ACADEMIC AND ECONOMIC VALUATION OF CREDENTIAL ATTAINMENT: THE CONSEQUENCES OF DISPARATE PERCEPTIONS BETWEEN HIGH SCHOOL AND GED STUDENTS

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by

Lela Mae Horne

A Dissertation
Submitted to the Graduate Studies Office
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy

Approved:

December 2007
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ABSTRACT

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In 2001, the estimated high school dropout rate was 30% (ETS, 2005) and in 2004, 16 to 19 year olds accounted for 46.2% of the General Educational Development (GED) credentials awarded (GEDTS, 2006). These statistics indicated a loss in the quantity and quality of human capital developed through public education. Chaplin (1999) posited the earnings maximization model (EMM) as a framework for understanding the youth decision to drop out. This conceptual framework described the student assessment of costs (academic effort), benefits (academic, economic, and social value), and constraints (policies) which may lead to credential attainment decisions. The purpose of this investigation was to determine the utility of the EMM and to identify whether significant differences existed between high school and GED student perceptions of credential value.

A sequential mixed methods investigation was conducted with the qualitative data used to support quantitative results. A multivariate analysis of the variance (MANOVA) employing stratified quota sampling identified a sample (n = 158) consisting of 67 White Americans, 55 African Americans, and 36 Hispanic Americans distributed between high school and GED student groups. An exploratory factor analysis (n = 326) on a 17-item questionnaire extracted four factors with adequate (.74) instrument reliability. There were
significant differences (p < .05) by student status for the academic and economic dimensions of value for the diploma. There was also a significant difference by ethnicity for the social value of the GED. The qualitative data (n = 24) gathered through structured interviews supported quantitative results regarding the diploma. Overall, participants ascribed higher value toward the credential being pursued, but the magnitude of these disparate perceptions and explained variances were small ($\eta^2 < .10$), which indicated that perhaps credential constraints (e.g. No Child Left Behind legislation) rather than costs or benefits held greater influence in credential attainment decision making.

The EMM provided a useful framework for understanding student decision-making. In addition, the GED group held misperceptions regarding the academic and economic value of the high school diploma, which may have led to faulty decision-making. Recommendations included high school and GED administrative utilization of the EMM to guide institutional discourse (teacher and student dialogues) that encourage informed decision-making. Further, GED administrators should monitor the adult attrition rate for the impact of youth presence, which may usher in pedagogical teaching techniques. Increasing adult attrition in GED programs may indicate the need for age appropriate classrooms to address this concern. Finally, policy makers should ensure that GED programs have adequate funding to serve youth and adult groups so that the GED may be preserved as a second chance adult education credential.
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CHAPTER I
OVERVIEW

Introduction

According to the National Center for Education Statistics, secondary education in the United States is expected to culminate in the attainment of a high school diploma which certifies that the holder possesses the necessary skills for further post-secondary education and job market entrance (Kaufman, Alt, & Chapman, 2004). Adults not in possession of the high school diploma may consider pursuing the high school equivalency diploma, which is issued for passing the General Educational Development (GED) exam. GED credentials document skill attainment so that holders may enjoy some of the benefits of a high school level credential. However, growth in the number of high school aged youths pursuing GED credentials has drawn national attention.

The Manhattan Institute for Policy Research reviewed national dropout trends and found that high school dropout rates have been underestimated because GED graduates have been included in National Center for Education Statistics (NCES) completion rate calculations since the 1960s (Manhattan Institute for Policy Research [MIPR], 2002). Disaggregating the data revealed an increase in the dropout rate. Arenson (2004) criticized the practice of allowing high school aged youths to earn GEDs as, “...a way for teenagers to short-circuit high school” (p. A14). Toppo (2003) postulated that high school exit exams in New York may be a direct cause of the increasing high school dropout rate and an indirect cause of increasing GED enrollment by youths. Public concern regarding youth attainment of the GED credential rather than the high school diploma may be fueled by the negative connotations associated with the GED. Judy and D’Amico (1997)
asserted that job applicants holding a GED were stigmatized because the credential was not generally thought of as favorably as the high school diploma. In addition, some researchers have asserted that the GED may not provide an adequate educational foundation for upgrading job related skills and may not be economically equivalent to the high school diploma (Educational Testing Service [ETS], 2005; Southern Regional Education Board [SREB], 2005). The consequences of youth attainment of the GED credential may be analyzed from the contextual framework of three primary stakeholder perspectives: policymakers, GED program administrators, and young GED students.

Policymakers must consider whether youth attainment of the GED credential will develop the quality and quantity of human capital necessary to meet the demands of changing technology. Researchers have asserted that increasing economic globalization trends coupled with technological advances will create demand for a highly skilled labor force in the United States (Judy & D’Amico, 1997; Karoly & Panis, 2004). The labor force may be conceptualized as human capital that improves the economic performance of a nation. Therefore, investments in human capital seek to replenish and expand this resource and public education serves as the primary investment vehicle. This creates a symbiotic relationship between the economic wealth of the nation and a robust level of human capital. For example, economists refer to the period from 1870 through 1970 as America’s Golden Age because this time period produced the greatest number of scientific and technological advances, which directly contributed to the economic growth of the country resulting in a demand for an educated workforce (Molella, 1994). America’s Golden Age created demand for education and education fueled America’s Golden Age.
Investments in human capital through education advances technology and increases productivity; therefore, policy changes directing the flow of appropriations for education can be categorized as efforts to maximize returns on human capital investments. Two proactive steps toward meeting anticipated demand for an educated workforce would be to increase the number of high school graduates and promote lifelong learning in order to meet changing technological demands. Monitoring the high school dropout and graduation rates would assist policymakers in determining the success of funding strategies intended to develop human capital. These statistics would also aid in forecasting human capital levels.

Unfortunately, forecasting the quality and quantity of human capital has not been possible because the NCES does not have accurate dropout data for analysis (Kaufman, Alt, & Chapman, 2004). NCES researchers (Kaufman et al.) utilized two data sources for analysis: the Common Core of Data (CCD) and the Current Population Survey (CPS). The CCD is a compilation of data from state departments of education. Kaufman et al. did not calculate a national event dropout rate for 2001 using CCD because only 39 states provided data. The National Governors Association also questioned the accuracy of the CCD since school districts under pressure from No Child Left Behind legislation may have re-classified students previously unaccounted for as transfer students in order to avoid any consequences stemming from having high dropout rates (National Governors Association [NGA], 2005). Kaufman et al. utilized CPS data to compute a 5% dropout rate for 2001 and concluded that the CPS data did not accurately portray the condition of education. CPS data collected by the Census Bureau did not include ninth grade dropouts and did not define GED students as high school dropouts. These limitations moved the
Kaufman et al. event dropout rate closer to the status dropout rate definition and rendered the statistic meaningless in determining the return on educational investment. The event dropout rate is an estimate of annual high school dropouts whereas the status dropout rate is an estimate of the overall number of dropouts in society. Therefore, the annual return on investment should be tied to the event dropout rate rather than the status dropout rate. The NGA was alarmed by the inability to accurately determine national dropout and graduation rates and recommended state implementation of uniform student tracking systems and a uniform graduation rate calculation to improve data accuracy and reliability. However, funding constraints continue to hinder development of state record keeping systems (SREB, 2005).

Researchers estimated that the 2001 national event dropout rate was 30% which was an unacceptable return on educational investment (ETS, 2005; MIPR, 2002; Swanson & Chaplin, 2003). The NGA (2005) concurred with researcher estimates regarding the national dropout rate, “...we know that about a third of our students are not graduating from high school” (p. 9). In addition, the dropout rates among minorities may be higher. According to MIPR (2002), only 44% of African Americans and 32% of Hispanic Americans graduate. These appallingly low graduation rates for African American and Hispanic American students call for a focus on ethnicity in future research.

Kaufman, Alt, and Chapman (2004) continue to collaborate with researchers to establish a national graduation rate calculation to respond to the demand created by the No Child Left Behind legislation, which requires monitoring of that statistic. Treatment of the graduation rate will include classification guidelines for GED recipients which will have an impact on the complementary dropout rate statistic. Developing a uniform
graduation rate calculation will be an important step toward painting a clear picture of the quality of human capital and return on educational investment, but a new calculation will be of little help without an accurate student tracking system. In addition, the lack of an accurate dropout rate to forecast youth enrollment in GED programs may rise to the level of a crisis when considering immigration trends.

Population growth in the United States is expected to slow (ETS, 2000) as the country’s need for an educated workforce increases (Judy & D’Amico, 1997). ETS (2004) forecasted that minimal increases in the population are expected to come from an undereducated adult immigrant workforce with attendant skill deficiencies. During the 1990s, 40% of the population growth (13.5 million workers) was attributable to immigration. In addition, 5.2 million of these immigrants were potential adult education students in need of English as a second language and GED services. The Center for Workforce Preparation (2003) projected that by 2010 there will be a shortfall of 10 million workers and over 80% of all the new jobs created will require some post secondary education. The combination of high school dropouts and low literate immigrants will create a challenge for companies seeking human capital to meet anticipated demand. The Research Triangle Institute (2005) estimated that 21% of adults (40 million workers) lack high school credentials across all age groups comprising the adult education target population. These findings imply that there will be a shortage in the quality and quantity of human capital. Clearly, the GED program will have two target populations: transitional dropouts and immigrants. The educational needs of both groups must be addressed simultaneously in GED programs.
Numerous learning theories are applicable to the field of adult education. However, GED administrators must consider whether the educational needs of youths and adults can be adequately served in the same classroom. Knowles, Holton, and Swanson (1998) promoted different teaching methodologies for these two groups. Teaching youths in GED classrooms presents methodological conflicts between the assumptions regarding pedagogy and andragogy which may lower educational outcomes for both groups. The assumptions that the instructor holds regarding the adult learner guide his or her decisions regarding which theories to adopt, student needs, learning materials, and teaching strategies. The relationship between the instructor and learner in an adult education classroom can typically be characterized as horizontal, whereas vertical interaction dominates the K-12 classroom. Assumptions about the adult student are embedded within andragogy, a framework for teaching an adult learner. This framework is often contrasted with pedagogy, a framework for K-12 education. The term andragogy describes adult education and the term pedagogy describes K-12 practices. Andragogy is based on six assumptions regarding adult learners. The adult learners can typically be identified with the following characteristics: a need to know, a readiness to learn, a desire for self directed educational experiences, a rich experiential background, a problem centered focus, and a self motivated approach to learning (Knowles et al.).

Adult learners are driven by questions of why, what, and how (Knowles et al., 1998). Adult readiness to learn is evidenced by the voluntary decision to pursue the GED, whereas a high school dropout may have been sentenced to attend a GED program by the court system. The self directed nature of the adult learner leads instructors to share responsibilities with the learner for goal selection and evaluation. Lessons typically focus
on the stated goals of the student. The experiential base of the adult learner is an educational gold mine in preparing for the GED battery of tests. For example, the reading selections routinely encompass material encountered outside of the pedagogical classroom (e.g., business letters). The use of relevant materials leads to a problem-centered focus which is more concerned with tasks and problems than content. Classroom activities for adult learners incorporate simulations of reality to ensure relevance. Finally, the motivation level of the learner may influence the design or pace of instruction and perhaps the motivation of the instructor. Adults who are eager to learn are also purposeful and mature. These individuals can be described as goal oriented and appreciative of the extrinsic and intrinsic value of education.

The characteristics of the adult learner exist on a continuum, but an instructor must manage the class under the assumption that all learners are in the same general range of development towards self-actualization. This ideological goal (Maslow, 1958) was re-conceptualized as an adult educational goal (Knowles, Holton, & Swanson, 1998) which describes the state of a learner who has fully developed his or her emotional and intellectual potential. It would be difficult to imagine the typical 16 to 19 year old high school dropout sitting in a GED classroom next to a mature self-motivated adult learner with a rich experiential background. Application of andragogical teaching approaches for youths could result in barriers to learning. Conversely, the adoption of pedagogical approaches could create barriers to learning for traditional GED students. For example, in teaching the five-paragraph essay for the writing test a facilitator might select a topic that draws upon the experiences or social roles of adults in the classroom (an andragogical approach) or select a topic regarding some aspect of popular culture (a pedagogical approach).
approach). However, strict implementation of andragogical teaching practices is not required in order to assert an andragogical perspective of the learner. Knowles et al. (1998) asserted that andragogy and pedagogy are opposite ends of one continuum. Therefore, it is possible to teach older youths and adults in the same GED class, but it would require both andragogical and pedagogical approaches to meet the needs of all students. For example, intergenerational learning approaches the art of teaching as a community activity. Intergenerational learning is an effective literacy technique because it builds the self esteem of the older learner while transferring cognitive and perhaps noncognitive skills to the younger learner, which builds the learning community (Kerka, 2003). In addition, Sticht (1999) recommended intergenerational learning between parents and students as an educational return on investment strategy since parental education levels influenced student academic success. It may be that the process of transferring cognitive skills in the home would be successful in a GED classroom. However, the majority of students in the 16 to 19 year old age group would be better served in a high school setting because secondary education seeks to fully develop cognitive and noncognitive (social) abilities. The effectiveness of combining andragogical and pedagogical methods of instruction would be uncertain for this age group and since the academic and economic future of both groups hangs in the balance, such an approach would be ill advised as a program design for the GED program. However, youths continue to enroll in GED programs and ignore the inherent risks.

Youths deciding to leave high school do not consider whether the GED credential is academically and economically equivalent to the high school diploma. These dropouts should receive adult guidance to illuminate the consequences of attaining a GED in lieu
of a high school diploma. Perhaps these credentials do not produce equivalent outcomes because the academic investments toward completion are not comparable. According to Boesel, Alsalem, and Smith (1999), median preparation time for the GED exam is only 30 hours compared to over 400 hours for a typical high school year, which indicates a lower investment in human capital development. In addition, GED recipients are less likely than high school graduates to complete postsecondary education, more likely to earn lower wages, and are not highly sought after military recruits (Boesel et al.; Tyler, 2003).

Education professionals may have failed to communicate the disparities between the two credentials to youths who decide to leave high school. The GED credential may provide entry level academic and economic opportunities, but the outcomes for GED graduates are not comparable to outcomes for high school graduates. Some youths mistakenly believe that the two credentials are equivalent and this misperception may increase the likelihood of dropping out. Boesel et al. (1999) reported that 1/2 million individuals passed the GED exam and, “…were awarded high school equivalency diplomas, about one-sixth of all high school diplomas issued in that year” (p. vii). Statements extolling the educational recovery value of the GED may have fueled youth misperceptions regarding the long term equivalency of the two credentials.

Miscommunications by policymakers may have contributed to misperceptions by students. For example, an SREB (2002) report concluded that the high school diploma was superior to the GED and another report (SREB, 2005) supported research conclusions regarding the disparities between the GED credential and the high school diploma. However, an SREB (2004) policy statement recommended recruitment of recent
high school dropouts for GED programs. The apparent contradiction was an attempt to salvage the human capital potential of dropouts. However, recruitment efforts may have reinforced youth misperceptions regarding the academic and economic value of the GED by promoting connotations of equivalency with the high school diploma.

The student decision to leave high school involves a complex interplay of internal and external variables, but it is also the culmination of a long term social and academic disengagement from school (ETS, 2005; Rumberger, 2004). Nevertheless, youths deciding to pursue a GED in lieu of a high school diploma may not perceive themselves as disengaging from institutionalized schooling. The pursuit of a GED may be grounded in the misperception that the return on education investment for both credentials will be equivalent. Transitional dropouts may not be aware that researchers have found that the GED produces lower academic and economic outcomes than the high school diploma (Berktold, Geis, & Kaufman, 1998; Boesel et al., 1999; Cameron & Heckman, 1993; Murnane, Willett, & Tyler, 1999). In addition, Weisbrod (1971) asserted that the high school diploma graduate, the GED graduate, and the high school dropout have successively lower investments in human capital and should expect successively lower returns on investments in the form of earning potential. However, the dropout who intends to transition into a GED program contributes a lower educational investment with the expectation of comparable academic and economic returns.

The perspectives of policymakers, GED administrators, and transitional dropouts illuminate the apparent paradigm shift of the GED from a traditional adult education program to an alternative form of secondary education. Some researchers have acknowledged the GED's shift in mission (Mikulecky, 2003; Rachal & Bingham, 2004)
and clientele (ETS, 2005; SREB, 2005). Policymakers have struggled to manage levels of human capital while GED administrators have struggled to manage the educational needs of two diverse populations in one classroom. Transitional dropouts have quietly orchestrated this paradigm shift through faulty decision-making that may have consequences for the traditional adult learner.

Statement of Problem

What are the differences in perceptions between high school and GED students regarding the value and effort involved in obtaining a high school diploma as compared to the GED credential and are the differences related to ethnicity?

Purposes of Study

The general purpose of this study was to determine whether differences in perceptions exist between high school students and GED candidates with regards to credential attainment. The primary goal of this study was to determine the efficacy of the earnings maximization model in framing student perceptions that influence the decision to pursue either a high school diploma or a GED credential. The specific purposes of this study were:

1. To determine if high school students and GED candidates perceive that the high school diploma and GED credential hold comparable academic and economic value.

2. To determine the relationship between ethnicity and student status regarding perceptions about comparable academic and economic value of the high school diploma or GED credential.
3. To determine if high school students and GED candidates perceive that the high school diploma and GED credential require comparable levels of academic effort towards completion.

4. To determine the relationship between ethnicity and student status regarding perceptions about comparable levels of academic effort to complete the high school diploma or GED credential.

Research Hypotheses

This study tested the following four hypotheses:

$H_1$: There is a statistically significant difference between GED and high school student perceptions of the academic and economic values ascribed to the GED credential and the high school diploma.

$H_2$: There is a statistically significant difference by ethnicity between GED and high school student perceptions of the academic and economic values ascribed to the GED credential and the high school diploma.

$H_3$: There is a statistically significant difference between the interaction of ethnicity and student status with GED and high school student perceptions of the academic and economic values ascribed to the GED credential and the high school diploma.

$H_4$: There is a statistically significant difference between GED and high school student perceptions of the effort necessary to complete the GED credential and the high school diploma.

$H_5$: There is a statistically significant difference by ethnicity between GED and high school student perceptions of the effort expended to complete the GED credential and the high school diploma.
H₆: There is a statistically significant difference between the interaction of ethnicity and student status regarding perceptions of effort extended to complete the GED credential and the high school diploma.

Delimitations

1. This study was limited to high school and GED students in the Atlanta metropolitan area of Georgia.
2. This study was limited to GED students who were 16 to 19 years of age at the time of dropout.
3. This study was limited to 16 to 19 year old high school students.
4. This study was limited to GED students who transitioned from high school to the GED program within 12 months of dropping out of high school.

Definition of Terms

**Academic Value:** The credential usefulness in pursuing and attaining post secondary education.

**Dropout:** A 16 to 19 year old individual who does not attend a public or private high school and has not received a high school diploma or certificate of attendance.

**Economic Value:** The credential usefulness in developing employable marketable knowledge, skills, and abilities.

**Event Dropout Rate:** The number of students who dropped out of high school during a single school year divided by the number of students enrolled that year (Kaufman et al, 2004).

**GED Graduate:** A 16 to 19 year old individual who passed all five tests in the GED examination and was awarded a GED credential.
GED Policy Maker: Individuals or entities empowered to enact new policies or change policies that impact the testing and/or administrative procedures of the GED program at the local, state, or national level.

High School Credential: A high school diploma, high school certificate of attendance, or GED credential.

High Stakes Exam: A comprehensive assessment of knowledge and skills that is a requirement for credential attainment.

Human Capital: The knowledge, skills, and abilities of the full-time and part-time workers in a society.

Social Value: The credential usefulness in improving class strata interactions in personal and/or professional relationships.

Status Dropout Rate: The number of individuals in the population who do not attend high school and have not obtained a GED credential divided by the number of individuals in the population (Kaufman et al, 2004).

Transitional Dropout: A 16 to 19 year old individual who drops out of high school with the intent to enroll in a GED program within 12 months.

Justification of Study

Researchers (ETS, 2005; SREB, 2005) have acknowledged the increased dropout rate with the resulting youth enrollment in GED programs and have recommended studying the phenomenon. The SREB (2005) noted that, “more students are now choosing to drop out or to earn alternative high school credentials, which do not pay off in the same way that diplomas do” (p. i). ETS (2005) reported, “these are very substantial shifts in the award of GED credentials to high school-age youth. However, the reasons
for these shifts are not yet pinned down” (p. 33). The GED Testing Service confirmed the high percentage of 16 to 19 year olds attaining the GED, which was 49.1% in 2002 (GED Testing Service [GEDTS], 2004) and 46.2% in 2004 (GEDTS, 2006). Unfortunately, Kaufman et al. (2004) were unable to determine the volume of dropouts due to inaccurate state record keeping. However, policymakers have asserted that the dropout rate represents a crisis in secondary education (ETS, 2005; NGA, 2005). According to Rumberger (2004), determining the reasons for student dropout is the key to addressing this national crisis.

The ethnic makeup of high school graduates is also a concern because education credentialing serves as a gateway toward economic stability. The lack of a high school diploma or the possession of an alternative credential (e.g. the GED) may lead to wider academic and economic gaps among ethnic groups. Murnane, Willett, and Boudett (1997) found that the mean number of African American and Hispanic American males attaining the GED exceeded the mean number of those attaining the high school diploma. Conversely, the mean number of White American males attaining the GED was lower than those attaining a high school diploma. If these disparities in attainment of the two credentials continue and the disparities between the credential outcomes hold, then male marginalized group members will experience academic and economic consequences in greater numbers than other groups. Future investigations of high school aged students pursuing GEDs should observe the impact of ethnicity and gender on student decision-making in an effort to inform practitioners and possibly recommend corrective courses of action.
Some researchers have postulated that the availability of the GED entices marginal high school students to dropout (Boesel et al., 1999; Chaplin, 1999; Rachal & Bingham, 2004). In addition, Cameron and Heckman (1993) asserted that some high school students have the misperception that the GED credential would be easier to attain than a high school diploma. Educators should dispel this misperception by providing students with accurate information and encouraging pursuit of the high school diploma so that students may fully develop cognitive abilities.

There exists a need to study the perceptions of the 16 to 19 year old category of dropouts who opt to pursue a GED in lieu of a high school diploma although the benefits are not equivalent. Research in this area benefits adult education because the presence of youths in adult education settings violates the principles of andragogy and may become a barrier to education for the traditional adult learner. The impact of the increased presence of high school aged youths in adult education settings is an underdeveloped area of research (Imel, 2003). However, Perin, Flugman, and Spiegel (2006) found stagnant to declining adult enrollment in GED programs where youth enrollment increased. These researchers conducted a case study analysis of three GED programs by conducting interviews with 49 participants. The frustration levels of adult learners increased with increased classroom discipline problems. In addition, the presence of this high school aged population ushered in policies and practices which shifted the learning environment from an adult to a K-12 setting. This implies that the presence of this younger age group may shift the setting of GED programs from an adult to a K-12 environment which will not attract (and may repel) traditional adults. The potential for harm to the GED program

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as a credentialing process for experienced adults creates the need to understand the
decision-making process of inexperienced youths.

Chaplin (1999) utilized the human capital theoretical framework to develop the
earnings maximization model, a conceptual framework for understanding the educational
investment decisions of high school students and GED candidates. Based on this model,
all learners desire maximization of earning potential given uncertainties and constraints
(Chaplin, 1999). For students deciding on which credential to pursue, the uncertainties
would be the costs and benefits of earning the high school diploma versus the GED
credential. Costs would refer to the time and academic effort it takes to earn either
credential. Constraints would refer to policy issues (e.g., age requirements and minimum
passing score requirements) established for each credential. Chaplin asserted that when
GED policy constraints were relaxed (i.e., lowering age requirements), the number of
high school dropouts and GED graduates increased. Likewise, raising high school
graduation requirements (i.e., increasing constraints) should increase high school
dropouts. Of course, if students perceive that the time and effort (i.e., cost) to pursue the
GED credential is less than the time and effort to pursue a high school diploma, then that
perception should also lead to an increase in the number of GED participants. To combat
the effects of the earnings maximization model, Chaplin recommended strengthening
policy requirements for the GED and requiring parental permission to leave high school.
Chaplin postulated that parents would reveal the economic benefits of the high school
diploma and this revelation should lead students to pursue a high school diploma rather
than the GED credential. Further, Chaplin regressed high school continuation rates on
GED policies and concluded, “allowing teenagers to get GEDs increases dropout rates
very substantially” (p. 11). Therefore, if a GED program is perceived to have low
constraints and costs, but comparable academic and economic benefits, students should
opt to pursue this alternative credential when the earnings maximization model is applied.

A public high school and an adult education center in the Atlanta metropolitan
area of Georgia were chosen for this study due to the potentially high dropout rate for the
state coupled with low GED policy constraints. These sites were located in separate
public school systems, but GED program availability for dropouts from the high school
(site A) was available through the adult education center (site B). In addition, Johns
Hopkins University (2004) found that Georgia was one of the top five states in the
country with weak promoting power. That ratio of the current number of high school
seniors divided by the number of freshmen entering four years earlier is one indicator of a
high dropout rate. Also, the SREB (2005) found that Georgia was one of only four states
in the region with both a compulsory school attendance age and a minimum GED testing
age set to accommodate 16 year olds, which indicates a low policy constraint.
Investigating the differences between high school and GED student perceptions in an
environment well suited for the earnings maximization model frame of reference may
yield interesting results.

The increasing enrollment of high school aged students in GED programs signals
a crisis in the field of adult education. The shift in age groups may result in a shift away
from andragogical teaching techniques to accommodate this clientele. Moreover, the
anecdotal accounts of declining enrollment and attendance rates by traditional learners
give rise to the need for further investigation. The earnings maximization model may be a
useful tool for analyzing the decision-making processes of these youths. It is important that adult educational professionals understand the antecedent to the crisis.
CHAPTER II

REVIEW OF LITERATURE

History of the GED

The method for identifying studies included an electronic search from 1976 forward and was conducted on the following databases: Academic Search Premier, Business Source Complete, Econlit, ERIC, PsychINFO, and SocINDEX. The search terms used were: GED, General Educational Development, and high school equivalency. The interdisciplinary discussion of credential valuation required a broad search for recent studies from a variety of databases which cataloged education, social, and business related phenomena.

Pertinent literature must be reviewed within the historical context of legislation that spurred the development and growth of the GED program. The role of the Adult Education Act (1966) in promoting the GED as an institutionalized high school equivalency credential must be explored. Perhaps an exploration of historical legislation will illuminate the discussion of the current trend in high school aged students seeking this alternative credential. The roots of the No Child Left Behind legislation (NCLB, 2001) for primary and secondary education must also be reviewed to determine whether temporal links between the legislation and current GED age group trends lend support for the utility of the earnings maximization model in understanding GED growth patterns.

According to Mullane (2001), the American Council on Education (ACE) was established in 1918 as the Emergency War Council with the goal of coordinating efforts of universities to train military personnel during World War I (WWI). The partnership was successful in providing enlisted men with skills necessary for military service. After
the war, years of military service were converted to academic credits in much the same way that lifetime credit is utilized at some universities today. Unfortunately, many veterans were ill-equipped to meet the demands of collegiate studies resulting in a high post-secondary dropout rate and the years-for-credit plan was abandoned, but not forgotten.

The United States Armed Forces Institute commissioned the ACE and the Chicago Board of Examination to develop the GED program in 1942 (Allen & Jones, 1992; GEDTS, 1982). At the time, one-third of the armed forces did not have high school diplomas and the military wanted to avoid the college credit concerns raised during WWI. The target population for the GED included service men and women who had been out of school for an indeterminate period, but had informal educational experiences during their lapse in formal education that promoted attainment of high school level cognitive abilities. The credentialing process provided a means for documenting academic ability and determining educational placement in college. The GED program also provided the first systematic adult education credentialing process outside of the traditional classroom. The GED program worked in concert with the GI Bill successfully. By 1947, veterans accounted for almost half of all college enrollments (Mullane, 2001).

The successes of the GED program garnered the attention of the civilian workforce and by 1965 civilian dropouts were allowed to attain the credential. The exam is currently administered by the GED Testing Service, which is a subsidiary of the American Council on Education (GEDTS, 1982). The GED exam is offered throughout the United States, its territories, and 11 Canadian provinces. There are five tests in the complete battery covering the core high school subjects: math, science, social studies,
reading, and writing. The GED Testing Service is responsible for administration of the program and state agencies are responsible for establishing policies regarding minimum passing scores and age requirements for test takers (GEDTS, 1982). Once students earn a passing average score on the five battery exam, they are awarded a high school equivalency diploma. There have been four revisions of the exam in order to maintain its validity as a comparable credential to the high school diploma (GEDTS, 1982). In general, employers, colleges, and the public have accepted the academic equivalency of the GED to the high school diploma.

The age requirements for taking the GED battery of tests and awarding GED credentials are tied to existing compulsory secondary education attendance laws established by each state board of education. According to the GED Testing Service (2006) two states allow 16 year olds, eight states allow 17 year olds, and thirty-two states allow 18 year olds to sit for the GED exam. However, all states grant exceptions to policies on a case by case basis. Although most state policies restrict 16 and 17 year old test takers, 15.2% of GED candidates were in that age group and were allowed to take the exam. The GED Testing Service (2006) did not report the total number of high school dropouts enrolled in GED programs, but 100,682 dropouts seeking credentials presumably before their high school cohorts (assuming graduation at 18 years of age) raises concerns.

In 1996, the ACE decided to phase out policies that allowed the GED exam to be used in dropout prevention programs, but reversed that decision in 2000 (Florida Department of Education [FDOE], 2002). This policy evidenced ACE preference for the high school diploma while acknowledging that the GED may be helpful on a limited
basis for a limited number of youths. The ACE policy shift to allow younger GED candidates also represented a shift away from the traditional use of the GED program as an adult education tool. The presence of 16 to 19 high school aged youths comprised 41.2% of the 2004 GED candidate population, which was inconsistent with the spirit of prior ACE policies limiting the presence of youths.

Legislative Endorsement

Adult secondary education credentialing was formally addressed by the military through the development of the GED. However, Imel (1991) asserted that broader adult basic education needs were recognized through the Economic Opportunity Act (1964), which later became the Adult Education Act (AEA, 1966). The AEA was the first legislative action acknowledging the funding needs of adult education programs for disadvantaged individuals pursuing educational development for employment purposes. The AEA was administered by the Adult Education and Literacy Division of the U.S. Department of Education. The legislation was periodically reauthorized and eventually its scope expanded to include instruction for limited English proficiency (LEP) students, teacher training, workplace literacy, and adult high school completion (Imel). The original legislation included services for adults who were defined as individuals 18 years of age or older. In 1968, the AEA was amended to redefine adults as individuals who were 16 years of age or older (Imel).

The AEA sought to provide adults with the opportunity to attain an adult high school or GED credential in order to improve employment opportunities. The GED program became the primary equivalency credentialing program used by states to meet this objective. The GED provided the flexibility that adults needed with scheduling and
required fewer in-class contact hours than the adult high school program. However, lowering the age required for enrollment ensured that high school dropouts could seamlessly transition into GED programs. While the intent of the change was to salvage human capital, the consequence may have been to encourage dropout behavior by easing the policy constraint.

The AEA was repealed with the establishment of the Workforce Investment Act (WIA, 1998). The purpose of the WIA was to provide employee training and one stop centers for employer needs. The workplace literacy program of the AEA would have been duplicated by WIA, so Congress combined both pieces of legislation for efficiency into the Workforce Reinvestment and Adult Education Act (WRAEA), which also addressed the educational needs of dropouts (S. 1627, 2003).

Adult education and family literacy were addressed in Title II of the WRAEA (S. 1627, 2003). In 2003, funding provided services for 2.7 million adults in over 5000 facilities (S. 1627). Eligible individuals had to be at least 16 years old and not enrolled in secondary education. High school equivalency goals were not listed as one of the authorized activities, which included: adult basic skills, workplace literacy, English language acquisition, and family literacy programs. However, it may be inferred that workplace and family literacy programs utilized the GED program within the framework of this workforce investment legislation to achieve the goals listed. In addition, WRAEA modified the mission of the National Institute for Literacy (NIFL) to be consistent with NCLB in utilizing research based teaching methods, setting measurable performance goals, and reporting requirements in order to, “...ensure an optimal return on the investment of Federal funds in adult education and literacy activities authorized under
this subtitle...” (p. 191). This shift in the mission of the NIFL illuminated a troubling theme in the legislation that limited adult education to human resource development pursuits instead of lifelong learning endeavors, which may have provided greater returns. In addition, references to NCLB indicated legislative intent to encourage federally funded adult education programs to utilize pedagogical methods to assess performance. The minority view of the legislation decried the provision that would allow state discretion to funnel money from adult education, vocational rehabilitation, and veteran’s employment into administrative and infrastructure areas. However, there was no objection to efforts to have adult education mirror K-12 education. The minimum age requirement created an overlap of services between adult and youth oriented programs allowing the seamless transition of educational services from high schools to GED programs.

Dropouts aged 16 to 21 were targeted in the youth program section of this legislation. The WRAEA listed attainment of a secondary school diploma or GED as a program design requirement for out of school youth. The GED program provided the most cost effective (in terms of hours spent in preparation) approach for states to meet legislative requirements and GED programs were already in place as a result of the AEA. Therefore, states were most likely promoting GED attainment for dropouts in an effort to reclaim potential human capital while simultaneously promoting GED attainment to adults. It may be disconcerting that the GED program is easily accessible to youths, but within the earnings maximization framework, the accessibility of a GED program would be insufficient to influence the trends in youth GED attainment. There would have to be a catalyst to encourage high school aged students to pursue the GED in the form of a
stronger policy constraint for the high school diploma or a weaker policy constraint for
the GED (Chaplin, 1999).

The No Child Left Behind (NCLB) Act of 2001, which was intended to improve
educational outcomes for disadvantaged students, may have inadvertently increased
policy constraints for the high school diploma sufficient to influence dropout behavior
and GED enrollment rates among youths. In 1964, President Kennedy’s war on poverty
initiative attempted to combat the educational deficiencies of marginalized groups
(Webb, Metha, & Jordan, 2000). One piece of legislation used to fight this war was the
Title I program of the Elementary and Secondary Education Act (ESEA, 1965). The
purpose of ESEA was to improve education for minority, poor, and disadvantaged group
members who were not experiencing the academic and economic outcomes enjoyed by
the majority of the nation. However, conservative fears regarding federal control of
education and southern fears regarding forced integration delayed funding for ESEA.
After President Kennedy’s assassination in 1963, the concerns of special interest groups
were overshadowed by public sentiment (Webb et al.). Consequently, the ESEA was
implemented and has been routinely reauthorized.

The ESEA emphasized fiscal responsibility, but lacked educational
accountability. States were not required to document student progress or to establish
educational attainment goals (GAO, 2000). For example, there were two school models
under Title I of ESEA to address the needs of disadvantaged students who were at risk of
underachieving or dropping out. These programs were primarily implemented in
elementary schools since at risk characteristics could be identified early in the hope that
intervention would prevent academic failures. The school wide option model allowed
administrators to ability group students within the general classroom. It provided an opportunity for the Title I teacher and the classroom teacher to collaborate on best practices to meet the needs of all students. The targeted assistance option model was a pull-out program designed to remediate the educational deficiencies of disadvantaged students. It provided tutoring services and eased the disaggregating of data for reporting requirements. However, GAO could not determine the efficacy of either model.

Administrators preferred the school wide option model because it provided educational assistance for a greater number of students, but state evaluation standards were not well defined. The pervasive lack of educational accountability led to the NCLB legislation.

The last reauthorization of the ESEA took place in 2001 when President Bush revamped the program and renamed it No Child Left Behind (U. S. Department of Education [USDOE], 2004). NCLB provided guidelines for primary and secondary schools in the areas of testing, attendance, and graduation rate goals. It was a very ambitious piece of legislation with regard to its aim to reduce the achievement gap between high and low performing students within the same school system and among different school districts. Schools and school districts were ranked as having met annual yearly progress (AYP) or needing improvement based on aggregate and disaggregate student test scores, attendance, and school graduation rates. The disaggregated subgroups included low income students, students with disabilities, limited English proficient students, and minority students (USDOE). For each subgroup, 95% of the student population had to test and meet AYP. Each year schools were expected to make AYP and by 2014 reach a 100% student pass rate on a state standardized assessment for all core subject areas (USDOE). Schools or school districts on the needs-to-improve list for four
or more years (for not meeting AYP) were reorganized and branded with the name America's Choice school by state departments of education.

In addition, NCLB required that every teacher in a core subject area hold full state certification in the subject being taught (USDOE, 2004). Finally, parents of students attending schools on the needs to improve list for four or more years had the option to transfer students to a successful school. Of course, in rural or inner city schools, transportation difficulties would hinder parents from utilizing this section of the legislation. These goals of NCLB were reminiscent of the rhetorical democratic ideals that the nation has strived for, but never realized. This legislation was approved with the best intentions and bipartisan support, but may have had unintended consequences.

According to Darling-Hammond (2004), school district per pupil expenditures ranged from $3000 to over $30,000 nationally and funding from NCLB did not address this disparity. Students in the poorest inner city and rural school districts with lower per pupil expenditures would not be able to achieve the goals of the legislation. Other subgroups would also fail to meet the challenges of NCLB. Students with disabilities were allowed to meet the goals of Individualized Educational Plans (IEPs). However, the total number of students meeting AYP using an alternative assessment (e.g. IEPs) could not exceed one percent of the school population (USDOE, 2004). In addition, limited English proficiency (LEP) students who were residents for one year or less were exempt from testing (USDOE, 2004), but that rule implied that it would take no more than 12 months to gain English proficiency comparable to that of native speakers. Once an LEP student gained proficiency, he or she would no longer be included in the LEP group which ensured that the LEP subgroup would never reach AYP.
In addition to testing requirements, high school graduation rates were another measure of school success under NCLB (GAO, 2005). The inconsistencies among state graduation rate calculations, data accuracy problems due to outdated tracking systems, and the lack of guidance from the U.S. Department of Education made state compliance with NCLB difficult. The negative impact of NCLB on the 50 different state educational systems it governed was due to its failure to reflect research on educational change (Rumberger, 2004). The legislation demanded educational improvement through monetary sanctions and public labeling for the lowest performing schools in the nation. According to Rumberger, school reform is a long term process involving the commitment of school personnel in contrast to NCLB which sought to reform through monetary sanctions.

The ability of school districts to attract highly qualified and committed teachers would be damaged by the needs improvement classification. NCLB provided little incentive for a highly qualified and successful teacher to work at a needs-to-improve or America’s Choice school in an inner city or rural area. It provided little incentive for current teachers in low performing schools to meet state requirements for the highly qualified designation because once a school qualified for reorganization as an America’s Choice school the majority of the staff would be terminated (USDOE, 2004). It would be unlikely that a teacher at a needs-to-improve school would pay for graduate coursework when termination was probable. The legislation provided little incentive for school districts to invest in dropout prevention programs that helped these subgroup populations attain high school diplomas. School districts would significantly improve test scores by encouraging students to enroll in GED programs. In fact, the ACE allowed currently
enrolled high school students to take the GED exam in all 50 states if they were part of an ACE approved dropout prevention program (Office of Vocational and Adult Education [OVAE], 1991). In Florida, the Department of Education allowed students who passed the GED test and the Florida Comprehensive Assessment Test to receive a standard high school diploma through the GED Exit Option Model (FDOE, 2002). NCLB also lacked incentive for students to attain a high school diploma because the path to transition into a GED program was easy to navigate and the alternative credential seemed to offer equivalent value for less effort. NCLB created an inflexible educational environment with harsh testing, attendance, and graduation policy constraints (Sundereman, Kim, & Orfield, 2004) that may have increased the appeal of the GED program for some students. There may be other legislative initiatives that impacted GED test administration or policies; however, the policy changes imposed by NCLB changed the way that the K-12 community operated on a daily basis. If policy changes influence dropout behavior as suggested by the earnings maximization model, then the impact of NCLB would be apparent to researchers.

Cameron and Heckman (1993) first posited that legislative acts may have played a role in the youth attainment of the GED. The argument was that AEA combined with federally sponsored post-secondary education programs spurred growth in the GED. This argument predated the earnings maximization model (Chaplin, 1999) and NCLB (GAO, 2005). The model may be able to illuminate the discussion regarding youth GED attainment, but it has not been rigorously tested. It appears that changes in state minimum age policies for GED enrollment (encouraged by legislative acts) seem to correspond to decreases in the average age of GED students (see Appendix A). Since NCLB was
enacted in 2001 (USDOE, 2004), unexplained shifts downward in the age groups of GED recipients have been documented (ETS, 2005). Of course, links along a timeline may be purely coincidental, but the timing of events warrants rigorous investigation to determine whether a correlation exists and to investigate legislative intent (see Appendix A).

Impact of GED Accessibility on Dropout Behavior

Human capital theory asserts that individuals derive benefits from self investments (Becker, 1964). Further, society derives benefits from investments in individuals. Although there are different types of investments that may be chosen, education is considered the primary investment vehicle toward academic and economic gains for individuals and society. There are many forms of formal and informal educational activities that provide different levels of academic and economic returns, but equivalent investments should yield equivalent returns. The theory further asserts that without these returns, individuals and society would not be likely to continue educational investments. Chaplin (1999) utilized the human capital theory as a theoretical framework for developing the earning maximization model as a conceptual framework to describe the youth decision to invest in either a high school diploma or a GED. Most of the research regarding the academic and economic equivalence of these two credentials was grounded in the human capital theory as a theoretical framework. However, this theory does have shortcomings in explaining some of the investment decisions and economic outcomes for marginalized groups.

Osterman (1989) posited that the human capital theory does not apply to marginalized groups because of the assumption that the labor market exists in a meritocratic society and is void of gender, racial, or class biases. If academic and
economic outcomes for marginalized groups are not based solely on educational investments, then investment decision-making may be altered from a human capital perspective. This argument has merit, but Osterman seems to suggest that educational investments by marginalized group members were made in anticipation of a low return on that investment, which would actually support human capital theory since shallow investments would produce shallow returns. In fact, the shortcoming of the human capital theory is that it can not explain why students making equivalent educational investments in the same credentials do not consistently result in equivalent economic returns for marginalized group members. Nevertheless, this theory has value in educational research because it provides a framework for analyzing educational investments in disparate credentials as the following research demonstrates. The efficacy of the model to explain educational investments of marginalized group members should be explored.

Chaplin (1999) developed the earnings maximization model, which is a conceptual framework that may help analyze this phenomenon of high school aged youths opting to pursue the GED credential. A major under-pinning of the earnings maximization model was that some youths pursue the GED because of a misperception regarding value. The misperception held by some GED candidates in this age group was that the high school diploma and the GED credential hold equivalent academic and economic values, but the GED holds lower costs and constraints.

Inquiry into the number of high school aged youths pursuing the GED noted by ETS (2005) should begin with an analysis of the strength of the appeal of the GED program to high school students. Only one report directly addressed the question of whether the accessibility of the GED program affected dropout behavior. Tyler (2002)
conducted a research synthesis of 16 reports and reached four conclusions: (1) the GED may prompt dropping out; (2) economic returns of the GED occur primarily to low cognitive students due to the increase in cognitive ability associated with studying for the exam; (3) the economic returns of the GED only occur with time; and (4) GED recipients do not often participate in post-secondary education, which would be economically beneficial. Conclusions two through four reaffirmed the conclusions of the Boesel et al. (1999) research synthesis, but the first conclusion was intriguing. Unfortunately, Tyler based that conclusion on a review of only three research studies. The merit of the studies notwithstanding, this was not a large body of evidence, which renders the conclusion questionable. One report was theoretical and not empirically based. The other two studies conducted regression analyses using state policies as independent variables, which due to policy inconsistencies did not provide generalizable results (Chaplin, 1999; Lillard & DeCicca, 2001). The potential of the GED program to serve as a lure for high school student dropout behavior was identified by researchers throughout the 1990s, but investigation into this area is in its infancy. Although GED program accessibility continued to be a potential cause for concern, the recent shift downward in the percentage of youths attaining GEDs heightened researcher awareness about this loophole in secondary education.

Cameron and Heckman (1993) identified the growing use of the GED as an alternative high school credential and noted, "...the growing use of the GED certification suggests the possibility of widespread misperception on the part of test takers" (p. 3). Further, these researchers warned that the Current Population Survey (CPS) dropout data might contain errors since the growth in GED credentials could not be accounted for.
using solely population growth data. The admonishment regarding the CPS data was not addressed by the NCES until 2005.

Murnane, Willett, and Tyler (1999) also noted the youth attainment of GED phenomenon and noted, “one striking characteristic of the GED recipients in the HS&B sample is how many obtained this credential soon after leaving high school” (p. 11). However, these researchers attributed the phenomenon to a flaw in the timing of the survey. It was assumed that some participants in the High School and Beyond (HS&B) cohort must have dropped out before 10th grade (which would not have been captured by the HS&B) and were pursuing the GED later in life (which was captured by the HS&B). However, the study noted that luring some students out of high school was a potential cost of the GED program.

Boesel et al. (1999) attempted to address the concern that GED availability may lure students away from high school. However, researchers never located reports that addressed the issue and related research at that time could neither support nor reject the hypothesis. There continues to be a dearth of information directly addressing the concern about GED availability and its relationship to the drop out phenomenon. The continued paucity of research in this area is stark in the wake of the GEDTS (2006) report that over 40% of the GED recipients in 2004 were high school aged youths. Perhaps now that shifts in the ages of GED students have been documented (ETS, 2005), researchers will turn attention toward this concern that was previously a hypothesis in the literature.

Researchers have not addressed the cost of GED attainment by high school students in terms of the loss in potential cognitive abilities, but there is some research that suggests that changes in high school graduation or GED entrance policies negatively
impacts the number of students attaining a high school diploma. Chaplin (1999) supported the hypothesis that accessibility to GED programs lured students away from high school by regressing state policies onto GED continuation rates. However, the data and policy variables held flaws that negatively impacted the reliance that may be placed on these conclusions. The data sets used in the study included Common Core of Data (CCD) and CPS, which recently have been criticized (Kaufman et al., 2004) for containing errors in the data collection and graduation rate computations. At the time of the study, the researcher was unaware of potential errors in the data and as a result, did not control for these limitations. In addition, Chaplin summarized multiple state GED credentialing policies into five independent variables. The researcher was transparent in noting the large number of policies and the difficulties involved in summarizing them into concise variables. However, conclusions based on flawed data should be viewed with caution.

Chaplin (1999) also speculated that the effect of GED policies could be an example of reverse causality. Perhaps policy makers changed the policy after the drop outs occurred and the policy changes were intended to help these students. The study did not address the impact of changes in high school policies. Policy changes resulting from NCLB legislation occurred before the shifts in GED enrollment ages; therefore, if NCLB changes impacted the dropout rate, there would not be a reverse causality concern. Chaplin’s earnings maximization conceptual framework for understanding policy changes as external motivating factors for youth decision-making was not diminished by the concerns surrounding research data and conclusions.
Lillard and DeCicca (2001) analyzed the impact of high school policy changes on the dropout rate, which complemented the Chaplin (1999) study that focused on the impact of GED policy changes. These researchers sought to determine whether a relationship existed between high school course requirements for graduation and dropout behavior. Raising high school graduation policy constraints via NCLB should have resulted in an increase in GED enrollment within the earnings maximization model framework. Lillard and DeCicca concluded that more students would drop out of high school if policy constraints were increased. In addition, this research advanced the argument that the impact of the change might ease over time as students adjusted to the new policy constraint. This point is important in light of the NCLB legislation. Conclusions regarding the impact of legislation can not be made based on the results of a handful of studies, but the implication that the legislative impact might ease over time might be evidenced through a historical trend analysis of dropout data.

Tyler (2004) sought to determine the impact of Texas GED policy changes on a high stakes exam. Although Tyler was interested in the impact of high stakes exams on dropout behavior, the researcher used the GED exam as an example of a high stakes exam to ensure that participants were genuinely motivated. The GED was considered a high stakes exam because a passing score was critical to credential attainment and students perceived value in that credential. In 1997, the Texas policy for a passing score on the GED changed from a minimum score of 40 per subject or an overall average of 45 to both a minimum score of 40 and an average of 45. The number of 16 to 19 year old test takers fell from 41,140 to 32,785 in one year. Tyler used GED Testing Service data to develop a linear regression model that accurately portrayed the actual change in the
volume of test takers. The model was then used to predict the number of testers assuming no change in policy. Tyler found that there would not have been a significant change in the number of test takers if there were no change in policy. This issue regarding the impact of high school and GED policy changes on high school continuation and dropout decisions is an underpinning of the earnings maximization model framework. Studies suggested (Chaplin, 1999; Lillard & DeCicca, 2001; Tyler) that changes in high school or GED policies were associated with changes in dropout behavior. However, additional research is needed to determine whether policy changes have a short or long term effect.

Academic and Economic Equivalency of the GED

Another underpinning of the earnings maximization model is that the high school diploma and the GED credential hold different levels of academic and economic value, but dropouts may choose the GED under the misperception that the two credentials are equivalent. The assumption that the GED is equivalent to the high school diploma has been pervasive in the research community since the inception of the program. Indeed, if youths were dropping out of high school in order to attain an equivalent credential, it would not be cause for concern. However, the academic and economic outcomes for holders of these credentials do not support the assertion of equivalency.

Assuming that the GED holds a high level of reliability turns the issue of academic equivalence between the high school diploma and GED into the reliance placed on three types of validity: content, concurrent, and predictive (Whitney, Malizio, & Patience, 1985). Content validity is somewhat subjective in that experts in the field analyze the similarities and differences between the high school curriculum and the GED exam. Concurrent validity is documented internally by GED Testing Service and the
results of concurrent validity measures have not been disclosed for the 2002 edition of the GED. Although content and concurrent validity are proprietary information that can not be easily analyzed by researchers external to GED Testing Service, predictive validity can be reviewed. Predictive validity is the degree of educational acceptance of the GED credential (Whitney et al.). Boesel et al. (1999) found that over 90% of post-secondary institutions accepted the GED as equivalent to the high school diploma when considering entrance requirements. This indicated a high level of predictive validity. However, the overall evaluation of the validity of the GED exam was inconclusive because the levels of content and concurrent validity were unknown. Another way to evaluate the academic equivalence of the two credentials would be to analyze the differences in educational outcomes.

Berktold, Geis, and Kaufman (1998) analyzed the academic outcomes of dropouts using data from the 1988 National Education Longitudinal Study (NELS: 88/94), which surveyed educational outcomes of eighth graders. A major limitation of the study was that future academic benefits may not have been captured during this 6 year window. Kolstad and Kaufman (1989) found that academic benefits may take time to accrue. Analyzing academic outcomes after only a few years following graduation may not reveal the full breadth of academic benefits. Berktold et al. operationalized the term dropout to include those students who returned to school and earned a high school diploma, GED recipients, and individuals who did not return to formal education. Therefore, academic returns were muddied by combining GED returns with high school diploma returns. While this study did not address the subpopulation of dropouts who leave high schools with the intent to enroll in GED programs, researchers noted that there
were differences between the academic outcomes for GED recipients and high school returnees. Twenty-six percent of dropouts in this study enrolled in post-secondary education; however, GED recipients were less likely to enroll in two or four year institutions than dropouts who returned to high school and earned diplomas. Perhaps returning to high school increased cognitive abilities, which in turn improved academic outcomes. Boesel et al. (1999) affirmed that GED recipients were less likely to graduate from two or four year colleges and universities than high school diploma holders. Since persistence rates for GED recipients in higher education were low, this indicated that the academic outcomes for both groups were not equivalent.

Overall, the high school diploma and the GED are not academically equivalent. Although content and concurrent validity are unknown, a high level of predictive validity does not outweigh the concerns regarding completion of a post-secondary education. This conclusion is consistent with human capital theory since the average GED recipient completed approximately 10 years of schooling (GEDTS, 2006) and invested approximately 30 hours of study toward that credential (Boesel et al., 1999); the academic outcome would not be comparable to that of a high school graduate who completed 12 years of schooling and invested over 400 hours of study per year (Boesel et al.).

Cameron and Heckman (1993) broke with convention by questioning the economic equivalency of the GED and the high school diploma. These researchers used National Longitudinal Survey of Youth data for male youths who were 13 to 20 years old in 1978. This study analyzed wages when they were 25 and 28 years old. Wages for high school diploma holders, GED recipients, and dropouts were compared. These researchers
found that GED recipient wages were similar to the wages for dropouts. There was no statistically significant difference between the wages of GED recipients and those of dropouts. In addition, graduates had higher employment and more work experience than GED recipients. The researchers concluded that the GED was not economically equivalent to the high school diploma. Later, Heckman and Lafontaine (2006) revisited the issue of economic equivalence and affirmed Cameron and Heckman's findings. The wage gains found for older GED recipients were attributed to skill attainment gained over time. This research challenged the pervasive belief that the GED was an equivalent credential. The controversy caused researchers and policy makers to focus on economic equivalency throughout the 1990s. Cameron and Heckman did not undermine the utility of the GED for the traditional adult education population, but the use of the GED as an alternative high school route for youths was challenged.

Research to delineate potential causes of the economic disparity between the two credentials also included an examination of job experiences. For example, Cao, Stromsdorfer, and Weeks (1996) found mixed results in analyzing the impact of credential status (high school diploma, GED, or no credential), years of education, and Armed Forces Qualification Test (AFQT) score on hours worked and hourly wages. Researchers utilized the 1987 through 1990 mother and children file contained in the National Longitudinal Survey of Youth (NLSY) as well as the State of Washington Family Income Study (FIS) data file for this study. Using two data files demonstrated study replicability and would have enhanced noteworthy results (McLean & Ernest, 1998). Unfortunately, in this case the two data files produced inconsistent results.
The analysis of the NLSY data (which included 22 to 33 year old women) found that while hours worked among the three groups were comparable, there was a significant difference among the wages of the groups. High school diploma holders, GED recipients, and dropouts earned successively lower wages. However, when researchers controlled for work experience, there was no significant difference in the NLSY sample. Also, the AFQT (or academic achievement) score was only reported for the NLSY sample, but researchers found wage differences among the three groups attributable to the AFQT scores. However, no differences were found when researchers controlled for years of education. The analysis of the FIS data (which included 25 to 50 year old women) found comparable hours worked and comparable wages among the three groups. Therefore, these researchers concluded that years of job experience instead of the credential attained explained the wage disparities. However, the NLSY nation-wide sample may have held a higher level of external validity compared to the FIS state-wide sample, which should have prompted researchers to place more reliance on results from that sample. In addition, job experience may not ease the wage differences among the groups because once the cycle of lagging behind in job tenure begins for dropouts and GED recipients their years of experience will not likely become comparable to high school graduates over time.

Murnane et al. (1999) supported earlier findings of nonequivalence (Cameron & Heckman, 1993) in the labor market by analyzing economic returns for males with high and low cognitive abilities. By using the High School and Beyond (HS&B) data, these researchers found that GED recipient annual earnings were not comparable to that of high school graduates. In addition, male GED recipients with high cognitive abilities did not
benefit from GED attainment as much as males with low cognitive abilities. The findings supported the economic non-equivalence between the high school diploma and GED, but also indicated that cognitive ability rather than the credential held may determine future economic benefit.

Boesel et al. (1999) conducted a research synthesis, which supported prior research conclusions regarding economic non-equivalence. GED recipients earn more than dropouts, but “…GED recipients earn less than high school graduates” (p. 6). However, if GED recipients completed post-secondary education and improved cognitive abilities, in time the economic benefits were found to increase. Boesel et al. recommended that individuals earning the GED apply this strategy to seek maximum benefits. However, the low GED enrollment rate in post-secondary education leads to the conclusion that most GED recipients do not reap the maximum benefit from credential attainment. Apparently, cognitive ability which is closely linked with years of schooling, may in time overcome the weak signaling of the GED in the labor market. Boesel et al. affirmed that the high school diploma was the preferable credential because it helped to fully develop cognitive abilities and prepare for post-secondary education. This was important with regard to the earnings maximization framework because the average GED student has about 10 years of schooling (GEDTS, 2006) and presumably high school sophomores have not fully developed cognitive abilities.

Tyler (2004) also found that it takes time for the effect of increased earnings to occur for successful GED candidates. In this research, the sample consisted of male GED test takers in Florida. Tyler merged the state GED database with the state Unemployment Insurance administrative records. Quarterly earnings from 1993 through 2002 were

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matched to male GED test takers in 1995. Tyler analyzed GED candidate earnings before and after GED attainment and found that successful GED candidates held significantly higher earnings by the 16th quarter after attaining the GED. This before and after snapshot of GED recipient earnings supported traditional adult GED attainment although it failed to compare the equivalency of the credential’s earning power to that of the high school diploma. The research regarding the academic and economic value of the GED credential suggested that this credential is not equivalent to the high school diploma for the majority of dropouts. However, the few GED students who complete some form of post-secondary education may attain economic equivalence to high school diploma holders over time.

Related Issues

Signaling theory may also help explain why the GED is not equivalent to the high school diploma (Arkes, 1999). One assumption of signaling theory is that an individual’s credential provides a signal regarding potential cognitive abilities to future employers, which results in employment (Arkes, 1999). Signaling theory complements human capital theory and the earnings maximization framework since it assumes that individuals invest in educational credentialing because of awareness of the signals that credentials send. Tyler (2004) provided additional support for this theory because participants with GED credentials (signals) earned more than dropouts without credentials (no signals). However, the conclusion that the GED increased earnings was clouded by two issues. First, Tyler noted that the successful GED recipient earnings slightly declined just prior to the GED exam. Since successful and unsuccessful candidates completed comparable grade levels of education it may be inferred that cognitive abilities were comparable prior to the GED exam. Therefore, the decline in earnings may have indicated that the
successful group turned attention toward preparing for the exam and in the process may have gained cognitive abilities superior to the unsuccessful group. It may be that it was the increase in cognitive abilities (human capital theory) rather than the GED credential (signaling theory) that would account for the increase in earnings.

There is some support for the hypothesis that cognitive abilities rather than credentials determine future earnings. Tyler, Murnane, and Willett (2000a) investigated the economic payoffs for dropouts with varying levels of cognitive abilities. Social Security Administration taxable earnings from 1988 to 1995 were linked to GED testing records from 1990. Test takers were between 16 and 21 years old at the time of the exam. Participants were grouped into 10 different score groups by condensing 42 state minimum and mean passing GED score requirements. The score groups were then viewed as cognitive ability groups and researchers concluded that higher earnings followed higher cognitive abilities. This research finding makes a strong argument for the preference of the high school diploma by potential employers and employees. The high school diploma seeks to fully develop cognitive abilities, which in turn would increase productivity for employers and earnings for employees.

Tyler, Murnane, and Willett (2000b) tested the labor market signaling hypothesis for the GED. Researchers were unable to determine whether signaling of potential cognitive ability by the GED or years of schooling accounted for the positive correlation between income and education. However, Heckman and Vytlacil (2001) speculated that cognitive ability and years of schooling were so closely tied that the impact of the two variables on income could not be separated.
If the GED is generally accepted as equivalent to the high school diploma in the labor market (Boesel et al., 1999) and individuals with high cognitive abilities have comparable earnings over time (Tyler, 2004), then what other variable(s) would account for the nonequivalent earnings between high school graduates and GED recipients that Cameron and Heckman (1993) identified? Heckman and Rubinstein (2001) posited that the answer might lie in determining the impact of non-cognitive abilities on income. However, the researchers noted that the field of non-cognitive abilities is in its infancy due to the lack of a reliable measure of these traits and the difficulty of operationalizing the term non-cognitive abilities.

Another vein of related research involved identification of the high school population at risk for dropping out. Transitional and traditional student dropout behaviors are different, which may be evidenced by the timing of GED enrollment and make population identification possible. Metzer (1997) found that students returning to high school and students pursuing the GED experienced pivotal moments in the workforce or in social settings where the lack of a high school education impeded advancement or became an embarrassment. This pivotal moment described in structured interviews preceded the return to formal education. Dropouts in the study never reported this negative interaction in social circles, with parents, or on the job. GED transitional students would not require educational epiphanies in order to realize the value of secondary education. Within the earnings maximization framework, policy constraints and the costs associated with credential attainment prompt dropout behavior. GED transitional students drop out with the intent to enroll in a GED program. Intent may be determined through a self reported survey instrument and through structured interviews.
There is a large body of literature focused on identifying dropouts and the reasons they leave school. The internal and external factors leading to dropout behavior comprise multiple variables making it difficult to identify a single path to dropping out (Finn, 1989). However, Hess and Copeland (2001) identified three categories of potential dropout variables: social factors, school factors, and student factors. This study focused on student factors and while there was no significant difference between the graduate (control) and dropout (experimental) groups by demographic factors, there was a significant difference between the stress levels (operationalized as life change events and coping skills) of dropouts and high school students. These researchers further posited that while school administrators may not have a great deal of influence over social and student factors, care should be taken to decrease negative school factors, which over time may cause academic and social disengagement from school.

Berktold et al. (1998) echoed these findings in the NELS 88/94 data by documenting that a high percentage of dropouts who eventually returned to school had previously discussed dropping out with a school principal. Forty-seven percent of those who spoke with a principal prior to dropping out eventually returned and attained a high school diploma, but only 12% of the same group attained a GED. The implication is that administrative contact with these students may have increased the likelihood of returning to high school. While Berktold et al. did not draw that conclusion due to insufficient data, the potential for administrative intervention should not be discounted. The subgroup of transitional dropouts may also respond to administrative intervention that seeks to correct misperceptions and reveal the superior academic and economic value of the high school diploma.
Heck and Mahoe (2006) also analyzed the NELS 88/94 data (n=12,972) to conduct an ethnographic study regarding high school persistence. These researchers posited that academic and social interactions moderated by social status impacted persistence in high school. It appeared that ethnic minority students were over represented as dropouts, but under represented as high school graduates. Apparently, initial 9th grade placement scores for ethnic minorities were low, which resulted in less academically challenging curricula. Ethnic minorities concentrated in classes with low academic rigor also held low opinions regarding the quality of their teachers. This interaction between the less rigorous classes and low opinions of teachers created a greater likelihood of dropping out. It may be that students who begin high school academically challenged and with poor teacher-student interactions will be less likely to persist with their education.

Orfield, Losen, Wald, and Swanson (2004) found substantially lower graduation rates for minority group members in 2001. Researchers utilized the Cumulative Promotion Index (CPI) method to estimate graduation rates developed by Swanson during the study. The CPI is based on school district data reported in the CCD and adjusts annually. The CPI uses the mean promotion rates across groups of students reported in the CCD and adds that estimated mean annually over four years for each group. Orfield, Losen, Wald and Swanson acknowledged that this method may overestimate the actual graduation rate due to the typically high number of 9th grade retentions not accounted for in the CPI. However, researchers asserted that the CPI was the most accurate method short of individual student tracking. These researchers utilized the CPI method for 2001 and found the national graduation rate was 68%, but only 55.5% in Georgia. By ethnicity,
the graduation rates were 74.9% for White Americans, 50.2% for African Americans, and 53.2% for Hispanic Americans. Further, the Georgia graduation rates by ethnicity were 62.4% for White Americans, 43.7% for African Americans, and 43.2% for Hispanic Americans. Clearly, the gap in the graduation rates between majority and minority students supported assertions by Heck and Mahoe (2006) regarding the over representation of minorities as dropouts and beckons an investigation into the decision-making process driving this drop out behavior.

Summary

The GED program was created in 1942 in order to help veterans of World War II (WWII) document the attainment of high school level skills (Mullane, 2001). For many veterans, formal high school education had been interrupted by the war, but through military training and informal educational experiences these veterans developed high school level cognitive abilities. The discipline of military life may have also contributed to the development of high school level non-cognitive abilities. The GED credentialing program was extended to non-military high school dropouts by 1965 so that all adults would have an opportunity to document attainment of high school level abilities. There are no data regarding the average age of GED candidates when the program began. However, the average GED candidate was 29 years old in 1960 (GEDTS, 2006).

Today, there are two populations of GED candidates. There is the traditional adult learner seeking a second chance to document attainment of high school level cognitive abilities and there is the high school aged dropout. These dropouts may be categorized into different subgroups because they attend GED programs for a variety of reasons. However, the subgroup of dropouts who are present in the GED program (in part)
because of the misperception that the GED program requires less effort, but provides equivalent academic and economic benefits, is troubling. According to Kaufman et al. (2004), the number of high school dropouts is rising and according to ETS (2005), more high school aged dropouts are enrolling in GED programs. This subgroup represents a significant deviation from the original target market for this adult education credential and research has not determined how many dropouts are members of this subgroup (Cameron & Heckman, 1993; Chaplin, 1999; Tyler, 2002).

Researchers have speculated that this subgroup may have been lured by the accessibility of the GED program. The human capital theory provided a theoretical framework to understand a broad range of educational investment decisions. The theory asserts that educational investments are made in light of perceived academic and economic outcomes (Becker, 1964). While Osterman (1989) asserted that human capital theory would not adequately explain educational investment decisions of marginalized group members, the shortcoming of the theory is actually its lack of explanation for nonequivalent outcomes for equivalent investments in the same credentials. Human capital theory is appropriate for analyzing educational investments for disparate credentials, which yield different outcomes.

Chaplin (1999) used this theory to develop the earnings maximization model which provides a conceptual framework for understanding the youth decision to pursue either the high school diploma or the GED. Youth attainment of a credential is based on the perceptions of value (or benefits), costs, and constraints associated with that credential. Youths may have the misperception that the benefits of the high school diploma and GED credentials are equivalent, which allows the costs (time and effort) and
constraints (policies) to unduly influence decisions. Youths correctly perceive the GED to have lower costs since the approximate time spent studying for the exam is 30 hours compared with over 400 hours spent in high school each year (Boesel et al., 1999). However, there appears to be an imbalance in policy constraints for these two credentials. Tyler (2004) indicated that the increased policy constraints for the high school diploma as a result of NCLB legislation may have negatively impacted the dropout rate. In addition, some researchers have speculated that legislation and policies intended to salvage potential human capital may be luring students out of high school and into GED programs (Cameron & Heckman, 1993; Chaplin, 1999). For example, the WRAEA of 2003 lists GED enrollment as a required activity for its youth program (S. 1627, 2003), which is intended to provide funding for dropout prevention and recovery. Also, the minimum age requirement to attain a GED is 18 years old in most states, but that policy guideline is routinely waived as evidenced by the 15.2% of GED candidates who were 16 and 17 year olds (GEDTS, 2006). This de facto policy of allowing high school aged youths to easily transition into GED programs represents a weak GED policy constraint. The students' misperception that both credentials hold equivalent academic and economic value; the increased policy constraints for the high school diploma; and the weak policy constraints for the GED program, compounded by legislative advertising for the GED, may have spurred the growth of this dropout subgroup transitioning into GED programs.

Researchers have asserted that the high school diploma and the GED are not academically or economically equivalent (Boesel et al., 1999; Cameron & Heckman, 1993; Chaplin, 1999). While post-secondary institutions and employers admit and hire GED recipients on an equal basis, outcomes for GED recipients are not equivalent. While
most GED recipients report intentions to pursue a post-secondary education (GEDTS, 2006), they are less likely to participate in or complete two and four year collegiate programs of study (Berktold et al., 1998; Boesel et al.). In addition, GED recipients earn lower wages than high school graduates (Boesel et al.; Cameron & Heckman, 1993). However, older GED students appear to command wages that are comparable to high school graduate cohorts (Tyler, 2003). Researchers have speculated that this may be due to an increase in cognitive skills, additional training, or non-cognitive skill attainment received on the job over time (Heckman & Rubinstein, 2001; Heckman & Vytiacil, 2001). The conditions under which these youth eventually receive additional formal or informal education remain unclear.

A high school diploma is preferable for youths because of the labor market signal it sends to employers regarding the holder’s potential cognitive ability. Attainment of this credential is a human capital pursuit consistent with the earnings maximization model. However, the underlying education received may be more important to society. Schools transmit culture and promote social and political norms (Gutek, 1983) and the high school diploma may also signal these non-cognitive abilities. In addition, since GED students have only completed 10th grade on average (GEDTS, 2006), they may not have fully developed cognitive abilities that allow full participation in the labor market or this complex meritocratic society.

As the GED program continues to take on the connotations of K-12 education, its appeal to traditional adults may wane. Mikulecky (2003) asserted that adult literacy education (inclusive of the GED program) has been adopted into K-16 education by emphasizing NCLB standards and evaluations. Perhaps the legislative motive for
promoting the GED is two-fold. The GED may be a low cost method to recoup lost human capital and a way to claim equality of educational opportunity (Smith, 2003). However, the GED program's tendency to promote dropout behavior may begin to undermine the efforts of the secondary educational system.
CHAPTER III
METHODOLOGY

Procedures

This sequential explanatory mixed methods investigation sought to determine whether high school aged students and GED candidates held comparable perceptions regarding the credential values and the academic effort necessary for credential attainment. The mixed methods design was employed so that results would be augmented through complementary quantitative and qualitative analyses. This sequential explanatory type of mixed methods design emphasized the quantitative analysis and explained results through integration of the qualitative analysis (Creswell, 2003). The investigation of student perceptions was expanded to determine whether ethnicity impacted the perceptions held regarding credential value and effort ascribed to these credentials. The differences in perceptions between high school students and GED candidates based on gender regarding the value ascribed to credentials were also observed.

The dependent variables measured in the quantitative portion of the investigation were perception of academic value, perception of economic value, and perception of academic effort extended to complete the high school diploma and GED credential. Perception of academic value was operationalized as the participant’s attitudes and beliefs about the academic outcomes of credential attainment. Perception of economic value was operationalized as the participant’s attitudes and beliefs about the economic outcomes associated with credential attainment. Finally, perception of effort was operationalized as the participant’s attitudes and beliefs regarding the level of academic investment associated with the credentialing process. The quantitative portion of this
mixed methods design dominated the investigation. The qualitative portion of the investigation was conducted to support quantitative findings and to allow participant elaboration on perceptions regarding the credential sought.

A sample size of 152 participants (n=152) was selected using the stratified quota sampling technique. A minimum of 20 students were required for each stratum (student status and ethnicity) which comprised the independent variables. Student status was defined as high school or GED group membership and ethnicity was limited to three categories: White American, African American, and Hispanic American. Gender was not a primary independent variable, but its impact on the dependent variables was observed. This sampling technique did not yield a representative sample of the population because it was not a random sampling technique (Black, 1999).

Data was collected from members of the three largest ethnic groups in the Georgia GED candidate population. According to GEDTS (2006), the ethnic makeup of the Georgia GED candidate population was 52.2% White American, 41.4% African American, 4.7% Hispanic American, 1.1% Asian, 0.5% American Indian or Alaska Native, and 0.1% Pacific Islander/Hawaiian. Employing this sampling framework and maintaining the 20 participant per strata minimum guideline established 76 high school students and 76 GED candidates as a minimum sample for analysis. Therefore, the sample based on ethnicity was 62 White Americans, 50 African Americans, and 40 Hispanic Americans distributed equally between the two student status groups. In addition, the interview sample guideline was established as 22 students (15% of participants).
Questionnaires were administered and interviews conducted following approval by both school districts (sites A and B) for the study and approval by the University institutional review board (Appendix E). School district approvals were contingent upon non-disclosure of the name and location of the schools or the school districts.

Participants

There were two groups of participants included in this study: diploma bound high school students and a subgroup of the dropout population comprised of students who transferred from high school into a GED program. Participants in both groups were high school aged (16 to 19 years old) and selected from two public school districts (sites A and B) in the Atlanta metropolitan area. Students who dropped out of site A routinely enrolled in site B because site A did not have a GED program. This arrangement was a common practice in Georgia where 37 adult education service delivery areas (SDAs) served 159 counties (Department of Technical and Adult Education, n.d.).

High school students were identified as diploma bound through their level of academic and social engagement with the school. Diploma bound group members held Grade Point Averages (GPAs) of 2.5 or higher and an affiliation with an academic club, social organization, or sports team on campus. In addition, transitional dropout group members were identified by the brevity of their disengagement from formal schooling. Transitional dropouts left high school with the intent to enroll in a GED program, which was akin to transferring from high school into a GED program. That intent was demonstrated through GED enrollment within 12 months of leaving high school. Participants in the qualitative portion of this investigation were identified through screening of the quantitative data in order to ensure that opposing viewpoints were
represented. Parental consent and student assent were required for participants under the age of 18 and student consent was required for participants 18 years of age or older (Appendix B).

Description of Setting

Site A was a public high school in a suburban school district with a student population of over 2000. The student population was 46% African American, 38% White American, 12% Hispanic American, and 4% other ethnicities. Students chose one of three general education diplomas to pursue: international baccalaureate (IB), traditional college preparation, or technical preparation. The IB diploma held higher weights for many college admission and scholarship formulas. The 2005 class profile evidenced traditional post high school pursuits. Approximately 63% of graduates enrolled in four year universities, 11% enrolled in two year colleges or technical schools, 1% enlisted in the military, and 25% of students entered the workforce or pursued other interests after graduation. The grading system was based on a 4.0 scale; however, IB and advanced placement (AP) coursework carried higher weights than other coursework. Consequently, GPAs occasionally exceeded the 4.0 scale.

In order to graduate, students had to complete the required coursework and pass all four parts of the Georgia High School Graduation Test (GHSGT). The full battery included English language arts, math, science, and social studies (Georgia Department of Education [GADOE], n.d.a). According to the Georgia Governor’s Office of Student Achievement (n.d.), site A held Title I status and was on the needs-improvement list for the 2004-2005 school year, but was removed from that list for meeting AYP goals for the next two consecutive years. Site A enrollment by grade for the 2004-2005 school year
included 628 ninth-grade students, 555 tenth-grade students, 440 eleventh-grade students, and 360 twelfth-grade students (NCES, n.d.). The decreasing enrollment in the upper grades suggested a high dropout rate.

Site A addressed student retention by hiring a high school graduation coach. The GADOE (2007) with the support of the governor implemented the Georgia High School Graduation Coach initiative during the 2006-2007 school year. The purpose of the program was to identify and help at-risk students before they considered dropping out of school. The success of this program was not analyzed because the program was still in its baseline year. However, site A school district took a proactive stance by expanding the graduation initiative to the middle school level for the 2007-2008 school year. If this initiative proves successful, it should be replicated statewide at the high school and middle school levels.

Site B was a public school-based adult education center located in a different school district. The site included a main campus (B1) which was housed in a renovated high school in addition to a smaller office (B2) which was housed in a technical college in an adjacent county. Data were collected from both campuses because students from site A had the option to attend either campus.

The Tests of Adult Basic Education (TABE) was the intake instrument used to determine student educational functioning level. There were six educational levels: Beginning ABE Literacy (ABE1), Beginning Basic Education (ABE2), Low Intermediate Basic Education (ABE3), High Intermediate Education (ABE4), Low Adult Secondary Education (ASE1), and High Adult Secondary Education (ASE2). All students regardless of their functioning level were classified as GED students if credential attainment was
their educational goal. In addition, most of the 16 to 18 year olds in the program initially
tested into one of the four ABE levels which may have required more pedagogical
teaching techniques than the two ASE levels. The student tracking system for site B
included the 16 to 18 year old age group which was slightly different from the 16 to 19
year old study group parameters.

High school aged students 16 to 18 years old were a significant portion of the
student population on both campuses and anecdotal accounts from teachers indicated that
the increased presence of this age group spurred the increase in the traditional adult
attrition rate. According to site B administrators, exit interviews with traditional adults on
both campuses revealed frustrations regarding classroom discipline.

In order to better serve this age group and to address the concerns of traditional
adults, this 16 to 18 year old age group was encouraged to attend afternoon classes at site
B beginning in 2005. However, site B did not have the manpower or the space to
continue implementation of this type of accommodation and resumed teaching mixed age
classes. This situation raised funding concerns because as the high school aged
population continued to grow at site B the need for manpower and space intensified.
Table 1 shows the number of 16 to 18 year olds attending sites B and B. While the high
school aged population slowly increased, the percentage of traditional adult learners
slowly decreased. This data seemed to support the anecdotal accounts of teachers and
administrators. However, a causal relationship between increasing youth enrollment and
decreasing traditional adult enrollment was not established.
Table 1

GED Enrollment by Age and Site

<table>
<thead>
<tr>
<th>Year</th>
<th>16-18 year old</th>
<th>19+ year old</th>
<th>Total N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B₁  B₂ %</td>
<td>B₁ B₂ %</td>
<td></td>
</tr>
<tr>
<td>2003-04</td>
<td>317 88 (18)</td>
<td>1412 435 (82)</td>
<td>2252 (100)</td>
</tr>
<tr>
<td>2004-05</td>
<td>302 118 (21)</td>
<td>1318 288 (79)</td>
<td>2026 (100)</td>
</tr>
<tr>
<td>2005-06</td>
<td>314 96 (22)</td>
<td>1223 239 (78)</td>
<td>1872 (100)</td>
</tr>
</tbody>
</table>

Instrumentation

The Student Perception of Credentials questionnaire (Appendix C) and interview form (Appendix D) were developed to address the research questions. These survey instruments were developed through a review of the literature regarding the misperceptions that some dropouts may hold regarding the academic and economic outcomes of the GED.

Existing instruments designed to analyze behaviors and beliefs of the general dropout population were inappropriate for this study without extensive modifications. GED participants in this study may have possessed characteristics similar to those of the general dropout population. However, 16 to 19 year old high school students who transition into a GED program have assigned value to holding an education credential. Typical high school dropouts have not ascribed value to education credentials. Therefore, existing instruments targeting high school dropouts did not measure the value ascribed to education credentials.
The closed questionnaire was formatted using a Likert-type scale to elicit quantifiable student responses. This method of data collection has been a common practice in adult education research for measuring attitudes and related perceptions (Merriam & Simpson, 2000). The five-point scale on the questionnaire ranged from responses of strongly disagree to strongly agree. Responses from the ordinal scale were then converted to numerical values prior to analysis.

A focus group of nine public school professionals in the Atlanta metropolitan area and one GED administrator in the Hattiesburg metropolitan area of Mississippi provided feedback regarding content validity. Focus group members were asked to determine whether items on the questionnaire addressed the research questions in chapter one. The focus group recommended deletion of one item and rewording for other items in order to ensure that statements clearly addressed the dependent variables. The resulting 17 item scale representing the three dependent variables received a minimum of 70% agreement for study inclusion among focus group members. Next, a group of three traditional adult GED students from the Atlanta area provided recommendations regarding the clarity and simplicity of the questions. Construct validity was assessed through a factor analysis and instrument reliability was assessed through a review of Cronbach’s alpha coefficient for the entire instrument and each of the subscales measuring the dependent variables.

The structured student interview form was developed and responses analyzed utilizing the EMM as a lens to allow themes in the data to emerge, which might augment responses to the closed questionnaire. This instrument guided student elaboration regarding credential costs and benefits. Therefore, the instruments were designed with
embedded overlap between some questionnaire items and interview questions to aid in determining whether the qualitative data supported the quantitative data.

Analysis of Data

The research questions listed in chapter one guided analysis of the three dependent variables: perception of academic value, perception of economic value, and perception of the level of effort necessary to obtain a high school diploma versus a GED credential. The impact of the independent variables on the dependent variables was evaluated and post hoc tests were performed as appropriate.

The results of the factor analysis established correlation among the dependent variables. Therefore, a three-way multivariate analysis of the variance (MANOVA) was employed to explore differences among the dependent variables (Mertler & Vannatta, 2002). Significance was established at the $p < .05$ level and statistical power was evaluated a posteriori. Data analysis utilized SPSS Graduate Pack, version 14.0 statistical software.

The structured interviews were analyzed and coded using the EMM to allow themes in the data to emerge. Participant responses to questions one, two, and five, which addressed opinions regarding the causes of dropout behavior and advice for those considering leaving high school, were coded for themes that emerged during analysis. Questions three, four, and seven, which were related to comparing and contrasting the two credentials, were coded for consistency with the dependent variables. Responses to question six were summarized rather than coded. The quantitative and qualitative data were analyzed separately, but findings were integrated to interpret results.
CHAPTER IV
FINDINGS

Introduction

The purpose of this investigation was to determine whether high school and GED students held comparable perceptions regarding credential value and the effort necessary for credential attainment. This investigation utilized the sequential explanatory mixed methods design to determine perceived credential value and effort and the dimensions of that value for group members. The sample and data collection descriptions were provided to evaluate whether sample guidelines were met and to evaluate any impact on validity. The factor analysis results were presented to document construct validity and internal consistency for the questionnaire. Hypothesis testing was reported as conducted through the MANOVA procedure and supported by the qualitative data that was gathered through structured interviews. The results section allowed integration of the quantitative and qualitative data analyses.

Description of Sample

The study sample consisted of 16 to 19 year old diploma bound high school students and transitional GED students. The sample size (n=158) was comparable to the 152 sample prescribed by the guidelines of the stratified quota sample method. Group sizes were equal with 79 high school and 79 GED students. The minimum requirements based on ethnicity were achieved with the exception of the Hispanic American GED group. The minimum number of 20 participants for this group was not attained which reduced statistical power and may have hindered detection of statistically significant
differences among groups. In addition, there was a noticeable difference by gender between the group sizes. The total sample included 67 male and 91 female students.

Participants for the factor analysis included 16 to 26 year old high school and GED students as well as 18 to 26 year old local college students. This deviation from study parameters was appropriate for the factor analysis which focused on the structure of the dependent variables. However data that did not meet study parameters were not utilized for the MANOVA which focused on the differences between student groups and among ethnic groups. The combined sample size (n=326) for the factor analysis was adequate.

Table 2

Sample Demographics: Student Status, Gender, and Ethnicity

<table>
<thead>
<tr>
<th></th>
<th>High School Students</th>
<th>GED Students</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>28</td>
<td>39</td>
<td>67</td>
</tr>
<tr>
<td>Female</td>
<td>51</td>
<td>40</td>
<td>91</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White American</td>
<td>34</td>
<td>33</td>
<td>67</td>
</tr>
<tr>
<td>African American</td>
<td>25</td>
<td>30</td>
<td>55</td>
</tr>
<tr>
<td>Hispanic American</td>
<td>20</td>
<td>16</td>
<td>36</td>
</tr>
</tbody>
</table>
Data Collection

Data collection occurred in two rounds at site A in an effort to attain the prescribed ethnic participation guidelines for the stratified quota sample. The high school graduation coach served as liaison for parents and students to assuage confidentiality concerns. Initially, an alpha list of 930 students with GPAs of 2.5 or higher was generated and every fifth name on the list was selected, which yielded 187 students who were asked to participate. The purpose of the study was disclosed and the assent/consent forms were provided as appropriate (Appendix B). Students who wished to voluntarily participate and who received parental consent attended a 15 to 20 minute meeting the following day to complete the Student Perceptions of Credentials Questionnaire (Appendix C). However, only 56 students attended that meeting which resulted in a 30% response rate and some of those students did not qualify for study inclusion. Eight students were younger than the minimum age for study inclusion (16 to 19 years old) and others did not participate in extracurricular activities. The low participation rate, the number of students who did not qualify for study inclusion, and the need to meet the participation guidelines of the sample method prompted a second round of data collection. All 12 exit interviews were conducted following the first round of data collection utilizing the Student Perceptions of Credential Interview Form (Appendix D).

In the second round, high school seniors who were members of the prescribed ethnic groups were targeted to meet the sample framework. Many of these seniors were 18 years old and their consent avoided the low participation experienced in the first round which was attributed to the lack of parental consent for younger students. The first 43 seniors on the alpha list who were members of the desired ethnic groups were contacted
and 29 participants responded, which yielded a 67% response rate and ended data collection for diploma bound high school students. However, seven seniors were included in the study who did not meet the extracurricular involvement criteria for study inclusion. These seniors were considered diploma bound because they held GPAs of 2.5 or higher and had only three months remaining until graduation.

Data collection at site B also occurred in two rounds in order to meet the sample framework. The purpose of the study and the consent form were explained to students at the beginning of their classes. GED students at site B1 requiring parental consent were given the questionnaire to take home in the hope that parental review of the instrument would increase the response rate. Students 18 years of age or older were allowed to complete the consent form and questionnaire at the end of each class. The response rate was high with 134 questionnaires distributed and 125 collected. Although 71 students did not meet study inclusion parameters, those questionnaires were utilized in the factor analysis because the students met the age range requirement. The remaining 54 students met study parameters, but that number was below sampling needs so an additional round of data collection was warranted. Seven of the GED exit interviews were conducted at site B1.

The second round of data collection took place at site B2 during GED enrollment over a two day period. Parents were required to attend enrollment with 16 and 17 year olds which alleviated low participation concerns for those students. GED students in both rounds of data collection met criteria for study inclusion if they were 16 to 19 years old at the time of dropout and transitioned to the GED program within 12 months of dropping out. Again, any participants who met the age range criteria, but may or may not have met
the study inclusion criteria, were included in the factor analysis. Of the 65 questionnaires collected in round two, 35 participants met study parameters. However, an insufficient number of questionnaires were collected for the Hispanic American ethnic group through two rounds of data collection. Five of the GED exit interviews were conducted at site B during this round. Data collection for sites A and B was completed over a three week period.

Factor Analysis

The Student Perceptions of Credentials Questionnaire instrument included 17 items using a Likert-type scale to measure the three dependent variables: economic value, academic value, and academic effort. The purpose of the factor analysis was to confirm that the items identified by the focus group experts were adequate to measure the constructs of the dependent variables and to explore the nature of these factors. This process was intended to establish construct validity for the Student Perceptions of Credentials Questionnaire (Appendix C). Focus group members matched the following items and constructs with a minimum of 70% agreement: items 11, 17, 21, 24, and 27 measured economic value; items 13, 14, 18, 19, 22, and 25 measured academic value; items 12, 15, 16, 20, 23, and 26 measured academic effort. Participants in the sample (n = 326) were then asked to rate their perceptions by responding to the items. Next, the data was converted to numerical values (i.e. 5 = strongly agree, 4 = agree, 3 = neither agree or disagree, 2 = disagree, 1 = strongly disagree).

The number of missing values varied by item, but missing values accounted for less than two percent of cases per item. Missing values were replaced with item mean values. This method of addressing missing values may have decreased variability or
underestimated dispersion (Downey & King, 1998), but this was not a concern since the number of cases was small. Listwise exclusion would have deleted whole cases and reduced sample size and may have impacted power. Pairwise exclusion of missing data would have created unequal sample sizes and may have introduced systematic bias if patterns existed in the missing data. Therefore, replacing missing values with mean values was considered an appropriate method to deal with missing data because it seemed to create fewer complexities for the factor analysis.

A visual scan for outliers was followed by a review of box plots for each item (Allison & Gorman, 1993). A total of ten extreme values were identified through item box plots for the entire sample. Each extreme value was reviewed by case, but neither input error nor participant error were identified as potential causes for the values. Therefore, these values were considered true values (not errors) and were not deleted because the data were potentially informative.

Next, an exploratory factor analysis was conducted on the Student Perceptions of Credentials Questionnaire (see Appendix C). According to Field (2005), samples above 300 may provide adequate reliability for a factor analysis. The principal component method of extraction and varimax rotation were selected for analysis. Values for reverse worded items (i.e. negatively worded and polar opposite) were recoded prior to analysis (Schriesheim, Eisenbach, & Hill, 1991; Woods, 2006). Reverse wording was employed to guard against response bias (Black, 1999), but recoding was necessary so that items measuring the same construct were scored in the same direction for analysis (Smith, Budzeika, Edwards, Johnson, & Bearse, 1986). Accordingly, the following reverse worded items were recoded: 11, 13, 14, 15, 16, 25, and 27.
Diagnostic tests were conducted to determine whether factor analysis was appropriate for the sample. Significance for the correlation matrix was established using the Bonferroni adjustment (.05/136 = .0004). A considerable number of correlations (52) were significant across the three dependent variable constructs. Correlation among the dependent variables confirmed that a MANOVA statistical procedure was appropriate. Multicollinearity was not a concern since the .065 determinant was acceptable. The KMO was also acceptable at .743 and Bartlett’s test was significant at \(p=.000\), which confirmed that there was a relationship among the items and that factor analysis was appropriate. Although three factors were intended to be measured, four factors were extracted with eigenvalues greater than one. The four components explained 47.4% of cumulative variance after rotation.

The fourth factor was established with a theoretical basis through a subjective evaluation of the common characteristics of the items that loaded on that factor. The following items loaded on the latent social value factor: 12, 13, 15, 18, 24, 25, and 27. All other items loaded in patterns consistent with the dependent variable constructs as expected: academic value (items 14, 19, and 22); academic effort (items 16, 20, 23, and 26); and economic value (items 11, 17, and 21). All items loaded positively on factors with values of .40 or greater and there were no double loads (Appendix F). Therefore, no items were eliminated from analysis and instrument reliability of .74 was calculated for all 17 items. Cronbach’s alpha statistic measured the reliability of the instrument and expressed the amount of consistency among items. Alpha coefficients were also calculated for the dependent variable subscales. Social value, academic effort, academic value, and economic value held alpha levels of .71, .67, .65, and .48, respectively.
The purpose of this study was to compare the value of the GED and the diploma between the two student groups. Items and subscales were developed to measure the value ascribed to both credentials, but many items were regrouped through factor analysis. This regrouping changed the subscale constructs in a meaningful way. Following factor analysis, each subscale measured the value or effort ascribed to one credential rather than the value or effort ascribed to both credentials. Therefore, the perceived value and effort associated with the high school diploma were measured by the academic value, economic value, and academic effort scales while the perceived value of the GED credential was measured by the social value scale. However, the regrouping did not change the overarching purpose of the instrument which was to determine whether students in either group held comparable perceptions of value for the diploma and the GED credential.

Tests of Hypotheses

The factor analysis resulted in the determination that the four dependent variables were correlated and confirmed that a MANOVA statistical procedure was appropriate. The purpose of the MANOVA was to determine whether significant mean differences existed between high school and GED students with regard to their perceptions of academic value, economic value, social value, and academic effort. In addition, the analysis included an examination of the impact of ethnicity on those perceptions and observed for the impact of gender. A comparative analysis was conducted on the diploma bound high school student group and the transitional GED student group with a sample size (n = 158) comparable to the minimum sample guidelines.
The MANOVA assumptions were assessed for any violations which may have threatened the validity of the results. Observations in the sample were non-random, but they were independent of each other. Equality of the covariance among the groups (homogeneity of variance) was assessed through a review of Box’s test. Where Box’s test was not significant, Wilks’ Lambda was used for analysis. However, where Box’s test was significant at $p < .001$ and group sizes were extremely unequal, Pillai’s Trace was used for analysis (Field, 2005; Mertler & Vannatta, 2002).

Following assessment of assumptions, mean scores were calculated for each of the subscales based on the independent variables and analyzed through a single three-way MANOVA procedure to evaluate the overarching construct regarding credential value based on each independent variable. The multivariate tests of significance were followed by examinations of the univariate analysis of variance reported in the between-subjects effects tests and Tukey post hoc tests where appropriate. The evaluation of the construct components (i.e. academic value, economic value, social value, and academic effort) based on each independent variable were reported in these univariate tests. This evaluation of the construct components (or dependent variables) constituted the tests of hypotheses. All tests were evaluated at the $p < .05$ alpha level (i.e. the likelihood that these results occurred by chance was less than five percent).

Credential Value

A statistically significant difference was found for the overall multivariate test by student status, Pillai’s Trace $= .126$, $F(4, 143) = 5.157$, $p = .001$, $\eta^2 = .126$. Students placed a higher value on the credential they were pursuing. The dimensions of value were evaluated through univariate testing. No post hoc tests were performed because there
were only two levels of the independent variable. There were no differences found by gender or ethnicity or the interaction of the independent variables for the multivariate tests. Observed power for tests that did not detect significant differences ranged from .299 to .666.

Hypothesis 1

H1: There is a statistically significant difference between GED and high school student perceptions of the academic and economic values ascribed to the GED credential and the high school diploma.

The analysis found a statistically significant difference in the between-subjects effects tests for academic value by student status, F(1, 146) = 12.040, p = .001, \( \eta^2 = .076 \). Also, a significant difference was found in the between-subjects effects tests for economic value by student status, F(1, 146) = 4.616, p = .033, \( \eta^2 = .031 \). The means of the high school group members were higher for both measures than the means of the GED group members (Table 3). Therefore, high school students perceived higher academic and economic values for the diploma than GED students. However, the academic and economic values of the GED were not measured because of item reclassification stemming from the factor analysis. This data supported hypothesis one with regard to the high school diploma.

Hypothesis 2

H2: There is a statistically significant difference by ethnicity between GED and high school student perceptions of the academic and economic values ascribed to the GED credential and the high school diploma.
The analysis did not detect a difference for academic value for the diploma by ethnicity with observed power of .092 and neither for economic value by ethnicity with observed power of .091. However, academic value for the GED by ethnicity was not measured because of item reclassification stemming from the factor analysis. Therefore, this data did not support hypothesis two with regard to the high school diploma.

**Hypothesis 3**

H₃: There is a statistically significant difference between the interaction of ethnicity and student status with GED and high school student perceptions of the academic and economic values ascribed to the GED credential and the high school diploma.

The analysis did not detect differences for the academic value of the diploma by the interaction of ethnicity and student status and neither for economic value by the interaction of ethnicity and student status. Observed power for these tests was .104 and .348, respectively. The academic value of the GED was not measured because of item reclassification stemming from the factor analysis. This data did not support hypothesis three with regard to the high school diploma.

**Hypothesis 4**

H₄: There is a statistically significant difference between GED and high school student perceptions of the effort necessary to complete the GED credential and the high school diploma.

The analysis did not detect a difference for academic effort extended toward diploma attainment by student status with observed power of .314. The academic effort extended toward GED attainment was not measured because of item reclassification.
stemming from the factor analysis. This data did not support hypothesis four with regard to the high school diploma.

Hypothesis 5

H₅: There is a statistically significant difference by ethnicity between GED and high school student perceptions of the effort extended to complete the GED credential and the high school diploma.

The analysis did not detect a difference for the academic effort extended toward the diploma by ethnicity with observed power of .108. The academic effort extended toward the GED by ethnicity was not measured because of item reclassification stemming from the factor analysis. This data did not support hypothesis five with regard to the high school diploma.

Hypothesis 6

H₆: There is a statistically significant difference between the interaction of ethnicity and student status regarding perceptions of effort extended to complete the GED credential and the high school diploma.

The analysis did not detect a difference for academic effort extended toward the diploma by the interaction of ethnicity and student status with observed power of .530. The academic effort extended toward the GED by the interaction of ethnicity and student status was not measured because of item reclassification stemming from factor analysis. This data did not support hypothesis six with regard to the high school diploma.

Additional Analyses

A statistically significant difference was found for the social value of the GED by ethnicity, \( F(2, 146) = 4.124, p = .018, \eta^2 = .053 \). The Tukey post hoc tests showed a
significant difference ($p = .023$) between the higher mean for the African American group and the lower mean for the White American group with a mean difference of .1998 and a 95% confidence interval of .0228 to .3769. However, no differences were detected for the latent social value factor of the GED by student status, gender, or by the interaction of the independent variables. Finally, no differences were found for academic value, economic value, or academic effort of the GED by gender or by any interaction effects. The social value of the diploma was not investigated.

Qualitative Analysis

The qualitative analysis utilized the Student Perceptions of Credentials Interview form to guide structured interviews (Appendix D). Questions on the instrument were developed within the EMM framework to probe student perceptions of credential value and elaborate on quantitative results. Questions three, four, and seven were coded academic value, economic value, academic effort, or other response, but coding for questions one, two, and five emerged through an analysis of the themes generated during the interview. Question six was summarized rather than coded because it addressed recommendations for high school administrators. The transformed data was then cross-tabulated to enhance the comparative analysis by student status.

The interview sample ($n = 24$) consisted of twelve high school students and twelve GED students. These participants were selected following completion of the questionnaire administration because during introductions they expressed extreme viewpoints regarding credential attainment and these opposing perspectives were confirmed through screening of the quantitative survey data. Polar opposite views highlighted the differences in the decision making processes through comparative
analysis. High school participants held GPAs which exceeded 4.0 indicating completion of IB or AP coursework and five (42% of the high school group) received early admission to the colleges of their choice. This high school interview group held high levels of academic and social engagement. Participant responses were candid and the presence of the high school graduation coach during the interviews did not seem to hinder responses. GED students were new dropouts (three months) and five students (42% of the GED group) were enrolling in the GED program at site B\textsubscript{2} during data collection. Parents at site B\textsubscript{2} were present during these five interviews, but student responses seemed forthright. Therefore, parental presence did not seem to unduly hinder the interview process.

Most (92%) of the high school participants cited post-secondary education or familial pressure as factors in their decision to attain the diploma (question one). Ten out of twelve students identified disparate values between the credentials (question three). Those two participants who did not express disparate values had not heard of the GED prior to the questionnaire administration. All of these high school students planned to go to college (question four). In addition, eleven urged others to pursue the diploma (question five) and 75% of these students felt that high school requirements were harder (question seven).

Most (67%) of the GED participants identified a difference between the credentials along academic or economic themes (question three), but 75% planned to pursue post secondary education (question four). In addition, 75% of these dropouts advised others to pursue the high school diploma (question five), but only half stated that high school graduation requirements were harder (question seven). The increased
constraints identified by nearly all the high school group were not acknowledged by half of the GED group. Also, no members of this group expressed parental influence as a factor in the decision making process.

The GED students seemed unaware of the experiences they shared with their cohorts that contributed to the decision to drop out. For example, one 19 year old stated that he dropped out due to insufficient credit hours for graduation (a constraint) and felt he was too old to continue high school. However, he stated “most students are just lazy and keep failing because they don’t want to work hard like me.” Although 58% of the GED participants dropped out due to academic or peer-related problems (question one) only 25% of that same subgroup believed that others shared their reasons for dropping out (question two).

Results

Statistical significance, practical significance, and study replication must be considered when evaluating whether hypotheses were supported (McLean & Ernest, 1998). Since internal replication was not analyzed, external replication must be recommended to support these results. Therefore, evaluation of hypotheses relied heavily on statistical and practical significance. For the multivariate and univariate tests, alpha was established at $p < .05$. In addition, the effect size was reported as partial eta squared ($\eta^2$) to assess practical significance. Qualitative data were evaluated for potential support of the quantitative data.

The multivariate tests showed that the students held different perceptions regarding the value and effort associated with the high school diploma and the GED credential, but the subscales fleshed out the nature of those differences. Students ascribed
higher value to the credential being pursued. High school students highly valued the diploma as measured by the academic value, economic value, and academic effort scales, while GED students highly valued the GED as measured by the social value scale. However, the low effect size for credential value based on student status indicated that group membership (GED or high school) accounted for a small part of the variance.

Hypothesis one was supported with regard to the diploma because a statistically significant difference was detected for academic and economic value by student status and those findings were supported by the quantitative and qualitative data. There was a difference between the group means (Table 3) of the high school and GED groups on both the academic and economic subscales. The high school group means were higher for both subscales. However, the magnitude of the mean differences for both subscales was small (Figure 1). Also, the amount of explained variance was small ($\eta^2 = .076$) for academic value and small ($\eta^2 = .031$) for economic value. The qualitative data supported these results but evidenced a greater magnitude of difference for academic value between student status groups. During interviews, 50% of the high school group but only 17% of the GED group acknowledged the academic difference between the credentials. Economic value disparities between the credentials were acknowledged by 25% of the high school group and 17% of the GED group.
Hypotheses two through six were not supported with regard to the high school diploma, but power for these analyses ranged from low to mediocre which may have hindered detection of significant mean differences. In addition, the qualitative data did not provide support for hypotheses two through six through an exploration of academic value, economic value, and academic effort by student status. The independent variables ethnicity and gender were not addressed during interviews.

An analysis of the social value factor detected a statistically significant difference by ethnicity. However, the magnitude of the mean differences (Figure 2) was small and the effect size was small ($\eta^2 = .042$) indicating that ethnicity did not account for a large part of the variance in the social value scale. The Tukey post hoc tests identified the African American and White American groups as the source of that difference. The African American group mean was higher than the White American group mean (Table 3). The qualitative analysis did not address this latent social value factor for the GED.
Figure 2. Credential Valuation by Ethnicity. Significant mean difference detected for the social value scale involving the African American and White American groups only.

Therefore, the significant difference regarding the overarching construct of credential value between high school and GED students was impacted most by two of the four dependent variable subscales. These two components of credential value were evaluated and revealed that members of the two student groups held significantly different perceptions regarding academic and economic value. High school students believed that the diploma held significantly higher academic and economic value than GED students. Members of the GED group believed that the diploma held value, but their valuation was significantly lower than members of the high school group (Table 3).

Also, there was a latent social value factor that showed that there was a significant difference regarding the social value of the GED based on ethnicity. Post hoc tests determined that African American group members held a higher social value for the GED than White American group members (Table 3). There were no significant differences based on gender and no significant differences based on the interaction of the independent variables. The qualitative data supported findings that high school students placed a higher value on the high school diploma.
### Table 3

*Group Means by Dependent Variable*

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Academic Value for diploma</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School</td>
<td>4.33</td>
<td>.57</td>
<td>79</td>
</tr>
<tr>
<td>GED</td>
<td>3.99</td>
<td>.72</td>
<td>79</td>
</tr>
<tr>
<td><strong>Economic Value for diploma</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School</td>
<td>3.68</td>
<td>.67</td>
<td>79</td>
</tr>
<tr>
<td>GED</td>
<td>3.40</td>
<td>.68</td>
<td>79</td>
</tr>
<tr>
<td><strong>Social Value for GED</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White American</td>
<td>3.70</td>
<td>.39</td>
<td>67</td>
</tr>
<tr>
<td>African American</td>
<td>3.90</td>
<td>.44</td>
<td>55</td>
</tr>
<tr>
<td>Hispanic American</td>
<td>3.86</td>
<td>.44</td>
<td>36</td>
</tr>
<tr>
<td><strong>Academic Effort for diploma</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School</td>
<td>3.51</td>
<td>.71</td>
<td>79</td>
</tr>
<tr>
<td>GED</td>
<td>3.32</td>
<td>.72</td>
<td>79</td>
</tr>
</tbody>
</table>

Note: Significant differences detected for academic value, economic value, and social value only.
CHAPTER V
CONCLUSION

Summary

The increasing trend of youth enrollment in GED programs (GEDTS, 2004; GEDTS, 2006) has forecasted a crisis for the GED program. Teaching methodologies (andragogy and pedagogy) for adults and youth may be on the same continuum (Knowles, Holton, & Swanson, 1998), but require opposing teaching and classroom management strategies. Employment of one method to accommodate one group may alienate the other group. In fact, Perin, Flugman, and Spiegel (2006) found stagnant to declining adult enrollment where youth enrollment increased. Some adults may become alienated by pedagogical techniques used to accommodate youths, which may increase adult attrition rates. In addition, adults may be annoyed by the antics, behavior, discipline problems, and lack of seriousness of 16 and 17 year olds in their classes (Rachal & Bingham, 2004).

Some researchers have postulated that the availability of the GED program may have enticed students to drop out of high school (Boesel et al., 1999; Chaplin, 1999; Rachal & Bingham, 2004). Other researchers have asserted that legislative acts may have spurred youth GED attainment (Cameron & Heckman, 1993; Chaplin, 1999) and there appeared to be temporal links between the declining GED mean age and some legislative acts such as NCLB (Appendix A). The influence of policy constraints was incorporated into Chaplin’s (1999) earnings maximization model (EMM) to explain the youth decision to pursue the GED rather than the high school diploma. This conceptual model was derived from human capital theory to explain the complex interplay between
uncertainties (i.e. costs and benefits) and constraints. According to Chaplin, learners strive to maximize earnings as a result of negotiating the uncertainties and constraints of credential attainment. The elements of this conceptual framework provided the foundation for this investigation.

Researchers determined that the high school diploma costs more than the GED in terms of time invested (Boesel et al., 1999) but holds higher academic and economic outcomes (Boesel et al., 1999; Cameron & Heckman, 1993; Murnane, Willett, & Tyler, 1999). In addition, Judy and D’Amico (1997) asserted that the social value of the high school diploma exceeded that of the GED. This research suggested that the higher value with attendant higher costs of the high school diploma, coupled with stronger diploma constraints, may have influenced student decision-making within the EMM framework. It may also be that disparate perceptions and/or misperceptions of credential benefits and costs (uncertainties) based on student status, ethnicity, or gender further influenced the decision to drop out of high school and pursue the GED credential.

The purpose of this investigation was to determine whether high school and GED students held comparable perceptions regarding credential values (benefits) and the academic effort (cost) necessary to complete either credential. The dependent variable subscales helped compare student comprehension of the uncertainties associated with credential attainment with research. In doing so, this analysis sought to determine the utility of the earnings maximization model (EMM) in understanding the student decision to drop out of school. The sequential explanatory mixed method design provided the framework for data collection, analysis, and integration of results. The quantitative data measured benefits and costs while the qualitative data probed student awareness of the uncertainties.
decision-making process in order to support quantitative results. Benefits of credential attainment were measured by academic, economic, and social value scales while credential cost was measured by the academic effort scale. All scales comprising credential uncertainties were developed through factor analysis, but constraints of credential attainment were not under review.

High school and GED students from two different school districts in the Atlanta metropolitan area were included in this analysis. The sample (n = 158) included 16 to 19 year old diploma bound high school students and transitional GED students. The Student Perceptions of Credentials Questionnaire (Appendix C) was administered to measure overall perceptions of credential value and dependent variable subscales. Perceptions of these subscales comprising three benefits and one cost of credential attainment were analyzed based on student status, ethnicity, and gender. A sub sample (n = 24) of these high school and GED students also participated in interviews utilizing the Student Perceptions of Credentials Interview form (Appendix D).

The results of a three-way MANOVA supported by the qualitative data showed that the student groups perceived different values for the credentials because the high school students in the sample ascribed higher academic and economic dimensions of value to the diploma than the GED students. Also, African American participants ascribed higher social value to the GED credential than the White American participants. However, the differences between and among group perceptions of credential value were small. Therefore, while there seemed to be inconsistencies in institutional discourse (or the communication of educational expectations), that deficiency alone could not have enticed transitional dropout behavior. It may be that this deficiency in institutional
discourse left students vulnerable to increases in high school diploma constraints (e.g. NCLB) which prompted high school aged GED enrollment.

The EMM’s utility in pinpointing the flawed aspects of the student decision-making process was invaluable. While the decision to pursue either credential must remain in the hands of students, high school administrators must work toward informed decision-making. Allowing disparate perceptions to exist regarding credential value or cost may have perilous consequences for K-12 and adult education. However, focusing attention solely on the decision-making process driving youth GED enrollment may divert attention from the potential exodus of traditional adults from GED programs. The youth dropout phenomenon should be addressed in high schools while the influx of youth enrolling in GED programs should be addressed in service delivery areas. It may be that age appropriate GED classes would serve the motivational orientations of this transitional dropout population while preserving the adult education environment for traditional adult learners.

Discussion

Determining whether the goals of the study were achieved required an interpretation of results following a reflection on study methodology, data collection, and assessment of validity. The mixed methods design was employed to investigate this relatively new phenomenon of transitional dropout behavior. According to Creswell (2003) determining whether existing theories may continue to be applied to newly identified groups may require quantitative methods. Also, qualitative methods are well suited for exploration and identification of additional factors which may influence perceptions or behavior. Therefore, the mixed methods design was appropriate for
exploring the utility of the EMM and to explore transitional dropout behavior. Analyzing the differences between the diploma bound high school students and the transitional GED students was central to evaluating the model’s utility.

Finding a statistically significant difference between or among groups signaled disparate perceptions, but the directionality of the group means determined whether those perceptions were inconsistent with research regarding credential value and thus constituted misperceptions. Disparate perceptions may call attention to possible inculcating deficiencies regarding institutional discourse with group members. Students in the same age group who share comparable educational experiences should have comparable perceptions of credential value. It may be that disparate perceptions or misperceptions regarding the high school diploma leave students vulnerable to influence from changes in credential constraints and increases their likelihood of dropping out.

The three-way MANOVA procedure showed that there was a significant difference in the overall perceptions of credential value between high school and GED group members. High school students placed a higher value on the diploma than the GED students. The results of the between subjects effects tests analyzed the structure of that valuation by pinpointing the constructs (dependent variables) of concern that contributed to that difference. However, where no statistical difference was detected and statistical power was below .80, study replication becomes essential to confirming these results.

The academic value scale measured whether students perceived the high school diploma to hold higher value than the GED credential. Research supported the academic and economic superiority of diploma outcomes (Boesel et al., 1999; Cameron & Heckman, 1993; Murnane, Willett, & Tyler, 1999), but group comparisons for academic
value revealed that high school group members held a higher value for the diploma than GED group members. The qualitative data supported these results by also documenting a difference between group perceptions. These disparate group perceptions also revealed a deficiency in discourse. Perhaps institutional discourse with diploma bound students regarding academic benefits was evidenced through the increased awareness of the high school students. Further, the qualitative data indicated that familial discourse also influenced high school student decision-making since parental involvement was reported to impact their decision to remain in school. Perhaps institutional discourse did not impact the GED student awareness sufficiently or it could not overcome the lack of parental involvement with regard to the higher academic value of the diploma.

The economic value scale measured whether students perceived that the high school diploma held higher value in the workplace. The univariate test detected significant differences between the perceptions of high school and GED group members. However, high school students held only slightly higher perceptions of economic value for the diploma than GED students. The difference between the means was small (Table 4) and the value was expected to be higher. However, there was insufficient data to determine whether a misperception existed. The qualitative data also showed that only small segments of each group acknowledged the economic differences between credentials. Therefore, while the differences between groups was small, institutional discourse would still be helpful in alleviating the disparity in perceptions.

The social value scale was identified through factor analysis. The items that loaded on this factor appeared to share institutional influences beyond the experiential backgrounds of participants in the sample. For example, employer controlled promotions
and credential utility in vocational school were beyond the experience set of high school aged students and may have been new considerations for credential attainment introduced through the instrument. Consequently, participants may have shifted responses from a human capital perspective to a mixed human capital/social value perspective.

Tomaskovic-Devey, Thomas, and Johnson (2005) asserted that credential attainment may be considered a human capital investment decision only when decision-making is not influenced by other institutional structures. Judy and D'Amico (1997) asserted that the GED credential carried a social stigma. Perhaps this stigma may manifest as a reduction in social status or a change in class relationships. Therefore, participant perspectives mingled with institutional discourse regarding credential status may have created the additional factor which appeared to measure the social value of credential attainment.

The social value scale measured the intangible social status attainment of GED holders. Low mean scores indicated low perception of social value for the GED consistent with researcher assertions (Judy & D'Amico, 1997) regarding the social superiority of the high school diploma. The univariate tests found differences in perceptions of social value attributable to ethnic group membership. The Tukey post hoc tests pinpointed a small mean difference between the mean of the White American group members and the slightly higher mean of the African American group members indicating that the latter group perceived a higher social value for the GED (Table 3). The disparate perceptions between groups may have constituted misperceptions for African American group members in light of researcher assertions. Additional research will be needed to explore this issue. Nevertheless, it would seem that if the African American
group members perceived a higher social value for the GED, then that perception would leave group members vulnerable to influence from increases in diploma constraints.

The academic effort scale measured whether the diploma was perceived as more difficult to attain than the GED. There were no differences detected between high school and GED group members but still a misperception existed. The academic effort scale defined effort in terms of time as well as homework demands. Research showed that students invest approximately 30 hours to attain the GED compared to over 400 hours per year for the high school diploma (Boesel et al., 1999). This difference in time investment suggested that homework demands would also be greater. While both groups held comparable perceptions, a higher mean value was expected given the difference between credentials in terms of effort.

Therefore, the higher overall credential valuation by the high school group resulted from an underlying structure. This structure was comprised of credential valuation components (dependent variables) which evidenced small disparate perceptions based on student status for academic and economic value of the diploma, but based on ethnicity for the social value of the GED. These disparate perceptions suggested inconsistencies in institutional discourse. However, misperceptions by the African American group regarding credential social value suggested the lack of institutional discourse regarding this construct.

In any event, inconsistent or nonexistent discourse regarding the disparate values of the two credentials left GED students vulnerable to influence from changes in credential constraints and that led (in part) to their decision to drop out as predicted by the EMM. Further, diploma bound high school students seemed to hold some
misperceptions regarding credential value which would also have left them vulnerable to influence from constraint changes were it not for parental involvement. The consequences of allowing disparate perceptions and misperceptions to persist may be a continuation of dropout behavior for students lacking familial discourse. In addition, since this subgroup of the dropout population perceives minimal levels of credential value, they will continue to transition into GED programs as an alternative high school credential. Unfortunately, their presence may be disruptive to the adult learning environment and lead to adult attrition.

The EMM framework was successful in identifying the role of student perceptions in the dropout decision-making process. However, the significant differences between groups held small levels of practical significance which impacted study recommendations. The influence of student characteristics was important statistically, but too small to have a practical value for program development. However, it would be pragmatic to address high school student perceptions by incorporating these findings into existing dropout prevention programs (e.g. the High School Graduation Coach Initiative) since even small effect sizes will have impact on transitional dropout behavior.

The utility of the EMM for stakeholders may be in identifying areas where the lack of discourse may leave students vulnerable to influence from credential constraints. It may also be applied in adult education settings to understand the decision-making process for adults and stave off potential declining enrollment by opening a dialogue concerning the balancing of benefits, costs, and constraints. The impact of youth enrollment on traditional adult enrollment must also be investigated to preserve the valuable role of the GED as a second chance adult educational credential.
The utility of results for policymakers was in understanding the role of policy in developing constraints which impact student decision-making. Policymakers must be aware that their decisions may influence dropout behavior. Also, policymakers must be vigilant in ensuring that adequate funding for manpower and space follows youth enrollment in GED programs. Funding for these youth was provided through the GADOE prior to the event dropout date. That funding should transfer with these youth as they transition into GED programs. The consequences of altering the adult learner environment may be encouraging a decline in the adult learner population (which appeared to be the case at site B) and that may ultimately decrease the educational attainment of the workforce for an entire service delivery area. Policymakers should also determine whether this decline was isolated or statewide.

High school administrators should understand the dynamics of the EMM in order to usher in a school environment of awareness about the consequences of faulty decision-making. Those students who lack academic engagement, social engagement, and parental involvement should be targeted to ensure that the discourse includes these marginalized students. Existing dropout prevention programs should be marketed to students considering transitioning into a GED program. However, the utility of the EMM would not be in directing students to yet another dropout prevention program, but rather to encourage informed decision-making. High school students, particularly members of marginalized groups, may endure a permanent underclass status with attendant low wages if the dropout crisis proved to be long-term. Georgia's High School Graduation Coach Initiative was a promising step toward discourse that may shift student perceptions, and the EMM may be a complementary tool for planning and managing that discourse.
The utility of these results for GED administrators was in understanding the antecedent for the downward shift in GED age groups because the antecedent may indicate youth motivation for GED enrollment. It may be that identifying student motivation may aid in instructional design planning. For example, Morstain and Smart (1974) expanded Houle's (1961) typology of learner orientation from three to six factors: (1) social relationships, (2) external expectations, (3) social welfare, (4) professional advancement, (5) escape/stimulation, and (6) cognitive interest. The youth motivation for GED enrollment may be associated with external expectations. In Georgia, youth under 18 years of age can not receive a driver's license unless they are a graduate or a current student in a high school or GED program, but provisions exist for under aged drivers who relocate and were licensed out of state (Georgia Department of Driver Services, 2007). Conversely, traditional adults exhibit professional advancement group characteristics which may include work-related needs or desires to meet post-secondary admission requirements. Even a match between group motivational orientations would be problematic for GED instructional design because of the inherent group differences in maturity and experience. GED instructors should design assignments which address student motivation and experience in order to sustain relevancy. A mismatch between group motivation and experience levels may result in a lack of instructional relevancy for one group. Failure to address traditional adult motivation through instructional design may also lead to a barrier to learning and impact adult attrition.

In addition, the EMM may be applied in an adult education setting in order to stave off the potential decline in traditional adult enrollment. Adult decision-making may also be tied to student negotiation of benefits, costs, and constraints. In applying the
model to site B, benefits (long and short term) minus costs (fixed and variable) and holding constraints constant may have determined continued adult enrollment. It would seem that the long and short term benefits of credential attainment were known to adults prior to GED enrollment, otherwise enrollment in a voluntary GED program would not have occurred. Therefore, at enrollment, adults perceived the benefits to outweigh the fixed costs (i.e. time and effort as a function of educational ability), but variable costs were unknown.

Following GED enrollment, the variable costs were revealed which determined the continuation rate. It may be that instructor selection of classroom strategies (on the continuum from andragogy towards pedagogy) may be conceptualized as the number of youth divided by the number of adults in class as a function of the number of discipline problems. Therefore, as the number of youth and/or disciplinary actions increased, the tendency toward pedagogical approaches increased. This upward (and pedagogical) trend would explain the somewhat inverse relationship between increasing youth and decreasing adult enrollment and the reported frustration of traditional adults. Constraints for the GED (i.e. age and other policy requirements) were not a concern for the traditional adults and as a result constraints were constant. This conceptualization suggested that an adult attrition breakeven point existed for mixed age classes which also implied that if costs equaled benefits, then adult retention would be static. It may be that above the attrition breakeven point intergenerational learning may take place successfully since benefits would outweigh costs, but below this point adults may drop out of GED programs because costs would outweigh benefits. Going forward, GED administrators must manage youth enrollment and adult attrition with frameworks that
safeguard the learning environment for both groups. The “adolescentizing of the GED” (Rachal & Bingham, 2004) must not be allowed to alienate the adults for which the program was created.

Limitations

In order to inform practice, a critically reflective stance was necessary to flesh out potential threats to internal validity and to ensure transparency regarding potential threats to external validity which impacted the generalizability of results. Study limitations may have hindered generalizability of study results to the population without diminishing the value of the results in supporting the utility of the EMM. Disclosure of limitations restricted the use of study results to the aforementioned purpose of the study.

Construct validity expressed the extent to which the dependent variables were measured. This type of validity also measured the internal consistency between items on the questionnaire. Construct validity was evaluated through Cronbach’s alpha statistic and was considered acceptable. However, there were threats to the accuracy of the dependent variable measurements which warranted full disclosure.

One concern regarding construct validity involved the direction of the wording for items 11 through 27. Some of these items were recoded so that all items on the subscales were analyzed in the same direction. This problem was identified during a scan for data outliers and was addressed during data input and so it did not impact construct validity. Items were developed as negated or polar opposite types of reverse wording to guard against response bias (acquiescence), which described participant agreement with all items (Black, 1999), but recoding was necessary for analysis (Smith, Budzeika, Edwards, Johnson, & Bearse, 1986).
In addition, the presence of the high school graduation coach during administration of the questionnaires and interviews at site A as well as parental presence at site B may have introduced participant social desirability bias or the desire to be viewed favorably (DeMaio, 1984). However, participants of both groups seemed forthright in their responses and so the threat of social desirability bias with regard to survey responses was deemed minimal.

Finally, the GED student reading levels were not matched to the readability level of the questionnaire and may have impacted the accuracy of responses. One related problem came to light during round one of data collection at site B when 71 surveys did not meet study inclusion criteria although teachers at the site suggested that these students met the criteria. Question 10 (How much time passed between leaving high school and GED enrollment) was identified as the source of the problem. Students answered according to how much time passed between their dropout status and the day of questionnaire administration rather than their respective GED enrollment dates. Subsequent administration of the instrument began with a discussion of this item and the number of students who qualified for study inclusion increased. However, since those students who misunderstood the item were excluded from the study the incident did not impact validity. No other misunderstandings related to reading levels were detected.

External validity described how accurately the sample represented the population. A representative sample may lend itself to generalizing the results of the study to the entire population. Therefore, threats to external validity were conditions that restricted representation or were in some way biased causing the sample to be unique rather than common to the population.
As a design issue, the stratified quota sampling technique employed was non-random. The lack of randomness was a threat to external validity because it restricted the sample based on ethnicity. The need to include the voices of marginalized group members was weighed against the desire to generalize the results. The pauci
ty of research regarding the impact of NCLB (as a potential constraint) on marginalized group dropout rates also weighed heavily in the decision to sacrifice external validity. Further, round two of data collection at site A targeted high school seniors to avoid low participation rates and meet the ethnic sampling guidelines which further lowered external validity. Also, round two of data collection at site B targeted students enrolling in the GED program. This issue challenged the operational definition of a GED student since these participants had not attended GED classes. It may be argued that enrollment and attendance represent two different stages of the dropout transition highlighting the uniqueness of this sample and again lowering external validity.

Another threat to external validity dealt with the different settings for instrument administration between and within groups. Administration took place in a quiet cafeteria setting for site A students, in classrooms for site B students, and in an auditorium for site B students. Also, the GED students at site B were inundated with forms for enrollment, but questionnaire administration and interviews were conducted while participants were waiting for photocopies of enrollment documents to be returned. Standardized settings and the lack of enrollment distractions would have controlled this threat, but data collection occurred across two school districts. These changes in settings could not be avoided and could not be mitigated, but should be taken into consideration when generalizing results. Therefore, adequate levels of content and construct validity provided
confidence in the accuracy of results, but the low level of external validity hindered generalizability of those results.

Recommendations

The phenomenon of 16 to 19 year olds dropping out of high school with the intent to pursue the GED represented a relatively new vein of research. Consequently, numerous avenues for further investigation exist. The following recommendations build from the concerns raised throughout this investigation:

• A comparative quantitative analysis using the earnings maximization model framework should be replicated to confirm results of this study by increasing group sizes, improving instrument internal consistency, and increasing statistical power.

• The impact of youth enrollment in GED programs should be investigated to determine if a correlation between youth and adult enrollment exists and to determine the optimal number of youth that may be served in a traditional adult GED classroom.

• A comparative analysis should be conducted between youth in mixed aged GED classes and youth in pull out GED classes to identify successful learning strategies.

• Georgia high school graduation coaches should use the earnings maximization model to aid in understanding and improving the at-risk student decision-making process. Those students at-risk have low parental involvement, low academic engagement, and low social engagement.
• Georgia policymakers should determine whether the declining trend of adults at site B was isolated or statewide due to the potential for harm to workforce development.

• Georgia policymakers should review funding for service delivery areas to ensure adequacy given the increased youth enrollment and attendant need for additional manpower and space. Additional funding would not be necessary since GADOE currently provides funding for youth in K-12 settings. These funds should transfer to GED programs since funding addresses the educational needs of the student and those needs do not end when the student transfers into an adult educational setting.
# APPENDIX A

## GED Event Timeline

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Mean Candidate Age (GEDTS, 2006)</td>
<td>no data prior to 1960</td>
<td>29.0 (1960)</td>
<td>29.1 (1970)</td>
</tr>
<tr>
<td>GED (OVAE, 1991)</td>
<td>GED established Veterans, Civilians and Prisoners allowed to test</td>
<td>no significant changes in policy</td>
<td>First Spanish language edition of the GED California is last state to adopt GED testing policy 1978 new test series begins</td>
</tr>
<tr>
<td>AEA (S. 1627, 2003)</td>
<td>no adult legislation</td>
<td>AEA established and defined adults as 18 yr. olds but later changed definition to accommodate 16 yr olds</td>
<td>AEA scope expanded to include adult secondary education (GED became primary mode to accomplish that goal)</td>
</tr>
<tr>
<td>NCLB (GAO, 2005)</td>
<td>no ESEA legislation</td>
<td>ESEA legislation established</td>
<td>ESEA legislation continued</td>
</tr>
</tbody>
</table>
## APPENDIX A (continued)
### GED Event Timeline

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>GED</td>
<td>Accommodations for candidates with learning disabilities begins</td>
<td>ACE votes to discontinue GED testing policy for at-risk youth while they are still enrolled in high school (5 year phase out)</td>
<td>ACE reverses at-risk youth decision and continues policy (2000)</td>
</tr>
<tr>
<td></td>
<td>1988 GED series begins</td>
<td></td>
<td>2002 GED series</td>
</tr>
<tr>
<td>AEA</td>
<td>no significant changes in policy</td>
<td>AEA reauthorized as WRAEA</td>
<td>WRAEA Youth Programs promote GED attainment (2003)</td>
</tr>
<tr>
<td>NCLB</td>
<td>ESEA legislation continued</td>
<td>ESEA legislation continued</td>
<td>ESEA reauthorized as NCLB (school-wide testing accountability begins 2001)</td>
</tr>
</tbody>
</table>
APPENDIX B

THE UNIVERSITY OF SOUTHERN MISSISSIPPI
AUTHORIZATION TO PARTICIPATE IN RESEARCH PROJECT

Consent is hereby given to participate in the study titled:
Academic and Economic Valuation of Credential Attainment: The Consequences of Disparate Perceptions between High School and GED Students

1. **Purpose:** This research is being conducted to compare the perceptions of high school and GED students regarding the value associated with the high school diploma and the GED credential.

2. **Description of Study:** The sample size consists of 152 high school and GED students. Students will be asked to complete a survey to measure their perceptions. In addition, 23 students will be asked to participate in a structured interview to elaborate on their perceptions of credential value.

3. **Benefits:** Participants may benefit therapeutically through answering survey and/or interview questions because the process may cause reflection on the value of goal attainment. Self-reflection may result in increased self-esteem and motivation to attain the desired credential.

4. **Risks:** There are no known risks to participating in this study.

5. **Confidentiality:** No personally identifiable information will be collected from participants.

6. **Alternative Procedures:** Therapeutic benefits resulting from self-reflection may be attained without participation in this study.

7. **Subject's Assurance:** Whereas no assurance can be made concerning results that may be obtained (since results from investigational studies cannot be predicted) the researcher will take every precaution consistent with the best scientific practice. Participation in this project is completely voluntary, and subjects may withdraw from this study at any time without penalty, prejudice, or loss of benefits. Questions concerning the research should be directed to Lela Home at 678/524-3558. This project and this consent form have been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research subject should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, (601) 266-6820. A copy of this form will be given to the participant.

8. **Signatures:** In conformance with the federal guidelines, the signature of the subject or parent or guardian must appear on all written consent documents. The University also requires that the date and the signature of the person explaining the study to the subject appear on the consent form.

---

**Signature of the Research Subject**

("Participants 18 years of age or older")

Date

**Signature of the Person Explaining the Study**

Date

In instances where the subject is a minor (under the age of eighteen years), a signature line for the minor's assent and for the parents/guardians' consent has been provided below

---

**Signature of the Research Subject**

("Participants under 18 years of age")

Date

**Signature of Parent/Guardian**

Date
APPENDIX C
Student Perceptions of Credentials
Questionnaire

Directions: Please circle your answers to the following questions

1. Student Status
   a. GED student
   b. High School student

2. Gender
   a. male
   b. female

3. Age
   a. 16
   b. 17
   c. 18
   d. 19
   e. 20 or above

4. Ethnicity
   a. White American
   b. African American
   c. Hispanic American
   d. other

5. Highest Grade Completed
   a. 9th
   b. 10th
   c. 11th
   d. 12th

6. Employment Status
   a. full time
   b. part time
   c. not currently employed

7. How do you think the Georgia High School Graduation test and the GED test are different?

8. Current GPA

9. Extracurricular Activities
   a. sport (s)
   b. social club (s)
   c. academic club (s)
   d. other

10. How much time passed between leaving high school and GED enrollment?
    a. 0-3 months
    b. 3-6 months
    c. 6-9 months
    d. 9-12 months
    e. over 12 months

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<tr>
<td><strong>Directions:</strong> Please indicate your agreement or disagreement with the statements below by placing an (X) under the appropriate column.</td>
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</thead>
<tbody>
<tr>
<td>11. Salaries for high school graduates are much lower than salaries for GED graduates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. GED students enjoy much more free time than high school students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. The GED program prepares students very well for college</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. I plan to strongly encourage my child to complete the GED program because it provides an excellent educational experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. The GED exam is much harder to pass than the Georgia High School Graduation exam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. GED homework is far less demanding than high school homework</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. GED and high school students earn extremely different salaries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. GED completion is much more valuable than high school completion for success in vocational school</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. High school prepares students very well for college</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. High school students spend much more time studying than GED students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. Employers prefer high school employees</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. I plan to strongly encourage my child to complete high school because it provides an excellent educational experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. The GED is much easier to achieve than the high school diploma</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. GED and high school students are promoted equally at work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25. High school completion is much less valuable than GED completion for success in vocational school</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26. Homework in high school is much more demanding than the homework in a GED class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27. Salaries for GED and high school graduates are the same</td>
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</table>

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APPENDIX D
Student Perceptions of Credentials
Interview Form

Student Age _______

1. Why did you leave (or choose to stay) in school?

2. Why do you think students dropout?

3. What are the differences between the high school diploma and the GED credential?

4. What are your plans after graduation?

5. What advice would you give to someone considering dropping out and enrolling in a GED program?

6. What can high school administrators do to keep students in high school?

7. Are the graduation requirements for a high school diploma harder to attain than they were 3-5 years ago? Why or why not?
The project has been reviewed by The University of Southern Mississippi Human Subjects Protection Review Committee in accordance with Federal Drug Administration regulations (21 CFR 26.111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, there are adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.

Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 27021202
PROJECT TITLE: Academic and Economic Valuation of Credential Attainment: The Consequences of Disparate Perceptions Between High School and GED Students
PROPOSED PROJECT DATES: 01/08/07 to 04/09/07
PROJECT TYPE: Dissertation or Thesis
PRINCIPAL INVESTIGATORS: Lela Home
COLLEGE/DIVISION: College of Education & Psychology
DEPARTMENT: Educational Leadership & Research
FUNDING AGENCY: N/A
HSPRC COMMITTEE ACTION: Expedited Review Approval
PERIOD OF APPROVAL: 02/12/07 to 02/11/08

Lawrence A. Hosman, Ph.D.
HSPRC Chair

2.12.07

Date
APPENDIX F

Component Loadings

<table>
<thead>
<tr>
<th>Component 1: Social Value</th>
<th>Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q24. H.S./GED grads promoted equally at work</td>
<td>.672</td>
</tr>
<tr>
<td>Q15. GED much harder than GHSGT</td>
<td>.628</td>
</tr>
<tr>
<td>Q27. H.S/GED salaries the same</td>
<td>.599</td>
</tr>
<tr>
<td>Q13. GED prepares students very well for college</td>
<td>.556</td>
</tr>
<tr>
<td>Q12. GED students enjoy much more free time</td>
<td>.532</td>
</tr>
<tr>
<td>Q18. GED more valuable in vocational school</td>
<td>.503</td>
</tr>
<tr>
<td>Q25. H.S. much less valuable in vocational school</td>
<td>.468</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Component 2: Academic Effort</th>
<th>Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q16. GED homework far less demanding</td>
<td>.760</td>
</tr>
<tr>
<td>Q26. H.S. homework much more demanding</td>
<td>.729</td>
</tr>
<tr>
<td>Q23. GED much easier to achieve than H.S. diploma</td>
<td>.622</td>
</tr>
<tr>
<td>Q20. H.S. students spend much more time studying</td>
<td>.563</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component 3: Academic Value</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Q22. Strongly encourage H.S. completion for my kids</td>
<td>.780</td>
</tr>
<tr>
<td>Q19. H.S. prepares students very well for college</td>
<td>.690</td>
</tr>
<tr>
<td>Q14. Strongly encourage GED completion for my kids</td>
<td>.618</td>
</tr>
</tbody>
</table>
APPENDIX F (continued)

Component 4: Economic Value

Q17. H.S./GED salaries extremely different .709
Q21. Employers prefer H.S. graduates .701
Q11. H.S. salaries much lower .409

Factor Analytic grouping of items (in descending order).
REFERENCES


Service No. ED418239)


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Imel, S. (2003). Youth in adult basic and literacy programs (ERIC Digest No. 246). Columbus, OH: ERIC Clearinghouse on Adult and Vocational Education. (ERIC Document Reproduction Service No. 478949)


Youth are being left behind by the graduation rate crisis, Cambridge, MA: The Civil Rights Project at Harvard University.


Paper presented at the meeting of the National Economic Association, Washington, DC.


