GEORGIA GED GRADUATES' ENROLLMENT AND COMPLETION PATTERNS IN POSTSECONDARY EDUCATION

by

KIMBERLY ELAINE LEE

(Under the Direction of Thomas Valentine)

ABSTRACT

This research study examined enrollment and completion patterns of Georgia GED graduates from 1999 – 2009 in postsecondary education. The purpose of the study was to determine the transition to postsecondary education rate and the successful completion rate of GED graduates. Successful completion of postsecondary education was defined as the receipt of a certificate, a diploma or a degree. Also, the study was designed to determine the influence of age, gender, ethnicity, financial aid eligibility and GED overall test score on enrollment and successful completion rates in postsecondary education.

The study included the total population of GED graduates (202,282) from 1999 – 2009. The total population data were disaggregated to identify the number and percentage of GED graduates who enrolled in postsecondary education and the number and percentage of those who did not enroll in postsecondary education through the Spring semester of 2010. The population of GED graduates who enrolled in postsecondary education was further disaggregated to identify the number and percentage of GED

graduates who successfully completed a postsecondary program of study. Data for these GED graduates were analyzed using quantitative methods in order to determine whether age, gender, ethnicity, or financial aid eligibility were significant predictors for postsecondary education transition and successful completion.

The study found that age, ethnicity, financial aid eligibility and the GED overall test score were significant predictors of postsecondary education enrollment and successful completion. Older GED diploma recipients, African American GED diploma recipients and GED graduates who received Pell grants were more likely to successfully complete postsecondary education as evidenced by the receipt of a certificate, a diploma or a degree.

INDEX WORDS: Adult Education, Completers, GED Testing, National Student Clearinghouse (NSC), Non-completers, Nontraditional students, Personal characteristics, Postsecondary education, Technical College System of Georgia (TCSG)

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DEDICATION

I dedicate this work to my late father, Rev. Dr. George, W. Lee, my late maternal great-grandmother, Elizabeth Fields Miller and to my mother, Mrs. Vivian D. Lee. Your unyielding Christian love and guidance provided me with the foundation and fortitude to contribute in meaningful ways to the uplifting of humankind.

I am thankful you are celebrating with me.

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I praise and glorify God: my Father and my Creator; Jesus Christ: my Savior, my Sustainer, my Redeemer, and my Lord; the Holy Spirit: my Comforter and my Guide. God in His infinite wisdom blessed me with a sphere of support through this journey that operated like a philharmonic orchestra playing from a score entitled, "Kim, you can and you will complete the work you have begun."

I am especially grateful for my ancestors and my parents, orchestra sponsors, all who promoted the value of education and exhibited a love for learning. These individuals encouraged me to take advantage of all opportunities that would increase my knowledge base so that I could be of greater service to humankind. Although my father and other ancestors will not be physically present when the degree is officially conferred upon me, I am confident that they are participants in the chorus of praise and thanksgiving with me, my mother, my sister, Rosalind Ketchum, other family members, and friends.

Expressions of appreciation are in order for a phenomenal percussion section – my dissertation committee. Ensuring that the appropriate tempo was maintained throughout the entire selection were Drs. Thomas Valentine, Juanita Johnson-Bailey, Ron Cervero and John Schell. Their guidance and respective expertise assisted me along the way. Perhaps at some point in the future, they will further recognize my gratitude as evidenced by the contributions I intend to make to the field of adult education. I am

confident that God as the conductor and Dr. Valentine as the understudy were synchronized in guiding the process.

Sounding the alarm of the trumpet or other brass instruments were individuals who would not allow me to lose my place within the music score. Both the tenor and tone of the voluminous phone calls, emails, and face-to-face conversations with Drs. Anthony Parker, Brad Courtenay, Freida Hill, Sharan Merriam, Ivan Allen, Alveta Thomas, Ken Breeden and Reginald D. Terry, could be summarized in one encouraging directive: "finish the degree," as echoed by Henry Cleaves, Frank Bates, Peachie Jackson, Rachelle Taylor, Frank Battle, and Emma Frances Rhetta. All of these individuals also reminded me repeatedly that they were ready to celebrate with me upon completion of the doctoral program. I am thankful for your persistent support.

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During the times that it seemed as though I was giving out of energy, those in the woodwind section would say or do something that would reignite my passion to complete this work. As agents of spiritual nurturing and renewal, the following individuals and entities relentlessly interceded on my behalf for me to receive a second, third or fourth wind. I would be remiss in these acknowledgements if I did not recognize the significant contributions made by the membership of Beulah Missionary Baptist Church (Decatur, Georgia) under the leadership of Pastor Jerry D. Black, the Greater Hopewell Missionary Baptist Church (GHMBC - Ocala, Florida), Rev. Edward C. Bland, pastor, and the Tabernacle Missionary Baptist Church (Tallahassee, Florida) under the leadership of Rev. Stanley L. Walker. I am magnanimously blessed to have all of the following as players in the woodwind section: Loretta Pompey-Jenkins (who lovingly nurtured my dad as he aged when he was pastor of GHMBC), Angela "Cookie" Turner, Carmelesa Crosby-Harley, Dr. DeRetta Cole, Angelia Rivers, Carletta Henderson-Youngs, Mahamadou (Hadizatou) Ouhoumoudou, Rev. Leatricia Williams, Jimmy and Gerri Webb, Gloria Jackson, Mary Sims, Angelia Turner, Uncle Herbert (Corleiss) Davis, Rev. Traci Blalock Phillips, Maria (Wayne) Pye, Sheila (Arthur) Fleming, Toni Collins, Wanda Rodwell, Terri (Calvin) Howard, Willieyour Arnold, Georgia Myles, Tasha Warford, Yolanda (Chip) Norman, Cathy Gray, Aunt Rhoda Brandon, Aunt Lois Lilley, Aunt Gertrude Bailey, Aunt Hazel Sykes, Uncle Carl Frazier, Uncle Isaac Frazier, Aunt Bessie Lee and the Cornelia Moore Sunday School class as members within my prayer circle. The love you have shared with me during my time in the doctoral program will never be forgotten. I praise God for each of you.

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As indicated by the numerable names listed above, it is evident that I did not get to this place in the completion of my dissertation alone. It is no surprise to me that Almighty God – the conductor - ordained an orchestra just for me. I am both humbled and honored to be the recipient of yet another blessing. My heart bellows, "To God be the glory for the great work He has begun in me."

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CHAPTER 1

INTRODUCTION

"This country needs and values the talents of every American. That is why we will provide the support necessary for you to complete college and meet a new goal: by 2020, America will once again have the highest proportion of college graduates in the world."

President Barack Obama (2009)

Background of the Problem

Even if the President's prediction comes true for the future, it is undeniable that America is losing her place as a world leader in education. According to the Organisation for Economic Co-operation and Development (OECD, 20011), the level of educational attainment in the United States is beginning to lag behind other top OECD countries. OECD represents 30 free-market countries and America is "the only nation where young adults are less educated than the previous generation (National Commission on Adult Literacy, 2008, p. v.). Although America is the number one country in educational attainment of older adults aged 55 to 64, America drops to 10th for younger adults, aged 25 to 34 (OECD, 20011). Even with a very optimistic 2020 U.S. estimate, top OECD countries will lead the US by 10.4 percent in degree attainment for adults, aged 25 to 34. In an effort to work toward meeting President Obama's 2020 challenge, the pipeline for entry into higher education must be broadened. Thus, consideration must be given for nontraditional learners – General Educational Development graduates, in particular.

The pipeline has historically focused on individuals who receive a traditional high school diploma between the age of 17.5 to 18.5 in May or June of the respective year (Miralani, 2003). These individuals normally begin college within one year of their receipt of the high school diploma. The optimistic estimate basically implies that even if every person currently in the traditional pipeline transitioned to postsecondary education and received a diploma or a degree, the United States would still lag behind other free-market countries. In order to close the gap, the pipeline must be broadened to include the more than 54 million adults without a high school diploma or college degree, representing two-thirds of the workforce.

At a time when colleges are trying to open the pipeline, there is a population that is ready to go – GED graduates. GED graduates have distinguished themselves by exhibiting academic skills commensurate with those of high school graduates. On a nationally recognized academic assessment – GED Tests – GED graduates' performance indicates that their skill level is comparable to or above 60 percent of high school graduates in the following content areas: Language Arts – Writing, Language Arts – Reading, Social Studies, Science and Mathematics. Some have also distinguished themselves by engaging in systematic study to prepare for the GED Tests. The General Educational Testing Service (GEDTS) has a long history of providing an alternative certification for the completion of high school in the United States. While considerable research identifies the economic outcomes of GED graduates, few studies address the major issues related to the transition and the successful completion of GED graduates from postsecondary education programs of study.

The Impact of High School Non-completion

"Increasing global economic competition and the rapid pace of technological change are revolutionizing the skills and educational qualifications necessary to individual job success and national economic well-being" (Pusser et al., 2007, p. 1). For the first time in the history of America, the educational attainment level of the current generation is lagging behind earlier generations. The educational attainment level for Americans aged 25 to 34 is declining. Other factors with great impact on America's future include the high dropout rates of young adults from high school and the aging U.S. population (NCAL, 2008).

Data from the Census 2010 indicates that more than 34 million adults in the United States over the age of 18 lack a high school diploma. According to the Alliance for Excellent Education (2010), nearly 1.3 million students in the United States do not graduate from high school with their peers on an annual basis. In Georgia, approximately four out of ten eighth graders do not graduate with their peers. Estimates range between 71% and 86% regarding national high school graduation rates. The graduation rate, as calculated and reported by the National Center for Education Statistics (NCES) for academic year 2009 was 75.5% but the rate for Georgia was significantly lower at 66.6%. Many disparate sources confirm the high school completion rate data indicates that thousands of young adults leave high school without a high school credential.

The lack of the high school diploma relates to social issues around wage earnings, single parenting, and incarceration and recidivism rates. Unemployment rates and the rates of transition to and completion of postsecondary education programs are also correlated to educational attainment. The individual impacts of reduced income,

unemployment, and lost opportunities compound to create economic hardships for the community as a whole. Individuals with lower income levels impact the community with reduced buying power, which yields a loss of revenue to respective business communities. Unemployment rates contribute to the increased costs for government-supported programs like Temporary Assistance to Needy Families (TANF) and childcare programs.

Those without high school credential also decrease their opportunities for securing or maintaining employment. The high earning sectors of the economy are correlated to the acquisition of skills associated with the receipt of postsecondary education credentials. As a result, earnings for individuals without a high school diploma are lower than earnings for individuals with postsecondary education credentials. Also, high school non-completion precludes individuals from participating in postsecondary education. The combination of high rates of non-graduates from high school and an increasing gap between the supply of and demand for higher skills might widen the economic gap in earnings.

As a result of the increasing demands of the workforce and the ever-changing knowledge- based economy, individuals without a high school credential are subject to facing challenges with securing, at minimum, living wage employment. Wage earnings are linked with levels of educational attainment. The US Bureau of Labor Statistics (2009) reported the median weekly earnings for individuals with a high school diploma or GED was $626 in 2009 compared to the median weekly earnings of $454 of individuals without a high school diploma over the age of 25. Additionally, individuals who do not complete high school or receive a high school credential are more likely to

become single parents. Further, those who do not complete high school or receive a credential are more likely to rely upon public assistance or be in prison.

The GED Credential

Another option for high school completion is available for individuals without a credential. The General Educational Development (GED) Tests afford individuals without a high school diploma with an opportunity to prove that their academic skills are commensurate with the skills of high school graduates. Nationally, nearly 500,000 GED examinees met passing score requirements in 2010 thus, receiving the GED credential as evidence of high school completion. The 490,000 plus GED graduates in 2010 increased their opportunities for employment; decreased the probability of becoming incarcerated; expanded opportunities for entrance into postsecondary education and decreased the possibility of having to rely upon public assistance. In the state of Georgia alone, nearly 19,000 GED graduates in 2008 increased their employment and higher education opportunities also.

Approximately 70% of the GED graduates express an interest in transitioning to postsecondary education (GEDTS, 2009). Other reasons reported for taking the GED tests include: personal satisfaction, employment, public assistance requirement, court order or military requirement. Of the 70% that indicate a desire to transition to postsecondary education, only 30 to 35% of GED recipients actually obtain any postsecondary education (Tyler, 2003). Only 5% of GED students who pursue a bachelor's degree actually receive one in comparison to 75% of high school graduates (New England Literacy Resource Center, 2003). With regard to 2-year college completion, GED graduates represent 27% in comparison to 55% of high school

graduates. Further, the transition rate of GED graduates to postsecondary education represents about 33% while the rate for high school graduates is approximately 74%. In a pilot study conducted by the GEDTS (2010), of calendar year 2003 GED graduates, GEDTS reported that 43% of the graduates enrolled in a postsecondary education program by fall 2009. However, only 11.9% of the graduates actually completed a program of study by December 2009. Although the transition statistic is encouraging, the low program completion data is ripe for conducting a critical analysis. The disparity between the percentage of GED graduates that want to transition to postsecondary education and the percentage of those that do transition or complete a program of study will be explored by conducting research plan identified in Chapter 3.

Few research studies focus on the transition of GED graduates to postsecondary education: "Research on the benefits of postsecondary education tends to focus on broad student groupings, such as 'nontraditional' college students, low-income or low-skilled students or students in college developmental education courses." (Zafft, Kallenbach, & Spohn, 2006, p.2). NCES (2002) identified seven characteristics that generally represent nontraditional students. A nontraditional student is one who has any of the family, education, employment or financial characteristics identified in Table 1.1.

By considering one or more of the criteria above, NCES estimates that 60% of the students enrolled in postsecondary education are identified as nontraditional. Nontraditional students are less likely than traditional students to complete their educational goals. Nontraditional students tend to emphasize employment responsibilities; thus, they identify themselves as full-time employees who attend college rather than students who have a full-time job. Nontraditional students also tend to leave

postsecondary programs without a degree in comparison to traditional students. Further, nontraditional students tend to leave academic programs within the first year of enrollment.

Table 1.1 Nontraditional Student Characteristics

Category	Characteristics
Family	Has dependents other than a spouse (usually children, but sometimes others)
	Is a single parent (either not married or married but separated and has dependents)
Education	Delays enrollment (does not enter postsecondary education in the same calendar year that he or she finished high school or received a GED Diploma)
	Attends part-time for at least part of the academic year
	Does not have a high school diploma (completed high school with a GED or other high school completion certificate or did not finish high school)
Employment	Works full-time (35 hours or more per week) while attending college
Financial	Is considered financially independent for purposes of determining eligibility for financial aid

The nontraditional student characteristics previously identified are representative of GED graduates. Participants in the GED Scholars Initiative of Kent State University, identified challenges related to negotiating academic, family and employment responsibilities during their tenure as college students (Baycich, 2003). GED graduates generally noted that academic responsibilities are often sacrificed in an effort for them to adequately address family and employment issues. The GED graduates further noted that family and employment responsibilities served as significant factors in their delayed

enrollment in postsecondary education status. In addition to delayed enrollment, factors related to financial constraints, academic preparation, personal and psychological barriers and institutional bureaucracy contribute to GED graduates' enrollment, retention and successful completion of postsecondary education programs of study.

Statement of the Problem

The high school diploma continues to represent educational attainment in the United States of America. Most employers and institutions of higher learning recognize the high school diploma as a measure of educational achievement. Although education to prepare individuals for the receipt of the high school diploma continues to be available for school-age American residents, many individuals, age 16 and over do not have a high school credential. Nationally, about one-third of high school students – 1.23 million annually – leave secondary education without a diploma. In Georgia, an estimated 59,300 plus students (42%) annually do not graduate high school with their peers (Chapman, 2006). Having a high school diploma and the skills to succeed in college and the workforce are essential since an estimated 85% of today's jobs and 90% of the fastest-growing high-wage jobs will require at least some postsecondary education (Chapman, 2006). For students that left school without a diploma, an alternative is available.

The GED Tests serve as a tool for adults without high school diplomas and out-of-school youth to prove that they have the skills commensurate with those of a high school graduate. Nationally, 776,000 plus individuals in the United States attempt one or more tests within the GED five-part battery annually and more than 490,000 plus meet score requirements for the receipt of a GED credential. Only 33,000 eligible individuals

in Georgia attempt the GED tests annually and an average of 18,000 individuals successfully complete the tests and earn a GED diploma.

Nationally, most of GED graduates indicate a desire to transition to postsecondary education. However, less than 12% of GED recipients actually complete one year of study as reported by Tyler (2003). Tyler further reported than only 3% of the GED recipients that transition to postsecondary education receives at least an associate's degree. Postsecondary transition rates to technical colleges and the successful completion of programs of study rates in Georgia for GED graduates are comparable to the national data and provide a convincing argument for further exploration.

GED graduates possess many of the character traits identified to describe nontraditional students in postsecondary education. GED graduates are more likely to delay enrollment, have dependents other than a spouse, attend college on a part-time basis, work a full-time job and be considered as financially independent for the purpose of determining financial aid. As nontraditional students, GED graduates encounter institutional, situational and personal barriers in transitioning to postsecondary education and in receiving a diploma or a degree. Such barriers include: (a) limited knowledge of or access to financial aid resources for part-time learners, (b) identification and implementation of strategies to assist in managing competing priorities and (c) difficulty in navigating and understanding the academic learning environment and complex processes (e.g. registering for courses).

Limited research is available regarding the rationale for low postsecondary education transition and completion rates by GED holders in Georgia. To this end, two analyses were conducted to examine the postsecondary education transition, enrollment

and program completion rates of GED graduates in Georgia. The initial research design included building one composite dataset for analysis. The design also reflected two postsecondary education data sources that would be accessed to build the dataset. As a result of inconsistencies across the datasets related to reporting cycles, I, along with the methodologist, were left with the unenviable choice to conduct two analyses using separate data sources. Fortunately, both analyses are identical with regard to the research design and the research questions. To this end, the questions that guided these studies are as follows:

1. To what extent do GED graduates enroll in postsecondary education and receive a certificate, a diploma or a degree?
2. To what extent do personal variables (age, gender, ethnicity, GED test scores and financial aid eligibility) predict GED graduates' enrollment in and completion of postsecondary education?

Overview of the Study

In order to answer the research questions identified above, two parallel analyses were conducted. The analyses employed the same logical framework and almost the same variables but were completed on two different data sets. These parallel analyses were undertaken because our early examination of the data by me and the methodologist made us recognize that there are differences. Two major differences are related to the availability of data based on reporting schedules and how the data sources completion of a postsecondary program of study. As a result, we thought the best way of achieving a notion of general understanding would be to conduct the analyses separately and then determine how they combine together. The first analysis is based on GED graduate data

from the Technical College System of Georgia (TCSG) and the second analysis is based on data from the National Student Clearinghouse (NSC).

Logical Models for the Analyses

The analytical models displayed in Figures 1.1 and 1.2 include all GED graduates from 1999-2009. The analyses examined descriptive statistics regarding GED graduates for the same time period. Both the enrollment and completion variables were measured dichotomously. The design of this study also included an examination of GED graduates' personal characteristics and their test score data in relationship to postsecondary education enrollment and completion of postsecondary education programs (Figure 1.2). For the purpose of this study, enrollment in postsecondary education was defined as GED graduates who enroll in three or more hours of credit bearing or learning support courses. Successful completion was determined based on the receipt of a certificate, a diploma or a degree by GED graduates.

Figure 1.1 Model of GED Outcomes

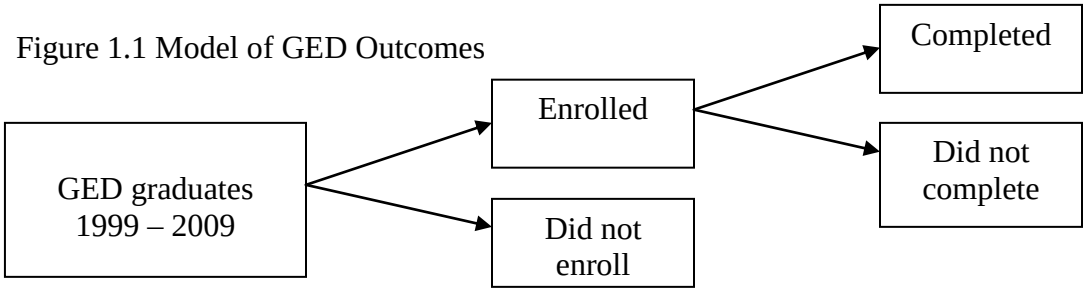
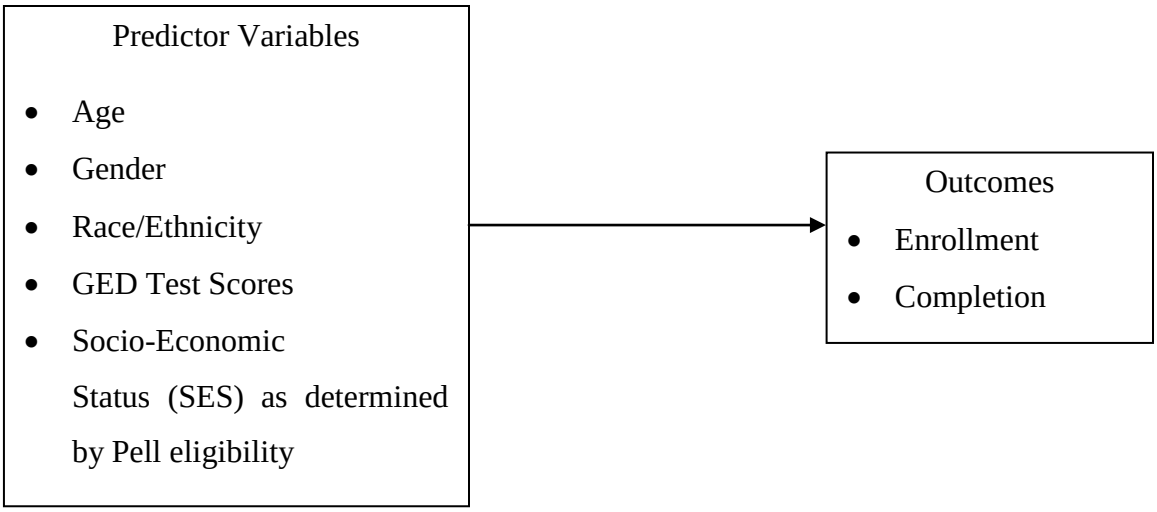


Figure 1.2 Predictors of GED Outcomes



Outcome Variables

The two outcome variables for this study are enrollment in postsecondary education and the completion of a program of study, as evidenced by the receipt of a certificate, a diploma or a degree. Both outcome variables are dichotomous noting that the respective GED graduate enrolled or did not enroll and completed or did not complete a program of study. The outcome variables were selected based on the literature, the emphasis on the transition of GED graduates to technical college and their successful completion by the leadership of TCSG and the focus on postsecondary education by the American Council on Education (ACE). The variables were selected in response to consultation with the study methodologist and conversations with GED Testing instructional and assessment practitioners.

Enrollment

Enrollment in a postsecondary education program is important to the adult education and the GED Testing communities. One of the performance indicators for adult basic education programs supported with Workforce Investment Act (WIA), Title II funds is the percentage of adult learners served that actually transition to postsecondary education. With regard to TCSG, one of the primary performance measures for technical college presidents is the transition rate of individuals who participate in an adult education program, receive a GED diploma and enroll in a technical college. During the 60-plus year history of the GED Testing Program, transition to postsecondary education continues to a desired outcome. For the purpose of this study, enrollment in postsecondary education included GED graduates who were enrolled in credit bearing or learning support courses. Although learning support courses do not yield academic credit for participants, participation in such courses was considered because the participation indicated that the respective GED graduate transitioned to a technical college. The learning support courses are designed to assist individuals in gaining the necessary skills to complete credit level courses.

Completion

One major interest of the state Office of Adult Education (OAE) as well as the GEDTS is related to the performance of GED graduates in postsecondary education. The GEDTS is under the auspices of the American Council on Education (ACE), which is the unifying voice for higher education. As a result the completion outcome variable is also of value to the GED Testing Community.

Significant to TCSG is the completion outcome variable as the completion rate is publicly shared for all technical colleges on the TCSG Score Card website, https://kms.dtae.org/portal/. Additionally, the completion rate is included as a measure of performance for evaluation of college presidents. The completion variable was measured by identifying GED graduates who receive a certificate, a diploma or a degree from a technical college in Georgia.

Predictor Variables

Age

Educational attainment is a highly age-dependent process (Miralani, 2003). Unlike traditional high school graduates, aged 17.5 to 18.5, that normally transition to postsecondary education within one year of graduation, the average age of GED graduates is 24 years old (GEDTS, 2009) and these nontraditional adult learners delay transition to postsecondary education by one year or more after graduation (NCES, 2011). Once a minority in higher education, adult learners ages 25 and older now represent as much as 70 percent of college enrollment (Berker & Horn, 2003; Headden, 2009). The Technical College System of Georgia (TCSG) exhibits interest in the age of students attending local colleges as evidenced by data reported on the report card website (TCSG, 2010). To these ends, age was selected as a predictor variable in order to determine if a relationship exists between the age of GED graduates and enrollment in postsecondary education and if a relationship exists between the age of GED graduates and successful completion. Age was also considered in determining if students are categorized as traditional or nontraditional. Students aged 25 years of age and older, will be identified as nontraditional students, as discussed in chapter two. Traditional students,

defined in this study as those between the ages of 17 and 21, may have additional responsibilities, but not typically as often or to the same degree as older students.

Gender

Although 60% of the 2009 GED graduates nationally were male and 40% were female (GEDTS, 2009), the higher education participation rate for females continues to outpace the participation rate for males. NCES (2005) reported that by 2003, the participation rate for females had increased to 51% from 33% in 1974. For the same timeframe, the participation rate for males increased by only three percentage points from 38% to 41%.

Gender was selected as an explanatory variable for this study for the reasons noted above. The rationale for this statistic is to determine the difference, if any, in the rate of transition between males and female GED graduates. The existing research on gender's effect on persistence has typically addressed younger students in traditional four-year college and university courses, and research specifically addressing gender and GED graduates especially is limited.

Ethnicity

The National Assessment of Adult Literacy (NAAL) survey results released in 2005 revealed that "minority groups are disproportionately at the low end in educational attainment (NCAL 2008, p. 7). Although higher education participation rates increased for Whites, Blacks and Hispanics from 1974 to 2003, the participation of Whites continued to exceed the rates for Blacks and Hispanics by 16 and 3%, respectively (NCES, 2005). The GED graduate ethnic distribution for Whites, Blacks and Hispanics in 2009 was 60, 19 and 17%, respectively.

Considering the research and the emphasis on ethnicity by TCSG, the third explanatory variable examined in this study was ethnicity. As with gender, this study sought to determine the difference in the rate of transition, retention and successful completion by GED graduates in postsecondary education based on ethnicity. Research has historically asserted that with the possible exception of Asian students, minorities typically persist at lower rates than other students.

GED Test Scores

One major research interest since the inception of the GEDTS is the performance of GED graduates in postsecondary education (Mullen, 2001; Reder, 2001; Tyler, 2006). GED recipients represent 27% of 2-year college graduates in comparison to 55% of high school graduates (New England Literacy Resource Center, 2003). Only 11.9% of 2003 GED graduates actually completed a postsecondary program of study by the end of 2009 (GEDTS, 2010). The GED graduates' participation rate in learning support programs are comparable to the rates of non-GED graduates in Georgia's technical colleges; however, the technical college graduation rate is more than 8% higher for high school graduates (TCSG, 2010).

In an effort to identify levels of readiness, the GED composite test score was identified as predictor variable to determine the relationship between the GED composite score and enrollment in postsecondary education and the GED composite score and successful completion of a postsecondary program of study. The standard scores for the five content area tests within the GED battery are averaged to determine the composite score. The GED battery includes the following: (a) Language Arts – Writing, (b) Language Arts – Reading, (c) Social Studies, (d) Science and (e) Mathematics.

Socioeconomic Status (SES) as determined by Pell Eligibility

Because student income is difficult to obtain to determine socioeconomic status, PELL—Title IV federal student aid—eligibility was used as a predictor variable in lieu of family income. Students who receive financial assistance are more likely to persist in postsecondary education than those who do not receive financial assistance. PELL eligibility is an important variable in this study because it is investigated with other variables that have not been previously addressed together.

Dissertation Organization

This dissertation is organized into five chapters. Chapter one defines the problem and chapter two is the literature review. Chapters three and four include the methodological issues unique to the first and second analyses as well as limitations and findings, respectively. Finally, chapter five addresses the principle findings and provides recommendations for further study.

Significance of the Study

Considering the growing emphasis on the transition of GED graduates to postsecondary education and their successful completion of a program of study, policy makers and adult education practitioners are in need of research based solutions to increase both the transition and the postsecondary education completion rates. By analyzing data regarding the rate of transition of GED graduates to postsecondary education and the completion rate of GED graduates in postsecondary education, knowledge about the descriptive statistics and the personal characteristics of the population affords policy makers and adult education practitioners the opportunity to develop and implement appropriate programs and services to address the identified goals.

This study helps to bridge the existing gap in the GED graduate postsecondary education and completion research by providing transition and completion data for every member of a very large population of GED graduates, thereby contributing to the knowledge in the field of adult education. Unlike previous transition and completion research that did not include a data match component (Tyler, 2003) or a total population of GED graduates for a 10 year period (Tyler, 2003 and Patterson, 2010), this study included the total population of GED graduates in the state of Georgia from 1999 – 2009. Thus, this study could be considered as providing a comprehensive perspective on the postsecondary outcomes of GED graduates, particularly in the state of Georgia.

This study has the potential for offering practical contributions to the adult literacy and GED preparation programs. Practitioners within these fields might gain insight on how to prepare individuals for academic success beyond passing the GED Tests. This study might also offer insight to student services and academic support practitioners in postsecondary education. The information resulting from this study could potentially assist practitioners in these areas in developing appropriate support programs to increase the retention and completion rates of GED graduates in postsecondary education. It is possible that this study will assist policy makers in decisions related to an increase in funding for GED Prep transition to postsecondary education programs and funding for support programs within higher education for nontraditional students, GED graduates, in particular.

Finally, this study might be valuable to the GED testing community by providing information for prospective test takers and graduates that might encourage

them to pursue higher education programs to gain better skills; thus, improving their opportunities in the workforce.

Definition of Terms

General Educational Development (GED) Tests – " The Tests of General Educational Development (GED Tests) are designed to measure the major and lasting academic outcomes students normally acquired by completing a typical high school program of study." (ACE)

GED graduates – Individuals, age 16 and over, that meet passing score requirements on each of the five tests within the GED battery: Language Arts – Writing, Language Arts – Reading, Social Studies, Science and Mathematics.

CHAPTER 2

REVIEW OF THE LITERATURE

This review of the literature sets the context for the study by initially exploring the history and purpose of the GED Tests. The review continues by informing the study through the literature of nontraditional graduates in postsecondary education and promising adult basic education and GED Preparation transition programs.

History and Purpose of the GED Tests

The General Educational Development (GED) Tests were initially developed and designed to evaluate the educational experiences of veteran men and women during and after World War II. The tests were developed as a result of a partnership initiated between the American Council on Education (ACE) and the United States Armed Forces Institute (USAFI) on April 6, 1942. Under the leadership of Ralph Tyler, who was a university examiner at the University of Chicago, construction of the test items began, and by December 1945, the GED Tests were one of four type of exams developed (Mullane, p. 3). The exams ranged from evaluating how well students mastered requirements of a USAFI course to the GED Tests that "determined the level of educational attainment at both the high school and college levels" (Mullane, 2001, p. 4). According to Cervero (1979) in citing Edward Lindquist regarding the purpose of the GED Tests and the important characteristics, Lindquist indicated that the GED Tests were, "designed to assess the lasting outcomes of a high school education, not the detailed factual content of school texts and courses" (p. 29).

As early as 1945, academicians and practitioners were concerned about providing American citizens, particularly those in the armed forces, who had not completed high school with an opportunity to acquire a credential in an effort for them to transition into the workforce or higher education. Turner (1945) described the position of policy makers by issuing the following statement.

> The military knew that it could not take 13 million men and women out of school to fight a war and then suddenly release them to civilian life without their having had any contact during those years with interests of their past life. It was crucial that service members be given the opportunity to participate in academic courses that would enable them to continue their education after the war (p. 2-3).

Although initially developed for veterans, the state of New York approved the GED tests for non-veteran adults. To this end, for the first time in US history, civilians who had not completed high school from an accredited institution were afforded a "second chance" of obtaining a high school credential.

Introduction of Second Series

During the decades of the 1960s and the 1970s, GED testing grew from about 88,000 (Tyler, 2006) test takers to approximately 300,000 in 1970. It is projected that baby boom demographics significantly contributed to the growth of the program. Federal legislation that allocated funding for adult basic education programs also contributed to the growth. In 1964, the Adult Basic Education (ABE) Program was established leading to the implementation of delivery systems in every state, including matching funds for the federal funds received.

In 1978, the second series of the GED Tests were introduced and implemented. The tests were developed in response to the modified standards for high school graduates. Prior to the release of the 1978 series, a disparaging report, *Why Johnny Can't Read*,

regarding the state of preparedness of high school students and recent graduates was released by educational researchers.

Evolution of the Essay

GED testing continued to grow during the 1980s. By 1980, the number of GED test takers had increased to more than 800,000. With the exception of 2001, the number of GED test takers remained around 800,000. The third series of the GED Tests were implemented in 1988. For the first time, in addition to objective questions, GED examinees were required to generate an expository essay in response to a prompt. The scoring rubric for the essays was introduced and based on a six-point holistic scale.

The GED testing volume remained constant during the 1990s. One major change that the testing service implemented in 1997 was an increase in the passing standard from a minimum standard score of 35 on all five parts of the tests to a minimum passing standard of 40 on all five tests and an average score of 45.

The Fourth Series

The fourth generation of the GED Tests was implemented in 2002. With the implementation of the 2002 Tests Series, GED candidates could no longer combine scores across previous series. To this end, the GED testing volume significantly increased in 2001 to a little over one million. GED candidates with incomplete scores and GED candidates who had not been successful previously enrolled in ABE programs in an effort to successfully complete the 1988 series, considering that the upcoming 2002 series would require higher standards. Subsequent to 2001, the GED testing volume declined in 2002; however, the testing volume has increase during the past few years.

The GED 2002 series is comprised a battery of five tests: Language Arts, Reading; Language Arts, Writing; Science, Social Studies and Mathematics. The battery of tests takes approximately 7.5 hours to complete and most of the questions require an objective response. The expository essay continues to be a requirement for examinees and portions of the math test require true responses. In this instance, examinees are required to bubble the correct answer after they have completed the computation on scratch paper. At least 20% of the math test is not designed for an objective response.

The GED Testing Program is jointly administered by the American Council on Education (ACE)—GED Testing Service, the jurisdiction and the respective testing center. Each jurisdiction (state, province or freely associated insular area) designates a central office to be responsible for the administration of the GED. Currently, there are more than 3,000 official GED Testing Centers throughout the United States, Canada, Puerto Rico and the freely associated insular area. Annually, on a calendar year basis, individual testing centers must enter into a contract with ACE-GEDTS and the respective jurisdiction. The testing centers are allowed to lease the GED batteries from GEDTS for a fee that is set by ACE.

Since the tests began in the 1940s, the GED Testing Service has developed four series as previously noted. The first series released in 1942 was retired with the release of the 1978 series. During the 1940s, the "GED tests reflected an industrial era when high school education was sufficient for many jobs" (Auchter, 1998, p. 1). The first generation of the tests required ten hours of administration time. The content areas assessed included English, with an emphasis on the correctness and effectiveness of instruction. Other content areas included social studies, science and literature focusing

on interpreting reading material. The fifth test measured general mathematical skills. (Smith, 2003) The focus of the GED Tests "shifted from assessing recall of factual knowledge to assessing conceptual knowledge. (Smith, 2003, p.1)

When the 1978 series was released, over 40% of the GED examinees indicated that their primary purpose for taking the test was for employment purposes while 37% indicated their plans for further study. During the 1970s, attitudes regarding secondary education and the appropriate curriculum needed for high school graduates to enter the workforce and/or post-secondary education, began to shift by the general public. In response to the changes in the curriculum, the GED tests were modified and standardized for a new release in 1988. For the first time in the history of the GED tests, the 1988 series not only required GED examinees to respond to objective writing questions, the examinees had to also respond write an expository essay in response to a prompt that had been included in the standardization process. In addition to the requirement of the expository essay, the 1988 series of the GED was also developed in response to the heightened awareness of the shift from an industrial era to an information-based society. One of the publications that informed the 1988 series was John Naisbitt's release of *Megatrends* in 1982.

During the 1980s and the 1990s, as technology became more accessible and the advances mandated a more skilled workforce, the education community again realized the need for modified content standards in all subject areas. Because the GED continues to be accepted by both the higher education community and the employment arena, 90% and 95% respectively, as the equivalent of a high school credential, the GEDTS closely monitored the changes in both state and national educational standards. Prior to

developing the most current series, 2002, the GEDTS conducted a research study to align the GED with state and national standards in writing, reading, social studies, science and mathematics. The most recent series that is currently approved by GEDTS and is used throughout the US, the Canadian provinces and territories, Puerto Rico and within the freely associated areas (American Samoa, Guam, Marshall Islands, Micronesia, Northern Mariana Islands, and Palau) is the 2002 series.

GED Graduates in Postsecondary Education

During the 60-plus year history of The GED Testing Service, one major criticism of the tests is related to how well GED graduates perform in the workforce and in postsecondary institutions in comparison to traditional high school graduates. Research studies addressing this issue began as early as 1951 when Paul Dressel and John Schmid published, *An Evaluation of the Tests of General Educational Development* (Mullen, 2001, p. 50). A study by Tyler (2003) suggests that transitioning to postsecondary institutions by GED graduates is similar to the rate of high school graduates. Although the rate is similar, GED graduates "obtained very little postsecondary education or on-the-job training" (p. 369). Other findings identified in this study include the following: the economic benefits of GED graduates become more evident over a period of time; the GED option might encourage some high school students to drop out of school and significant economic benefits are primarily realized by GED graduates who leave school with very low functioning skills. The strength of this study is evident in the consideration given to GED graduates with regard to the timeframe it takes for the economic benefits to pay off for them. Economic outcomes for individuals without a high school diploma are lower than those for individuals with a high school diploma or a GED Diploma.

In 1993, Cameron and Heckman conducted a study about GED outcomes and concluded that GED graduates were not the "labor market equivalents" (p. 23) of regular high school graduates. The study indicated that GED graduates labor market outcomes are closer to the outcomes of non-credentialed high school dropouts than to high school graduates. Unfortunately, Cameron and Heckman did not really address the benefits of obtaining a GED; thus, subsequent to their study, the research regarding GED outcomes has focused primarily on comparing GED graduates with dropouts without any credential. Further, the study did not address issues to the difference in the time it takes for a GED graduate to realize the economic benefits of the GED credential in comparison to individuals with a high school diploma. High school diploma graduates receive higher entry level wages in the workforce than non-graduates. The tenure of high school graduates with higher wages is also longer than the tenure of GED graduates. Cameron and Heckman further did not adequately address the multiple responsibilities of GED graduates, including family and employment.

The United States Department of Education released a GED outcome report that synthesized research on GED outcomes since the Cameron and Heckman study. The synthesized report was compiled by Boesel, Alsalam and Smith in 1998. Three categories of studies were identified: GED and labor market outcomes, the GED and the military; and the GED and postsecondary education. The synthesized data collected in the report indicated that the majority of the research conducted focused on the relationship between the GED and economic outcomes. Very little data was available for non-economic outcomes (Boesel et al., 1998).

Loftstrom and Tyler (2005) indicated that "GED holders have a 21 percentage point lower probability of having ever enrolled in a two-or-four year institution when compared to 'on time' high school graduates" (p. 12) in a study designed to examine whether the postsecondary education outcomes for GED graduates are as comparable to outcomes as if they had remained in school and received a regular diploma. The parameters identified by the researchers to define on time graduation included individuals that were scheduled to graduate and did graduate in either 1995 or 1996. The study was conducted utilizing data from the Texas Schools Microdata Panel (TSMP). The comparison groups included the following:

- GED graduates between the ages of 16 and 21 who received their diplomas in 1995;
- high school graduates who graduated one year or more than their scheduled graduation date; and
- high school graduates who graduated on time in either 1995 or 1996.

The researchers controlled for demographic characteristics, Title I participant status and whether individuals within the groups were at risk of dropping out. A five year window from the receipt of the high school diploma or the GED Diploma was considered with regard to acquiring postsecondary education by sample members (high school graduates and GED graduates).

Additional findings from the study indicated that GED graduates generally have fewer credits than both on time high school graduates and delayed high school graduates. (Loftstrom & Tyler, 2005). In comparison to on time high school graduates, GED graduates received twenty credits fewer. The same comparison for delayed high school

graduates is 10 credits more than GED graduates. These academic outcomes are statistically sound; however, they do not present the total picture with regard to GED graduates. Without having collected information on postsecondary education goals (e.g. goal of degree completion or goal of taking classes to better prepare for a specific occupation), it is difficult to determine if the fewer credits earned by GED graduates is significant. Further, the researchers did not consider the nontraditional status of GED graduates based on having one or more of the risk factors identified in the definition. The risk factors include delayed enrollment in postsecondary education by a year or more; part-time enrollment in post-secondary education while working full-time; care taker responsibilities for children and others (except a spouse; single parenting responsibilities; financial independence from parents or high school dropouts or GED Diploma recipients. (NCES, 2002).

In comparing academic performance between GED graduates and high school graduates, Boesel et al. (1999) noted that after the initial year of college, the grades of the two groups were statistically insignificant. During the initial year, GED graduates' grades were lower than the grades of high school students.

From 1994 to 2009, nearly 10 million adults took one or more parts of the GED. During the same time period only approximately 7 million met score requirements for the issuance of a high school credential. For calendar year 2009, more than 490,000 of the 770,000 plus GED test-takers, met score requirements in the United States. Of the 770,000 test takers 62.9% reported that they were taking the GED Tests for educational purposes. Nearly 50% of this population indicated that their GED results would be used for admission into either a four-year or a two-year college.

The educational requirements needed for the fastest-growing jobs in our economy provide a convincing argument of why most GED graduates desire to transition to post secondary education. Over the next 30 years, labor market forecasters suggest that a decrease will be realized in jobs for non-high school graduates or GED recipients. Further, it is projected that jobs requiring two- or four-year degrees will increase. The majority of the fastest growing jobs will require postsecondary education, while those requiring only on-the job-training will grow at less than 15% in this decade (Alamprese, 2005). Further evidence is provided by the US Department of Education's (2002) National Reporting System (NRS) data that show a positive relationship between income and education. The income benefits from further education for men and women over age 25 are clear and document the payoff for any education beyond a high school diploma (Alamprese, 2005).

Although most of the GED graduates indicate a desire to transition to postsecondary education and use the credential as evidence for high school completion for college entry purposes, less than 12% of GED recipients actually complete one year of study according to a 1997 study by Murnane, Willette and Bourdette (as cited in Tyler, 2003). Tyler further reports that only 3% of the GED recipients that transition to postsecondary education receive at least an Associate's degree. In a pilot study conducted by the GEDTS (2010) of calendar year 2003 GED graduates, GEDTS reported that 43% of the graduates enrolled in a postsecondary education program by fall 2009. However, only 11.9% of the graduates actually completed a program of study by December 2009. Although the transition statistic is encouraging, the low program completion data is ripe for conducting a critical analysis.

As a follow up to the 2003 Pilot Study, Patterson, Zhang, Song, and Guison-Dowdy (2010) conducted a longitudinal study using 2003 GED graduates as a cohort. GEDTS matched records of 540,031 GED graduates with postsecondary and completion data from the National Student Clearinghouse in September of 2009. One of the key findings from this study indicated that 71.2% of the GED graduates enrolled in postsecondary education within 90 days after receiving the GED credential. Another key finding is related to the graduation rate of 11.8% among the 17,597 GED graduates who enrolled in postsecondary education. Further, the study yielded data that conveyed nearly two-thirds of those who enrolled persisted in postsecondary education for two or more semesters. These findings provide a broader perspective on the postsecondary outcomes of GED graduates than reported in previous research.

The GED Testing Service (Quigley, Patterson and Zhang, 2011) further explored the postsecondary outcomes of GED graduates by conducting a qualitative study on the perceptions and life decisions of GED graduates. The design of the study included 85 GED graduates ranging in age from 21 to 79 years old. One-on-one interviews were completed with the participants in West Virginia, Washington, DC, California, Connecticut, Kansas and North Carolina, Texas and Wyoming. At the beginning of the interview, each participant was requested to draw a life map that conveyed their decision to leave secondary education, enroll in postsecondary education, complete secondary education if they elected to initially enroll or to drop out of postsecondary education prior to receiving a credential. The decision points presented are identified as Phase I, Phase II, Phase III and Phase IV in the preliminary findings.

At the time of publication, the data were not completely analyzed although the authors (Quigley, Patterson and Zhang, 2011) identified emerging themes for each of the phases. An emerging theme for Phase I - Deciding to Leave School - is focused on the individuals who might have influenced the GED graduate to leave school. For example, parents who did not convey the importance of high school completion might have influenced the GED graduate's decision to drop out of school before they received a high school diploma. The Meaning and Impact of the GED Test Credential – Phase II - is also an emerging theme. Interviewees conveyed their thoughts about the difference in retention strategies of high school teachers and the adult educators they encountered when they enrolled in a GED Prep Program. The Phase III emerging theme – Deciding to Enroll or Not to Enroll in Postsecondary Education – reflects the thoughts of the interviewees that regarding their competing priorities (e.g. family, employment responsibilities) and how these priorities support or serve as a barrier to their postsecondary education participation. With regard to the decision to discontinue participation in postsecondary education – Phase IV – the authors indicate that most of the interviewees indicated that they "stopped out" as opposed to dropping out indicating that they have plans to return and complete postsecondary education.

Participation and retention of GED graduates in postsecondary education

The 2009 Annual Statistical Report conducted by ACE indicates that nearly 62% of the 490,000 plus GED graduates expressed an interest in transitioning to post-secondary education upon successful completion of the GED. Although most GED graduates indicate a desire to transition to higher education, Tyler's (2003) analysis of GED data indicates that only 30 to 35% of GED recipients actually obtain any

postsecondary education. The New England Literacy Resource Center (NELRC, 2003), with funding provided by the National Center for the Study of Adult Learning and Literacy, reported only 5% of GED students who pursue a bachelor's degree actually receive one in comparison to 75% of high school graduates. With regard to 2-year college completion, GED graduates represent 27% in comparison to 55% of high school graduates. Further, the transition rate of GED graduates to postsecondary education represents about 33% while the rate for high school graduates is approximately 74%.

Issues that contribute to the GED graduates' successful completion of a higher education program of study, considering their status as nontraditional students is discussed below as well as barriers to successful completion and strategies that GED graduates use to overcome the barriers are addressed. Additionally, institutional strategies that support GED graduates in their transition into postsecondary education are also addressed.

GED Graduates as Nontraditional Students

The GED graduate population is as diverse as the topography of the United States. Variations in gender, age, residential status, residential location, ethnicity, employment, academic preparation, academic readiness and reasons for testing are evident within the population. The average age of GED graduates for the timeframe identified above is 25; although graduates aged 80 and older are represented. GED graduates reside in both urban and rural communities, and are employed, underemployed and unemployed. Skills certification, personal satisfaction, to get a better job, a court order, to serve as role model for family, a public assistance requirement and a military career surface as additional reasons for testing in reviewing demographic data related to GED graduates. GED

graduates prepared on their own, attended an adult literacy program, utilized distance learning modules, participated in Job Corps programs or studied with a private tutor in preparing for the GED Tests. Although the tapestry of the population is dynamic, the one common thread interwoven throughout the fabric is that each GED graduate is considered a nontraditional student in the context of postsecondary education.

The nontraditional student characteristics previously identified are representative of GED graduates. GED graduates interviewed in study about the GED Scholars Initiative of Kent State University, share commentary about the challenges negotiating academic, family and employment responsibilities during their tenure as college students. GED graduates generally noted that academic responsibilities are often sacrificed in an effort for them to adequately address family and employment issues. The GED graduates further noted that family and employment responsibilities served as significant factors in their delayed enrollment in postsecondary education status. In addition to delayed enrollment, factors related to financial constraints, academic preparation, personal and psychological barriers and institutional bureaucracy contribute to GED graduates' enrollment, retention and successful completion of postsecondary education programs of study (Baycich, 2003).

Many GED graduates do not enroll in Adult Basic Education (ABE) or GED Prep Programs prior to successfully completing the GED Tests. To this end, their exposure to college is limited or does not exist unless they receive information from family or friends. As a result of having left secondary programs of study without the receipt of a credential, some GED graduates, unlike traditional high school students, do not have experience

with career and vocational counseling in secondary education. Also, they might not have been enrolled in college preparatory classes prior to leaving the secondary program.

Reder (2001, p. 47) noted, "students with the GED were more likely (22% versus 15%) to participate in remedial reading courses while in postsecondary education. The same pattern was true for remedial reading, writing, and math courses" (p. 141). A major challenge for GED graduates who enroll in developmental studies is the financial commitment, as developmental studies lengthen the time for postsecondary education completion. Often nontraditional students reach their maximum financial aid limits for an undergraduate program because some of the financial aid is expended on developmental studies. Nontraditional students may have a more difficult time in progressing from basic to advanced courses and the disrupted progression can act as an obstacle to degree completion.

Attempting to manage competing priorities (family, work, and school) poses a challenge for nontraditional students. Unlike traditional students, (individuals without any of the characteristics previously noted), nontraditional students have to prioritize employment, academic and family responsibilities. Nontraditional students generally attend college on a part-time basis; thus, delaying degree completion. Also, nontraditional students encounter difficulties in attempting to navigate the bureaucracy within the respective institution with regard to applying for and understanding the procedures for financial aid, registration, academic advisement, and housing.

Delayed Enrollment and Part-time Attendance

"Students who received a GED tend to either delay enrollment or forego postsecondary education altogether. Students who obtain a GED and eventually enroll

have a delayed transition of about 18 months while those who leave high school with a regular diploma enroll within eight months of graduation." (Bozick & DeLuca, 2005, p. 535) Individuals who delay enrollment are more likely to take a longer time to complete a program of study. Further, delayed enrollment reduces the odds of degree completion. In the study conducted by Bozick and DeLuca (2005), African-Americans and Hispanics were identified as two ethnic groups that were more likely to delay enrollment. Whites and Asians were identified to most likely enroll on time. The results of the study also indicated that females were more likely to enroll on time in comparison to males who either delayed enrollment or did not enroll at all. With regard to socioeconomic status (SES), individuals from higher SES groups were more likely to enroll on time in comparison to those from lower socioeconomic groups. The on-time enrollees also had higher standardized test scores and were not likely to have dropped out of high school. The delayed enrollees were older than the on-time enrollees and their academic preparation for college was most likely not adequate to handle the rigor of college-level courses.

As a result of having to negotiate family, academic and employment responsibilities, GED graduates are more likely to enroll in postsecondary education on a part-time basis. Obviously, attending part-time also delays degree completion. The limited interactions part-time students have with their instructors and other students outside the classroom contribute to the limited support systems available for these students when problems arise. Part-time students are less likely to engage in extracurricular or social activities on campus due to time constraints and their other responsibilities. GED graduates interviewed in study about the GED Scholars Initiative

of Kent State University, shared commentary about the challenges of negotiating academic, family and employment responsibilities during their tenure as college students. GED graduates generally noted that academic responsibilities are often sacrificed in an effort for them to adequately address family and employment issues. The GED graduates further noted that family and employment responsibilities served as significant factors in their delayed enrollment in postsecondary education status (Baycich, 2003).

Taniguchi and Kaufman (2005) suggest that the prolonged enrollment of part-time students is easily disrupted by periods of absence from school; thus, interfering with the continuity of learning. As a result, part-time students experienced challenges when attempting to transition from basic level courses to more advanced courses. In some instances, part-time students' initial enrollment in postsecondary education included their participation in developmental courses. In a study focusing on degree completion of nontraditional students, Taniguchi and Kaufman (2005) found that individuals who enrolled in college part-time were about half as likely to complete a degree as those who were yet to finish. Twenty-eight percent of the part-time completers were men and 33% of the part-time completers were women. The data for the non-completers were 59% and 64%, respectively.

Academic Preparation – college-level courses

Reder (2001, p. 27) noted, "students with the GED were more likely (22% versus 15%) to participate in remedial reading courses while in postsecondary education. The same pattern was true for remedial reading, writing, and math courses" (p. 141). A major challenge for GED graduates who enroll in developmental studies is the financial commitment, as developmental studies lengthen the time for postsecondary education

completion. Often nontraditional students reach their maximum financial aid limits for an undergraduate program because some of the financial aid is expended on developmental studies. Again, the prolonged enrollment due to participation in developmental studies contributes to the extended length of time to complete postsecondary education. It also contributes to the non-completion of a program of study. A study analyzing the demographics of GED graduates who participate in developmental studies in comparison to traditional students was not identified. However, based on the study conducted by Taniguchi and Kaufman (2005), it is likely that African-Americans and Hispanic GED graduates are more likely to participate in developmental studies than Whites and Asians. In reviewing technical college data in Georgia, GED graduates and high school graduates participate in learning support programs (developmental studies) at about the same rate. Proportionately, African Americans, males in particular, are more likely to be engaged in a learning support program.

Competing Priorities

As nontraditional students, GED graduates have to manage competing priorities (family, work, and school). Prioritizing employment, academic and family responsibilities is challenging for nontraditional students. Interviewees from the Kent State GED Scholars Initiative noted that academic responsibilities are often sacrificed in an effort for them to adequately address family and employment issues (Baycich, 2003). In the study conducted by Taniguchi and Kaufman (2005), individuals with children, small infants in particular, were less likely to complete their college programs. Further, full-time employees who were not afforded flexible scheduling from their employers experienced difficulty in completing their college programs as well.

The competing priorities contribute to the GED graduate's ability to attend college on a full-time basis. Unfortunately, part-time students do not receive the same consideration for financial aid as do full-time students. To this end, nontraditional students must attend to their employment responsibilities in an effort to support their academic pursuits. Nontraditional students tend to emphasize employment responsibilities; thus, they identify themselves as full-time employees who attend college rather than students who have a full-time job.

Institutional Bureaucracy

Navigating the institutional labyrinth of higher education can be daunting for any student. However, nontraditional students experience greater challenges than traditional students in gaining access to and understanding required policies and procedures related to financial aid, registration, housing and academic counseling. GED graduates, in general, left secondary education without receiving a credential. High school graduates are more likely to have received counseling regarding options for funding postsecondary education. Also, high school graduates are more like to have received guidance with regard to registration at a particular institution. Further, information about housing options is often shared with high school counselors to share with high school students and their parents or guardians.

Although Adult Basic Education (ABE) programs are now addressing transition to postsecondary education for ABE and GED Prep students, nearly half of the GED graduates indicate that they did not attend an ABE program prior to taking the GED Tests. (ACE, 2009) As a result, some GED graduates have not received any guidance regarding financial aid, registration or housing on a college campus. Further, GED

graduates have not received any academic counseling to prepare them for the rigor of college-level courses. Without a cohort or student support group, GED graduates' knowledge about and access to support services is limited. As previously stated, limited support contributes to poor retention and completion rates for GED graduates in postsecondary education.

Successful Strategies Identified by GED Graduates

Strategies expressed in the literature by GED graduates participating in interviews suggest a relationship to self-efficacy and self-advocacy skills. Self-efficacy is the belief in one's own capabilities to envision, organize and execute the courses of action required to attain goals (Golden, 2003). Self-advocacy, primarily associated with healthcare, is about people speaking up for themselves. For the purpose of this study, self-advocacy is related to GED graduates' ability to champion their academic pursuits within systems of higher education. The specific strategies identified in Table 2.1 were developed based on reviews of reported interviews with GED graduates.

The self-efficacy strategies identified: developing and utilizing mantras and having a strong sense of self serves as support for GED graduates. Although activities like engaging in meditation were not identified in the interviews, the reassuring statements that GED graduates shared with regard to their ability levels suggest that mental repetitions of positive statements assist their efforts in remaining in a program of study until successful completion.

The self-advocacy strategies also serve as a means of support. GED graduates interviewed in the literature did not address every strategy noted; however, at least, two strategies could be identified in their respective remarks. Several GED graduates

indicated the ability to network in an effort to identify a "gatekeeper" to assist them with financial aid or the registration and drop/add process. The gatekeeper is considered as an individual who is very knowledgeable about an institutional process or practice. Each GED graduate's remarks indicated that they actively engaged in networking to identify

Table 2.1 Self-efficacy and Self-advocacy Strategies

Strategy	Examples
Self-efficacy	Developing and utilizing positive mantras (e.g. "I can do this. I have the power to overcome")
	Having a strong sense of self (e.g. "I am just as good as students who might come from a higher socioeconomic background")
	Expressing appreciation for community by helping others (e.g. "I have the ability to assist others and I posture myself to receive assistance when needed")
Self-advocacy	Networking for the purpose of identifying available resources
	Engaging in peer tutoring
	Executing new skills to accomplish academic success
	Participating in mentoring programs
	Participating in learning communities Securing "buy in" from family members and friends with regard to personal academic goals and career opportunities
	Requesting assistance
	Identifying and accepting strengths and weaknesses
	Engaging in healthy lifestyle activities
	Setting goals and priorities
	Developing plans for goal implementation

Strategy	Examples
Self-advocacy	Developing problem-solving skills to increase ability to manage demands that might conflict with educational goals
	Journaling
	Receiving academic and career counseling

"gatekeepers" for specific processes. Peer tutoring and participation in mentoring programs were identified as successful strategies in the GED graduates' remarks. Studying with other nontraditional students served as a social outlet and as an academic support group.

Adult Basic Education and GED Prep Transition Programs

Research regarding GED graduates' performance, retention and successful completion of postsecondary programs of study is growing. Information about transition programs designed to support GED graduates in transitioning to higher education and completing programs of study is available. Alamprese (2004) developed a typology, categorizing transition programs into three categories: awareness and orientation; counseling and referral services; and comprehensive programs. Based on review of the literature, four promising transition programs that represent the categories above will be discussed.

The awareness and orientation transition models focus on disseminating information. Most often, the information sharing sessions are conducted with a group of students; however, in some instances, efforts are made to connect individual students with college admission counselors. The counseling and referral transition models

emphasize a more individualized approach to help students assess their strengths and weaknesses. Transition programs that fall within the realm of counseling and referral also provide information to students about college admissions and financial aid. Comprehensive models include the features identified in the previous models. Comprehensive models also include specific academic preparation and a study skills component. The GED Scholars Initiative (comprehensive) of Kent State University is a transition program that is cited by several researchers (Baylich, 2003; Kist, 2003; Tokpah and Padak, 2003; Zafft et al., 2006). The Pima College Adult Education Program (awareness and orientation) in Tucson, Arizona is also addressed. Further, a GED Plus Program (counseling and referral) sponsored by the Greater Hartford Urban League in Connecticut will be addressed. Finally, the New England ABE –to-College Transition Project (comprehensive) will be discussed.

GED Scholars Initiative

A GED Scholars Initiative was developed by the Ohio Literacy Resource Center in 2002 to assist recent GED graduates as they transitioned to Kent State University. Components of the GED Scholars Initiative that proved beneficial for GED graduates include referrals to resources both on and off campus. A mentoring program was developed to assist incoming GED graduates. The mentoring program provides support for academic matters and the program also affords GED graduates the opportunity to acquire knowledge about campus life and student activities. Stipends and partial scholarships were made available to GED graduates who enrolled in Kent State University. Results of focus group and individual interviews provided data on reasons why GED graduates pursue higher education; academic and non-academic challenges of

GED graduates; the self-efficacy of GED graduates and the GED graduate's awareness of available opportunities after higher education completion (Baycich, 2003).

Encouragement from family members and friends to attend college was one of the findings related to reasons why GED graduates pursue higher education and it was identified as a strong factor in retention and completion of programs. Another identified outcome regarding reasons for pursuing higher education included the GED graduate's desire to serve as a role model for family members, particularly their children. Focus group participants noted the absence of support from GED teachers once they completed the ABE program. Program administrators are currently modifying the program to include additional support services beyond ABE participation and the successful completion of the GED and admission to Kent State University.

Pima College Adult Education Program

An eight-week College Success Skills class covering financial aid, admissions, time and stress management and study skills is provided by the Pima College Adult Education Program. A pre-algebra class is offered to the participants. Students who perform well in the pre-algebra class and also exhibit college readiness as determined by their instructor are provided a scholarship for the first semester as a postsecondary student at Pima College. Although considered as an advising and orientation model, the Pima College Adult Education Program includes a comprehensive program factor by collecting data on the students' academic performance after they have transitioned to college in a postsecondary program of study. Follow up data from 2003 indicate that 77% of the students persisted through their first year of college. Data regarding the performance and persistence of students who only participated in the Success Skills class

is not collected by the program. Plans are underway to include activities that would position the program as a comprehensive program.

Greater Hartford Urban League GED Plus Program

The GED Plus Program, sponsored by the Urban League of Greater Hartford, provides accelerated learning for students interested in pursuing higher education. Three academic classes are offered in reading, writing and math. Participating students must score on a ninth grade equivalency level on the Test of Adult Basic Education (TABE) in math in order to participate in the math course. The curriculum utilized in the program is designed to bridge the gap between the skills needed to obtain the GED and the skills required for college-level work. (Zafft et al., 2006) Competencies covering algebra, study skills, critical thinking, and inquiry are included in the curriculum. In addition to the skills gap training, the Program also offers a fifteen-hour course on preparing students for college placement tests. Funding for the Program is provided with transition funds through the Workforce Investment Act (WIA), Title II. Also, the Program receives grant funds from a local bank to pay for a college transition advisor. The grant affords the Program the opportunity to conduct three to four college fairs each year. All Urban League students attend the college fairs and are provided with information on programs at all of the community colleges in the greater Hartford area. The college fairs focus on providing support to the participating students in the college admissions and financial aid process.

The Urban League GED Plus Program does not collect formal follow data on students who successfully transition to college. Teachers in the program report that some students volunteer information about their performance by returning to the GED Plus

program site and providing an update to them. The transitioned students also return to the program to volunteer as peer tutors to students participating in the GED Plus classes. The learning community fostered by the program administrators and practitioners serve as support for students who have transitioned to college, as evidenced by their willingness to return to the GED Plus Program and volunteer information about their performance as well as assist other students.

The New England ABE-to-College Transition Project

Funded by the Nellie Mae Foundation, the New England ABE-to-College Transition Project aims to bridge the gap between the level of academic work required to successfully pass the GED Tests and the skills required to do college-level academic work. In addition to providing direct instruction, the program also includes counseling that addresses social barriers experienced by nontraditional students: "The model is based on a partnership between the adult learning center and a collaborating college to facilitate access to and persistence in college (Gittleman, 2005, p. 11). Within the six New England states, 25 transition programs partner with more than 40 postsecondary institutions to comprise the ABE-to-College Transition Program. The transition program, in collaboration with ABE programs, operates in diverse settings: community-based organizations, public schools, community colleges and prisons. Free instruction is provided to participants in reading, writing and math. Also, computer-based instruction is provided. In addition to the academic component, students have the opportunity to engage in classes that focus on study skills. Students also receive educational and career counseling and assistance with financial aid and the registration processes.

The Project also includes a mentoring program. While enrolled in the ABE component of the program, students have the opportunity to select a mentor who commits to mentoring them through, at least, the student's first semester in college. Volunteers within the respective communities serve as mentors. Some communities collaborate with local businesses, community and civic organizations and faith-based organizations to identify potential mentors. Informal training about mentoring is provided to the volunteers.

Each of the 25 participating programs serves 10-15 students each semester. Since 2000, 80% (1,381) of the total students served had successfully transitioned to college by the end of 2005. The 80% transition rate exceeds the project's outcome goal of 75% of the students participating in the program will enroll in postsecondary education. A common thread identified in the programs noted above is the cross-agency collaboration. These programs identified individuals on the respective college campuses who served as advocates for the GED graduates matriculating on the college campus. These strong relationships proved beneficial in delivering appropriate services to the GED graduates. Within both the ABE programs and on the college campuses, the staff members were considered as highly knowledgeable and very resourceful in implementing curriculum that better prepared GED Prep students for college.

Summary

A review of the literature indicates that limited data is available regarding the rationale for low postsecondary education completion rates by GED holders. Further, the studies reviewed primarily address the first three series of the GED Tests with one outcome study conducted by the GED Testing Service (Patterson et al., 2010) based on

the fourth series of the GED Tests. Further, the literature reviewed does not include a longitudinal transition study of GED graduates who successfully met GED Test score requirements on the 2002 Series Tests or the three earlier versions.

The high school dropout rate continues to impact the American economy and contributes to social problems regarding unemployment and decreased opportunities for postsecondary education. The information-based economy will continue to require higher skills of individuals to participate in the workforce. Although the GED is an option for high school completion, a limited number of eligible individuals elect to take the test on an annual basis. Most of the GED graduates indicate their desire to transition to postsecondary education; however, a limited number of individuals actually enroll in postsecondary institutions and complete a program of study.

The literature has not yielded much information regarding GED graduates for the 2002 series. Limited data is available on the 1988 series. The rigorous standardization process implemented by the GED Testing Service in the spring of 2001 for the 2002 series might suggest that GED graduates perform as well as traditional high school graduates in postsecondary education courses. The rationale for this argument is based on the performance of graduating high school seniors who participated in a norming study for the 2002 series. Of the more than 13,000 participants, only 53% of the norming sample met score requirements considered for passing the GED. In order to appropriately address the findings, a more comprehensive literature review must be conducted.

The focus on the economic and academic outcomes of GED graduates heightens the awareness of the GED Tests to policy makers, administrators and practitioners. The major flaw of the previously identified studies is the lack of serious consideration for the

non academic issues that impact economic outcomes. As more emphasis is placed on higher skills to meet the demands of the international marketplace, it is important for the research community to broaden perspectives, to include non academic issues (part-time student status; single parenting; full-time employment) in devising research studies.

CHAPTER 3

METHODOLOGY AND FINDINGS FOR TECHNICAL COLLEGE SYSTEM OF GEORGIA (TCSG) DATA ANALYSIS

The purpose of this analysis was to examine the postsecondary education transition of Georgia GED graduates and the variables associated with enrollment and completion, in particular by analyzing data collected and reported by the Technical College System of Georgia (TCSG). This chapter describes the methodological details utilized and the findings for this study designed to answer the following questions:

1. To what extent do GED graduates enroll in postsecondary education and receive a certificate, a diploma or a degree?
2. To what extent do personal variables (age, gender, ethnicity, GED test scores and financial aid eligibility) predict GED graduates' enrollment in and completion of postsecondary education?

This analysis is addressed in six sections describing the data sources, data collection, data preparation, data analysis, limitations and findings.

Data Sources

The data for this study were extracted from two separate databases: BANNER and PASSPORT. Both BANNER and PASSPORT are maintained within TCSG. BANNER is TCSG's student information system. BANNER data is updated daily and includes student demographic information as well as postsecondary enrollment data and data regarding students' receipt of certificates, diplomas and degrees. Embedded within

the diploma programs are certificates of credit and in some instances multiple certificates of credit are included within one degree program. The same holds true for the degree programs as multiple diplomas are embedded within degree programs. PASSPORT is TCSG's automated scoring and reporting software application for the GED Testing Program. The PASSPORT System is based on client/server architecture that provides TCSG with the ability to electronically collect GED test takers' demographic information and test item responses on a local level and transfer the data through a secure network for real time scoring at a centralized location.

The data set constructed for this study was generated from the two previously identified databases. An automated data match function was implemented to generate the data set for analysis. Table 3.1 identifies the data elements considered for the data match functions. Table 3.1 also identifies the respective source for the data element. The PASSPORT and BANNER data elements used for the data match include the following: unique identifier, date of birth, gender, and race. Each data element considered for this study, its corresponding database, and a brief description are presented Table 3.1.

Accessing the Data

In adherence to the TCSG approval process to conduct research and the procedures required by the Institutional Review Board (IRB), I submitted a written request to the TCSG Commissioner requesting approval to secure data relative to GED graduates in Georgia and their enrollment and completion patterns within TCSG colleges. In addition to receiving approval from the Commissioner to conduct the study, I also received approval from the GED Testing Service. Subsequent to receiving IRB approval, I initiated correspondence with the executive director for the Research and Planning

department within TCSG. The executive director and I identified a date for our first meeting and he indicated that one of the research analysts would be assigned to work on the project with me. While simultaneously communicating with the leadership for Research and Planning, I also engaged with decision-makers within the Georgia GED Testing Program (GaGTP) Office. For both groups, I provided preliminary electronic correspondence prior to the scheduled meetings, in an attempt to give the staff members an idea of the data elements that might prove most beneficial for this study.

Table 3.1 Data Elements Included in Analysis #1

Data Element	Description	Database(s)
Unique Identifier	An automated pseudo code that was generated to match GED graduates in the BANNER System.	PASSPORT and BANNER
Date of Birth	A mandatory response field that identifies the individual's date of birth. This field will be used to calculate age.	PASSPORT and BANNER
Race/Ethnicity	An optional field that identifies the test-taker as Black, Alaskan Native, Asian, White, Hispanic origin or decent, Native Hawaiian or Pacific Islander based on the respective test taker's disclosure.	PASSPORT and BANNER
Gender	An optional field that identifies the test taker as male or female based on the respective test taker's disclosure.	PASSPORT and BANNER
GED Pass Date	The field that identifies the month, day and year that the test taker met score requirements to qualify for a GED diploma. This field is automatically populated by the PASSPORT System based on the testing performance of the respective GED test-taker.	PASSPORT
GED Composite Score	A field that calculates the average overall standard score for the five GED tests within the GED battery.	PASSPORT
TCSG enrollment date	The automated populated field that reflects the quarter and term of registration for the respective student.	BANNER
TCSG completion date	The automated populated field that indicates the quarter and term that a	BANNER

Data Element	Description	Database(s)
Unique Identifier	An automated pseudo code that was generated to match GED graduates in the BANNER System.	PASSPORT and BANNER
Date of Birth	A mandatory response field that identifies the individual's date of birth. This field will be used to calculate age.	PASSPORT and BANNER
Race/Ethnicity	An optional field that identifies the test-taker as Black, Alaskan Native, Asian, White, Hispanic origin or decent, Native Hawaiian or Pacific Islander based on the respective test taker's disclosure.	PASSPORT and BANNER
Gender	An optional field that identifies the test taker as male or female based on the respective test taker's disclosure. respective student received a certificate, a diploma or a degree; thus, indicating the student met appropriate requirements.	PASSPORT and BANNER
PELL Eligibility	A field populated within the BANNER system to indicate whether or not an individual met requirements for PELL eligibility.	BANNER
First Award Term	A field coded by TCSG programmers to determine the initial term, including year, of enrollment of respective GED graduates.	BANNER
Highest Award Level	A field coded by TCSG programmers to identify the highest award level achieved by GED graduates.	BANNER
Highest Award Term	A field coded by TCSG programmers to provide the term, including year, of the highest award achieved by GED graduates.	BANNER

During the first meeting of staff members within GaGTP and staff members within the Research and Planning, the decision to develop pseudo codes was made so that personal information like the GED graduate's name and his/her social security number would not be disclosed in adherence to privacy rules identified in the Family Education Right to Privacy Act (FERPA) and confidentiality requirements mandated by the GED Testing Service. Each GED graduate record was coded with a unique identifier that does not disclose personal information about the individual.

During one of the initial meetings with Research and Planning staff and subsequent to an exchange with the study methodologist, I was informed that TCSG produced a Data Elements Manual that I could peruse to identify data elements that were reflective of my initial listing. The staff members within TCSG met with me on several occasions to address the data elements and the programming that would be required to answer the research questions for the study. Within a few months of the initial request, the complete data set, including the 202,282 GED graduates from 1999-2009, was provided to me in SPSS PASW 19 format.

Data Preparation

Upon receipt of the file from TCSG with 202,282 GED graduate data, I initiated the command within SPSS to identify any duplicate cases and I conducted a frequency analysis on the data elements used for data match between PASSPORT and BANNER in an attempt to identify missing values for the respective element. The request for duplicate cases did not yield any duplication; thus, the file included the appropriate number of GED graduates for the time frame identified. The frequency analysis did

identify 12 missing values for gender. Missing values were not revealed for the remaining elements for the data match function.

Variable Recoding

While reviewing the research questions with the study methodologist, it was determined that some of the data elements would require recoding prior to conducting an analysis. To this end, the race field was coded numerically, 1 – 9 to represent, African American, Alaskan Native, American Indian, Asian, Caucasian, Default Race, Hispanic, Other and Pacific Islander, respectively. Gender was also coded to reflect 0 = female, 1 = male and 2 = null. The GED Pass Date field was transformed to yield an additional variable that would only reflect the year that a GED test-taker successfully passed the GED tests. Two additional variables were generated from the date of birth field to calculate the GED graduate's age at the time of testing and the current age as of November 2010. The fields, First Enrollment Term, First Award Term, Last Enrollment Term and Highest Award Term, were coded to extract the years for the respective term.

In order to address both research questions, the outcome variables had to be dichotomized. In this regard, the outcome variable related to enrollment was generated by recoding the First Enrollment and Last Enrollment Terms with values of 1 and 0, with 0 representing fields with missing values and 1 representing cells with data related to the enrollment term. Additionally, the variables, First Award Term and the Last Award Term, were coded to develop another dichotomous variable to reflect the receipt of a certificate, a diploma or a degree. The resulting variable was coded using 0 to represent missing values in the previous cells and 1 to represent cells with data that indicated the term of the award receipt.

The data within the Overall GED Test Score variable was transformed to *z* scores so that standard scores for GED graduates from 1999-2001 and standard scores for GED graduates from 2002-2009 could be analyzed appropriately. The rationale for performing this function is based on the fact that the standard scores from the 1988 GED Tests Series that was in operation during 1999-2001 reflected a standard score range of 40-80 and the standard scores from the 2002 series in operation during the 2002-2009 testing reflects a range of 400-800 and the scores are not equated; thus, *z* scores were used to analyze GED Test Score as a predictor variable.

An examination of the ethnicity data indicated that African Americans, Caucasians and Hispanic students represented 88% of the total population, with the 8% of the population not reporting an ethnic category and the remaining 4% representing the following: Alaskan Native, American Indian, Asian, Other and Pacific Islander. Considering that the data would be skewed for most of the ethnicities identified based on the small percentages, the decision was made to create a new variable, ethnicity dichotomized to reflect the following: 1 = African Americans, 5 = Caucasian and 7 = Hispanic. All remaining students were considered missing data and were not assigned a new value in this variable.

Description of Data Set

The analysis included the total population of GED graduates from calendar years 1999 to 2009. Of the total number of GED test-takers who took all five tests within the GED battery, the number who met passing score requirements; thus, qualifying to be identified as a GED graduate were selected for this analysis. As reflected in Figure 1.1, the total number of GED graduates was disaggregated to determine the number and

percentage of the graduates who transitioned to postsecondary education and the number and percentage of graduates who did not transition to postsecondary education. Of the population of graduates who did transition to postsecondary education, the data were analyzed again to determine the number and percentage of the graduates who successfully completed a postsecondary program of study, as evidenced by the receipt of a certificate, a diploma or a degree.

Data Analysis

In order to answer research question one, "To what extent do GED graduates enroll in postsecondary education and receive a certificate, a diploma or a degree?", simple frequencies of enrollment and completion were calculated. In order to answer research question two, "To what extent do age, gender, ethnicity, GED test scores and financial aid eligibility explain observed variation in enrollment and the receipt of a certificate, a diploma or a degree?", a series of bivariate analyses were conducted to determine whether the predictor variables have a relationship to enrollment and successful completion. The exact analyses were based on the level of measurement of the independent variable and the fact that the outcome variables were dichotomous. Consequently, an independent t-test was used for the variable age because age is a continuous independent variable. Chi-square analyses were used for the variables, Overall GED test score, ethnicity dichotomized, gender and Pell because these independent variables are dichotomous.

Limitations of the Analysis

This study was based on the entire population of GED graduates from 1999-2009. Although the full population was included, sample analyses were conducted for the

primary purpose of measuring effect size. The findings are descriptive of the population analyzed; thus, inferential statistics are not necessary. As a result of reviewing data representative of Georgia's GED population, the results of the study cannot be generalized to all GED graduates in the United States, Canada, and insular areas served by the GED Testing Service. Further, because the study only focused on GED graduates who attended technical colleges in Georgia, the following groups of Georgia GED graduates were not considered; thus, the discretion must be used with any generalizations.

The groups include the following:

- GED graduates who attend private colleges or universities
- GED graduates who attend colleges and universities out of state
- GED graduates (2008 and 2009) who choose to delay transition to postsecondary education for more than 3 years beyond the receipt of the GED diploma.

Descriptive Population Statistics

Tables 3.2, Selected Characteristics of GED Graduates and 3.3, Gender and Ethnicity Dichotomized Data, provide descriptive statistics for the GED graduate population of 202,282. Data regarding gender, ethnicity, enrollment and completion are identified in the Tables 3.2 and 3.3.

Findings Related to Research Question #1

In order to respond to the first research question, "To what extent do GED graduates enroll in postsecondary education and receive a certificate, a diploma or a degree?," simple frequencies were conducted and the results indicated that 37.8%

(76,422) of GED graduates enrolled in a technical college and 23.8% (18,190) of those who enrolled successfully completed a program of study, as identified in Figure 3.1. The data also indicated that 9% (18,190) of the total population of GED graduates received a certificate, a diploma or a degree. The enrollment percentages for females and males respectively, were 20.5% (41,480) and 17.3% (34,939). Descriptive statistics relative to gender and ethnicity dichotomized are represented in Table 3.3.

Findings Related to Research Question #2

The second research questions poses, "To what extent do age, gender, ethnicity, GED test scores and financial aid eligibility explain observed variation in enrollment and the receipt of a certificate, a diploma or a degree?" Chi-square analyses were conducted to examine the influence of gender, ethnicity, and financial aid eligibility on the enrollment rates and completion rates of GED graduates in technical colleges.

Table 3.2 Selected Characteristics of GED Graduates for Analysis #1

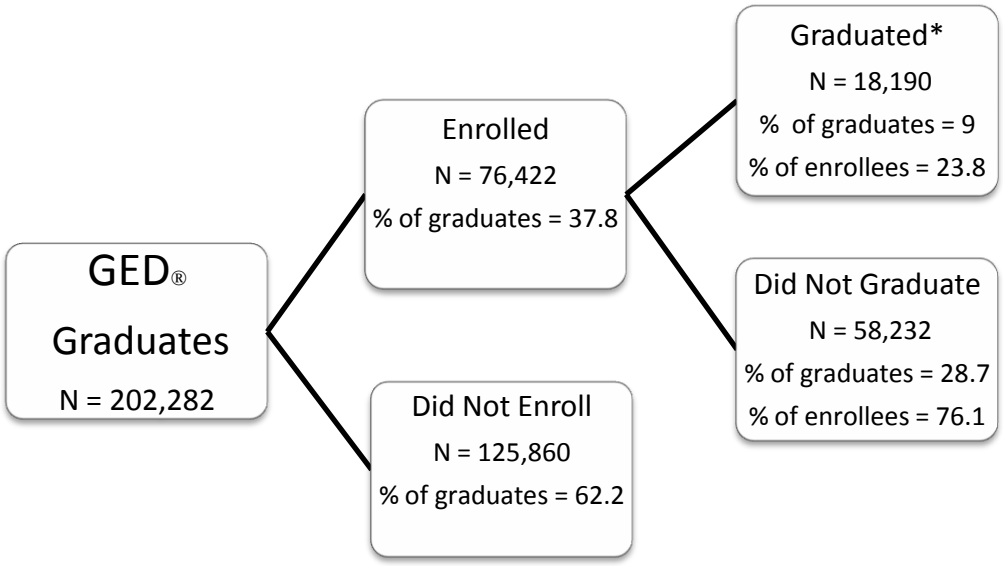
	Variables	Frequency	Percent	Valid Percent	Cumulative Percent
Gender:					
	Missing	12	.0	.0	.0
	Female	90,264	44.6	44.6	44.6
	Male	112,006	55.4	55.4	100.0
	Total N	202,282	100.0	100.0	
Ethnicity:					
	African American	53,844	26.6	26.6	26.6
	Alaskan Native	34	.0	.0	26.6
	American Indian	1174	.6	.6	27.2
	Asian	2062	1.0	1.0	28.2
	Caucasian	116,253	57.5	57.5	85.7
	Missing	16,598	8.2	8.2	93.9
	Hispanic	7853	3.9	3.9	97.8
	Other	4186	2.1	2.1	99.9
	Pacific Islander	278	.1	.1	100.0
	Total N	202,282	100.0	100.0	

Ethnicity Dichotomized:					
	African American	53,844	26.6	26.6	26.6
	White	116,253	57.5	65.3	95.6
	Hispanic	7,853	3.9	3.9	100.0
	Total N	177,950	88.0	100.0	
	Missing	24,332	12.0		
	Total	202,282	100.0		
Enrollment Outcome:					
	Enrolled	76,422	37.8	37.8	37.8
	Non Enrollment	125,860	62.2	62.2	100.0
	Total N	202,282			
Completion Outcome:					
	Completed	18,190	9.0	9.0	9.0
	Non Completion	184,092	91.0	91.0	100.0
	Total N	202,282	100.0	100.0	

Table 3.3 Gender and Ethnicity Data

Variables		Enrolled	Percent	Did Not Enroll	Percent
Gender:					
	Missing	12	.0	.0	.0
	Female	41,480	20.5	48,784	24.1
	Male	34,939	17.3	77,067	38.1
	Total	76,422	37.8	125,860	62.2
Ethnicity Dichotomized:					
	African American	21,757	10.8	32,087	15.9
	Caucasian	44,184	21.8	72,069	35.6
	Missing	16,598	8.2	8.2	93.9
	Hispanic	7853	3.9	3.9	97.8
	Total N	202,282	100.0	100.0	

Figure 3.1 GED Outcomes for Analysis #1



* Graduation is defined as receiving a certificate, a diploma or a degree. Considering that the certificate and the diploma programs include stackable credentials, the numbers provided herein for each credential reflect that some GED graduates received multiple credentials. The credentials identified as follows: (a). certificates equal 24,331, (b). diplomas equal 39,974 and (c). degrees equal 8,187.

Age

As a continuous independent variable, independent t-tests were conducted on age to determine any influence of age on the transition of GED graduates to technical college. The mean age for the 76,422 individuals who transitioned was 22.72 (SD = 7.87), while the mean age for GED graduates who did not transition was 23.76 (SD = 8.570). These results demonstrated a significant difference at the 95% confidence level in transition rates, $t(76{,}422) = 27.9$, $p < .001$. With regard to the outcome variable related to the completion of a program of study, older GED graduates were more likely to receive a postsecondary education credential. The mean age of the 18,190 GED graduates

who received a certificate, diploma or degree was 24.65 (SD 8.93), while the mean age for those who did not complete a program of study was 23.24 (SD = 8.25). These results demonstrated a significant difference at the 95% confidence level in completion rates, $t(18,190) = -20.5$, $p < .01$. The mean ages of those who transitioned and those who did not are displayed in Figure 3.3. The mean ages of those who received a postsecondary education credential and those who did not are shown in Figure 3.4

Gender

As previously indicated, females tend to outpace males in higher education participation rates. Further, the larger percentage of GED graduates tend to be males, representing 60% of the population, while females represent 40% of the population, according to GEDTS (2010). The gender variable is dichotomous; thus, a Chi-Square

Figure 3.2 Mean Age Enrollment Status

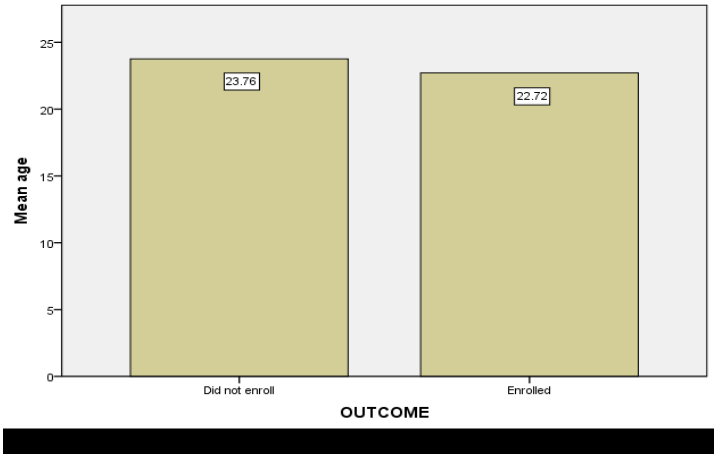
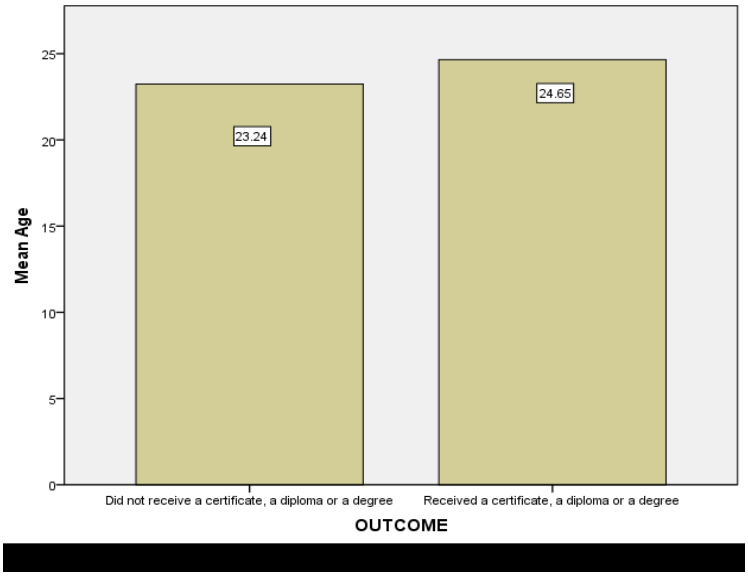


Figure 3.3 Mean Age Graduation Status



analysis was conducted. This analysis shows that observed enrollment rates do differ significantly from the expected proportions, $X^2(2, N = 76{,}422) = 4633.36$, $p < .01$.

- Male GED graduates are more likely to enroll in postsecondary education than female GED graduates as detailed in Table 3.4.
- The analysis further indicated that female GED graduates are more likely to receive a certificate a diploma or a degree from postsecondary education than male GED graduates as expressed in Table 3.5.

Ethnicity/Race Dichotomized

Again, ethnicity was treated as a dichotomized variable because 88% of the population represented African Americans, Caucasians and Hispanics combined and the remaining percentages were too small to conduct an analysis without skewing the data relative to smaller populations represented. To this end, a Chi-Square analysis was conducted and the analysis revealed as shown in Tables 3.6 and 3.7 that observed enrollment, $X^2(2, N = 177{,}950) = 764.44$, $p < .01$, and graduation, $X^2(2, N = 177{,}950) = 120.37$, $p < .001$, rates for African American, Caucasian and Hispanic GED graduates do differ significantly.

- The analysis revealed that African American GED graduates were more likely to enroll than both Caucasian and Hispanic GED graduates. The enrollment count for African Americans was 21,757 while the enrollment counts for Caucasians and Hispanics were 44,184 and 1,901, respectively.
- Both African Americans and Caucasians were more likely to graduate while Hispanic GED credential recipients were less likely to receive a certificate, a diploma or a degree, as detailed in Table 3.7.

Table 3.4 Crosstab Enrollment Statistics for Gender

			OUTCOME		
			Enrolled	Did not enroll	Total
GENDER	Female	Observed	48784	41480	90264
		Expected	56162.3	34101.7	90264.0
		% within Gender	54.0%	46.0%	100.0%
		% within Outcome	38.8%	54.3%	44.6%
		% of Total	24.1%	20.5%	44.6%
	Male	Observed	77067	34939	112006
		Expected	69690.2	42315.8	112006.0
		% within Gender	68.8%	31.2%	100.0%
		% within Outcome	61.2%	45.7%	55.4%
		% of Total	38.1%	17.3%	55.4%
	Gender not specified	Observed	9	3	12
		Expected	7.5	4.5	12.0
		% within Gender	75.0%	25.0%	100.0%
		% within Outcome	.0%	.0%	.0%
		% of Total	.0%	.0%	.0%
Total		Observed	125860	76422	202282
		Expected	125860.0	76422.0	202282.0
		% within Gender	62.2%	37.8%	100.0%
		% within Outcome	100.0%	100.0%	100.0%
		% of Total	62.2%	37.8%	100.0%

Table 3.5 Crosstab Graduation Statistics for Gender

			Gender			
			Female	Male	Null	Total
Grad-uation Status	Did not graduate	Observed	80012	104068	12	184092
		Expected	82147.1	101934.0	10.9	184092.0
		% within Outcome	43.5%	56.5%	.0%	100.0%
		% within Gender	88.6%	92.9%	100.0%	91.0%
		% of Total	39.6%	51.4%	.0%	91.0%
	Graduated	Observed	10252	7938	0	18190
		Expected	8116.9	10072.0	1.1	18190.0
		% within Outcome	56.4%	43.6%	.0%	100.0%
		% within Gender	11.4%	7.1%	.0%	9.0%
		% of Total	5.1%	3.9%	.0%	9.0%
Total		Count	90264	112006	12	202282
		Expected Count	90264.0	112006.0	12.0	202282.0
		% within Outcome	44.6%	55.4%	.0%	100.0%
		% within Gender	100.0%	100.0%	100.0%	100.0%
		% of Total	44.6%	55.4%	.0%	100.0%

Composite GED Test Score

Another continuous independent variable analyzed in this study was the Composite GED Test Score. Because the score is a continuous variable, independent t tests were conducted to determine any influence of the overall score on the enrollment of GED graduates and the completion of a postsecondary program of study. Of the 76,422 individuals who enrolled, the analysis found that GED graduates with lower composite scores were more likely to transition to a technical college. The mean score for the GED

graduates who enrolled was -.063 (SD = 1.01), while the mean score for GED graduates who did not transition to a technical college was .03 (SD = .990). These results demonstrated a significant difference at the 95% confidence level in transition rates, $t(76{,}422) = 22.1$, $p < .001$.

Table 3.6 Crosstab Enrollment Statistics for Race/Ethnicity

			Ethnicity/Race			
			African American	Caucasian	Hispanic	Total
Enrollment Status	Did not enroll	Observed	32087	72069	5952	110108
		Expected	33316.4	71932.5	4859.1	110108.0
		% within Outcome	29.1%	65.5%	5.4%	100.0%
		% within Race	59.6%	62.0%	75.8%	61.9%
		% of Total	18.0%	40.5%	3.3%	61.9%
	Enrolled	Observed	21757	44184	1901	67842
		Expected	20527.6	44320.5	2993.9	67842.0
		% within Outcome	32.1%	65.1%	2.8%	100.0%
		% within Race	40.4%	38.0%	24.2%	38.1%
		% of Total	12.2%	24.8%	1.1%	38.1%
Total		Observed	53844	116253	7853	177950
		Expected Count	53844.0	116253.0	7853.0	177950.0
		% within Outcome	30.3%	65.3%	4.4%	100.0%
		% within Race	100.0%	100.0%	100.0%	100.0%
		% of Total	30.3%	65.3%	4.4%	100.0%

Socioeconomic Status (SES) as determined by PELL Eligibility

Eligibility for the PELL grant was used in this study as a metric to suggest the family income level. Whether a GED graduate qualified for PELL or not was analyzed using a Chi-Square statistic because this variable is dichotomous. The results indicated that GED graduates without the PELL grant enrolled at a higher rate (53.5%) than those who received the PELL grant (46.5%), X^2 (1, N = 202,282) = 70926.67, p < .001. Conversely, GED graduates who received the PELL grant were more likely to receive a certificate, a diploma or a degree, X^2 (1, N – 202,282) = 15192.73, p < .001. Details of these analyses are provided in Table 3.8 and Table 3.9.

Table 3.7 Crosstab Graduation Statistics for Race/Ethnicity

			Ethnicity/Race			
			African American	Caucasian	Hispanic	Total
Graduation status	Did not graduate	Observed	48808	105638	7413	161859
		Expected Count	48975.2	105740.9	7142.9	161859.0
		% within Outcome	30.2%	65.3%	4.6%	100.0%
		% within Race	90.6%	90.9%	94.4%	91.0%
		% of Total	27.4%	59.4%	4.2%	91.0%
	Graduated	Observed	5036	10615	440	16091
		Expected	4868.8	10512.1	710.1	16091.0
		% within Outcome	31.3%	66.0%	2.7%	100.0%
		% within Race	9.4%	9.1%	5.6%	9.0%
		% of Total	2.8%	6.0%	.2%	9.0%
Total		Observed	53844	116253	7853	177950
		Expected	53844.0	116253.0	7853.0	177950.0
		% within Outcome	30.3%	65.3%	4.4%	100.0%
		% within Race	100.0%	100.0%	100.0%	100.0%
		% of Total	30.3%	65.3%	4.4%	100.0%

Table 3.8 Crosstab Enrollment Statistics for PELL Eligibility

			Null	Yes	
Enrollment Status	Did not enroll	Observed	125860	0	125860
		Expected	103767.5	22092.5	125860.0
		% within Outcome	100.0%	.0%	100.0%
		% within PELL	75.5%	.0%	62.2%
		% of Total	62.2%	.0%	62.2%
	Enrolled	Observed	40915	35507	76422
		Expected	63007.5	13414.5	76422.0
		% within Outcome	53.5%	46.5%	100.0%
		% within PELL	24.5%	100.0%	37.8%
		% of Total	20.2%	17.6%	37.8%
Total		Observed	166775	35507	202282
		Expected	166775.0	35507.0	202282.0
		% within Outcome	82.4%	17.6%	100.0%
		% within PELL	100.0%	100.0%	100.0%
		% of Total	82.4%	17.6%	100.0%

Table 3.9 Crosstab Graduation Statistics for PELL Eligibility

			PELL		
			Null	Yes	Total
Graduation Status	Did not graduate	Observed	157811	26281	184092
		Expected	151777.9	32314.1	184092.0
		% within Outcome	85.7%	14.3%	100.0%
		% within PELL	94.6%	74.0%	91.0%
		% of Total	78.0%	13.0%	91.0%
	Graduated	Observed	8964	9226	18190
		Expected	14997.1	3192.9	18190.0
		% within Outcome	49.3%	50.7%	100.0%
		% within PELL	5.4%	26.0%	9.0%
		% of Total	4.4%	4.6%	9.0%
Total		Observed	166775	35507	202282
		Expected	166775.0	35507.0	202282.0
		% within Outcome	82.4%	17.6%	100.0%
		% within PELL	100.0%	100.0%	100.0%
		% of Total	82.4%	17.6%	100.0%

CHAPTER 4

METHODOLOGY AND FINDINGS FOR THE NATIONAL STUDENT CLEARINGHOUSE (NSC) DATA ANALYSIS

The purpose of this study was to examine the postsecondary education transition of Georgia GED graduates and the variables associated with enrollment and completion, in particular by analyzing data collected and reported by the National Student Clearinghouse (NSC). This chapter describes the methodological details utilized and the findings for this study designed to answer the following questions:

1. To what extent do GED graduates enroll in postsecondary education and receive a certificate, a diploma or a degree?
2. To what extent do personal variables (age, gender, ethnicity, GED test scores and financial aid eligibility) predict GED graduates' enrollment in and completion of postsecondary education?

This analysis is addressed in six sections describing the data sources, data collection, data preparation, data analysis, limitations and findings.

Data Sources

The data for this analysis were extracted from two separate databases: BANNER and National Student Clearinghouse (NSC). BANNER is maintained within TCSG and NSC is the national student postsecondary information system. Through an agreement between TCSG and NSC, data match functions are performed on a scheduled basis and access to the NSC data is provided on a requested basis. Considering the varying

reporting schedules for postsecondary education institutions to NSC, the data provided is not necessarily reflective of all of the postsecondary outcomes of GED graduates included in this analysis.

The data set constructed for this study was generated from the two previously identified databases. An automated data match function was implemented to generate the data set for analysis. Table 4.1 identifies the data elements considered for the data match functions. Table 4.1 also identifies the respective source for the data element. The BANNER and NSC data elements used for the data match include the following: unique identifier, date of birth, gender, and race. Each data element considered for this study, its corresponding database, and a brief description are presented in Table 4.1.

Accessing the Data

In adherence to the TCSG approval process to conduct research and the procedures required by the Institutional Review Board (IRB), I submitted a written request to the TCSG Commissioner requesting approval to secure data relative to GED graduates in Georgia and their enrollment and completion patterns within TCSG colleges. In addition to receiving approval from the Commissioner to conduct the study, I also received approval from the GED Testing Service. Subsequent to receiving IRB approval, I initiated correspondence with the executive director for the Research and Planning department within TCSG. The executive director and I identified a date for our first meeting and he indicated that one of the research analysts would be assigned to work on the project with me. While simultaneously communicating with the leadership for Research and Planning, I also engaged with decision-makers within the Georgia GED Testing Program (GaGTP) Office.

Table 4.1 Data Elements Included In Analysis #2

Data Element	Description	Database(s)
Unique Identifier	An automated pseudo code that was generated to match GED graduates in the BANNER System.	BANNER and NSC
Date of Birth	A mandatory response field that identifies the individual's date of birth. This field will be used to calculate age.	BANNER and NSC
Race/Ethnicity	An optional field that identifies the test-taker as Black, Alaskan Native, Asian, White, Hispanic origin or decent, Native Hawaiian or Pacific Islander based on the respective test taker's disclosure.	BANNER and NSC
Gender	An optional field that identifies the test taker as male or female based on the respective test taker's disclosure.	BANNER and NSC
EnrollBegin	The field that captures the enrollment date for each semester or quarter, contingent upon the institution.	NSC
EnrollEnd	The field that captures the enrollment end date for the respective semester or quarter.	NSC
Graddate	This field captures the date that a student receives a certificate, a diploma or a degree.	NSC
PELL Eligibility	A field populated within the BANNER system to indicate whether or not an individual met requirements for PELL eligibility.	BANNER
Degree title	A field that identifies the type of degree (e.g. certificate, diploma or degree) received by a student.	NSC
Major	A field that identifies the major associated with a certificate, a diploma or a degree.	BANNER

During the first meeting of staff members within GaGTP and staff members within the Research and Planning, the decision to develop pseudo codes was made so that personal information like the GED graduate's name and his/her social security number would not be disclosed in adherence to privacy rules identified in the Family Education Right to Privacy Act (FERPA) and confidentiality requirements mandated by the GED Testing Service. Each GED graduate record was coded with a unique identifier that does not disclose personal information about the individual.

During one of the initial meetings with Research and Planning staff and subsequent to an exchange with the study methodologist, I was informed that TCSG produced a Data Elements Manual that I could peruse to identify data elements that were reflective of my initial listing. The staff members within TCSG met with me on several occasions to address the data elements and the programming that would be required to answer the research questions for the study. Within a few months of the initial request, the complete data set, including the 202,282 GED graduates from 1999-2009, was provided to me in SPSS PASW 19 format.

Data Preparation

Upon receipt of the file from TCSG with 202,282 GED graduate data, I initiated the command within SPSS to identify any duplicate cases and I conducted a frequency analysis on the data elements used for data match between PASSPORT and BANNER in an attempt to identify missing values for the respective element. The request for duplicate cases did not yield any duplication; thus, the file included the appropriate number of GED graduates for the time frame identified. The frequency analysis did

identify 12 missing values for gender. Missing values were not revealed for the remaining elements for the data match function.

Variable Recoding

While reviewing the research questions with the study methodologist, it was determined that some of the data elements would require recoding prior to conducting an analysis. To this end, the race field was coded numerically, 1-9 to represent, African American, Alaskan Native, American Indian, Asian, Caucasian, Default Race, Hispanic, Other and Pacific Islander, respectively. Gender was also coded to reflect 0 = female, 1 = male and 2 = null. The GED Pass Date field was transformed to yield an additional variable that would only reflect the year that a GED test-taker successfully passed the GED tests. Two additional variables were generated from the date of birth field to calculate the GED graduate's age at the time of testing and the current age as of November 2010. The fields First Enrollment Term, First Award Term, Last Enrollment Term and Highest Award Term were coded to extract the years for the respective term.

In order to address both research questions, the outcome variables had to be dichotomized. In this regard, the outcome variable related to enrollment was generated by recoding the First Enrollment and Last Enrollment Terms with values of 1 and 0, with 0 representing fields with missing values and 1 representing cells with data related to the enrollment term. Additionally, the variables, First Award Term and the Last Award Term, were coded to develop another dichotomous variable to reflect the receipt of a certificate, a diploma or a degree. The resulting variable was coded using 0 to represent missing values in the previous cells and 1 to represent cells with data that indicated the term of the award receipt.

The data within the Overall GED Test Score variable was transformed to *z* scores so that standard scores for GED graduates from 1999-2001 and standard scores for GED graduates from 2002-2009 could be analyzed appropriately. The rationale for performing this function is based on the fact that the standard scores from the 1988 GED Tests Series that was in operation during 1999-2001 reflected a standard score range of 40-80 and the standard scores from the 2002 series in operation during the 2002-2009 testing reflects a range of 400-800 and the scores are not equated; thus, *z* scores were used to analyze GED Test Score as a predictor variable.

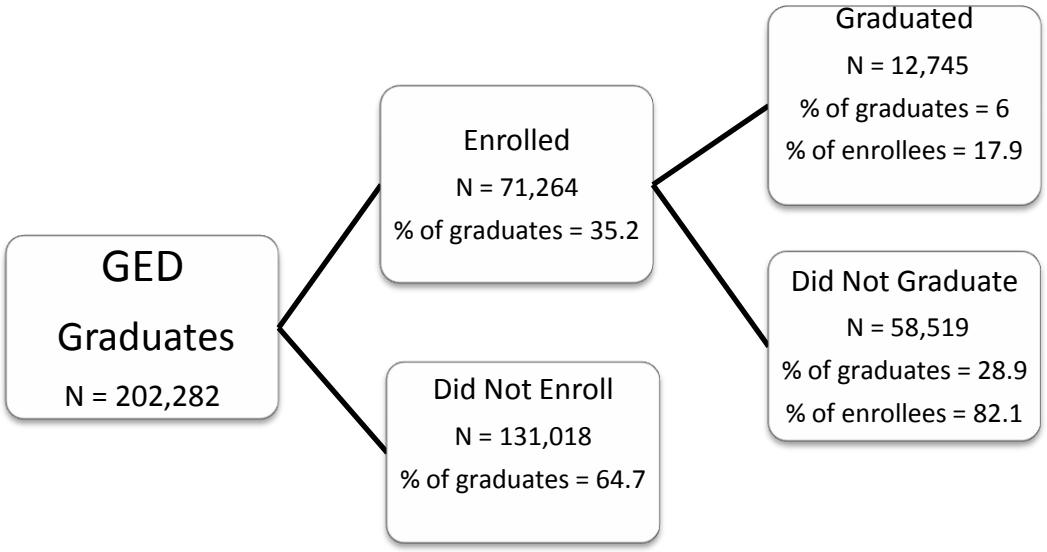
An examination of the ethnicity data indicated that African Americans, Caucasians and Hispanic students represented 88% of the total population, with the 8% of the population not reporting an ethnic category, and the remaining 4% representing the following: Alaskan Native, American Indian, Asian, Other and Pacific Islander. Considering that the data would be skewed for most of the ethnicities identified based on the small percentages, the decision was made to create a new variable, ethnicity, dichotomized to reflect the following: 1 = African Americans, 5 = Caucasian and 7 = Hispanic. All remaining students were considered missing data and were not assigned a new value in this variable.

Description of Data Set

The study included the total population of GED graduates from calendar years 1999 to 2009. As reflected in Figure 4.1, the total number of GED graduates was disaggregated to determine the number and percentage of the graduates who transitioned to postsecondary education as reported by the National Student Clearinghouse and the number and percentage of graduates who did not transition to postsecondary education.

Of the population of graduates who did transition to postsecondary education, the data were analyzed again to determine the number and percentage of the graduates who successfully completed a postsecondary program of study, as evidenced by the receipt of a certificate, a diploma or a degree.

Figure 4.1 GED Outcomes for Analysis #2



* Graduation is defined as receiving a certificate, a diploma or a degree. Considering that the certificate and the diploma programs include stackable credentials, the numbers provided herein for each credential reflect that some GED graduates received multiple credentials. The credentials (13,528) identified are as follows: (a) certificates equal 4,801, (b) diplomas equal 8,209 and (c) degrees equal 518.

Data Analysis

In order to answer research question one, "To what extent do GED graduates enroll in postsecondary education and receive a certificate, a diploma or a degree?", simple frequencies of enrollment and completion were calculated. In order to answer research question two, "To what extent do age, gender, ethnicity, GED test scores and

financial aid eligibility explain observed variation in enrollment and the receipt of a certificate, a diploma or a degree?" , a series of bivariate analyses were conducted to determine whether the predictor variables have a relationship to enrollment and successful completion. The exact analyses were based on the level of measurement of the independent variable and the fact that the outcome variables were dichotomous. Consequently, an independent t-test was used for the variable age because age is a continuous independent variable. Chi-square analyses were used for the variables, Overall GED test score (GED composite score), ethnicity dichotomized, gender and Pell, because these independent variables are dichotomous.

Limitations of the Analysis

This study was based on the entire population of GED graduates from 1999-2009. Although the full population was included, sample analyses were conducted for the primary purpose of measuring effect size. The findings are descriptive of the population analyzed; thus, inferential statistics are not necessary. As a result of reviewing data representative of Georgia's GED population, the results of the study cannot be generalized to all GED graduates in the United States, Canada, and insular areas served by the GED Testing Service. Further, because the study only focused on GED graduates who attended technical colleges in Georgia, GED graduates (2008 and 2009) who chose to delay transition to postsecondary education for more than 3 years beyond the receipt of the GED diploma were not considered; thus, the discretion must be used with any generalizations.

Descriptive Population Statistics

Data regarding gender, ethnicity, enrollment and completion of the GED population are provided in Table 4.2.

Findings Related to Research Question #1

Simple frequencies were conducted in order to respond to the first research question, "To what extent do GED graduates enroll in postsecondary education and receive a certificate, a diploma or a degree?" The results indicated that 35.2% (71,264) of GED graduates enrolled in a postsecondary education institution and 17.9% (12,745) of those who enrolled successfully completed a program of study. The data also indicated that 6% (12,745) of the total population of GED graduates received a certificate, a diploma or a degree. The enrollment percentages for females and males respectively, were 20.5% (41,480) and 17.3% (34,939).

Findings Related to Research Question #2

In order to answer the second question, "To what extent do age, gender, ethnicity, GED test scores and financial aid eligibility explain observed variation in enrollment and the receipt of a certificate, a diploma or a degree?," either Chi-square or t tests analyses were conducted, contingent upon the variable. The t tests analyses were conducted for age and the composite GED test score as both are continuous variables. Chi-square analyses were conducted to examine the influence of gender, ethnicity and financial aid eligibility. Below are the results for each of these variables.

Table 4.2 Selected characteristics of the GED graduates

	Variables	Frequency	Percent	Valid Percent	Cumulative Percent
Gender:					
	Missing	12	.0	.0	.0
	Female	90,264	44.6	44.6	44.6
	Male	112,006	55.4	55.4	100.0
	Total N	202,282	100.0	100.0	
Ethnicity:					
	African American	53,844	26.6	26.6	26.6
	Alaskan Native	34	.0	.0	26.6
	American Indian	1174	.6	.6	27.2
	Asian	2062	1.0	1.0	28.2
	Caucasian	116,253	57.5	57.5	85.7
	Missing	16,598	8.2	8.2	93.9
	Hispanic	7853	3.9	3.9	97.8
	Other	4186	2.1	2.1	99.9
	Pacific Islander	278	.1	.1	100.0
	Total N	202,282	100.0	100.0	
Ethnicity Dichotomized:					
	African American	53,844	26.6	26.6	26.6
	White	116,253	57.5	65.3	95.6
	Hispanic	7,853	3.9	3.9	100.0
	Total N	177,950	88.0	100.0	
	Missing	24,332	12.0		
	Total	202,282	100.0		
Enrollment Outcome:					
	Enrolled	71,264	35.2	35.2	35.2
	Non Enrollment	131,018	64.8	64.8	100.0
	Total N	202,282			
Completion Outcome:					
	Completed	12,745	6.0	6.0	6.0
	Non Completion	189,537	94.0	94.0	100.0
	Total N	202,282	100.0	100.0	

Gender

- Female GED graduates were more likely to enroll in postsecondary education than male GED graduates, $X^2(2, N = 202,282) = 2536.84$, $p < .001$, as detailed in Table 4.3
- The analysis further revealed that female GED graduates were more likely to receive a certificate, a diploma or a degree than male graduates, $X^2(2, N = 202,282) = 583.68$, $p < .001$, as detailed in Table 4.4.

Race/Ethnicity Dichotomized

- African American GED graduates were more likely to enroll in postsecondary education, $X^2(2, N = 177,950) = 1001.56$, $p < .001$, as detailed in Table 4.5.
- Caucasian GED graduates were more likely to receive a certificate, a diploma or a degree than African Americans or Hispanics, $X^2(2, N = 177,950) = 52.76$, $p < .001$, as detailed in Table 4.6.

Socioeconomic Status (SES) as determined by PELL Eligibility

- GED graduates who qualified as PELL eligible were more likely to enroll in postsecondary education while GED graduates who did not qualify for PELL were less likely to enroll. The observed count for PELL eligible enrollment of 25,635 is more than double the expected count of 12,509, $X^2(1, N = 202,282) = 25791.83$, $p < .001$. Details are shown in Table 4.7.
- GED graduates who were PELL eligible were more likely to receive a certificate, a diploma or a degree while GED graduates who did not qualify as PELL eligible were less likely to complete a postsecondary program of study, $X^2(1, N = 202,282) = 5276.69$, $p < .001$, as evidenced by the specifics provided in Table 4.8

Table 4.3 Crosstab Enrollment Statistics for Gender

			Gender			
			Female	Male	Null	Total
Enrollment Status	Did not Enroll	Observed	53090	77916	12	131018
		Expected Count	58464.0	72546.3	7.8	131018.0
		% within ENRL	40.5%	59.5%	.0%	100.0%
		% within Gender	58.8%	69.6%	100.0%	64.8%
		% of Total	26.2%	38.5%	.0%	64.8%
	Enrolled	Observed	37174	34090	0	71264
		Expected Count	31800.0	39459.7	4.2	71264.0
		% within ENRL	52.2%	47.8%	.0%	100.0%
		% within Gender	41.2%	30.4%	.0%	35.2%
		% of Total	18.4%	16.9%	.0%	35.2%
Total		Observed	90264	112006	12	202282
		Expected Count	90264.0	112006.0	12.0	202282.0
		% within ENRL	44.6%	55.4%	.0%	100.0%
		% within Gender	100.0%	100.0%	100.0%	100.0%
		% of Total	44.6%	55.4%	.0%	100.0%

Table 4.4 Crosstab Graduation Statistics for Gender

			Gender			
			Female	Male	Null	Total
Graduation Status	Did not Graduate	Observed	83265	106260	12	189537
		Expected Count	84576.8	104948.9	11.2	189537
		% within GRAD	43.9%	56.1%	.0%	100.0%
		% within Gender	92.2%	94.9%	100.0%	93.7%
		% of Total	41.2%	52.5%	.0%	93.7%
	Graduated	Observed	6999	5746	0	12745
		Expected Count	5687.2	7057.1	.8	12745.0
		% within GRAD	54.9%	45.1%	.0%	100.0%
		% within Gender	7.8%	5.1%	.0%	6.3%
		% of Total	3.5%	2.8%	.0%	6.3%
Total		Observed	90264	112006	12	202282
		Expected Count	90264.0	112006.0	12.0	202282.0
		% within GRAD	44.6%	55.4%	.0%	100.0%
		% within Gender	100.0%	100.0%	100.0%	100.0%
		% of Total	44.6%	55.4%	.0%	100.0%

Table 4.5 Crosstab Enrollment Statistics for Race/Ethnicity

			Ethnicity/Race			
			African American	Caucasian	Hispanic	Total
Enrollment Status	Did not Enroll	Observed	32115	77298	5731	115144
		Expected Count	34840.2	75222.5	5081.3	115144.0
		% within ENRL	27.9%	67.1%	5.0%	100.0%
		% within Race	59.6%	66.5%	73.0%	64.7%
		% of Total	18.0%	43.4%	3.2%	64.7%
	Enrolled	Observed	21729	38955	2122	62806
		Expected Count	19003.8	41030.5	2771.7	62806.0
		% within ENRL	34.6%	62.0%	3.4%	100.0%
		% within RACE	40.4%	33.5%	27.0%	35.3%
		% of Total	12.2%	21.9%	1.2%	35.3%
Total		Observed	53844	116253	7853	177950
		Expected Count	53844.0	116253.0	7853.0	177950.0
		% within ENRL	30.3%	65.3%	4.4%	100.0%
		% within Race	100.0%	100.0%	100.0%	100.0%
		% of Total	30.3%	65.3%	4.4%	100.0%

Table 4.6 Crosstab Graduation Statistics for Race/Ethnicity

			Ethnicity/Race			
			African American	Caucasian	Hispanic	Total
Graduation Status	Did not Graduate	Observed	50401	108850	7512	166763
		Expected Count	50459.0	108944.6	7359.3	166763.0
		% within GRAD	30.2%	65.3%	4.5%	100.0%
		% within Race	93.6%	93.6%	95.7%	93.7%
		% of Total	28.3%	61.2%	4.2%	93.7%
	Graduated	Observed	3443	7403	341	11187
		Expected Count	3385.0	7308.4	493.7	11187.0
		% within GRAD	30.8%	66.2%	3.0%	100.0%
		% within Race	6.4%	6.4%	4.3%	6.3%
		% of Total	1.9%	4.2%	.2%	6.3%
Total		Observed	53844	116253	7853	177950
		Expected Count	53844.0	116253.0	7853.0	177950.0
		% within GRAD	30.3%	65.3%	4.4%	100.0%
		% within Race	100.0%	100.0%	100.0%	100.0%
		% of Total	30.3%	65.3%	4.4%	100.0%

Table 4.7 Crosstab Enrollment Statistics for PELL Eligibility

			PELL		
			No	Yes	Total
Enrollment Status	Did not Enroll	Observed	121146	9872	131018
		Expected Count	108020.1	22997.9	131018.0
		% within ENRL	92.5%	7.5%	100.0%
		% within PELL	72.6%	27.8%	64.8%
		% of Total	59.9%	4.9%	64.8%
	Enrolled	Observed	45629	25635	71264
		Expected Count	58754.9	12509.1	71264.0
		% within ENRL	64.0%	36.0%	100.0%
		% within PELL	27.4%	72.2%	35.2%
		% of Total	22.6%	12.7%	35.2%
Total		Observed	166775	35507	202282
		Expected Count	166775.0	35507.0	202282.0
		% within ENRL	82.4%	17.6%	100.0%
		% within PELL	100.0%	100.0%	100.0%
		% of Total	82.4%	17.6%	100.0%

Table 4.8 Crosstab Graduation Statistics for PELL Eligibility

			PELL		
			No	Yes	Total
Graduation Status	Did not Graduate	Observed	159287	30250	189537
		Expected Count	156267.2	33269.8	189537.0
		% within GRAD	84.0%	16.0%	100.0%
		% within PELL	95.5%	85.2%	93.7%
		% of Total	78.7%	15.0%	93.7%
	Did Graduate	Observed	7488	5257	12745
		Expected Count	10507.8	2237.2	12745.0
		% within GRAD	58.8%	41.2%	100.0%
		% within PELL	4.5%	14.8%	6.3%
		% of Total	3.7%	2.6%	6.3%
Total		Observed	166775	35507	202282
		Expected Count	166775.0	35507.0	202282.0
		% within GRAD	82.4%	17.6%	100.0%
		% within PELL	100.0%	100.0%	100.0%
		% of Total	82.4%	17.6%	100.0%

CHAPTER 5

PRINCIPAL FINDINGS AND RECOMMENDATIONS

The purpose of this study was to examine the postsecondary education outcomes of Georgia GED graduates and the variables associated with enrollment and completion, in particular by analyzing data collected and reported by the Technical College System of Georgia (TCSG) and the National Student Clearinghouse (NSC). This chapter further interprets the findings identified in chapters 3 and 4 related to the following research questions:

1. To what extent do GED graduates enroll in postsecondary education and receive a certificate, a diploma or a degree?
2. To what extent do personal variables (age, gender, ethnicity, GED test scores and financial aid eligibility) predict GED graduates' enrollment in and completion of postsecondary education?

The four sections within this chapter are: summary of the studies, principal findings, implications for practice and recommendations for future research.

Summary of the Study

As America works toward resuming her place as a leader in the number of young adults who receive a postsecondary education credential, consideration should be given to nontraditional students, GED graduates in particular, to meet this goal. With more than 400,000 graduates annually (GEDTS, 2009), on a national level and 18,000 graduates annually in Georgia, the GED graduate population is ideal for this goal because nearly

70% of GED graduates indicate a desire to transition to postsecondary education (GEDTS, 2009); however, only 3% actually receive at least an Associate's degree (Tyler, 2003). Based on the difference between the percentage of GED graduates who desire to transition to postsecondary education and the percentage who actually receive a postsecondary education credential, and based on the gap in the literature regarding the performance of GED graduates who transition to postsecondary education, these exploratory studies were conducted to determine the influence of age, gender, ethnicity and socio-economic status as determined by PELL eligibility on successful transition and completion rates for GED graduates.

Both analyses used the same population of GED graduates in the state of Georgia. The calendar years included were 1999-2009, totaling 202,282 GED graduates. A data set with student demographic information was obtained from the TCSG data center. These data were prepared and analyzed to provide descriptive statistics, and to determine whether age, gender, ethnicity or socioeconomic status, as determined by PELL eligibility, had any effect on whether a GED graduate enrolled in postsecondary education and whether a GED graduate successfully completed a program of study as determined by the receipt of a certificate, a diploma or a degree.

Principal Findings

Seven principal findings resulted from this study. The first finding is that the average percentage (36.5) of GED graduates in Georgia who enroll in postsecondary education based on both TCSG (37.8%) and NSC (35.2%) data sources is slightly higher than the transition rates between 30 and 35% previously reported by Tyler (2003) and the NELRC (2003). Tyler

The second key finding is that the percentage of Georgia GED graduates who enrolled in postsecondary education and received a certificate, a diploma or a degree ranges from nearly 18% to 24%, considering the NSC and the TCSG data sources respectively. A third finding indicates that an average of 6% of the total GED population considered in this study successfully completed postsecondary education as evidenced by the receipt of a diploma, a degree or a certificate.

These three findings are important because previous research (NELRC, 2003; Tyler, 2003) conveyed smaller percentages for GED graduates who transition as well as smaller percentages for GED graduates who actually receive a postsecondary education credential. Both analyses yielded data that indicated more than 35% of GED graduates enroll in postsecondary education and more than 12% actually receive a certificate, a diploma or a degree. These data are higher than the 12% transition rate and the 3% completion rate reported by Tyler (2003). These findings are important because they suggest that more GED graduates actually enroll in postsecondary education and receive a postsecondary education credential at a rate higher than expressed in previous research.

One speculation on the rationale for the higher transition and successfully completion percentages in Georgia is based on the support provided through the Georgia Student Finance Commission with the Helping Outstanding Pupils Educationally (HOPE) voucher for GED graduates. Eligible GED graduates receive a $500 voucher to use for postsecondary education. Considering that one of the barriers for GED graduates to transition to postsecondary education is based on the lack of sufficient financial means, I suppose that the implementation of the GED $500 voucher since 1993 has incentivized

GED graduates to go to technical or community colleges or to a university for further academic study and preparation for the workforce.

The fourth principal finding in this study is that there is a direct, positive correlation between age and GED graduates' transition to postsecondary education and their successful completion. An independent t-test was conducted for the analysis of age as a continuous variable for question 2. The analysis indicated that older GED graduates are more likely to complete postsecondary education while younger GED graduates are more likely to enroll in postsecondary education. The mean age at the time of GED graduation for those who completed postsecondary education was 23.4 while the mean age for those who enrolled was 22.72.

This finding is relevant considering President Obama's challenge for America to resume the top position with the percentage of younger adults earning a postsecondary education credential. The finding related to age parallels the findings of the GED Testing Service, "Our models further suggested that although very young students (aged 16-24) are more likely to enroll, they are less likely to graduate, whereas the reverse is true for students of a nontraditional age (aged 30 and older)," (Patterson, et. al, 2010, p. xvi).

This finding is also very important considering part of the rationale for conducting this study. Again, policy leaders, educators, practitioner and the American public are interested in increasing the number of younger adults who receive a postsecondary education credential. Both the mean age for enrollment and postsecondary graduation are under the age of 24. I am thinking that the older GED graduates complete postsecondary education at a higher rate than the younger GED graduates because of the maturity level that comes with aging. It could be younger GED graduates find it difficult to fully

commit to a postsecondary academic program because they might not be confident in their future career plans.

The fifth finding is that female GED graduates are more likely than male graduates to receive a postsecondary education certificate, diploma or degree. A chi-square analysis on the gender variable was used to respond to research question #2 and the gender effect on postsecondary education completion was determined significant. Considering the TCSG data source, male GED graduates were more likely than female GED graduates to enroll in postsecondary education; however, they were less likely to enroll when considering the NSC data source. Male GED graduates represented 55.4% of the total GED graduate population studied and 46% of the GED population that transitioned to postsecondary education based on the TCSG data source.

I imagine that as gender roles become less clearly defined, females are assuming greater financial responsibility for their families. Considering the increasing fiscal demands for living and considering the relationship between educational attainment level and salaries, it is possible that female GED graduates commit to securing a postsecondary education credential in an effort to improve the marketability in the workforce.

The sixth principal finding for this study is that African Americans and Caucasians are more likely than Hispanic GED graduates to receive a postsecondary education credential. The chi-square analysis of ethnicity dichotomized was conducted and determined a significant relationship between ethnicity and postsecondary education completion.

It is my supposition that there could be multiple reasons why Hispanic GED graduates do not complete postsecondary education at a rate comparable to African

Americans or Caucasians. In addition to experiencing challenges qualifying for financial aid resulting from legal residency issues and recent state legislation regarding immigrant status, Hispanic GED graduates might also encounter English language proficiency issues in the college classroom. Further, family members and friends might not strongly encourage educational pursuits because the focus might be more on employment to meet immediate needs. If a friend or family member has never attended college or received a college credential, they might not have any idea on how to provide support to the friend or family member in college.

The seventh principal finding for this study is that GED graduates who qualified as PELL eligible were more likely to enroll and complete postsecondary education. Like gender and ethnicity, a chi-square analysis was conducted and the relationship between socio-economic status, as determine by PELL eligibility and enrollment and completion was determined significant.

One of the barriers to postsecondary education participation for GED graduates is securing sufficient funding to attend college and complete a program of study. This finding is important because the cost of higher education continues to increase; thus, requiring families of college students and college student themselves to seek diverse measure to cover the cost of college. Considered as non-traditional students, GED graduates who enroll in postsecondary education are more likely to have competing priorities like employment and caring for family members. I suspect that GED graduates who received the PELL grant were more likely to complete postsecondary education because they received financial assistance with one major barrier to participation. The financial assistance perhaps afforded them the opportunity to spend more time studying

and completing assignments as opposed to having to look for additional employment to cover the tuition and other costs associated with being a college student.

Implications for Practice

Practical implications from these findings are applicable to administrators, practitioners and anyone else associated with the provision of adult education programs designed to support adult education students in preparing for the GED Tests and transitioning to postsecondary education. By understanding the personal characteristics of GED graduates who transition and the characteristics of those who do not successfully complete a postsecondary education program of study, modifications to adult education programs or other type interventions might be developed and implemented. The benefits from increasing GED graduates' transition to and completion of postsecondary education extend far beyond the GED diploma recipient. Even the American workforce is strengthened as the number of younger Americans who attain a college credential increases. Identifying, understanding and appropriately addressing potential predictors of transition to postsecondary education and successful completion could result in adult education programs modifying the service provided to address of the needs of GED graduates.

The predictor variables included in this study—age, gender, ethnicity and PELL eligibility—are typically available to program administrators and to practitioners from the program registration form or from the Student Information Management System (SIMS). This demographic data can assist local programs in tailoring a plan for students who plan to transition to postsecondary education. For example, Adult Basic Education (ABE), English as a Second Language (ESL) and GED Prep programs could implement a

postsecondary transition model designed for Hispanic students. Perhaps a joint orientation session between the adult education program and the postsecondary education institution at the point of ESL, ABE or GED Prep registration and at the point of college registration might encourage more Hispanic students to enroll in postsecondary education and to complete a program of study. The orientation sessions could focus on college entrance requirements and course expectations as well as student life on campus.

Further, these programs might benefit from strengthening collaborative partnerships with postsecondary institutions to develop and implement mentoring programs and peer tutoring programs to assist younger GED graduates in persisting in postsecondary education. The mentoring and peer tutoring programs could pair a college experienced GED graduate with a younger GED graduate and highly encourage the individuals to engage in dialogue online or face-to-face to address issues related to course requirements, time management and strategies on how to navigate the college life labyrinth. Further, the individuals would be highly encouraged to participate in campus activities designed to keep students engaged on both the academic and the social levels. Additionally, financial literacy and other guidance on fiscal options for funding postsecondary education could be included in the curricula for ABE, ESL and GED Prep. The adult education programs could collaborate with local philanthropic organizations or individuals to secure financing for scholarships for GED graduates who transition to postsecondary education. The programs might also collaborate with the postsecondary institution to identify funding to incentivize GED graduates to persist through college completion. The scholarships and incentive funding could be used to defray the costs of tuition, books and housing.

Recommendations for Future Research

Further studies are needed in order to expand the body of knowledge on nontraditional adult students, GED graduates, in particular, who transition to postsecondary education and who successfully complete a program of study. As previously addressed, the literature is not replete with postsecondary education research on the academic performance of GED graduates in higher education.

These studies only included GED graduates for the state of Georgia; thus there is still a need to examine a larger population of GED graduates perhaps on a national level. Further, additional predictor variables might yield significant findings with regard to grade point average, zip code of GED graduates' residence, program of study, participation in developmental education, participation in student activities, employment status and others. These variables have the potential for providing a broader explanation about GED graduates' enrollment and subsequent completion from a postsecondary education program of study. Additional studies including might prove beneficial in informing the adult education community on how to better prepare GED graduates for postsecondary education.

Further inquiry using qualitative research might also be considered to ascertain the relationship between non-descriptive variables and enrollment and postsecondary education completion. I suspect that there are numerous reasons why GED graduates to not enroll in and successfully complete postsecondary education. Personal interviews, case studies, and observations might yield substantive data that will inform adult education practitioners and maybe even family members of GED graduates on how to maximize resources within the GED graduates' sphere of support.

REFERENCES

Alamprese, J. (2005). *Helping adult learners make the transition to postsecondary education*. Washington, DC: U.S. Department of Education, Office of Vocational and Adult Education.

Alliance for Excellent Education. (2010). *Fact sheet: High school dropouts in America*. Washington, DC: Author.

American Council on Education. (2002). *GED examiner's manual: For the tests of general educational development*. Washington, DC: American Council on Education, General Educational Development Testing Service.

American Council on Education. (2011). *Who passed the GED tests? 2010 statistical repor*t. Washington, DC: American Council on Education, General Educational Development Testing Service.

Auchter, J. (1998). *Connections: The value of the GED tests.* Philadelphia, PA: University of Pennsylvania, National Center on Adult Literacy. Retrieved from http://www.eric.ed.gov/PDFS/ED430124.pdf

Auchter, J. C., Sireci, S. G., & Skaggs, G. (1993). *The tests of General Education Development technical manual*. Washington, DC: American Council on Education.

Baycich, D. (2003). GED grads in college: Building awareness. *Adult Learning, 14(*3), 5-7.

Boesel, D., Alsalam, N., & Smith, T. M. (1998). *Educational and labor market performance of GED recipients. Research synthesis*. Washington, DC: National Library of Education.

Bozick, R. & DeLuca, S. (2005). Delayed enrollment in the high school to college transition. *Social Forces, 84*, 527-550.

Cameron, S. V. & Heckman, J. J. (1993). The nonequivalence of high school equivalents. *Journal of Labor Economics, 11*, 1-47.

Cervero, R. (1979). *A comparison of approaches to measuring outcomes in adult basic education*. Doctoral Dissertation. University of Chicago.

Chapman, C., Laird, J., Ifill, N., & KewalRamani, A. (2011). *Trends in high school dropout and completion rates in the United States: 1972-2009*. Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Choy, S. (2002). *Nontraditional undergraduates: Findings from "The Condition of Education, 2002".* Washington, DC: National Center for Education Statistics.

Council for Adult and Experiential Learning. (2000). *Serving adult learners in higher education.* Chicago, IL: Author.

Crocco, M. S. & Waite, C. L. (2007). Education and marginality: Race and gender in higher education, 1940-1955. *History of Education Quarterly, 47*, 69-91.

Education pays: More education leads to higher earnings, lower unemployment. (2010). *Occupational Outlook Quarterly, 54*(2), 32.

Gittleman, J. G. (2005). *The New England ABE-to-college transition project evaluation report*. Boston, MA: New England Literacy Resource Center.

Golden, S. (2003). Self-efficacy: How does it influence academic success? *Adult Learning, 14*(3), 14-16.

Headden, S. M. (2009). "Adult ed" grows up. *Lumina Foundation Focus, Fall,* 3-17, 19, 21. Indianapolis, IN: Lumina Foundation for Education.

Jones, D. & Kelly, P. (2007). *Mounting pressures facing the US workforce and the increasing need for adult education and literacy*. New York, NY: National Commission on Adult Literacy.

Kilgour Douwdy, J. & Golden, S. (2004). GED scholars initiative at Kent State University. *New Horizons in Adult Education, 18*(3), 13-26.

Kist, W. (2003). Non-academic challenges faced by GED scholars: A report of the GED scholars initiative. *Adult Learning, 14*(3), 11- 13.

Lofstrom, M., & Tyler, J. (2005). *Is the GED an effective route to postsecondary education?* Retrieved from http://www.brown.edu/Departments/Education/resources/Lofstrom%20and%20Tyler%20APPAM.pdf

Mullane, L. (2001). *Bridges of opportunity. A history of the center for adult learning and educational Credentials.* Washington, DC: American Council on Education.

Murnane, R .J., Willett, J .B., & Boudett, K. P. (1999). *Does acquisition of a GED lead to more training, postsecondary education, and military service for school dropouts?* Cambridge, MA: National Bureau of Economics Research.

National Center for Education Statistics. (2002). *Nontraditional undergraduates.* Retrieved from http://nces.ed.gov/programs/coe/analysis/2002a-index.asp

Organisation for Economic Co-operation and Development (2011). *Education at a Glance 2011: OECD Indicators*. Retrieved from http://www.oecd.org/dataoecd/61/2/48631582.pdf

Patterson, M. B., Zhang, J., Song, W., & Guison-Dowdy, A., (2010). *Crossing the bridge: GED credentials and postsecondary educational outcomes.* Washington, DC: American Council on Education, General Educational Development Testing Service.

Reder, S. (2000). Adult literacy and postsecondary education students: Overlapping populations and learning trajectories. In J. Comings, B. Garner, & C. Smith (Eds.), *Annual Review of Adult learning and Literacy, Vol. 1* (pp. 111-157). San Francisco: Jossey-Bass.

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.

Taniguchi, H. & Kaufman, G. (2005). Degree completion among nontraditional college students. *Social Science Quarterly, 86*, 912-927.

Tokpah, C. L. & Padak, N. (2003). Academic challenges. *Adult Learning, 14*(3), 8-10.

Turner, Cornelius P. (1945). *A report on the development of the central clearing agency of accreditation in its relationship to the evaluation of military training, military experience, and educational achievement of service personnel during World War II.* Unpubished report. Washington, DC: American Council on Education.

Tyler, J. H. (2003). Economic benefits of the GED: Lessons from recent research. *Review of Educational Research, 73*, 369-403.

Tyler, J. H. (2006). The General Educational Development (GED) credential: history, current research and directions for policy and practice. In J. Comings, B. Garner, & C. Smith (Eds.), *Annual Review of Adult learning and Literacy, Vol. 1* (pp. 45-84). San Francisco: Jossey-Bass.

Zafft, C., Kallenbach, S., & Spohn, J. (2006). *Transitioning adults to college: Adult basic education program models*. Cambridge, MA: Harvard University, National Center for the Study of Adult Learning and Literacy.