 20%), a chi square analysis indicated no significant differences existed.

Further chi square testing did find that the type of high school credential did impact the need for developmental education, with GED holders more often testing into remedial-level coursework than high school graduates. In addition, it was shown that students enrolled in developmental courses were less likely to persist to degree. However,

the chi square analysis did not indicate any significant impact of developmental level on persistence, as related to high school credential, meaning that once again, while developmental level is important, the type of high school credential is not. Finally, an independent *t*-test and logistic regression analysis demonstrated that while the number of semesters a student attends college does effect persistence to degree, high school credential again has no impact on persistence. In addition, analysis showed that the type of high school credential has no significant impact on the number of semesters a student attends college. Taken all together, it may be concluded that there is no statistically significant difference in the success or failure of a student based solely on his or her high school credential. The differences in their persistence to degree are apparently related to other factors like need for developmental education or the number of semesters one attends college. The final chapter of this study will discuss the results in relation to the research questions and will conclude with a discussion of the implications of the findings for current practice and future research.

CHAPTER V

Summary, Conclusions, Recommendations

Demand for a college education will continue to grow in the years ahead, even as financial resources decline, and this trend is already having a significant impact on college access and student success. Since the introduction of the 2002 GED test series, the number of candidates who have tested nationally has increased about 15%, with a 34% spike in testing volume in 2013 in anticipation of the introduction of the more rigorous GED program in 2014 (ACE GED, 2014a). Over half a million individuals received the high-school equivalency credential in 2013 (ACE GED, 2014a). More than 63% of candidates stated they took the test in preparation for further education, an increase of approximately 5% since 2006 (ACE GED, 2014a). A majority of GED holders who do actually make the transition to postsecondary education enroll in community colleges rather than four-year institutions primarily because of easy access, convenience, and affordability (Guison-Dowdy & Patterson, 2011; Patterson, Zhang, Song, & Guison-Dowdy, 2010; Reder, 2007; Zhang, 2010). College leaders have been putting time and resources into strategies to make this a positive and successful transition for GED recipients and other high-risk, non-traditional students.

In response to the challenges of high demand and low graduation rates, college leaders are paying closer attention to student retention and success, institutional accountability, and workforce development. However, to meet and overcome these hurdles, major curricular reform, innovative partnerships, and intensive student support services must be considered by all segments of higher education. This is especially true for community colleges, which enroll the majority of underprepared and nontraditional

students and those seeking preparation for employment. This section includes a discussion of the current study in the context of these national higher education issues.

For this study, six research questions were used to focus attention on the effect of three variables (type of high school credential, need for developmental education, and number of semesters of college attendance) on the persistence to degree or certificate for a group of students enrolled in one community college in the Southeast. Particular emphasis was placed on the differences between students who earned a GED vs. students who graduated with a traditional high school diploma.

This study addressed the following research questions:

1. Is there a significant difference in persistence to an Associate's degree based on an adult learner's attainment of a GED or high school diploma?
2. Is there a significant difference in persistence to a certificate based on an adult learner's attainment of a GED or high school diploma?
3. Do initial Compass placement scores impact this persistence to an Associate's degree based on an adult learner's attainment of a GED or high school diploma?
4. Do initial Compass placement scores impact this persistence to a certificate based on an adult learner's attainment of a GED or high school diploma?
5. Does time to degree completion impact this persistence to an Associate's degree based on an adult learner's attainment of a GED or high school diploma?
6. Does time to degree completion impact this persistence to a certificate based on an adult learner's attainment of a GED or high school diploma?

Discussion of Findings

Persistence to degree.

There are multiple methods of assessing the quality of an educational institution, such as rates of graduation, retention or transfer; faculty scholarship; accreditation reports; standardized test scores; or student satisfaction. Student retention and persistence to degree in particular have been debated and studied extensively. Despite this recent attention and dialogue, the national rate of student attrition from all segments of higher education has remained unacceptably high for decades (Braxton, 2000; Educational Policy Institute, 2004; Guison-Dowdy & Patterson, 2011). While barriers to college access certainly remain a concern, attaining a college degree is what matters the most in today's job market and is a primary focus of the current national higher education accountability movement (Cowan, 2013; Educational Policy Institute, 2004; Joch, 2014). Colleges have the responsibility to provide the necessary support and services for students to succeed and persist to the degree. In response to this challenge, colleges must refocus on student engagement, learning, and retention and develop innovative, cost-effective, efficient strategies for student success and persistence. In order to achieve these goals, college leaders must first understand the barriers, both academic and nonacademic, that may prevent success for their students. This is especially important when looking at those at highest risk for failure, including adults returning to school and GED credential recipients, student groups whose numbers are continuing to grow.

This study and its findings contributes to the retention debate with a focus on students' persistence to degree or certificate, as related to their type of high school completion credential. Although the percentage of high school graduates who earned an associate's degree or certificate was slightly higher than with the GED group, data

analysis revealed no statistically significant association between type of high school credential and persistence to an associate's degree or certificate.

Similar results have been found in previous studies (Guison-Dowdy & Patterson, 2011; Tokpah et al., 2006). However, there have been many conflicting findings with regards to GED recipients' postsecondary success. When compared with traditional high school graduates, the postsecondary persistence and graduation rates of GED recipients are most often lower (Patterson et al., 2010; Zhang, 2010). Other studies show similar graduation rates for each group; allowing for an extended length of enrollment seems to be crucial when estimating ultimate success for these students (Guison-Dowdy & Patterson, 2011; Reder, 2007). The large amount of conflicting research surrounding this issue suggests that other variables may be primarily responsible for the students' rate of persistence. When matched on basic literacy and math skills, GED and regular diploma graduates differ little on persistence rates. This fact highlights that for most GED recipients, it is the other barriers such as socioeconomic, employment, and family obligations that account for the differing levels of postsecondary success (ACE, 2009; Jobs for the Future, 2010; Reder, 2007).

Developmental education.

Community college educators have long been engaged in a national discussion over developmental education. Opponents are critical of the expectation for colleges to deliver knowledge and skills that secondary education failed to provide and complain about expensive remedial courses that prolong a student's path to degree and the increasing number of students with weak academic backgrounds and low placement scores. Proponents of developmental education recognize the validity of those arguments,

but assert that the investment of time and money in remedial programs is necessary if high-risk students are to have any hope of succeeding in college (Bettinger & Long, 2005; Jenkins, et al., 2009). Despite these differing opinions, the vast majority of community colleges do offer developmental education. Given the increasing numbers of under-prepared students entering these programs and the increasing emphasis on student success, it is an area of great concern and focus for college administrators.

In recognition of the importance of this issue, the current study's third and fourth research questions explored the need for remedial education in reading, writing, and/or math on new students' persistence to degree. Students were classified as developmental or non-developmental based on entering COMPASS placement test scores or enrollment in developmental courses for students who did not have posted COMPASS scores. Analysis of the data demonstrated clear differences between traditional high school graduates and GED recipients in relation to the need for remedial education. The high school graduate cohort was divided almost evenly into developmental and non-developmental students. However, the GED graduates were split more unevenly with approximately three-quarters requiring developmental coursework and one-quarter non-developmental who were ready for college-level courses. Further analysis revealed a statistically significant association between high school credential and the need for developmental-level education. These results lead to the conclusion that more adult GED holders enter college unprepared for college-level work as compared to their peers with a high school diploma.

In this study, the number of students who required developmental courses and persisted to graduation was 6% lower than the number of non-developmental students

who earned a degree. Data analysis revealed a statistically significant relationship between the need for developmental education and persistence to an associate's degree or certificate. However, when the students' type of high school credential was added as a third variable, there was little change in each groups' attainment of a degree. The largest change was in traditional high school graduates' persistence to an associate's degree. While about 12% of the entire high school diploma cohort received their degree, this percentage dropped to 8% for those needing developmental work but rose to 16% of those ready for college-level coursework. In the end, while it is true that developmental students are less likely to graduate from college, there was again no evidence to conclude that the need for developmental coursework significantly impacts persistence to an associate's degree or certificate when based on the student's type of high school credential. These results suggest that it is the readiness of the student for college-level work, not their high school credential, which is associated with their subsequent academic success and attainment of a college degree. These findings agree with previous studies which found an increased level of academic need in high risk students may be a far more important factor in college persistence than the type of secondary credential (Guison-Dowdy & Patterson, 2011; Reder, 2007; Tyler, 2003).

COMPASS scores have been found to have a moderately positive relationship with college-level course success (Donovan & Wheland, 2008). A lower percentage of students who test into developmental courses complete an associate's degree or certificate, compared with their peers with higher placement test scores (Jenkins, et al., 2009). ACT scores have also been found to be predictive of college GPA and postsecondary success; although GED test scores were not (ACT, 2011; Fisher, 2005;

Patterson, et al., 2009; Rose, 1999). This data further supports the fact that the basic skill level of the student when entering postsecondary education, and not the secondary credential, is the more important factor in predicting their ultimate academic success.

Length of enrollment.

The traditional two-year associate's degree takes many students up to six years of part-time work to complete (Liebowitz & Taylor, 2004). In fact, almost 70% of community college students enrolled in workforce programs complete less than a year's worth of courses in five years (Silverberg, et al., 2004). Attending part-time and taking only one or two classes at a time decreases the chance of success for these students (Liebowitz & Taylor, 2004; Reder, 2007; Silverberg, et al., 2004). The longer a student is enrolled, the greater the chance that outside obligations will interfere with academic pursuits. At the same time, however, students must complete all the credits required for the degree and that does take a prescribed amount of time. The challenge, then, is balancing education with work and family obligations in order to complete degree requirements in the fastest time possible.

The study's last two research questions addressed these concerns and focused on students' time to degree, so the number of semesters enrolled from admission to graduation was tabulated and analyzed. If a student did not graduate during the designated time frame, the number of semesters enrolled during the study period was calculated. A comparison of the number of semesters of college attendance by high school graduates and GED holders revealed no significant difference in the totals for diploma graduates and GED holders. These results suggest that the type of secondary education completion credential does not have an effect on the length of time an adult

student attends college. Further detailed analysis demonstrated that the longer a student attends college, the more likely they are to attain a degree, but their type of high school credential has no significant impact. It is likely this result reflects the actual length of time it takes to complete all credits required for a degree, rather than confounding factors.

Based on all of the study's findings, it may be concluded that there is no difference in the academic success or failure of a student based solely on his or her type of high school credential. The differences in their persistence to degree comes from other factors like need for developmental education or the number of semesters one attends college. Discovering this information is vital in order to determine an accurate picture of the targeted students' college experience as well as specifically which support services would be of most benefit to these students. Colleges must recognize that students have different challenges related to many more factors than the setting and quality of their secondary education. These differing obstacles play a role in any discrepancies seen in the eventual success of the students and the support they need to attain their educational goals.

Recommendations

Even though most Americans believe that everyone should have the opportunity to attend college (Survey of public opinion on higher education, 2004), there is growing evidence of a decline in the literacy skills and cultural knowledge of students entering college. The core of the community college mission is to serve the students who could most benefit from a college education and who will make up an integral part of the local workforce. However, these students are arriving unprepared for college-level courses, and then are not succeeding past remedial studies to accomplish their academic goals.

These findings and the results of this current study suggest a need for continued development and implementation of interdisciplinary approaches to teaching, learning, and student support services targeted to this most at-risk group of students. Institutions of higher education, with traditional missions of teaching, research and service, are in a unique position to grow citizens and future leaders with the motivation, civic involvement, critical thinking and analytical skills necessary for a thriving, democratic society (Wilds, 2000). As a social institution for the public good, community colleges have a vested interest and obligation to provide programs and services to help students reach their full potential and to support an economy in constant transition. Indeed, community colleges are pivotal in meeting our nation's expanding needs for postsecondary education.

In order to meet these responsibilities in this era of declining resources and higher accountability, college leaders must gather data on exactly what barriers are keeping the students from graduating. An essential first step in understanding the persistence of GED holders as well as traditional high school graduates is to determine how the different variables affecting student success are related to each other. These facts can inform current practice and assist community college leaders in the development of programs that can effectively support these students upon their transition to postsecondary education. The current study concluded that it is the need for remedial education that most significantly impacts a student's attainment of a degree, not their high school graduation credential. However, previous studies have demonstrated that while GED holders have higher participation rates in postsecondary education than high school dropouts, they enroll at lower rates than those with regular high school diplomas

(Murnane, et al., 2000; Patterson, et al., 2010; Reder, 2007; Smith, 2003). Therefore, while the type of high school diploma may not matter once a student is enrolled in college, it does influence the student's initial decision to seek out higher education.

By definition, nontraditional students, such as adult GED holders, have outside priorities that directly compete with educational pursuits. It is because of the need to balance their work, financial, family, and school responsibilities that most adult students delay enrollment in college, attend school part-time and take longer to graduate (Bailey, 2005; Ou, 2008). When looking at GED recipients specifically, recent findings show that these students tend to enroll in postsecondary education at older ages than traditional high school graduates (Zhang, 2010). All of these findings put together suggest that colleges should focus on ways to actively encourage and support GED recipients to make the decision to attend college. Once they are enrolled, the fact that they have a GED is no longer as important, and the colleges can provide the appropriate support services, based on the student's developmental level, to ensure their ultimate academic success.

This study also found that GED recipients enrolling in college are more likely than their high school graduate peers to be unprepared for college-level coursework. For students who require remediation, previous research demonstrates that students who successfully complete effective developmental programs are likely to be successful in subsequent terms (Bettinger & Long, 2005; Guison-Dowdy & Patterson, 2011). Based on this evidence, then, it would seem that a critical element for the success of GED holders in higher education is to ensure their success in developmental courses. Common factors found in effective remedial programs include mandatory assessment and placement, tutoring, intrusive advising and counseling, and collaboration (Bettinger & Long, 2005;

Guison-Dowdy & Patterson, 2011). Community college leaders who are interested in promoting the success of GED recipients should consider integrating such components in their own policies and programs for developmental students. Even for those students who arrive prepared for college-level coursework, support services are critical for ongoing academic success. When students are having difficulty in classes or struggling with nonacademic stressors while attending school, the knowledge that support services are available and readily accessible often contributes to academic success (Liebowitz & Taylor, 2004).

Student affairs departments in particular have a long history of success in building supportive communities and engaging students in active learning (Doyle, 2004). The founding principles of student affairs incorporated active learning and community along with developing the student as a whole person and encouraging the student to link educational experiences with life experiences (Doyle, 2004). This emphasis on the student provides a strong foundation for partnerships between student services and academics. Such partnerships would be essential to building the seamless intensive support systems needed to ensure success for these at-risk students, beginning in the secondary education system with GED preparation and continuing through students' enrollment in developmental courses and beyond. An example of one such innovative partnership would involve student services, community college faculty, and the adult basic education personnel preparing students for the GED test. A community college student orientation course would be introduced to students while still in their GED preparation phase and then conclude on the college campus. This course is designed to provide college survival skills while encouraging the students' belief in their ability to

enroll and succeed in college. From the start, faculty communicate high expectations for these students. High expectations positively impact not only motivated students, but also those who lack confidence, are underprepared academically, and were previously unwilling to make a large effort to succeed (Chickering & Gamson, 1987).

Recommendations for further study

Findings from this study reflect data and information specific to one community college and the study sample was small due to the limited numbers of new adult students enrolling each semester, especially those holding a GED credential. Therefore, these findings might not be representative of a larger statewide or nationwide population. The studied college is part of a larger state community college system, and in order to better understand the academic successes and barriers for GED holders and other high-risk adult students, the researcher recommends replicating the study with a larger regional or statewide population. Using aggregated data from multiple institutions in a variety of settings would provide a more accurate determination of any relationship between type of high school credential and student persistence to degree.

This study only looked at three variables that could potentially impact an adult student's attainment of a college degree- type of high school credential, need for developmental education based on entering COMPASS placement test scores, and length of enrollment. This limitation does not take into account the long list of other factors that are known to negatively impact student success and retention, such as financial concerns, transportation, child care, work schedules, family commitments, first-generation college student (Guison-Dowdy & Patterson, 2011; Liebowitz & Taylor, 2004; Patterson, et al., 2009). This study also did not verify if students actually enrolled in the developmental

courses that were recommended based on their placement test scores, nor how many credits students took each semester. Building on current research surrounding these issues as they relate specifically to GED holders entering college would provide additional valuable knowledge for community colleges and their adult education partners as they develop programs designed to support high-risk students.

This study did not look at any correlation between age and persistence and included only students over the age of 24 in an attempt to control for some of the known barriers that adult students face that younger students typically do not, such as having to attend part-time and balancing childrearing and work responsibilities. Previous research has shown that younger students tend to be more successful in postsecondary education than older students (Guison-Dowdy & Patterson, 2011). Compared with students who enrolled in college at age 25 or older, those who started college immediately after high school (ages 18-24) were more likely to earn an associate's degree and more likely to transfer to a four-year institution (Prince & Jenkins, 2005). Additionally, the same researchers as well as others found that 60% of older first time students didn't earn any credential or transfer after six years, compared with only 40% of younger first time students (Liebowitz & Taylor, 2004; Prince & Jenkins, 2005). In the context of these related findings, the data on persistence in the current study may reflect solely the experience of adult GED holders and not that of all those entering college with a GED. Therefore, it is recommended that future studies examine any correlation or relationship between age and persistence of GED recipients in community colleges.

Concluding Statements

Even though more than half of GED candidates report that further educational attainment is their primary reason for taking the test, only about one-third of those that pass the GED ever complete a postsecondary degree or certificate (Guison-Dowdy & Patterson, 2011). Considering the fact that the majority of today's careers that pay a family-sustaining wage require some college education, this is an alarming statistic that should concern all college leaders. GED recipients who do enter postsecondary education do so without a traditional high school education, with delayed entry, and with multiple personal and academic barriers to success. In addition to encouraging adult basic education programs to improve the college-readiness of these students, higher education institutions, especially community colleges, must determine the specific student attributes that influence postsecondary retention and success for GED recipients and other high-risk students. This information can then be used to focus on those strategies which stand the best chance of being effective and successful, such as partnerships with secondary education programs and interdisciplinary approaches to teaching, learning, and student support services targeted at the highest-risk groups of students. Previous research shows that while institutional interventions to improve student engagement, success, and persistence have a larger impact on those students most at-risk, all students will benefit from these improvements (Carini, Kuh & Klein, 2005; Harvey-Smith, 2002). In today's increasingly complex, knowledge-based economy, higher education has become a critical link to economic security. A postsecondary credential is now an essential qualification for the majority of jobs that offer family-sustaining wages. Community colleges, which enroll the majority of underprepared students, have accepted responsibility for educating

these students. These students therefore rely on the community college to help them reach their academic and career goals, and their ultimate success depends on their initial successful completion of developmental courses and their subsequent persistence to degree.

References

- ACT, Inc. (2007). *COMPASS guide to effective student placement and retention in mathematics*. Retrieved from <http://www.act.org/COMPASS/resources.html>
- ACT, Inc. (2011). *2011 national collegiate retention and persistence to degree rates*. Retrieved from http://www.act.org/research/policymakers/pdf/retain_2011.pdf
- Adams, J. V. (2011). *Success rates of GED credential recipients and high school graduates: A comparative study of Southeast Kentucky Community and Technical College students*. (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses database (UMI No. 3487132).
- Alamprese, J. (2005). *Helping adult learners make the transition to postsecondary education*. Retrieved from <http://www.c-pal.net/build/candi/basic/research.asp>
- American Association of Community Colleges. (2006). *AACC Mission: Building a Nation of Learners by Advancing America's Community Colleges*. Retrieved from <http://www.aacc.nche.edu/About/Pages/mission.aspx>
- American Association of Community Colleges. (2009a). *The American Graduation Initiative: Stronger American skills through community colleges*. Retrieved from <http://www.aacc.nche.edu/Advocacy/aginitiative/Pages/obamafactsheet.aspx>
- American Association of Community Colleges. (2009b). *Fast Facts*. Retrieved from <http://www.aacc.nche.edu/AboutCC/Pages/fastfacts.aspx>
- American Council on Education, GED Testing Service. (n.d.). *History of the GED test*. Retrieved from <http://www.acenet.edu/Content/NavigationMenu/ged/about/history.htm>

American Council on Education, GED Testing Service. (1999). *Who took the GED?*

GED 1999 statistical report. Retrieved from

<http://www.acenet.edu/Content/NavigationMenu/ged/pubs>

American Council on Education, GED Testing Service. (2009a). *2008 GED Testing*

Program statistical report. Retrieved from

<http://www.acenet.edu/Content/NavigationMenu/ged/pubs>

American Council on Education, GED Testing Service. (2009b). *National needs alter*

plans for GED 5th edition test. Retrieved from

<http://www.acenet.edu/Content/NavigationMenu/ged/news>

American Council on Education, GED Testing Service. (2010a). *GED testing fact sheet*.

Retrieved from <http://www.acenet.edu/Content/NavigationMenu/ged/pubs>

American Council on Education, GED Testing Service. (2010b). *2009 GED Testing*

Program statistical report. Retrieved from

<http://www.acenet.edu/Content/NavigationMenu/ged/pubs>

American Council on Education, GED Testing Service. (2011). *Frequently asked*

questions about the GED 21st Century Initiative. Retrieved from

<http://gedtestingservice.com/>

American Council on Education, GED Testing Service. (2012a). *2011 annual statistical*

report on the GED test. Retrieved from

<http://www.gedtestingservice.com/educators/research-and-policy>

American Council on Education, GED Testing Service. (2012b). *Development of the*

career- and college-readiness assessment targets for the new GED assessment.

Retrieved from <http://www.gedtestingservice.com/educators/assessment-development>

American Council on Education, GED Testing Service. (2013). *A Fighting Chance at 4 million jobs*. Retrieved from

<http://www.gedtestingservice.com/educators/2014test>

American Council on Education, GED Testing Service. (2014a). *2013 annual statistical report on the GED test: The close of the 2002 series GED test*. Retrieved from

<http://www.gedtestingservice.com/educators/research-and-policy>

American Council on Education, GED Testing Service. (2014b). *GED testing policies*.

Retrieved from <http://www.gedtestingservice.com/testers/jurisdiction-testing-policies>

Armstrong, W. B. (2000). The association among student success in courses, placement test scores, student background data, and instructor grading practices. *Community College Journal of Research and Practice*, 24, 681-695.

Bailey, T. (2005). Student success: Challenges and opportunities. *Community College Journal*, 76, 16-19.

Bailey, T., Jeong, D. W., & Cho, S. (2008). *Referral, enrollment and completion in developmental education sequences in community colleges*. (CCRC Working Paper 15). Retrieved from <http://ccrc.tc.columbia.edu>

Bean, J. P., & Metzner, B. S. (1985). A conceptual model of nontraditional undergraduate student attrition. *Review of Educational Research*, 55, 485-540.

doi:10.2307/1170245

- Bers, T. & Schuetz, P. (2014). Nearbies: A missing piece of the college completion conundrum. *Community College Review*, 42, 167-183.
- Best, J.W. & Kahn, J.V. (2006). *Research in education (10th edition)*. Boston: Pearson.
- Bettinger, E. P. & Long, B. T. (2005). *Addressing the needs of under-prepared students in higher education: Does college remediation work?* (Working paper 11325). Cambridge, MA: National Bureau of Economic Research.
- Bingham, M. J. (2002). Are the GED tests a high school equivalency or a high school alternative? *Opinion Papers*. Retrieved from <http://www.eric.gov/PDFS/ED465080.pdf>
- Boesel, D., Alsalam, N., & Smith, T. M. (1998). *Educational and labor market performance of GED recipients*. (Report No. NLE-98-2023). Washington, DC: National Library of Education.
- Braxton, J. (Ed.) (2000). *Reworking the student departure puzzle: New theory and research on college student retention*. Nashville: Vanderbilt University Press.
- Braxton, J. M., Hirschy, A. S., & McClendon, S. A. (2004). The ill-structured problem of college student departure. In J. M. Braxton (Ed.), *Understanding and reducing college student departure* (pp. 1-5) (ASHE-ERIC Higher Education report v30, n3).
- Burns, K. (2010). At issue: Community college student success variables: A review of the literature. *The Community College Enterprise*, 16, 33-61.
- Cameron, S. V. & Heckman, J. J. (1993). The nonequivalence of high school equivalents. *Journal of Labor Economics*, 11, 1-47.

- Carini, R. M., Kuh, G. D. & Klein, S. P. (2005). Student engagement and student learning: Testing the linkages. *Research in Higher Education*, 47, 1-32.
doi:10.1007/s11162-005-8150-9
- Chickering, A. W. & Gamson, Z. F. (1987, March). *Seven principles for good practice in undergraduate education*. AAHE Bulletin, 3-7.
- College Board. (2008). *Selected data on P-20 education in America*. Retrieved from <http://www.collegeboard.com/html/admissionsinthe21stcentury>
- College Board. (2010). *Median hourly wage gain per year of schooling*. Retrieved from <http://trends.collegeboard.org/education-pays/figures-tables/median-hourly-wage-gain-year-schooling>
- College Board. (2013). *Academic readiness indicators: Implications for state policy*. (Policy Brief 2013-1). Retrieved from <http://research.collegeboard.org/publications>
- College Office of Institutional Research. (2010). *Recent research and statistics*. Retrieved from http://www.pvcc.edu/institutional_research/recent_research_statistics.htm
- College Office of Institutional Research. (2010a). *Fall 2010 credit enrollment profile*. Retrieved from <http://www.pvcc.edu/about-us/research-planning/research-and-statistics/archive>
- Cook, B. & King, J. E. (2004). *Low-income adults in profile: Improving lives through higher education*. Retrieved from www.acenet.edu/bookstore/programs/policy

- Cowan, K. (2013). *Higher education's higher accountability*. Retrieved from <http://www.acenet.edu/the-presidency/columns-and-features/Pages/Higher-Education%27s-Higher-Accountability.aspx>
- Crissey, S. R. (2009). *Educational attainment in the United States: 2007* (U.S. Census Bureau report P20-560). Retrieved from <http://www.census.gov/acs/www/Downloads>
- Crissey, S. R. & Bauman, K. J. (2012). *Measurement of high school equivalency credentials in Census Bureau surveys* (U.S. Census Bureau, Social, Economic, and Housing Statistics Division Working Paper Number 2012-3). Retrieved from http://www.census.gov/hhes/socdemo/education/data/cps/GED_wp2012-3.pdf
- Cromwell, B. H. (1989). *The imposter phenomenon in the classroom: Personality and cognitive correlates* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses database (UMI No. 8925386).
- Cuseo, J. (2002). Academic advisement and student retention: Empirical connections and systemic interventions. *Policy Center for the First Year of College*. Retrieved from <http://www.ccsse.org/publications/resources.cfm>
- Donovan, W. J., & Wheland, E. R. (2008). Placement tools for developmental mathematics and intermediate algebra. *Journal of Developmental Education*, 32, 2-11.
- Doyle, J. (2004). Student affairs division's integration of student learning principles. *NASPA Journal*, 41, 375-394.

- Duke, A. E. & Ganzglass, E. (2007). *Strengthening state adult education policies for low-income workers* (Working Poor Families Project policy brief). Retrieved from http://www.workingpoorfamilies.org/reports_and_pubs.html
- Ebert, O. (2002). *Performance of General Educational Development (GED) recipients and high school graduates enrolled in a public research university* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses database (UMI No. 3054109).
- Educational Policy Institute (2004, June). *The art of student retention: A handbook for practitioners and administrators*. Paper presented at the Texas Higher Education Coordinating Board 20th Annual Recruitment and Retention Conference, Austin, TX.
- Entwisle, D. R., Alexander, K. L. & Olson, L.S. (2004). Temporary as compared to permanent high school dropout. *Social Forces*, 82, 1181-1205.
- Fike, D. S. & Fike, R. (2008). Predictors of first-year student retention in the community college. *Community College Review*, 36, 68-88. doi: 10.1177/0091552108320222
- Fisher, L. S. (2005). *Performance of students admitted to college on the basis of a GED credential in Tennessee* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses database (UMI No. 3167775).
- Gay, L. R. (1996). *Educational research* (5th ed.). Englewood Cliffs, NJ: Prentice Hall.
- Guison-Dowdy, A. & Patterson, M.B. (2011). *Journeys through college: Postsecondary transitions and outcomes of GED test passers*. Washington, DC: American Council on Education.

- Harvey-Smith, A. (2002). *An examination of the retention literature and application in student success*. Retrieved from <http://www.ccsse.org/publications/resources.cfm>
- Heckman, J. J. & LaFontaine, P. A. (2010). The American high school graduation rate: Trends and levels. *Review of Economics and Statistics*, 92, 244-262.
- Hinton, P.R. (2014). *Statistics Explained* (3rd ed.). New York, NY: Routledge.
- Hinton, P. R., McMurray, I. & Brownlow, C. (2014). *SPSS explained* (2nd ed.). New York, NY: Routledge.
- Jenkins, D., Jaggars, S. S., & Roksa, J. (2009). *Promoting gatekeeper course success among community college students needing remediation*. Retrieved from <http://ccrc.tc.columbia.edu>
- Jobs for the Future. (2009). *GED to college: Building on ramps to postsecondary education for low-income young adults*. Retrieved from <http://www.jff.org/projects/current/education/ged-college/841>
- Jobs for the Future. (2010). *Increasing postsecondary success of low-income young adults: Building postsecondary on ramps and supports*. Retrieved from <http://www.jff.org/projects/current/other/increasing-postsecondary-success-low-inc/899>
- Joch, A. (2014). A question of accountability: Looking beyond federal mandates for metrics that accurately benchmark community college success. *Community College Journal*, 84(5), 54-62.
- Johnson, B. (2001). Toward a new classification of nonexperimental quantitative research. *Educational Researcher*, 30(2), 3-13. doi:10.3102/0013189X030002003

- Kerlinger, F. N. & Lee, H. B. (2000). *Foundations of Behavioral Research*, 4th ed. Fort Worth, TX: Harcourt College Publishers.
- Kist, W. (2003). Non-academic challenges faced by GED scholars: A report of the GED Scholars Initiative. *Adult Learning*, 14(3), 11-13.
- Leal, S. A. (2008). *The perceptions of Mexican-American college students on factors that impact post-secondary preparation and matriculation* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses database. (UMI No. 3323555)
- Liebowitz, M. & Taylor, J. C. (2004). *Breaking Through: Helping low-skilled adults enter and succeed in college and careers*. Retrieved from Jobs for the Future website: <http://www.jff.org/publications/workforce/breaking-through-helping-low-skilled-adu/172>
- Lumina Foundation. (2014). *A stronger nation through higher education. An annual report from Lumina Foundation*. Retrieved from http://www.luminafoundation.org/stronger_nation/
- McCabe, R. H. (2000). *No one to waste: A report to public decision-makers and community college leaders*. Washington, DC: Community College Press.
- Mertens, D. M. (2005). *Research and evaluation in education and psychology: Integrating diversity with quantitative, qualitative, and mixed methods*, 2nd edition. Thousand Oaks, CA: Sage Publications.
- Miller, P. (2006). GED battery no substitute for diploma. *Education Week*, 25 (supplement), 8-9.

- Murnane, R.J., Willett, J.B., & Tyler, J.H. (2000). Who benefits from obtaining a GED? Evidence from high school and beyond. *The Review of Economics and Statistics*, 82, 23-37.
- Noble, J. & Sawyer, R. (2013). *A study of the effectiveness of developmental courses for improving success in college*. (ACT Research Report Series 2013-1). Retrieved from http://www.act.org/research/researchers/reports/pdf/ACT_RR2013-1.pdf
- Patterson, M.B., Song, W. & Zhang, J. (2009). *GED candidates and their postsecondary educational outcomes: A pilot study*. Washington, DC: American Council on Education.
- Patterson, M.B., Zhang, J., Song, W. & Guison-Dowdy, A. (2010). *Crossing the bridge: GED credentials and postsecondary outcomes, year one report*. Washington, DC: American Council on Education.
- Pew Research Center. (2014). *The rising cost of not going to college*. Retrieved from <http://www.pewsocialtrends.org/files/2014/02/SDT-higher-ed-FINAL-02-11-2014.pdf>
- Price, D.V. & Roberts, B. (2008). *Improving student success by strengthening developmental education in community colleges: The role of state policy* (Working Poor Families Project policy brief). Retrieved from http://www.workingpoorfamilies.org/reports_and_pubs.html
- Prince, D. & Jenkins, D. (2005). *Building pathways to success for low-skill adult students: Lessons for community college policy and practice from a statewide longitudinal tracking study*. New York: Community College Research Center, Teachers College, Columbia University.

- Purnell, R. & Blank, S. (2004). *Support success: Services that may help low-income students succeed in community college*. Retrieved from <http://www.mdrc.org/publications/399/print.html>
- Quinn, L. M. (2002). *An institutional history of the GED*. Retrieved from the University of Wisconsin-Milwaukee, Employment and Training Institute website: <http://www4.uwm.edu/eti/reprints/GEDHistory.pdf>
- Rao, D. (2004). The open door policy: Hidden barriers to postsecondary education for nontraditional adult learners. *Focus on Basics: Connecting Research & Practice*, 6, 10-13.
- Rath, B., Rock, K., & LaFerriere, A. (2013). Pathways through college: Strategies for improving community college student success. Retrieved from http://www.opp.org/docs/PathwaysCollegeStrategies_StudentSuccess.pdf
- Reder, S. (2007). *Adult education and postsecondary success* (National Council on Adult Literacy policy brief). Retrieved from <http://www.nationalcouncilonadultliteracy.org>
- Rose, M. (1999). Using ACT and GED scores as indicators of success for postsecondary students enrolled in GED certificates. *Research and Teaching in Developmental Education*, 15, 55-64.
- Rubin, A. (2010). *Statistics for evidence-based practice and evaluation* (2nd ed.). Belmont, CA: Brooks/Cole.
- Scrivener, S., & Coghlan, E. (2011). *Opening doors to student success: A synthesis of findings from an evaluation at six community colleges* (MDRC policy brief 27). Retrieved from <http://www.mdrc.org/publication/opening-doors-student-success>

Silverberg, M., Warner, E., Fong, M., & Goodwin, D. (2004). *National Assessment of Vocational Education final report to Congress*. Washington, DC: U.S.

Department of Education.

Smith, T. M. (2003). Who values the GED? An examination of the paradox underlying the demand for the General Educational Development credential. *Teachers College Record*, 105, 375-415.

Spellman, N. (2007). Enrollment and retention barriers adult students encounter. *The Community College Enterprise*, 13, 63-79.

Survey of public opinion on higher education. (2004). *The Chronicle of Higher Education*, 50, A12-13. Retrieved from <http://chronicle.com/stats/higheredpoll/2004/attitudes.htm>

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston: Pearson.

Tinto, V. (1997). Classrooms as communities: Exploring the educational character of student persistence. *Journal of Higher Education*, 68, 599-623.
doi:10.2307/2959965

Tinto, V. (1999). Taking retention seriously: Rethinking the first year of college. *NACADA Journal*, 19(2), 5-9.

Tokpah, C., Padak, N., Baycich, D., Trehan, D. M., & Turnidge, D. (2006). Learning about students with General Education Development diplomas on college campuses: implications for academic advisors. *NACADA Journal*, 26(1).

- Twigg, C. A. (2005). *Increasing success for underserved students: Redesigning introductory courses*. Saratoga Springs, NY: National Center for Academic Transformation.
- Tyler, J. H. (2003). Economic benefits of the GED: Lessons from recent research. *Review of Educational Research*, 73, 369-405. doi: 10.3102/00346543073003369
- U. S. Census Bureau. (2007). *Evaluation report covering educational attainment (2006 American Community Survey Content Test Report P.2.b.)*. Retrieved from <http://www.census.gov/acs/www/Downloads>
- U.S. Department of Education, National Center for Education Statistics. (2002). *Nontraditional Undergraduates* (NCES 2002–012). Retrieved from <http://nces.ed.gov/pubsearch>
- U. S. Department of Education, National Center for Education Statistics. (2006). *Enrollment in postsecondary institutions, fall 2004; Graduation rates, 1998 & 2001 cohorts; and financial statistics fiscal year 2004* (NCES 2006-155). Retrieved from <http://nces.ed.gov/pubsearch>
- U.S. Department of Education, Office of Vocational and Adult Education. (2007). Adult basic education to community college transitions symposium, Washington, DC.
- U.S. Department of Labor, Bureau of Labor Statistics. (2009). Overview of the 2008-2018 projections. *Occupational Outlook Handbook, 2010-11 edition*. Retrieved from <http://www.bls.gov/oco/oco2003.htm>
- U.S. Department of Labor, Bureau of Labor Statistics. (2012). Projections overview. *Occupational Outlook Handbook, 2012-13 edition*. Retrieved from <http://www.bls.gov/ooh/about/projections-overview.htm>

- Waldron, T., Roberts, B. & Reamer, A. (2004). *Working hard, falling short: America's working families and the pursuit of economic security*. Retrieved from http://www.workingpoorfamilies.org/pdfs/Working_Hard.pdf
- Wallen, N. E., & Fraenkel, J. R. (2000). *Educational research: A guide to the process*. New York: Routledge.
- Wilds, D. J. (2000). *Minorities in higher education, 1999-2000. Seventeenth annual status report*. Washington, DC: American Council on Higher Education.
- Zhang, J. (2010). *From GED credential to college: patterns of participation in postsecondary education programs*. Washington, DC: American Council on Education.

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