VARIABLES THAT IMPACT HIGH-SCHOOL DROPOUT RATES

IN A LARGE METROPOLITAN AREA

by

DAVID BISHOP COLLINS

(Under the direction of John Schell)

ABSTRACT

This dissertation investigated the variables associated with high-school dropout rates in a large metropolitan area in the southeastern United States. Data from 143 high schools with a combined population of 269,290 students was included. Variables included ethnicity, gender, school size, school location, special education status, limited English Proficiency status, and socioeconomic status. Multiple regression analysis was used to answer the following research questions.

1. Which variables—ethnicity, gender, school size, school location, special education status, socioeconomic status, and limited English proficiency status—are more likely to predict higher dropout rates among students who attend school in the large metropolitan area studied?

2. Which variables — ethnicity, gender, school size, school location, special education status, socioeconomic status, and limited English proficiency status —have the greatest impact on dropout rates?

Results from the multiple regression analysis revealed the variables gender, ethnicity, and school size are more likely to predict dropout rates. Furthermore, the variables having the

greatest impact on dropout rates in the school districts included in this study were, in rank order, gender (male), ethnicity (Black and Hispanic), and school size (medium).

Since the results of this quantitative research study provide a means to predict dropout rates, legislators and school system personnel can use the regression formula to predict school dropout rates in order to prioritize the allocation of resources and focus on intervention efforts. Additionally, education specialists, practitioners, and school system personnel will have a better understanding of which student groups have the greatest impact on dropout rates and can tailor intervention strategies designed to help reduce the dropout rate.

INDEX WORDS: Dropout, At risk, Urban, Suburban, Rural, Metropolitan Statistical Area, Workforce Education, Intervention strategies, High School

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DAVID BISHOP COLLINS

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DAVID BISHOP COLLINS

Major Professor:		John Schell
Committee:		Karen Jones
		Jay Rojewski

Electronic Version Approved:

Maureen Grasso
Dean of the Graduate School
The University of Georgia
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CHAPTER 1

INTRODUCTION

Every 9 seconds in America, a student drops out of school (Martin & Halperin, 2006).

This statistic supports an urgent clarion call for educators, policymakers, legislators, and

communities to take notice and act. If the issue of high-school dropout is not adequately

addressed, millions of young adults will be destined to a lifestyle disparate from those who do

graduate from high school with a diploma. The financial, social, and economic impact of

students dropping out of school is staggering. According to Muennig (2005), 600,000 students

dropped out of school during the 2004 school year. If these 600,000 students had completed just

one additional year of education, the U.S. would have saved over $41 billion in future health-

care costs.

As a result of high dropout rates among high school students, much information has been

collected and research conducted in an attempt to combat declining graduation rates.

Additionally, much research has been conducted to get a better understanding of the factors

leading to students dropping out of school. Even though research has been conducted, the rate at

which students drop out of high school is still extraordinarily high. Statistics regarding dropout

rates vary but studies indicate that dropout rates in the United States for high school students are

between 25 and 30 percent (Sum & Harrington, 2003).

The crisis of high-school dropouts is a national problem. However, statistics show certain

portions of the U.S. have a greater percentage of dropouts. Balfanz and Legters (2004) report that

"nearly 80 percent of the nation's high schools that produce the highest number of dropouts can

be found in just 15 states" (p. 5), including Georgia. From 2001-2003, Georgia was one of 10 states that produced the lowest percentage of high-school graduates, averaging around 60% (National Center for Education Statistics [NCES], 2005). Greene and Winters (2006) estimated Georgia had the second lowest percentage of high school graduates in the U.S. in 2003, with a graduation rate of 56 percent.

Dropout rates are consistently high among each grade level in Georgia high schools as well. The most recent data available shows dropout rates to be 6.5 percent for grade 9, 7.3 percent for grade 10, 7.2 percent for grade 11, and 8.1 percent for grade 12 (NCES, 2005). Therefore, given the relatively high dropout rates in all four grades in Georgia high schools, the study focused on students who dropped out at any point during high school.

The dropout crisis is problematic for large school districts in metropolitan areas, specifically urban school districts (Montecel, Cortez, & Cortez, 2004). Greene and Winters (2006) report that "only one of the nation's ten largest public high school districts in the nation—where more than 8 percent of all students attend school—graduates more than 60 percent of its students" (p. 8). Furthermore, research indicates that schools systems that have high student populations have been linked with higher dropout rates (Lehr, Johnson, Bremer, Cosio, & Thompson, 2004). School location and school size were also two of the variables selected for this study.

Even though students from all demographic categories are affected by the dropout problem, certain groups of students are more likely to drop out than others. Students who are most likely to drop out of school include Hispanic, Native American, and African American students. For example, the graduation rate is 55 percent for African American students and 53 percent for Hispanic students but 72 percent for Asian students and 78 percent for White, non-

Hispanic students (Janosz, LeBlanc, Boulerice, & Tremblay, 1997). More recent data supports the previous statistics by showing dropout rates for high school students during the 2006 school year as 23 percent for Hispanic students, 11 percent for African American students, and 6 percent for White, non-Hispanic students (NCES, 2007). In addition, students with special needs are more at risk of dropping out than the general population (Blackorby & Wagner, 1996; Repetto, Pankaskie, De Palma-Hankins, Schwartz, & Perry, 1997). The dropout crisis affects minority male students to a greater degree than minority female students. African American males graduate at a rate of 48 percent while African American females graduate at a 59 percent rate (Green & Winters, 2006). Ethnicity, gender, and special needs status were also included as variables for the study.

While the dropout crisis affects students from all socioeconomic levels, dropout rates are higher for students of lower socioeconomic status. (Battin-Pearson, Newcomb, Hill, Catalano, & Hawkins, 2000). Socioeconomic status was also included as one of the variables for the study.

One of the other leading factors affecting high-school dropout rates is limited English proficiency. Research indicates those students who are of limited English proficiency are more likely to drop out of school than those who are not classified as such (Reardon-Anderson, Capps, & Fix, 2002; Swanson, 2004). Furthermore, recent demographic shifts in Georgia have resulted in an influx of limited English proficiency students entering Georgia public schools (Capps et al., 2005). Limited English proficiency status was also included as a variable for the study.

One of the biggest challenges facing researchers today is getting an accurate assessment of the number of students who drop out of school. With the advent of the No Child Left Behind Act of 2001([NCLB], 2002), public school systems are being held accountable for completion rates of students graduating from high school; thus, great pressure is being placed on educators at

all levels to get an accurate count of who drops out of school. However, variations among local, state, and national guidelines make it difficult to get an accurate assessment of the current number of students who drop out of school. In order to get an accurate dropout rate, efforts have been made to bring lucidity to the difficult task of classifying who constitutes a dropout (Woods, 2001). However, there continues to be much debate over how to assess dropout rates accurately at the national level.

Nationally, dropout rates are calculated using several different methods. The National Center for Education Statistics (NCES) uses two different definitions, including event rate, which measures the percentage of adults ages 15 to 24 who dropped out over a 1-year interval and is a measure of recent dropout experiences, and status dropout rate, which reflects the percentage of young adults ages 16 to 24 who are not enrolled in school and who have not completed a high-school diploma or obtained a GED (NCES, 2006).

Researchers have disagreed with the accuracy of the true dropout figures using methods espoused by the NCES (Greene & Forster, 2003). They report that the NCES method for calculating the dropout rate is unreliable and underreports the true number of dropouts. They define the dropout rate by looking at the overall graduation rate. In calculating high school graduation rates, they use enrollment data and diploma counts using the Common Core of Data (CCD) that is gathered by the United States Department of Education. Graduation rates are defined as the number of students in a cohort who graduate with a regular diploma divided by the number of students in the cohort who should have graduated. Greene and Forster contended that, by calculating the number of students who graduated with a diploma compared to the overall population in a cohort, one is able to better determine an accurate dropout rate.

The Georgia Department of Education defines a student as a dropout if he or she leaves school for any of the following reasons: pursuing adult education or postsecondary degree, expelled from school, financial hardship/job, incarceration/under jurisdiction of juvenile or criminal justice authority, low grades/school failure, marriage, military, pregnant/parent, removed for lack of attendance, serious illness/accident, and unknown reasons (Governor's Office of Student Achievement, 2005). To get an accurate assessment of the dropout rate, the state of Georgia calculates the number of students with a withdrawal code corresponding to a dropout divided by the number of students who attended the school (Governor's Office of Student Achievement, 2005). School districts for which data were collected utilized the same definition for dropout as the Department of Education of Georgia.

Another area of incongruence among researchers concerns accurately defining the term *at-risk*. Various definitions of the term *at-risk* can be found throughout literature. Suh, Suh, and Houston (2007) define *at-risk* as those "aspects of a student's background and environment that may lead to a higher risk of her or his educational failure" (p. 196). McMillan and Reed (1993) define *at-risk* as "those who are in danger of dropping out of school because of academic failure or other problems. Educators tend to use the term to refer to school and academic failure, potential dropouts, the educationally disadvantaged, and under achievement" (p. 12).

The Georgia Department of Education does not recognize a single definition to identify a student who is at risk of dropping out of school. However, a list of variables is used to identify which students are susceptible to dropping out of school, including a history of school failure, retention, and/or over-age for grade; disengagement from school or lack of involvement in extracurricular activities; designated for special education; behavioral problems, repeated suspensions, involvement in high-risk peer group; attendance problems/truancy; low

achievement in reading or math or low CRCT scores; and family status or other risk factors including high mobility, nonnative English speakers, or economically disadvantaged (Georgia Department of Education, 2006).

The variables or indicators linked to high-school dropout that were identified for this study were selected based on the conceptual framework developed but the variable selection was also supported by various articles of published research. Variables include ethnicity, gender, school size, school location, special education status, socioeconomic status, and limited English proficiency status. The following examples of research studies supported the choice of the aforementioned variables. Research indicates that socioeconomic status is a strong predictor of dropping out (Battin-Pearson et al., 2000; Suh & Suh, 2000). Studies have been conducted to show that race or ethnicity is a reliable indicator to determine which students are at risk of dropping out of school (Ekstrom, Goertz, Pollack, & Rock, 1986; Goldschmidt & Wang, 1999). Furthermore, research indicates there is a significant link between gender and who will drop out of school (Goldschmidt & Wang, 1999; Rumberger, 2001). Additionally, research points out those students who are identified as having special needs are more susceptible to dropping out of school (Lehr, et al., 2004; Schargel, 2004). Some research indicates that students who attend schools located in urban areas are at much greater risk for dropping out of school than students in suburban and rural areas (Snipes & Casserly, 2004). Studies have shown that students who are of limited English proficiency are more at risk of dropping out of school (Schargel, 2004). Finally, research points out those students who attend schools with a large student population, typical of school districts in large metropolitan areas, have been linked with higher dropout rates (Lehr, et al., 2004).

Statement of the Problem

There is much debate over the general topic of students dropping out of school and the best indicators to use in identifying who is susceptible for dropping out of school. The National Dropout Prevention Center ([NDPC], 2007) compiled a list of the significant risk factors that can play a role in determining whether a student is at risk of dropping out of school. Some risk factors identified were low academic achievement, grade retention, no extra-curricular participation, low socioeconomic status, not living with both natural parents, poor attendance, high family mobility, low education level of parents, high risk social behavior, sibling who has dropped out, low commitment to school, parenthood, and having a learning disability (Hammond, Linton, Smink, & Drew, 2007).

Additional studies have shown that various factors can be used as predictors of dropping out of school. One study identified test scores and number of years retained in school as predictors of students susceptible for dropping out of school (Alexander, Entwisle, & Kabbani, 2001). Another study identified student age as a reliable predictor of who might drop out of school (Gleason & Dynarski, 2002). Additional research indicates attendance record is a predictor of dropping out of school (Rumberger 2001; Scanlon & Mellard 2002; Suh et al., 2007). Further studies have shown socioeconomic status is a strong predictor of dropping out of school (Battin-Pearson et al., 2000). In addition, family structure has been shown to be an indicator of who might drop out of school as well (Lehr, et al., 2004). Poor academic performance, as measured by grade-point average, is another predictor of students' dropping out (Battin-Pearson et al., 2000).

There is some discrepancy in the literature regarding the best factors to use in determining who is at risk of dropping out of school. Orr (1987) showed the combination of

socioeconomic status and educational attainment levels was the best predictor of who would drop out of school. Poor academic performance alone has been shown to be the best predictor of who will not graduate (Woods, 1995). On the other hand, school-related variables have been reported as the best predictors of who is susceptible for dropping out of school (Janosz et al., 1997). One study suggested that students who repeat a grade in elementary and middle school are the best predictor of who would not complete school (Viadero, 2006). Finally, results from a study conducted by Gleason and Dynarski (2002), which is often cited in literature, found most of the predictors used to determine which students are going to drop out of school do not do an adequate job of actually predicting the right students who eventually wind up dropping out of school.

There are three reasons for conducting further research in the area of high-school dropouts. First, even though research has been conducted to help identify possible factors that might predict future dropout rates, there remains much discrepancy in literature (Alexander et al., 2001; Scanlon & Mellard 2002; Lehr, et al., 2004). Second, limited research has focused on dropout rates in large metropolitan areas that include urban, suburban and rural areas; thus, there appears to be room for further analysis of variables associated with high-school dropout rates in these areas. Third, research should be conducted on a local basis to determine which factors are most important in predicting student dropout rates in a particular locale (Hammond et al., 2007). Therefore, research was conducted in a specific locale in the southeastern United States to better determine the variables associated with high-school dropout rates in this part of the country.

The objectives of this study are two-fold. First, this study provides information regarding which variables are useful in predicting school dropout rates. By developing the ability to predict dropout rates, specifically among schools in the large metropolitan area studied, legislators and

school system personnel can use this information to prioritize the allocation of resources across schools and focus intervention efforts. Second, it provides additional information to help school systems determine which segment within a school's student population needs the greatest focus and enables them to make more educated decisions about the most appropriate intervention strategies or programs to implement to combat the dropout problem.

Purpose of Study

The purpose of this study was to determine the variables associated with higher dropout rates in high schools in a large metropolitan area in the southeastern U.S. Variables identified were selected based on the conceptual framework developed and supported by current research focused on identifying students at risk of dropping out of school. These variables include ethnicity, gender, school size, special educations status, socioeconomic status, school location, and limited English proficiency status. The dependent variable was the rate at which students drop out of school.

Research Questions

The study was guided by the following research questions:

1. Which variables — ethnicity, gender, school size, school location, special education status, socioeconomic status, and limited English proficiency status —are more likely to predict higher dropout rates among students who attend school in a large metropolitan area?

2. Which variables— ethnicity, gender, school size, school location, special education status, socioeconomic status, and limited English proficiency status — have the greatest impact on dropout rates?

Conceptual Framework

A conceptual framework was developed to help guide the selection of the specific variables used. This framework involves focusing on those areas in which the education system is failing students. The conceptual framework is based on the assumption that identifying the areas in which the education system is failing is useful in determining where to focus efforts to reduce dropout rates.

One area in which school systems are failing to meet the needs of students is in school districts with large minority populations. For example, a study conducted by Fenwick (2001) revealed that, of the school systems that have 90% or higher enrollment of minority students, approximately 50% of the math and science teachers have not met their state's minimum certification requirements (Barr & Parrett, 2007). Furthermore, research has indicated that a disproportionate number of students who drop out of school are Black male students (Sum & Harrington, 2007). Some of the prevailing research indicates that schools do not offer enough programs or support mechanisms to meet the needs of Black students (Mitchell, Bush, & Lawson Bush, 2002). Therefore, ethnicity and gender were included as variables to evaluate which specific ethnicity group and which gender had the greatest impact on dropout rates.

Further research indicates that students who do not speak English fluently are often underserved by the school system and not given the tools necessary to ensure success (Velasco, Fix, & Clewell, 2000). Therefore, it was determined that limited English proficiency status would be included as a variable.

The inadequate use of funds by school systems has led to a higher dropout rate among the students who need the most help, those students who are of low socioeconomic status (Liu, 2006). The dropout rate is higher in school districts with a large number of students classified as

having a low socioeconomic status (Barr & Parrett, 2007). Research attributes this high dropout rate among students of low socioeconomic status to a lack of education among parents and the need to leave school early for familial support (Rumberger, 2001). Therefore, socioeconomic status was included to determine whether low socioeconomic status significantly impacted dropout rates.

Research indicates a community's makeup can have a negative influence on a student's behavior and can have an impact on a student's decision to drop out of school (Crowder & South, 2003). Furthermore, students who attend schools in urban districts are not given adequate resources compared to suburban and rural school districts (Dill & Stafford-Johnson, 2003). For example, consistent teacher shortages and higher rates of unqualified teachers in the classroom are more common in urban school districts than in suburban areas (Ingersoll, 2003; McDonnell, 2005). Therefore, school location, classified as suburban, rural, and urban, was included as a variable to ascertain whether school location significantly impacted dropout rates.

In recent years, the practice of consolidating schools into large schools has become commonplace; however, research shows that many schools are overcrowded and, by reducing school size, the dropout rate can be reduced (Kuziemko, 2006; McNeal 1997; Rumberger 1995). Therefore, school size was included to establish whether this variable significantly impacted dropout rates.

Another reason the correct selection of variables is important is that the wrong students can be placed in specific intervention strategies or programs. In some cases, the wrong intervention strategies are put in place because the rationale used to select the strategy or program is based on results from the selection of the wrong variables (Gleason & Dynarski, 2002). Research indicates that schools oftentimes do not select the right students for the

appropriate intervention strategy or program (Gleason & Dynarski, 2002). Therefore, it was imperative that the appropriate variables were selected so that intervention recommendations would be focused on the right students.

Significance of Study

Research is needed to expand the current field of knowledge dealing with the issue of students who drop out of high school. As mentioned previously, a large percentage of students who drop out of high school in Georgia do so in large metropolitan areas that include urban regions (Wheelcock & Miao, 2005). Therefore, an empirical study focusing on variables associated with higher dropout rates in high schools in a large metropolitan area will add to the current literature pertaining to high-school dropout rates.

Practitioners at the school level will be able to utilize the results of this study to implement intervention strategies that will reduce the dropout rate for schools in the large metropolitan area in the southeastern United States included in this study. More specifically, by learning which variables had the greatest impact on school dropout rates, school system personnel, counselors, and teachers will be able to implement intervention strategies that target those variables. Furthermore, by developing a regression model designed to predict dropout rates, schools can predict their expected dropout rates once projected enrollment for a given group of students is known. In addition, policymakers will have a better understanding of the high-school dropout issue pertaining to urbanized areas and, as a result, can tailor policies to help school systems become more compliant with the federal No Child Left Behind Act of 2001([NCLB], 2002).

CHAPTER 2

REVIEW OF LITERATURE

This literature review begins with a brief history of the development and the current status of the education system in the United States. The rest of the chapter will focus on different topics related to the issue of dropping out of school including school climate, school organizational structure, and various theories related to dropping out of school. Finally, this chapter highlights examples of successful intervention programs such as the Coca-Cola Valued Youth Program, Check & Connect, Career Academies, JROTCCA, and ALAS that are designed to help diminish the risk of dropping out of school.

Introduction

One of the earliest attempts at developing a formal education system in the United States can be traced back to the late 1700s (Padover, 1952). Thomas Jefferson was one of the early pioneers who influenced the process of creating a formal education system in the United States. Jefferson was so concerned about the necessity of education in the everyday lives of people that he made attempts to add an amendment to the United States constitution to legalize federal support for education (Padover, 1952). After initial attempts by Jefferson to add an amendment to the constitution failed, he proposed a two-track educational system which included elementary, secondary and post secondary levels of education for the people of the state of Virginia (Padover, 1952).

Formal high school education has been a more recent development compared to the overall education system first proposed by Thomas Jefferson in the late 1700's. Even though the

first and oldest high school in the United States opened in 1821, it wasn't until 1874, when a Michigan Supreme Court ruling established the precedent that every student had a basic right to a comprehensive education, that high schools became an integral component of the education system in the United States (Gordon, 2005). As a result of the ruling handed down by the Michigan Supreme court, the United States educational system has evolved into a two-track system whereby students have the opportunity to attend a comprehensive high school that offers the choice between vocational and liberal arts classes (Gordon, 2005). Ever since Thomas Jefferson's initial attempts at establishing a formal education system for the people of Virginia, education in America has slowly evolved to the modern form of education as a result of philosophical beliefs, theoretical frameworks, historical positions, and legislative practices.

Modern day schools, including high schools, are faced with many issues that did not exist 100 years ago. A review of the current and projected demographics indicate that, going forward, schools will not be able to operate as they have over the last 150 plus years utilizing the European model of education. Demographic changes alone will necessitate a different approach. For example, it is projected that the Hispanic population will triple to over 102 million people, or 24% of the total U.S. population, by the year 2050 (Buchanan, 2006). In addition, it is projected that, by the year 2050, Americans of European decent will no longer be the majority. Furthermore, many immigrants who enter the U.S. are coming from third world countries, hanging on to the traditions and customs of their heritage and are not assimilating to the degree that past immigrants assimilated into Western culture (Buchanan, 2006). As a result, the United States education model, established so many years ago, is now being tested in many ways (Buchanan, 2006; Snipes & Casserly, 2004).

Modern day school systems in urban areas face many challenges. Demographic shifts will compel urban school systems to adapt and accommodate more diversity and cultural differences than ever before (Snipes & Casserly, 2004). Other contemporary challenges that urban school systems face include teacher shortages (Dill & Stafford-Johnson, 2003), unqualified teachers (Lankford, Loeb, & Wyckoff, 2002), achievement gaps (Anyon, 1997), inadequate curriculum (Hale, 2001), ineffective teaching practices (Bost & Riccomini, 2006), overcrowded schools (Driscoll, Halcuissis, & Svorny, 2002), increased poverty rates (Peterson, 1991), and high dropout rates (Green, 2001; Montecel et al., 2004).

In efforts to help combat the issues facing modern day schools, much research is being conducted to determine the best reform policies to implement in order to improve student success (e.g. Lewis, James, Hancock, & Hill-Jackson, 2008; Margolis, 2006). A great deal of research already has been conducted and will continue in order to determine the best way to tackle these modern day issues facing public school systems.

School Climate

One of the ways in which school systems can improve graduation rates is through the adoption of a philosophical viewpoint that promotes a positive school climate or school culture through academic excellence (Lee & Burkham, 2003). Definitions of the term "school climate" vary considerably among researchers, scholars, and practitioners (Cohen, 2006). One definition given for school climate, provided by Freiberg and Stein (1999), is "the heart and soul of a school" (p.11). Vang (2006) defines school culture as "hegemonic value systems under which schools operate" (p. 20). Furthermore, Goldring (2003) identifies shared vision, traditions, collaboration, shared decision making, communication, and innovation as key characteristics of

schools that have been recognized as promoting excellent school culture in which students were achieving academically at a higher rate than other school systems.

Various studies have been conducted that support the philosophical approach that a positive school climate, culture, or organizational structure produces academic achievement which, ultimately, improves graduation rates (e.g. Bulach, & Malone, 1994; Deal & Peterson, 1999; Hartnett, 2008; Stewart, 2008; Sweetland & Hoy, 2000; Towns, Cole-Henderson, & Serpell, 2001; Van Der Westhuizen, Mosoge, Swanepoel, & Coestsee, 2005).

One example of a school system that promotes a positive school climate is in Queens, New York. The principal of this school emphasizes a positive school culture through building personal relationships with students and teachers as well as a focus on character development and has had remarkable success in reducing the dropout rate at Elmont Memorial Junior-Senior High School in Queens New York (Jerald, 2006). Statistics released by the New York Department of Education show that 97% of ninth grade students who attend Elmont Memorial Junior Senior-High School graduate on time with a high school diploma (Jerald, 2006).

School Organizational Structure

School organizational structure, which is often measured by the size of the school or class, can influence the rate of student achievement and affect the dropout rate (Kuziemko, 2006). A reduction in class size can have positive effects on student achievement and reduce the dropout rate (Kuziemko, 2006; McNeal, 1997; Rumberger, 1995). In addition, it has been shown that large school districts, typical of many urban school systems, have higher dropout rates than smaller school districts (Fetler, 1989; Finn & Voekl, 1993).

School organizational structure and culture can have a negative effect on the rate of student absenteeism and truancy (Epstein & Sheldon, 2002). This is of particular importance

since it is well documented in the literature that absenteeism is one of the key variables associated with dropping out of school (Allensworth & Easton, 2005; Jerald, 2006; Neild & Balfanz, 2006).

One study explored the role of peer group identity and delved into how the organizational school structure endorses certain peer groups while overlooking other peer groups, thus influencing the rate of absenteeism among high school students (Hartnett, 2008). Two ways in which certain peer groups are rejected by the school culture include simple peer group identity as well as attendance policies that reject certain peer groups while allowing and accommodating for others (Hartnett, 2008). Policy recommendations that can be implemented to improve absentee rates by changing the school culture include not making distinctions between unexcused and excused absences, thereby limiting the chances for favoritism, including every peer identity group in school assemblies so as to not show favoritism among certain groups, and by limiting the number of acceptable excused absences (Hartnett, 2008). Epstein and Sheldon, (2002) note that, to improve attendance rates, "schools need to change the way they are structured, improve the quality of courses, and intensify interpersonal relationships between students and teachers" (p. 309).

The inadequate distribution of funds is one way school districts can affect the school organizational structure which can, in turn, affect the dropout rate in high schools. For example, many schools that have needed the most funding have typically operated on the least amount of money and these schools are often found in America's poor inner cities (Barr & Parrett, 2007). Proof of inadequate funding levels can be found in the results of a recent lawsuit in the state of California. The state of California has to pay $188 million as a result of a class action lawsuit

brought against the state for unequally funding schools with low-income students (Barr & Parrett, 2007).

Each year The Education Trust [TET, (2006)] compiles a report to determine the disparities or funding gaps that exist between high and low poverty and high and low minority school districts. The research is based on a review from the U.S. Census Bureau which details school level district financial data. Results from the most recent report indicate that huge disparities still exist between and within school districts (Liu, 2006). Formulas used to calculate Title I funds, one component of the Elementary and Secondary Education Act of 1965, are problematic and result in inadequate funding for school systems that need the money the most, urban school systems with high rates of poverty and high numbers of minority students (Alliance for Excellent Education, 2001; Liu, 2006). Furthermore, Wiener and Pristoop (2006) note "in 28 states, high minority districts receive less state and local money for each child than low minority districts. Across the country, $908 less per student is spent on students in the districts educating the most students of color, as compared to the districts educating the fewest students of color" (p. 6).

The practice of placing poorly trained and under-qualified teachers in school systems that can afford it the least is yet another example of a way school districts can affect the school organizational structure. It is well documented that many urban school systems often place the least qualified teachers in low performing schools that oftentimes have the highest rates of poverty and minority students (Lankford et al., 2002). Furthermore, many urban school systems face a greater teacher shortage compared to the suburban school systems due to high teacher turnover rates (Dill & Stafford-Johnson, 2003; Ingersoll, 2003; McDonnell, 2005). In addition, research indicates that many teachers leave schools with high numbers of low achieving students

for school systems that have a higher achieving student population, which often results in school systems being left with teacher vacancies and individuals who are unqualified to teach (Betts, Rueben, & Danenberg, 2000).

Studies have shown that schools that do not actively promote a positive school structure or culture often create an environment that engenders student failure and increased dropout rates (Gottfredson, G. & Gottfredson, D., 1989; Lee & Burkham, 2003).

One qualitative study investigated how school structure and culture influenced the instructional practices of teachers in a given school and contributed to decreased high school graduation rates and increased dropout rates (Patterson, Hale, & Stessman, 2007). As a result of the instructional practices of the teachers, contradictions between the school structure and culture led to contradictions with the home culture of many of the students, which, ultimately, contributed to the dropout rate (Patterson et al., 2007).

The setting in which the qualitative case study took place is typical of many urban school systems in the United States. The school, once dominated by White middle class families, has experienced a recent influx of immigrants from Mexico and Central America. Statistics for the school show that, during the time the case study was conducted, the student demographic composition was 39.7 percent Hispanic, 36.5 percent White, 17.6 percent African American, 1.9 percent American Indian, and 4.4 percent Asian (Patterson et al., 2007).

The study documented many examples of the degree to which teacher values and attitudes toward certain demographic groups within the school actually influenced the instructional practices of the teachers. Patterson et al. (2007) point out that "faculty and staff often stated one value but then described actions that were inconsistent with that stated value" (p. 6). Furthermore, many of the faculty and staff viewed the minority students as lacking the ability

to achieve simply because of their minority status or family background. Patterson et al. (2007) notes that "we found contradictions between the faculty and staff's valuing of diversity and the beliefs they expressed about many of their students" (p.7). Furthermore, the study revealed contradictory beliefs among teachers regarding the expectations of parents and families for student achievement. The researchers noted that some of the teachers perceived the parents of many of the Latino students as not valuing education since they were not as involved in the school, even though factors such as "parent work schedules, and needs for transportation and childcare make it difficult for them to be involved in school in ways the dominant culture expects" (p.7).

Historically, the impact of instructional methods and best practices on graduation rates has been a source of disagreement among researchers (Ornstein & Hunkins, 1997; Tanner & Tanner, 2007). One of the earliest pioneers who influenced the development of instruction was Joseph Lancaster. He devised a system whereby more educated students taught poor and uneducated students under the guidance of one master teacher, which enabled large numbers of students to receive instruction at one time (Raymen, 1981). This form of instruction allowed for more rote memorization through a process of monitorial instruction (Tanner & Tanner, 2007). As a result of monitorial instruction, schools were allowed to teach large numbers of students at one time. Raymen, (1981) notes that the United States adopted the Lancasterian method because

> the rise of urbanization, cities, and the working class fomented a groundless paranoia that rebellion of some description was imminent from landless wage earners unless they were educated. Schools modeled on the plan soon opened in Philadelphia, New Haven, Pittsburgh, and Washington City (later Washington, District of Columbia) and the plan

was employed from the founding of the New York City public school system in 1806 (p.
397)

This approach to instruction differed greatly from the philosophical approach of John
Dewey (Tanner & Tanner, 2007). He espoused the philosophy that all students learn better in
smaller classes that offer face-to-face contact between the student and the teacher (Tanner &
Tanner, 2007).

Research indicates that the curriculum utilized by school districts can affect graduation
rates (Minhui, 2007). Posner (2004) identifies five different curricula that often exist within
school systems including official, hidden, operational, null, and extra curriculum. Posner (2004)
defines each of the concurrent curricula as

> official curriculum, or written curriculum, is documented in scope and sequence charts,
> syllabi, curriculum guides course outlines, standards, and lists of objectives. Operational
> curriculum consists of what is actually taught by the teachers and how its importance is
> communicated to the students. Its purpose is to give teachers a basis for planning lessons
> and evaluating students, and administrators a basis for supervising and holding them
> accountable for their practices and results. The hidden curriculum is not generally
> acknowledged by school officials but may have a deeper impact and more durable impact
> on students than the official or operational curriculum. Null curriculum consists of those
> subject matters not taught, and any consideration of it must focus on why these subjects
> are ignored. Extra curriculum comprises all those planned experiences outside of the
> school subjects. It contrasts with the official curriculum by virtue of its nature and its
> responsiveness of students (pp. 12-13)

Vang (2006) notes that "the hidden curriculum is an underlying agenda that affects students of low socioeconomic status, particularly language-minority students" (p. 20). Furthermore, social control through the hidden curriculum also places students at a disadvantage and inhibits academic success (Minhui, 2007). It has been asserted that social control of the curriculum influences students to be unsuccessful in school through the "language of class" that orients students into certain groups which oftentimes puts them at a disadvantage for school completion (Minhui, 2007).

Historically, curriculum development has been influenced and shaped by a number of educators including Johann Pestalozzi, Johann Friedrich, Madeline Hunter (Tanner & Tanner, 2007). A more recent educator whose theory and philosophical approach to curriculum development still impacts education today is Ralph Tyler (Hunkins & Hammill, 1994). Tyler's book, *Basic Principles of Curriculum and Instruction* (1949), is still read in education classes to get an understanding of curriculum development from Tyler's philosophical viewpoint. Tyler espoused the belief that curriculum should be based on four fundamental questions when developing any curriculum. Tyler's four questions include

1. What educational purposes should the school seek to attain?
2. What educational experiences can be provided that are likely to attain these purposes?
3. How can these educational experiences be effectively organized?
4. How can we determine whether these purposes are being attained? (p. 1)

It is important to highlight Tyler's basic questions since the content of the curriculum is the driving force used to educate students and the development of the curriculum is the foundation on which the content is based. Since the development of curriculum is so important to educational success, there is much debate among educators regarding the usefulness of Tyler's

philosophical approach to curriculum development. The following paragraphs will highlight an example of contemporary thought that is in direct contrast to what Tyler espoused in his book, *Basic Principles of Curriculum and Instruction* (1949).

One of the topics covered in Tyler's book is the development of objectives for the curriculum. Tyler's approach to building objectives is grounded in the belief that "no single source of information is adequate to provide a basis for wise and comprehensive decisions about the objectives of the school….Each source should be given some consideration in planning any comprehensive curriculum program" (p.5). Tyler examines four different sources to determine what "kinds of information can be obtained from the source and how this source may suggest significant educational objectives" (p.5). One of the sources Tyler considers as necessary when building objectives for a curriculum is the identification of a student's "needs." Other sources that need to be considered when developing objectives for curriculum include contemporary life or what may be relevant to the time period and subject specialists as resources to develop the objectives. In addition, one must have a philosophical framework to guide the three sources in order to develop a quality curriculum. In a broader sense, Tyler believes that objectives should be kept general rather than specific so that the objectives can be a tool to selecting learning experiences. For example, Tyler states "In organizing a single list of important objectives it is desirable to state these objectives in a form which makes them most helpful in selecting learning experiences and in guiding teaching" (p. 44).

One contemporary author of curriculum development is Allan Glatthorn (2001). His approach to curriculum development is often in contrast to what Tyler purported throughout his career. Whereas Tyler believed in general objectives, Glatthorn takes a more targeted approach to developing objectives within curriculum development. Glatthorn states "First, classify the

objectives as either mastery, organic, or enriched" (p. 50). Glatthorn emphasizes the importance of mastery learning and ultimately this emphasis on mastery learning proves to be a targeted approach to the development of the objectives for the curriculum.

Another philosophical disagreement regarding curriculum is the approach taken to determine what curriculum should be taught. For example Orenstein and Hunkins (1997) state the following regarding an educators approach to curriculum

> A curriculum approach reflects a *holistic* position or a *metaorientation,* encompassing the foundations of curriculum (the person's philosophy, view of history, view of psychology and learning theory, and view of social issues), domains of curriculum (common and important knowledge within the field), and the theoretical and practical principles of curriculum (p. 2).

Ornstein and Hunkins (1997) classify the curriculum development approach into five different approaches using a scientific or non-scientific categorization. Scientific approaches "coincide with traditional theories and models of education and reflect established and formal methods of schooling" (p. 3). Whereas, non-scientific approaches are defined as having "evolved as part of avant-garde and experimental philosophies and policies of education; they tend to challenge established and formalized practices of education. Furthermore, non-technical approaches reflect the views of postposivitists or postmodernists" (p. 3). The five different techniques that drive how educators determine what should be included in curriculum include behavioral, managerial, systems, academic, and humanistic approaches (Ornstein & Hunkins, 1997). This is important to point out because the curriculum that educators adopt, based on their worldview, greatly influences what is taught in schools today. For example, it is documented that urban school systems do a poor job of teaching culturally current curriculum in schools (Hale,

2001). Therefore, it is important to realize that the adoption of certain curriculum in today's urban schools effects the school organization and structure which, in turn, can have negative consequences for certain populations of students, specifically among urban schools systems (Feagin, 2006).

One way to improve the school structure or organization for urban school districts is through the inclusion of a multicultural-based curriculum. Researchers recommend the use of a multicultural-based curriculum to bridge the gap between the many diverse populations of students that are often represented in urban school systems (Shealy, 2006).

One philosophical position that school systems are adhering to, as a result of federal legislation such as the No Child Left Behind Act of 2001([NCLB], 2002), that could affect graduation rates is the increased emphasis on high-stakes testing. Research is mixed as to the benefits vs. consequences of high-stakes testing. For example, Roderick, Jacob and Bryk (2002) conducted a study using a three-level Hierarchical Linear Model to analyze the impact of high-stakes testing on student achievement in the Chicago school system. Results from the study indicate that test scores increased substantially as a result of high-stakes testing. Other studies indicate that the ever-growing practice of high-stakes testing could result in an increase in the dropout rate (Heubert & Hauser, 1999; Popham, 2003). Assessment of students is necessary as it allows educators the opportunity to measure whether a student has truly mastered the content. However, issues, such as test validity and reliability, need to be considered when developing and assessing student tests (Popham, 2001).

Another philosophical position that schools have erroneously taken that has inhibited students from graduating is the belief that grade retention is an effective practice to use in overcoming low academic achievement and curbing the dropout rate. The practice of retaining

students has been around for many decades (Dawson, 1998). The number of students retained

each year in schools across the United States is estimated to be around 10% or approximately 2.5

million students (Dawson, 1998). Research shows that many urban school districts retain large

numbers of students, specifically during their 9th grade year (Neild & Balfanz, 2006).

One of the reasons often cited in the literature as a reason why students are retained is to

improve academic performance (Neild, Stoner-Eby, &Furstenberg, 2008; Natale, 1991; McCoy

& Reynolds, 1999). However, as early as 1975, Jackson concluded, as a result of a meta-analysis

of research regarding grade retention, that grade retention was not appropriate for improving

academic performance (Jimerson, 2001). More importantly, there is a correlation between

student retention and dropping out of school (Alexander et al., 2001; Roderick, 1995; Rumberger

& Larson, 1998).

Allowing students to become disengaged in the educational process is another

philosophical position, albeit an unintentional one, that school systems have taken in the past that

can affect the student dropout rate. Finn (1989) characterized the process of dropping out of

school as a "gradual one" that culminated in the final act of a student withdrawing from school.

The two models proposed by Finn (1989) for viewing dropping out of school as a developmental

process are the frustration-self-esteem model and the participation-identification model.

The frustration-self-esteem model, originally developed by Bernstein & Rulo (1976),

highlights the consequences of a school's continued mishandling of a students misbehavior

which allows a student to become disengaged in the academic process (Finn, 1989). For

example, the frustration-self-esteem model purports that a schools deficient handling of

problematic behavior leads students to develop a reduced level of self-esteem which, in turn, can

produce unsuccessful school outcomes including dropping out of school (Finn, 1989).

A study conducted by Croninger & Lee (2001) revealed that teachers were an important source of "social capital" and that students who had academic difficulties and were from disadvantaged backgrounds benefited from the guidance and assistance from teachers and that "teacher-based forms of social capital reduce the probability of dropping out by nearly half" (p. 548). The implications from this study are that teachers can have a profound effect on a student's level of achievement. As part of the disengagement process, students who feel alienated from school are more likely to drop out (Bridgeland, Dilulio, & Morison, 2006) and school structure and social organization have an effect on alienation and dropping out of school (Byrk & Thum, 1989).

Further evidence can be found, based on a review of the literature, regarding the devastating impacts of a lack of engagement on students as they transition from middle school to high school. One research study noted that African American male students in Chicago were 50% more likely to fail a major subject during their 9th grade year during the first semester than 9th grade African American females (Roderick & Camburn, 1999). The lack of engagement by the African American males was attributed to the environment of the school's organizational structure (Roderick & Camburn, 1999).

Theories on Dropping Out of School

Currently, there is a gap in the literature on theories put forward to explain why students drop out of school. Researchers have noted most of the studies conducted regarding the issue of why students drop out of school are "atheoretical" (Holland & Andre, 1987).

To further complicate the challenge of utilizing theories to help explicate why students drop out of school, some researchers believe there is no one theory that adequately explains why students drop out of school (Newcomb et al., 2002). Additionally, Battin-Pearson et al., (2000)

conducted a study in which the purpose was to determine which theory adequately predicts which students are going to drop out of high school. However, the researchers were able to determine that "none of the theories tested was fully adequate to explain the data, although partial support was obtained for each theory" (p. 568). As a result of the findings outlined in the study conducted by Battin-Pearson et al., (2000) it was determined that no single theory was adequate for the study. Therefore, the study was "atheoretical" since no one theory adequately encompasses all of the chosen variables. Additionally, in order to demonstrate why no single theory enables the identification of all of the variables, a review of multiple theories relating to the subject of dropping out of school was conducted. Some of the theories evaluated were attachment theory, the classical theory of urbanism, alienation theory, self determination theory, theory of engagement, and social control theory. Each of the theories listed provided a basis to select some but not all of the variables to be examined to help predict dropout rates. Additionally, after an exhaustive review of the literature, no research studies were found in which the theories reviewed were applied to help explain why students drop out of school or to help predict dropout rates. Therefore, the study did not use any one theory to assess the impact of the variables selected on dropout rates.

Over many decades, a vast amount of research has been conducted to get a better understanding of the origins and causes of deviant behavior among individuals. Typically, in sociological literature, deviance is classified as "general norm-violating behaviors" (Jessor & Jessor, 1977) or "specific deviant behaviors" including drug use, sexual involvement, and delinquency (Newcomb et al., 2002). Regarding the issue of deviant behavior and school dropout rates, most of the research that has been conducted has looked at specific acts of deviance to predict student failure in high school (Ellickson, Bui, Bell, & McGurigan, 1998); while fewer

studies have been conducted to get a better understanding of a construct of general deviance and its contribution to the inability to finish school (Newcomb et al., 2002).

There are numerous theories espoused by social psychologists to explain acts of deviant behavior. Tittle (1995) attempts to lump many of the theories used to elucidate deviant behavior into seven major categories. He identifies strain, learning, labeling, control, opportunity, psychodynamic, and biological categories as the major areas within deviance theory. McGee and Newcomb (1992) categorize different theories of deviance by those that "emphasize common causes for a variety of deviant behaviors and do not differentiate factors that lead to one type of deviant behavior from those that lead to another type" (p. 767), including: problem behavior theory, social learning theory, self derogation theory, social control theory, and strain theory. As with many other fields of academic research, there is much debate over the best theories to apply to explain what causes different forms of deviance. Therefore, ongoing empirical studies are continuously being conducted to refine and support prevailing theories of deviance.

Theory of Urbanism

In addition to the aforementioned theories used to describe deviant behaviors, other macro-level theories not directly tied to dropping out of school exist. Some of these theories include components that touch on deviant behavior and, as a result, should be included when evaluating factors contributing to school dropout. One such theory is the classical theory of urbanism (Tittle & Stafford, 1992). Classical theory of urbanism suggests that many forms of deviant behavior occur as a result of urban features (Tittle & Stafford, 1992). This theory proposes that acts of deviant behavior stem from conditions typically found in urban settings including overcrowding, ethnically diverse populations, and high rates of poverty. Tittle and Stafford (1992) note that such conditions foster "large numbers of social interactions, numerous

encounters with people not known personally, and the capacity to remain anonymous" (p. 726).

Such conditions can cause "weak social bonds, promote alienation and tolerance, and undermine

social control, permitting deviant behavior" (p. 726). The aforementioned characteristics are

referenced in some theories used to explain deviant behavior and dropping out of school.

Therefore, it is necessary to highlight classical theory of urbanism as a broad, encompassing,

macro-level theory that complements other theories used for explaining the act of dropping out

of high school.

There was one clear limitation in using the theory of urbanism for the study. The primary

reason the theory of urbanism was not adequate is that the study included school systems that are

located in both suburban and rural areas in addition to including schools in urban areas.

Therefore, the theory of urbanism might partially explain why some students drop out of school

in an urban setting but it would not be applicable for students who live in suburban or rural areas,

such as the ones found in the large metropolitan area selected for the study.

Theory of Anomie

Many contemporary sociologists have developed theories of deviance based on the work

of Emile Durkheim's theory of anomie. Use of the influential work done by Durkheim (1933) is

still prevalent today in existing theories used to explain why individuals adopt various forms of

deviant behaviors including those that can lead an individual to drop out of school (LeCompte &

Dworkin, 1991). Durkheim's book, *The Division of Labor in Society* (1933), espouses the role

anomie plays in the breakdown of society. "The state of anomie is impossible whenever

interdependent organs are sufficiently in contact to each other, they are readily aware, in every

situation, of the need which they have an active and permanent feeling of mutual dependence"

(p. 184). As the state of society becomes more complex, a development that can happen during

times of rapid social change or political upheaval, the social bonds that exist tend to break down, causing individuals to practice various forms of deviant behavior.

Strain Theory

Robert Merton (1968) built upon Durkheim's theory of anomie and conceptualized strain theory as a way to explain why individuals adopt certain forms of deviant behavior. Merton's strain theory is described as "a gap between culturally prescribed goals and structurally or institutionally available means to attaining such goals" (LeCompte & Dworkin, 1991, p. 146). In addition, Merton's strain theory purports that those individuals who commit deviant acts do so as a form of adaptation to bridge the gap between society's norms and the individual's inability to achieve those socioeconomic goals (Siegel, 2003).

Alienation Theory

Alienation theory, which is used to explain why students drop out of school, is derived from Merton's strain theory (LeCompte & Dworkin, 1991). Alienation theory has been utilized to gain a better understanding of why students become disengaged from the academic process and eventually drop out of school (Fine, 1986). When individuals feel the strain of not closing the gap between their experiences or capabilities and cultural norms, one response these individuals may have is to alienate themselves from society (Fine, 1986).

In reference to dropping out of school, alienation theory suggest that students who drop out of school do so because they lack positive relationships with teachers and peers, resulting in an individual alienating himself from school, thus creating an environment that provides a reason for a student to withdraw from school (Newmann, 1981). Studies have shown that some students leave school primarily because they feel that the teachers did not care about them or viewed them as troublemakers and were not supportive of them (e.g. Fine, 1986). In addition to student-

teacher relationships, other factors that affect a student's decision to alienate and eventually withdraw from school include school structure and social organization (Bryk & Thum, 1989).

Alienation theory has its own limitations when it comes to explaining why students drop out of school. Croninger and Lee (2001) assert that, although a theory of alienation can explain why some students drop out of school as a result of poor student-teacher relationships, a theory of social capital might be needed to explain why students drop out of school as a result of poor relationship development within the entire school organization. Croninger and Lee (2001) maintain that social capital, defined as "small networks of relationships and broad societal patterns of interactions" (p.553) enables individuals to be productive in school and that, without these positive relationships that exist within the overall school organization, adolescents are more likely to drop out of school. As a result, Croninger and Lee (2001) contend that a theory of social capital is better suited to explain why students drop out of school as a result of poor relationships within school organizations. Croninger and Lee (2001) write

> although alienation theory goes beyond a narrow focus on social control as an explanation for why some students drop out of school rather than others, such theories shed little light on the ways in which students and teachers negotiate access to valued social resources…. Whereas alienation theory tends to focus on the *absence* of positive ties between students and teachers in explaining student outcomes, we believe that it would be more useful to focus on the *nature* of social ties that different groups of students have with their teachers. (p. 553-554)

While Croniger and Lee (2001) suggest investigating the application of social capital theory, this theory cannot be connected to all variables selected in the study as well so, similarly, the theory was not a candidate for providing a theoretical basis for the study.

Motivation, or lack thereof, has been shown to be a possible reason why students drop out of school (Tidwell, 1988). One theory found in the literature studying the motivational influences that determine whether or not a student will drop out of school is self determination theory (Deci &Ryan, 1985).

Self Determination Theory

Self determination theory is a macro theory of human motivation that has evolved over thirty years of research based on the work of Edward Deci, Richard Ryan and fellow collaborators (Ryan, Kuhl, & Deci, 1997). The theory has been utilized in various fields of research and has applications for education, mental health, healthcare, and parenting (Deci & Ryan, 1985).   The theory of self determination is based primarily on three innate needs found in every individual. The three needs that self determination theory focuses on are competence, relatedness, and self determination (Deci, Vallerand, Pelletier, & Ryan, 1991). When referring to self determination theory, Deci et al. (1991), state "competence involves understanding how to attain various external and internal outcomes and being efficacious in performing the requisite actions; relatedness involves developing secure and satisfying connections with others in one's social milieu; and autonomy refers to being self-initiating and self-regulating of one's own actions" (p. 327).

One other defining concept of self determination theory is the view of self determination related to intrinsic and extrinsic motivation. Intrinsically motivated behaviors are those that are done without any sort of outside reward or constraint being placed upon the individual to complete the task (Deci & Ryan, 1985). In contrast, extrinsically motivated behavior is defined by Deci et al. (1991) as behavior that is "not performed out of interest but because they are believed to be instrumental to some separable consequence" (p. 328). The four types of extrinsic

motivation identified in the literature include external, identified, introjected, and integrated

forms of regulation (Deci et al., 1991).

From an educational perspective, self determination theory is concerned with promoting

in students an interest in learning, a valuing of education, and a confidence in their own

attainable attributes (Deci et al., 1991). Self determination theory contends that students

determine their sense of competence and self determination in school based on the relevance and

the level of interest to the students' lives (Hardre & Reeve, 2003). Students who fulfill the basic

needs of competence and self determination from school activities are more inclined to find

enjoyment and engagement during the educational process (Ryan & Deci, 2000). If the

individuals do not find enjoyment and engagement during the educational process, then students'

self determination to persist in school declines. This development can result in withdrawing from

the educational process (Hardre & Reeve, 2003).

Two types of milieu can be fostered during a student's educational career that can have

direct influences on the outcome of the student's motivational level (Reeve, Bolt, & Cai, 1999).

Autonomy-supportive environments, which support a students' need for competence and self

determination is one type and controlling environments that do not foster a student's need for

competence and self regulation is another type of environment (Reeve et al., 1999).

Consequently, motivational models have been created to provide a theoretical framework that

can be used to explain why students drop out of school (Hardre & Reeve, 2003; & Vallerand,

Fortier, & Guay, 1997). One such motivational model is based on a student's intrinsic or

extrinsic motivation and is grounded in self determination theory (Vallerand et al., 1997). This

model suggests that students' feelings of competence in determining their own capabilities and

autonomy are influenced by teachers, parents, and school personnel. In effect, the motivational

model purports that those students who are treated with less supportive interactions, in turn, experience decreased levels of competence. As a result, these students begin a downward spiral into lower levels of self-determined motivation that, ultimately, results in dropping out of school (Vallerand et al., 1997).

Ultimately, even though self determination theory can be utilized to explain why some students drop out of school due to a lack of motivation, the theory does not adequately address all of the variables chosen for the study. For example, even though high school size is related to increased dropout rates (Lehr, Johnson, et al., 2004), no study was found in the literature review connecting school size, self determination theory, and dropping out of school. Therefore, it was determined that self determination theory would not be utilized for the study.

Theory of Engagement

One theory based on a model of social development that is used to explain why students drop out was developed by Finn (1989) and is referred to as the theory of engagement. Finn describes the dropout process as a very gradual one that, over time, culminates with a student dropping out of school. Finn (1989) proposed two models for viewing dropping out of school as a developmental process. Finn (1989) writes

> the "frustration-self-esteem model" has been used frequently to explain schools' effects
> on disruptive behavior and juvenile delinquency; it offers one perspective for
> understanding dropping out as well. The "participation-identification model" emphasizes
> the importance of youngster's "bonding" with school; when this does not occur, the
> likelihood of problem behavior, including leaving school before graduation, is increased.
> (p.118)

The frustration self-esteem model, originally developed by Bernstein and Rulo (1976), purports that a school's deficient handling of problematic behavior results in students developing a reduced level of self-esteem which, in turn, can produce unsuccessful school outcomes (Finn, 1989). In addition, negative peer influences further exacerbate the problem (Finn, 1989).

Even though the theory of engagement is useful in explaining why some students drop out of school due to an inability to conform to societal expectations within school, it did not adequately address all of the variables associated with the study. For example, there was no study found in the literature review connecting the theory of engagement to limited English proficiency and dropping out of school. Therefore, it was determined that the theory of engagement would not be utilized for the study.

Attachment Theory

Attachment theory is yet another theory that has been cited in the literature as a theory used to explain why students drop out of school (e.g., Pianta, 1999). Attachment theory was originally developed and reformulated over many years by the combined work of John Bowlby and Mary Ainsworth (Ainsworth & Bowlby, 1991). A recent article published by Jimerson, Coffino, and Sroufe, (2007) lauds the usefulness of the theory of attachment and indicates that, "because of its salience and precision, the theory has led to an outpouring of research and application, and the core hypotheses have now been amply supported" (p. 79).

The main tenets behind the theory of attachment are broad and complex. However, a classification system exists to define the different forms of attachment patterns that a child develops early in life. Bowlby's attachment theory was the genesis of later work that was conducted by Ainsworth in which the Strange Situation Procedure was developed to measure the

level of attachment a child has to early caregivers and to assess the impact this attachment has on

the individual the rest of his or her life (Kennedy & Kennedy, 2004).

> Using the *Strange Situation Procedure*, Ainsworth and Bell classified infants into one of
>
> three categories: 1) secure, in which infants use the mother as a secure base for
>
> exploration and seek contact with her after separation; 2) anxious-ambivalent, in which
>
> infants are unable to use the mother as a secure base and are often angry and push her
>
> away upon reunion; 3) anxious-avoidant, in which infants fail to use the mother as a
>
> secure base for exploration and avoid the mother upon reunion or approach her only
>
> indirectly; 4) In more recent work Main & Solomon, (1990) a fourth category was
>
> devised disorganized-disoriented in which there is no predictable or effective pattern of
>
> eliciting care giving behaviors by infants when stressed. (p. 248)

Attachment theory purports that the level of childhood security affects many aspects of a

person's life, from early childhood throughout his or her adult life. Issues such as infant

temperament and family-and-peer relationships are affected by early levels of secure attachment

(Bowlby, 1988). Therefore, without the appropriate levels of secure attachment, many children

will lack the necessary coping skills to attach to families, teachers, and other pro-social

institutions. Without the ability to attach to these pro-social institutions, students are more likely

not to complete school (Marcus & Sanders-Reio, 2001).

Even though the theory of attachment has been utilized in studies, it cannot adequately

address all of the variables selected for the study. While variables such as ethnicity, gender, and

socioeconomic status are highlighted by Marcus and Sanders-Reio (2001) as examples of

proximal and distal influences of attachment affecting school dropout rates, variables such as

school size, school location, and special education status cannot be included as proximal and distal influences of attachment. Therefore, attachment theory was not utilized for the study.

Jimerson, Egeland, Sroufe, & Carlson (2000) found that, by using a developmental transaction model based on attachment theory, they were able to conclude that dropping out is a process that begins early in a child's life. "The child's early home environment and quality of early care giving emerged as powerful predictors of whether a student remained in a traditional program or dropped out of school" (p. 542). Using this transactional model, they were able to predict with 77% accuracy which students would drop out of school (Jimerson et al., 2000).

Additional theories advanced to predict which students will drop out of school are highlighted in a research study conducted by Battin-Pearson et al., (2000). The theories that were studied include full academic mediation, general deviance, deviant affiliation, poor family socialization, and structural strain theory.

The purpose of the study conducted by Battin-Pearson et al., (2000) was to determine which theory adequately predicts which students are going to drop out of high school. Each theory offers empirical research to support their reasoning as to why students drop out of school. As a result of this study, the researchers were able to determine that "none of the theories tested was fully adequate to explain the data, although partial support was obtained for each theory" (p. 568). As a result of the findings outlined in the study conducted by Battin-Pearson et al., (2000), it was determined that none of the aforementioned theories were adequate for the study.

Social Control Theory

Another theory that is referenced in the literature, albeit on a limited scale, to explain why a student drops out of school is social control theory, sometimes referred to as social bond theory (McNeal, 1995). This theory has been used in many empirical studies for decades looking

at the issue of deviance and subsequent criminal behavior or activity. The theory of social control was developed by Travis Hirschi (1969) and it is used to study deviant or delinquent behavior that stems from a lack of social attachment to positive influences in an individual's life. Hirschi proposed that acts of delinquent behavior occur as a result of a lack of bonding to family, parents, schools, religious institutions, and other areas that promote pro-social bonding (Hirschi, 1969).

With regards to completing school, Marcus & Sanders-Reio (2001) summarized Hirschi's social control theory as

a child's initial attachment to his or her parents as affecting later relationships. Hirschi's attachment is more global, a property of an individual's emotional bonds to society and institutions such as school. From Hirschi's perspective, bonds among individuals have four elements: (a) attachment, or concern with the opinion of others; (b) commitment, or a rational decision to behave in acceptable ways; (c) involvement, or the expenditure of time and energy in positively sanctioned behaviors; and (d) belief, a view that the principles encouraged by social institutions are valid. When attachment is strong, the child feels emotionally bonded to his or her family, school and community. When the bonds are weak, the child is free to engage in delinquent behavior. (p. 428)

An exhaustive review of the literature regarding different theories on dropping out supports the premise that no studies have been conducted using the theory of social control (McNeal, 1995). Therefore, it was determined that social control theory was inadequate for the study.

The theories previously covered in the literature review represent several of the prominent theories that are used to explain why a student might drop out of school. Even though

a few studies have applied a theory in a practical manner in an empirical study, difficulty arose in identifying a single theory to utilize in the selection of variables for the study. As a result, it was determined that no one theory could encompass all of the variables selected for the study.

School Intervention Programs

There are many ways in which schools encourage students to drop out of school, not intentionally but unintentionally, through school practices, policies, and program implementations that push certain outcomes but have inadvertent consequences on school completion. A brief review of some of the intervention and prevention programs will highlight some of the ways in which schools either discourage or encourage students to stay in school.

Many school systems unintentionally encourage students to drop out of school by placing them in intervention programs that are not effective at reducing the dropout rate. There are many intervention programs that are available to students throughout their academic career that are intended to assist them in achieving their academic goal of completing high school (Dynarski & Gleason, 1998). However, many of these intervention programs aimed at preventing students from dropping out of school are not working or have had very limited success (Dynarski & Gleason, 1998). Oftentimes, the wrong students are identified for intervention programs as well, thereby reducing the efficacy of the intervention programs (Gleason & Dynarski, 2002). Furthermore, there are a limited number of intervention programs that have been tested to prove their effectiveness in reducing the dropout rate (Montecel et al., 2004). A great deal of information is available on how to identify potential dropouts; however, less is known about how to keep at-risk students in school (Christenson & Thurlow, 2004).

Even though there are many programs that do not effectively address the dropout issue, there are scientifically-based intervention and prevention programs that have shown positive

results in reducing the dropout rate and are being adopted by schools to formally encourage students to graduate from high school. Furthermore, research is continuously being conducted to gain a better understanding of the most effective dropout prevention programs for school systems to implement (e.g. Montecel et al., 2004).

The National Dropout Prevention Center (2007), working in conjunction with Communities in Schools, an organization specializing in dropout prevention, published a technical report based on an exhaustive review of the literature identifying the risk factors that can be used to identify students at risk of dropping out of school (Hammond et al., 2007). Some of the risk factors in the report include low academic achievement, grade retention, no extra-curricular participation, learning disability, parenthood, low commitment to school, low education level of parents, sibling had dropped out, low socioeconomic status, not living with both natural parents, poor attendance, and misbehavior at school (Hammond et al., 2007).

Examples of exemplary programs that are evidence-based are included in the report. The list of exemplary programs was developed using a matrix tool entitled *The Matrix of Prevention Programs*. The exemplary programs were identified using *The Matrix of Prevention Programs* for the following reasons (Hammond et al., 2007):

(1) the purpose of the matrix was to help identify effective, evidence-based programs "designed to reduce or eliminate problem behaviors, such as delinquency, aggression, violence, substance use, school behavioral problems, and risk factors identified as predictive of these problems," including most of the risk factors identified by this project as keys to school dropout; (2) programs were rated as effective by 12 highly respected federal and private agencies and several researchers based on an evaluation results usually from experimental or quasi-experimental designs; (3) program selection was

based on relatively stringent criteria, such as the theoretical/research basis for program

components and quality of implementation; and (4) programs were ranked based on the

content, evaluation, and outcome criteria. (p. 49)

As a result of *The Matrix of Prevention Program,* the NDPC was able to accumulate a list

of 50 exemplary programs that target identified individual and family risk factors (Hammond et

al., 2007). The intervention programs that were highlighted in the study were selected from the

list of exemplary intervention programs in the NDPC technical report.

A closer look at individual dropout intervention programs will highlight some of the

practices that encourage students to remain in school and graduate. The intervention programs

that will be evaluated include Coca-Cola Valued Youth Program (Coca-Cola VYP), Check &

Connect, Career Academies, a modified Career Academy known as Junior Reserve Officer

Training Corp Career Academy (JROTCCA), and Achievement for Latinos through Academic

Success (ALAS).

Coca-Cola Valued Youth Program

The reasons for selecting the Coca-Cola Valued Youth Program (1991) are four-fold.

First, the main objective of the program is to reduce the dropout rates of middle and high school

students who are at risk of school failure (Fashola & Slavin, 1998). Second, the Coca-Cola VYP

has been tested using both qualitative and quantitative research based designs to validate the

effectiveness of the program (National Dropout Prevention Center [NDPC], 2005). Third, the

program bases its selection of at-risk students who get to participate in the program on two of the

variables that had been identified for the study including the following: classified as low

socioeconomic status and school location. The Coca-Cola VYP has been implemented in both

rural and urban school settings.

The program was developed over twenty five years ago as a result of a desire by Dr. Jose Cardenas to help poor, minority, and limited-English proficient students whom he believed were not getting an adequate education compared to students who attended schools in wealthier districts (Cardenas, Montecel, Supik, & Harris, 1992; Montecel, Supik, & Montemayor, 1994).

As a result of the work of Dr. Cardenas, the Coca-Cola VYP has succeeded in reducing dropout rates among at-risk students participating in the program. The latest statistics show that 24 cities in the United States, including 108 schools, have implemented the Coca-Cola VYP (Hammond et al., 2007). In addition, the Coca-Cola VYP has helped keep approximately 98% of the program's participants in school (Hammond et al., 2007) which translates into over 14,000 at-risk students remaining in school (Lehr, Johnson, et al., 2004). Using a quasi-experimental design, researchers conducted a two year study and concluded that at-risk students who participated in the Coca-Cola VYP had lower dropout rates, improved reading scores, improved attitudes toward school, and better self esteem (Montecel et al., 1994).

The basic tenets that articulate the philosophy of the Coca-Cola VYP include the following: the school must value all students; all students can learn; all students in the school can actively contribute to their own education and that of others; parents, students, and teachers must be provided extensive, consistent, support in ways that allow students to learn, teachers to teach, and parents to be involved; commitment to educational excellence is created by including students, parents, and teachers in setting goals, making decisions, monitoring progress, and evaluating outcomes; all students, parents and teachers have a right to participate fully in creating and maintaining excellent schools; and excellence in schools contributes to individual and collective economic growth, stability, and advancement (Montecel et al.,1994). In addition, Montecel et al. (1994) highlight the goals of the program to be " (a) reduce dropout rates, (b)

enhance students' basic academic skills, (c) strengthen students' perception of self and school, (d) decrease student truancy, (e) decrease reduce student disciplinary referrals, and (f) forms school-home-community partnerships to increase the level of support available to students" (p. 67).

The Coca-Cola VYP program places at-risk students who are in middle or high school with students who are in elementary school. The students are given the responsibility of tutoring three elementary students four hours a week and are paid minimum wage for their efforts (Fashola & Slavin, 1998). The students have to take a class on effective tutoring strategies and are provided with additional help to improve their own academic skills as well (Fashola & Slavin, 1998). The approach of giving the students some responsibility, paying them for their efforts, and helping the students develop their basic skills, has been proven to achieve one of the primary goals set forth in the program which is to reduce the dropout rate of students, specifically those students with limited English proficiency (Lehr, Johnson, et al., 2004). The cost of implementing the program ranges from $150 to $250 per student and is used for staff training, tutor stipends, evaluation, and awards (Lehr, Johnson, et al., 2004).

Check & Connect

Another way in which students are formally encouraged to stay in school is through the intervention program known as Check & Connect. This program was first developed at the University of Minnesota with input from regular education teachers, special education teachers, students and parents (Lehr, Johnson, et al., 2004). The original intent of the program was to address the dropout issue among students with emotional and behavioral disabilities but has since been expanded to include students with and without disabilities and includes their families (Lehr, Johnson, et al., 2004).

The Check & Connect program is relevant to the study for several reasons. First, the primary goal of Check & Connect is to keep students engaged in school by promoting the necessity of regular attendance in an effort to decrease the chances of school failure (Lehr, Sinclair, & Christenson, 2004). Second, the program utilizes a sound theoretical construct and has been tested using four longitudinal studies to determine the reliability and validity of the program (Lehr, Sinclair, et al., 2004). Third, the program bases its selection of eligible students who are asked to participate in the program on one of the variables that have been chosen for the study including low socioeconomic status. Fourth, Check & Connect has been implemented in urban school settings with high school students (Lehr, Sinclair, et al., 2004).

Since its inception in 1992, the Check & Connect Program has been very successful in reducing the dropout rate and reducing the number of absences among students at risk of dropping out of school (Anderson, Christenson, Sinclair, & Lehr, 2004). Results from one evaluation of the Check & Connect program revealed a positive impact in the lives of students who enrolled in the program as measured by the number of students who were still enrolled in the program at the end of 9th grade compared to the control group (Sinclair, Christenson, Evelo, & Hurley, 1998). Results from the longitudinal study showed that 68% of the students who were enrolled in the Check & Connect program were still in school 5 years later and that only 29% of the students who were in the control group were still on track for graduation (Sinclair et al., 1998).

Absenteeism is often cited in the literature as one of the leading risk factors used to determine which students are at risk of dropping out of school (e.g., Suh, Suh, & Houston, 2007). Consequently, it is important to look at intervention strategies and programs that focus on this particular risk factor. The Check & Connect program is one of the intervention programs that is

designed to reduce the number of absences. One evaluation of the Check & Connect Program focused on the effectiveness of reducing the rate of truancy among students enrolled in the program (Sinclair & Kaibel, 2002). The longitudinal study revealed positive results on its effectiveness in reducing the number of absences (Sinclair & Kaibel, 2002). After attending the Check & Connect program for 2 years, the percentage of students who were present 95% of the time rose from 11% to 34%. Additionally, the portion of students who were absent more than 15% of the time was reduced from 45% to 32% (Sinclair & Kaibel, 2002).

The Check & Connect Program is based on three main components that are the foundation for the program. According to Lehr, Johnson, et al., (2004) the fundamental elements of the model include

> relationship building, routine observations of warning signs of withdrawal, individualized intervention, promotion of problem solving skills, and encouragement of students' participation in school activities. These key features are carried out through an individual referred to as a monitor, who serves essentially as a mentor, case manager, and advocate. (p. 42)

The designated monitors are assigned to follow a group of students to "check" on them to make sure they are in school on a daily basis. The people who are employed as monitors are paid by the district and not by individual schools. This facilitates better follow up with students and enables continuity throughout the student's academic career. In addition, allowing the monitors to follow the students as they progress through the school system enables them to make adjustments as the student's needs change (Kennelly & Monrad, 2007).

"Connect" is the other main component of the Check & Connect program. The connection component of the program is designed to provide the necessary interventions based

on the results of the monitors' "checking" on the students. The monitors are given the task of providing the necessary interventions based on monthly meetings with the students using a five step problem solving strategy (Lehr, Johnson, et al., 2004). The cost of implementing the Check & Connect program was approximately $1,400 per student per year during the 2001-2002 school year (Sinclair & Kaibel, 2002).

Career Academies

Another practice employed by some school districts to formally encourage students to stay in school is the implementation of Career Academies. Although results are mixed, Career Academies represent a potential intervention strategy for students who are at risk of dropping out of school (Kemple, 2004). Career Academies are highlighted for several reasons. First, the effectiveness of Career Academies has been tested using various quantitative design methods, (Kemple, 2004; Kemple & Snipes, 2000). Second, the Career Academy concept was originally designed to help high school students of low socioeconomic status who were in danger of dropping out of school (Neubauer, 1986; Stern, Raby, & Dayton, 1992). Third, Career Academies have been implemented in urban and rural settings that target high school students (Stern et al., 1992).

Career Academies were developed by Charles Bower and were intended to increase graduation rates for poor minority inner city youth (Neubauer, 1986; Stern, Dayton, & Raby, 2003). The first Career Academy opened in 1969 at the Thomas Edison High School in Philadelphia, Pennsylvania. The program was later replicated in San Francisco, California in the 1980's (Stern et al., 1992).

The results of several studies conducted show largely positive results on the effectiveness of Career Academies. One study involving a random controlled assignment found that at-risk

students who participated in Career Academies remained in school longer than the students selected in the comparison group; however, the study also discovered that participating students were not more likely to earn a diploma than the comparison group (Kemple & Snipes, 2000). The same study also revealed that students who participated in the Career Academies program had a better attendance record, tended to be more likely to apply to college, and completed more academic and vocational classes (Kemple & Snipes, 2000). One research study that was conducted, utilizing both quantitative and qualitative data, indicated that the dropout rate decreased enough to be statistically significant among students who participated in Career Academies compared to matched comparison groups (Maxwell & Rubin, 2001).

One study yielding positive results utilized a random assignment research design method to determine the labor market outcomes and education attainment levels of students who participated in Career Academies (Kemple & Scott-Clayton, 2004). Findings from the study include the following labor market impacts: Career Academies improved the labor market prospects for men but not women, Career Academies provided pathways into post-secondary education, and Career Academies proved to be especially helpful to students who were classified as at risk of dropping out of school (Kemple & Scott-Clayton, 2004).

One possible drawback of instituting Career Academies is the cost of the program. Even though there is often outside financial support from local businesses, grants, and community agencies, school districts are frequently faced with the challenge of paying the increased financial cost of running the program. Studies show that the cost of effectively implementing a Career Academy is highs but, compared to the social costs the United States incurs as a result of students dropping out of school, the cost is not prohibitive (Levin, Belfield, Muennig, & Rouse, 2007).

Career Academies offer unique features for students that would not be offered in a traditional classroom setting. The Career Academy focuses on small learning environments that are set up as schools within schools (Stern et al., 1992). Typically, the classes are designed as cohorts that allow a certain number of students in each year, thus allowing for smaller class sizes and more focused teacher attention for each student. The students choose a particular career focus (e.g. business technology, agribusiness, communication and video technology) to study and then learn both career and academic skills based on the chosen content area (Stern et al., 1992). In addition, students who do well in the program are afforded the opportunity to work with local employers to gain additional training and skills needed to succeed in the workforce. Furthermore, local businesses are considered an integral component of Career Academies and offer support through supplemental teaching, mentors, and part-time work for students (Stern et al., 1992).

JROTCCA

Another practice that some school districts engage in to promote high school graduation among students is the implementation of a modified type of career academy known as JROTCCA (Elliot, Hanser, & Gilroy, 2002). This type of Career Academy adds one incremental component to the career academy model by including the Junior Reserved Officer Training Corp (JROTC). By combining the Career Academy model with JROTC, it came to be known as Junior Reserved Officer Training Corp Career Academy (JROTCCA). The program was developed by the Department of Defense and the Department of Education (Elliot et al., 2002). The main difference between the traditional Career Academy and the modified Career Academy is the required participation in the JROTC program. Additionally, as pointed out by Elliot et al. (2002), the designers of JROTCCA "retained the original emphasis on at-risk students" p. 73.

Elliot, Hanser, & Gilroy (2002) conducted a quantitative study that examined the effectiveness in generating various outcomes for students who were enrolled in JROTCCA compared to students not enrolled in the Academy. Variables that were studied to prove the effectiveness of JROTCCA programs include grades, attendance, and graduation status. The study was focused on urban school districts and included 18 different cohorts from JROTCCA programs across the United States. Results of the study indicated that students who were enrolled in the JROTCCA had better attendance rates, higher graduation rates, and higher first year graduation rates compared to students who were not enrolled in Career Academies (Elliot et al., 2002).

Achievement for Latinos through Academic Success

Another practice some school districts have employed in the past that formally encouraged students to stay in school was the implementation of a program entitled Achievement for Latinos through Academic Success (Larson & Rumberger, 1995). This program was first implemented in 1990 in an urban school district in Los Angeles, California. The program had several goals but the primary focus of the program was to reduce the dropout rate of Latino Youth. Even though the program is no longer in existence, it is referred to extensively in the literature regarding dropout prevention programs. For example, Fashola and Slavin (1998) highlight the ALAS program for its documented successes and the fact that the program "demonstrates an effective approach to dropout prevention" (p. 166).

The ALAS program is being highlighted for four specific reasons. First, the ALAS program worked with students who attended urban school districts. Second, the target population consisted of those students who were at risk of dropping out of school. Third, even though the ALAS intervention program started during the seventh grade, the intervention program followed

the students until they completed grade 12. Fourth, the program was tested and found reliable in generating a number of student outcomes including reducing student dropout rate, reducing the rate of absenteeism, and improved academic achievement (Gandara, Larson, Rumberger, & Mehan, 1998; Larsen & Rumberger, 1995; Pearson & Banerji, 1993).

The ALAS intervention program was designed for students who were enrolled in school during grades 7 – 12 and the program endeavored to bring together several different spheres of influence for at-risk students. Family, school, community, and student were brought together to form a collaborative approach to provide additional support for the student at risk of dropping out of school (Fashola & Slavin, 1998; Pearson & Banerji, 1993). The ALAS program focused on six strategies designed to intervene and to ensure students did not drop out of school (Fashola & Slavin, 1998). These strategies included the following: monitoring the attendance rate on a daily basis, remediation of a student's problem-solving skills, supplemental support for parents to address student behavior, providing opportunities to bond with peers and school personnel, providing assistance for families for social services and community support groups, and providing feedback to parents from teachers and school system personnel (Fashola & Slavin, 1998).

The success of the ALAS program cannot be ignored. One study found remarkable success for the students who had been enrolled in the program. According to Fashola and Slavin (1998), several student outcomes were measured to determine the effectiveness of the program including staying in school, completing school, and progressing in school. Results indicated that students who were enrolled in the program at the end of grade 9 were more inclined to stay in school, staying in school at a higher rate than non-participants through grade 11, and were much more likely to progress in school and graduate on time (Larson & Rumberger, 1995). It was

determined that the cost of the program, expressed in 2005 dollars, was approximately $1,185

per student (Gandara et al., 1998).

Summary

The need for an educated workforce is greater now than at any other time in the history of

the United States. The potential standing of the United States as a player in the global market

hinges on having a highly skilled and educated workforce (Gordon, 2005). Therefore, it is

critical that as many students as possible get an adequate high school education. As stated earlier,

the social and economic benefits to having students graduate from high school has been proven

in empirical studies (e.g. Grogger, 2004; Levin et al., 2007).

Intervention and prevention programs have been highlighted that have been proven to be

effective in reducing dropout rates as well as some of the limitations of these programs. With

increased accountability for school systems, it is imperative that every dollar spent is employed

appropriately and effectively. Therefore, school districts should implement only scientifically-

based intervention and prevention programs that have been proven to help reduce the dropout

rate in order to ensure a better educated work force in the 21st Century.

CHAPTER 3

METHOD

Background

Growth in immigration, poverty, and special education are a few issues facing many

public school systems throughout America (Johnson & Kritsonis, 2006). Furthermore, many

school systems located in metropolitan areas are not immune to these problems. In fact, some of

the biggest challenges to overcoming these and other issues often occur frequently in school

districts located in large metropolitan areas (Snipes & Casserly, 2004). For example, one of the

biggest challenges urban school districts face is closing the achievement gap among minority

students. Historically, a number of research studies have been conducted to address the issue of

poor academic achievement among minority students in urban schools (e.g., Ladson-Billings,

1994; Towns et al., 2001). However, students in metropolitan areas, particularly in urban school

districts, still lag behind in many areas of educational achievement, based on nationally normed

tests (Olson & Jerald, 1998). One of the consequences of poor academic achievement is dropping

out of school. Much research has been conducted to show that low academic achievement is one

of the leading factors resulting in dropping out of school (e.g., Balfanz & Herzog, 2005; Neild &

Balfanz, 2006 Rumberger, 1995).

Research has identified a number of indicators that lead students to drop out of school

(e.g., Dunn, Chambers, & Rabren, 2004; Goldschmidt & Wang, 1999; Osborne & Raush, 2001;

Swanson & Schnieder, 1999). One potential factor identified that might lead a student to drop

out of school is the need to acquire a job as a source of income for familial support (Gleason &

Dynarski, 2002). The National Dropout Prevention Center ([NDPC], 2007), in conjunction with Communities in Schools (CIS), compiled a list, based on 25 years of academic research, of the significant risk factors that can play a role in determining whether a student is at risk of dropping out of school. Risk factors listed in the report include low academic achievement, grade retention, no extracurricular participation, low socioeconomic status, not living with both natural parents, poor attendance, and having a learning disability (Hammond et al., 2007).

Some research has been conducted to determine whether school-related activities are effective in keeping students in school. For example, Mahoney and Cairns (1997) showed school dropout rates for students classified as at risk of dropping out was lower for those who had participated in extracurricular activities compared to those who had not.

Research has been conducted to determine whether intervention strategies are effective in preventing students from dropping out of school. Research indicated many programs aimed at reducing the dropout rate were not working (Dynarski & Gleason, 1998). Results from the evaluation of federal dropout prevention programs indicated that many prevention programs have had very limited success (Gleason & Dynarski, 2002). Therefore, it is important to focus attention on programs that have delivered proven results.

Even though research has been done to help identify possible factors that might predict future dropouts (e.g., Alexander et al., 2001; Lehr, Johnson et al., 2004; Scanlon & Mellard, 2002) and possible strategies for lowering dropout rates, students continue to drop out at alarming rates. Consequently, there appears to be room for further analysis on using variables to predict dropout rates and determining which variables are most important in explaining dropout rates, specifically among students who attend school in large metropolitan cities.

Purpose of Study

  The purpose of this study was to determine the variables most likely to be associated with higher dropout rates in high schools in a large metropolitan area in the southeastern U.S. Variables identified for this study were selected based the conceptual framework developed and further supported by findings from current research regarding how to identify students at risk of dropping out of school. The independent variables included ethnicity, gender, school size, special education status, socioeconomic status, school location, and limited English proficiency status. The dependent variable was the percentage of students who dropped out of high school.

  The National Center for Education Statistics (2001) reports 27,543 high-school students did not complete high school in Georgia during the 2000-2001 school year. Furthermore, Georgia ranked second in the nation with the lowest percentage of graduates during the 2003 school year, with a graduation rate of 56% (Green & Winters, 2006). This study focused on high-school dropout rates in the Georgia public school system during the 2007-2008 school year.

  The variables or indicators linked to high-school dropout rates identified for this study were selected based on the conceptual framework which focused on the areas in which the education system is currently failing students. Additionally, the selection of variables was further supported by various articles of published research. Variables included ethnicity, gender, school size, special education status, socioeconomic status, and limited English proficiency status. The following research study examples supported the choice of the aforementioned variables. Each variable chosen has been proven statistically significant as an indicator for high-school dropout. Research indicates that socioeconomic status is a strong predictor of dropping out (Battin-Pearson et al., 2000; Suh & Suh, 2000). Studies have been conducted to show that race or ethnicity is a reliable indicator to determine which students are at risk of dropping out of school

(Ekstrom et al., 1986). Furthermore, research indicates there is a significant link between gender and who will drop out of school (Goldschmidt & Wang, 1999; Rumberger, 2001). Additionally, research points out students who are identified as special needs are more susceptible to dropping out of school (Lehr, Johnson et al., 2004; Schargel, 2004). Some research indicates students who attend schools located in urban areas are at much greater risk for dropping out of school than students in suburban and rural areas (Snipes & Casserly, 2004). Studies have been conducted that show students who are of limited English proficiency are more at risk of dropping out of school (Schargel, 2004). Finally, those students who attend schools with a large student population, typical of school districts in large metropolitan areas, have been linked with higher dropout rates (Lehr, Johnson et al., 2004).

Research Questions

The study was guided by the following research questions:

1. Which variables — ethnicity, gender, school size, school location, special education status, socioeconomic status, and limited English proficiency status — are more likely to predict higher dropout rates among students who attend school in a large metropolitan area?

2. Which variables— ethnicity, gender, school size, school location, special education status, socioeconomic status, and limited English proficiency status —have the greatest impact on dropout rates?

Design

This study used a causal-comparative research design. According to Gall, Gall, and Borg (2007), causal-comparative research is defined as "a type of quantitative investigation that seeks to discover possible causes and effects of a personal characteristic by comparing individuals in whom it is present with individuals in whom it is absent or present to a lesser degree" (p. 634).

The purpose of this study was to investigate which variables or characteristics are most likely to be associated with higher dropout rates in high schools in a large metropolitan area in the southeastern United States. The independent variables were defined as ethnicity, gender, school size, school location, special education status, socioeconomic status, and limited English proficiency status. The dependent variable was defined as the rate at which students drop out of school.

There are advantages and disadvantages to using causal-comparative research design. The disadvantages of using causal-comparative research design need to be considered when conducting this form of research. First, according to Cohen, Manion, and Morrison (2003), because subjects are not randomly assigned to treatments, there will be inherent issues in the populations studied. For example, the independent variables that might impact whether a student stays in school or drops out cannot be manipulated. Therefore, one must consider that factors other than those identified for this study could be influencing students to drop out. Ultimately, the inability to assign subjects randomly to treatments is one of the greatest threats to the internal validity of the design. In addition, Gall et al. (2007) stated that a disadvantage to causal-comparative research designs is "inferences about causality on the basis of the collected data are necessarily tentative" (p. 310). Therefore, one must recognize that conclusions from collected data should focus on analytical relationships versus drawing conclusions about cause and effect.

There are advantages to using a causal-comparative research design. According to Gall et al. (2007),

> researchers sometimes prefer to use a causal-comparative design for two reasons:
> forming groups to measure the X often is more consistent with how practitioners and

other education stakeholders think about the world; and the statistical results typically are easier to comprehend and interpret. (p. 307)

The causal-comparative research design works well for this form of research because the researcher will not be able to manipulate the independent variables or the dependent variable. For example, independent variables, such as gender and special education status cannot be manipulated. In addition, the students in the data analyzed have already dropped out of school; therefore, the dependent variable, the dropout rate, cannot be influenced either. Thus, the casual-comparative research design works well when trying to determine potential factors that influence students to drop out of school because the variables being investigated were studied after the fact.

Participants

Participants included all high schools in a metropolitan area in the southeastern United States during the academic school year of 2007-2008. The metropolitan area included 28 counties with a combined statistical area population of 5,626,400 residents (United States Census Bureau [USCB], 2007). The school systems that make up the metropolitan area consist of urban, suburban, and rural school districts as identified by the Governor's Office of Student Achievement (GDOE, 2004). The school systems have a total of 143 high schools with a total student population of 269,290.

Validity

The existence of both internal and external threats had to be accounted for to increase the probability that the effect under investigation was really due to the cause identified in the original hypothesis (Gall et al., 2007). The existence of external and internal threats to a study should not invalidate the study; however, the recognition of these threats must be addressed or

the conclusions that were drawn from the study could be considered weak, invalid or unreliable. When controlling for extraneous variables that might influence a study, Gall et al. (2007) note that "if this task is accomplished, the researcher can attribute the observed outcomes (the effect) with a high level of confidence to the treatment variable (the hypothesized cause)" (p. 383).

For the study, it was important to recognize threats to the external validity of the study. External validity, as defined by Parker (1990), refers "to the degree to which research findings can be generalized across time, settings, and persons" (p. 615). Similarly, Creswell (2003) points out that external validity threats can occur "when experimenters draw incorrect inferences from the sample data to other persons, other settings, and past or future situations" (p. 171). It is important to understand that virtually every study or experiment has external threats that can jeopardize the validity of the study (Onwuegbuzie, 2000). Consequently, both recognizing and controlling for these threats is essential in order to maintain a credible study.

The two broad classifications that researchers use to categorize threats to external validity are population and ecological validity (Bracht & Glass, 1968). Population validity is defined by Gall et al. (2007) as "the extent to which the results of an experiment can be generalized from the sample that was studied to a specified, larger group" (p. 389). The two types of population validity identified by Bracht and Glass are "experimentally accessible population vs. target population and interaction of personological variables and treatment effects" (p. 438).

One type of population validity that was a concern for the study is identified by Bracht and Glass (1968) as the "experimentally accessible population vs. target population" (p. 438). This type of population validity is further described by Gall et al. (2007) as "the extent to which one can generalize from the experimental sample to a defined population" (p. 389). To address this type of population validity, it was important to recognize the limitations regarding making

generalizations to a larger target population. Bracht and Glass (1968) define the target population as "the total group of subjects about whom the experimenter is empirically attempting to learn something" (p. 440). In the study, the target population was all high schools in metropolitan areas in the southeastern United States.

In contrast, the experimentally accessible population is a much smaller population defined by Bracht and Glass (1968) as "the population of subjects that is available to the experimenter for his study" (p. 440). The experimentally accessible population selected included all high schools in one metropolitan area in the southeastern United States.

The central concern with this threat to external validity is the conclusion that it is valid to generalize the results of a given study or experiment to the experimentally accessible population but it is risky to generalize the results to the broader target population (Gall et al., 2007). In the context of this study, while it is valid to generalize the results of the study to the experimentally accessible population of all high schools in this particular metropolitan area in the southeastern United States, it would be risky to extrapolate the results of the study beyond this group to the "target population" of all high schools in other metropolitan areas across the southeastern United States. Extending the generalization of the results beyond that of the study increases the risk of making generalizations that might not be accurate.

Furthermore, Skidmore (2008) notes "researchers must always remember the context from which their sample comes from, and take caution not to over generalize beyond that" (p. 15). Therefore, the presence of this external threat impacts the interpretation of the study by limiting the degree to which the results can be extrapolated to a broader population or a different group of schools.

Data Collection Procedures

The purpose of this study was to determine the variables associated with higher dropout rates based on school-level data. All data collected came from high schools in a metropolitan area of the southeastern United States for the 2007-2008 academic school year. The data were collected from the website for The Governor's Office of Student Achievement which was established to meet the requirements of No Child Left Behind legislation (Georgia Department of Education [GDOE], 2004). The archival data that were collected is public domain; therefore, anyone can access and review this information for each school system in the entire state of Georgia. Additionally, all data from each high school is individually verified by the University System of Georgia, the Professional Standards Commission, and the United States Department of Education (GDOE, 2004).

The data collection procedures followed were straightforward. By gathering the information from a public website, no special consideration for confidentiality was required. None of the data were identified by student name; therefore, the researcher did not have to ensure that the names of students who dropped out of school remain confidential. Additionally, only school-level data were collected and no student-level data were included in the data set. The independent variables, ethnicity, gender, school size, school location, special education status, socioeconomic status, and limited English proficiency, were classified as either categorical or continuous (Table 1). Ethnicity was reflected by the percentage of high school students in each school classified into one of four groups: Black, White, Hispanic, and Other/Multiracial. Gender was represented by the percentage of high school students in each school classified as male or female. School size was classified using the following parameters: small school size represented schools with 1,000 students or fewer, medium school size represented schools with between

1,001 and 1,499 students, and large schools were classified as those with greater than or equal to 1,500 students. Socioeconomic status was reflected by the percentage of high school students in each school classified as economically disadvantaged. Special education status was reflected by the percentage of high school students in each school classified as with disabilities. School location was defined as urban, suburban, or rural. Finally, limited English proficiency status was reflected by the percentage of high school students in each school classified as with limited English proficiency. The data collection procedure for the dependent variable, the dropout rate, was the same as for the independent variables, using the data generated from The Governor's Office of Student Achievement website. The dependent variable, dropout rate, was classified as the percentage of high school students in each school who dropped out during the academic year 2007-2008.

Table 1

Variable Description Table

Variable	Measurement	Variable Type
Dropout rate	Percentage of high school students in each school who dropped out	Continuous
Ethnicity	Percentage of high school students in each school who are Black, Hispanic, White, or Other/Multiracial	Continuous
Gender	Percentage of high school students in each school who are male or female	Continuous
School size	1=Small schools with student population of $\leq$ 1,000; 2=Medium schools with student population >1,000 and $\leq$ 1,500; 3=Large schools with student population > 1,500	Categorical
School location	1=Urban; 2=Suburban; 3=Rural	Categorical
Special education status	Percentage of high school students in each school classified as with disability or without disability	Continuous
Socioeconomic status	Percentage of high school students in each school classified as economically disadvantaged or not economically disadvantaged	Continuous
Limited English proficiency status	Percentage of high school students in each school classified as limited English proficient or not limited English proficient	Continuous

Procedure

The steps that were taken to gain permission to conduct research, outlined by the

University of Georgia Institutional Review Board, were as follows.

1. Obtain Institutional Review Board application from the Office of Human Subjects at

the University of Georgia.

2. Complete the Institutional Review Board application and obtain all necessary

signatures before submitting to the Office of Human Subjects.

3. Submit Institutional Review Board application to the Office of Human Subjects.

4. Approval of research is subject to meeting the criteria established in *Section IV: Criteria for IRB Approval of Research* of the Institutional Review Board guidelines. Once these conditions were met, the Institutional Review Board granted permission to conduct research.

The following timeline highlights the major requirements that were necessary to complete the study.

1. May 2009: Submit Institutional Review Board application to the Office of Human Subjects. The approval process took approximately eight weeks.

2. July 2009: Once approval was received from the Institutional Review Board of the University of Georgia, data collection began.

3. August 2009: Collected and analyzed data.

Data Analysis

When comparing a set of independent variables to a dependent variable, two analysis methods to consider are multiple regression analysis (MRA) and multiple correlation analysis (MCA). The multiple regression/correlation analysis system, as noted by Cohen, Cohen, West, and Aiken (2003), is a "highly general and therefore very flexible data analytic system" that is used in practical prediction or explanation problems and is "broadly applicable to hypotheses generated by researchers in the behavioral sciences, health sciences, education and business" (p. 2).

An explanation regarding when it is appropriate to use MCA and when it is appropriate to use MRA has been outlined by Huberty (2003). According to Huberty (2003), "the two analysis procedures involve different research questions and study designs, different inferential approaches, different analysis strategies, and different reported information" (p. 271).

In order to ascertain whether to use MCA or MRA, one of the first considerations is to determine the type of questions that should be developed for the study. According to Huberty (2003), when developing research questions for a given study, MCA is necessary when the question "pertains to the *relationship* between a single response variable (Y) on one hand and a collection of response variables (X's) on the other hand" (p. 272). However, according to Huberty and Petoskey (1999), "if the research question pertains to prediction, then an MRA should be selected" (p. 17).

The study attempted to produce a model designed to predict future dropout rates and investigated which variables had the greatest impact on dropout rates. Therefore, to effectively address the questions for this study, MRA was used.

The first question formulated for this study, which independent variables — ethnicity, gender, school size, school location, special education status, socioeconomic status, and limited English proficiency status — predict higher dropout rates among students who attend school in a large metropolitan area, attempted to enable the prediction of dropout rates. Given the predictive nature of this question, multiple regression analysis (MRA) was used. The second question attempted to identify which independent variables— ethnicity, gender, school size, school location, special education status, socioeconomic status, and limited English proficiency status —have the greatest impact on and are the most important in explaining dropout rates. Given the explanatory nature of this question, multiple regression analysis was used. Ultimately, it is the predictive and explanatory nature of the two research questions that necessitated the use of MRA.

According to Montgomery, Peck, and Vining (2007), the general steps for conducting multiple regression analysis include variable selection, model adequacy check, running the

model, and interpretation of the results. The following list outlines the specific steps that were taken to conduct the multiple regression analysis of the data set in the study.

1. Selected the independent variables based on the conceptual framework developed for this study and supported by the prior research related to dropping out highlighted in the Introduction of Chapter 1. The dependent variable was selected based on the purpose of the study.

2. Reduced the number of independent variables analyzed by using all-possible-regressors model in order to determine the combination of independent variables that best predicted the dependent variable. This analysis was run using the computer program Statistical Analysis System (SAS).

3. Performed model adequacy check including testing to ensure the assumption of normality and the assumption of equal variance of residuals were satisfied. As a result of analysis from this step, the dropout rate was converted to log dropout rate in order to satisfy these assumptions.

4. Ran the multiple regression analysis on the reduced set of independent variables using Statistical Package for the Social Sciences (SPSS).

5. Interpreted the results to address the research questions in the study. This step involved the use of the unstandardized coefficients from the multiple regression analysis output to determine which independent variables were helpful in predicting dropout rates in a large metropolitan area of the southeastern U.S. Furthermore, this step included the use of the standardized coefficients (beta weights) to determine the relative importance of the different independent variables in explaining the dropout rate. Beta weights is another term used to describe the standardized coefficients (Huck, 2004). Additionally, Cohen (2003) states that

"standardized coefficients are of interpretive interest when the analysis concerns test scores or indices whose scaling is arbitrary or when the magnitudes of effects of variables in different units are to be compared" (p. 80). Therefore, since the independent variables selected for the study included both continuous and categorical variables with differing units of measure such as percentage of student population as well school size and school location, it was necessary to use standardized coefficients to determine the relative impact of each variable on the dropout rate.

Table 2

Research Questions and Statistical Procedure

Questions	Categorical or Continuous Independent variable	Dependent variable	Statistical Procedure
1. Which variables are more likely to predict higher dropout rates among students who attend school in the metropolitan area studied?	Ethnicity Gender School size Special Education status Socioeconomic status Limited English Proficiency status	Dropout Rate	Multiple Regression Analysis
2. Which variables have the greatest impact on dropout rates?	Ethnicity Gender School size Special Education status Socioeconomic status Limited English Proficiency status	Dropout Rate	Multiple Regression Analysis

CHAPTER 4

DISCUSSIONS

Results

The primary goal of this study was to determine the variables that are associated with higher dropout rates in high schools in a large metropolitan area in the southeastern U.S. Establishing which variables are associated with higher dropout rates in large metropolitan school systems will help in the development of intervention strategies focused on lowering dropout rates.

The study is a secondary analysis of data from public-school districts in a large metropolitan area in the southeastern U.S. The sample in the study consisted of 143 high schools with a combined population of 269,290 students who were enrolled in the public-school system during the academic school year 2007-2008, the most recent year for which data were available.

Chapter 4 is divided into two sections designed to answer each of the research questions that were proposed for the study. All-possible-regressors model and multiple regression analysis were used to answer the research questions posited for this study.

Regression analysis examines the connection between a response variable and a set of explanatory variables (Berenson, Levine, & Krehbiel, 2002). The connection is expressed as an equation that predicts the response variable from a function of the explanatory variables and a set of parameters. All-possible-regressors analysis and multiple regression analysis were conducted to develop a prediction model comprised of the variables most effective in explaining the dependent variable.

Utilizing SAS, the all-possible-regressors analysis was run to test all possible subsets of variables to determine which subset of variables created the model that best explained the dependent variable (Appendix A). The all-possible-regressors analysis is run to determine which group of variables has the highest *R*-square value, the smallest C(*p*) value, and the smallest MSE value, and, as a result, which variables should be included in a multiple regression analysis (Berenson et al., 2002). From the all-possible-regressors analysis, the variables that were selected included ethnicity (Black, Hispanic, White), gender (male), disability status (with disability), limited English proficiency status (with), school size (small, medium), and school location (rural). These variables are summarized in Table 3 and included in a correlational matrix in appendix B.

Table 3

Data Summary Table

Variable	Minimum	Mean	Maximum	Standard Deviation
Black*	0.1	44.7	99.5	31.8
Hispanic*	0.0	7.8	67.0	9.2
White*	0.0	41.4	95.9	30.2
Male*	44.3	50.4	69.7	2.7
With Disability*	0.1	11.5	88.5	7.3
With Limited English Proficiency*	0.0	3.3	34.0	4.3
School Size	165.0	1,883.1	4,250.0	760.4
School Location	1.0	2.2	3.0	0.6
Dropout Rate*	0.0	3.1	51.6	5.7

*Variables expressed as percentages

As a result of the all-possible-regressors analysis, all variables demonstrating a significant relationship with dropout rates were selected in order to conduct a multiple regression analysis. However, the assumption of normality and the assumption of equal variance of residuals must be satisfied first in order to perform multiple regression analysis (Montgomery, Peck, & Vining, 2007). In order for the model to be adequate, the residuals in the model must be normally distributed and constant or of equal variance. The residuals represent the difference between the observed dependent variable value and the predicted dependent variable value based on the model (Montgomery, Peck, & Vining, 2007). Thus, model-adequacy checking was performed to see whether the assumptions were satisfied (Figures 1 and 2).

Normal P-P Plot of Regression Standardized Residual
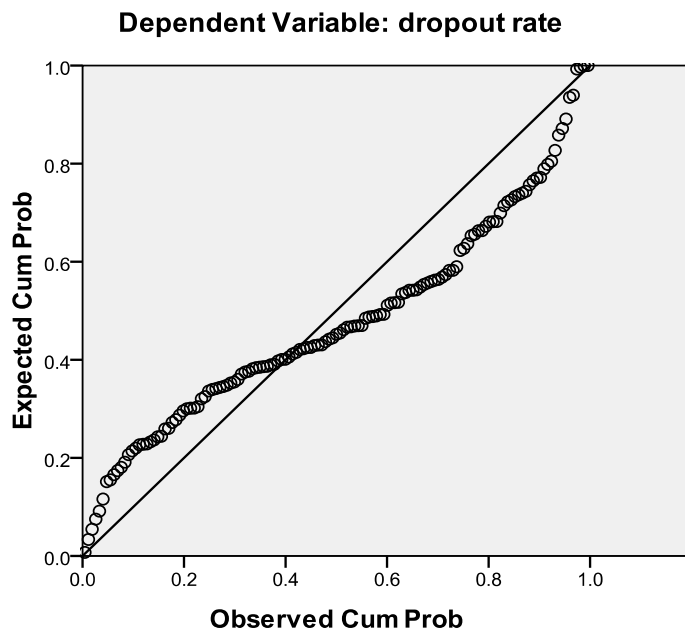
Figure 1. The Violation of the Assumption of Normality.

The model-adequacy check revealed that the normality assumption (Figure 1) and the equal variance assumption (Figure 2) were both violated. Possible reasons why the model violated the assumptions included random error, random fluctuations or other situations that

cannot be measured statistically. Consequently, it became necessary to transform the dependent variable, dropout rate, so that this variable could be effectively analyzed in a multiple regression analysis.

Scatterplot

Dependent Variable: dropout rate
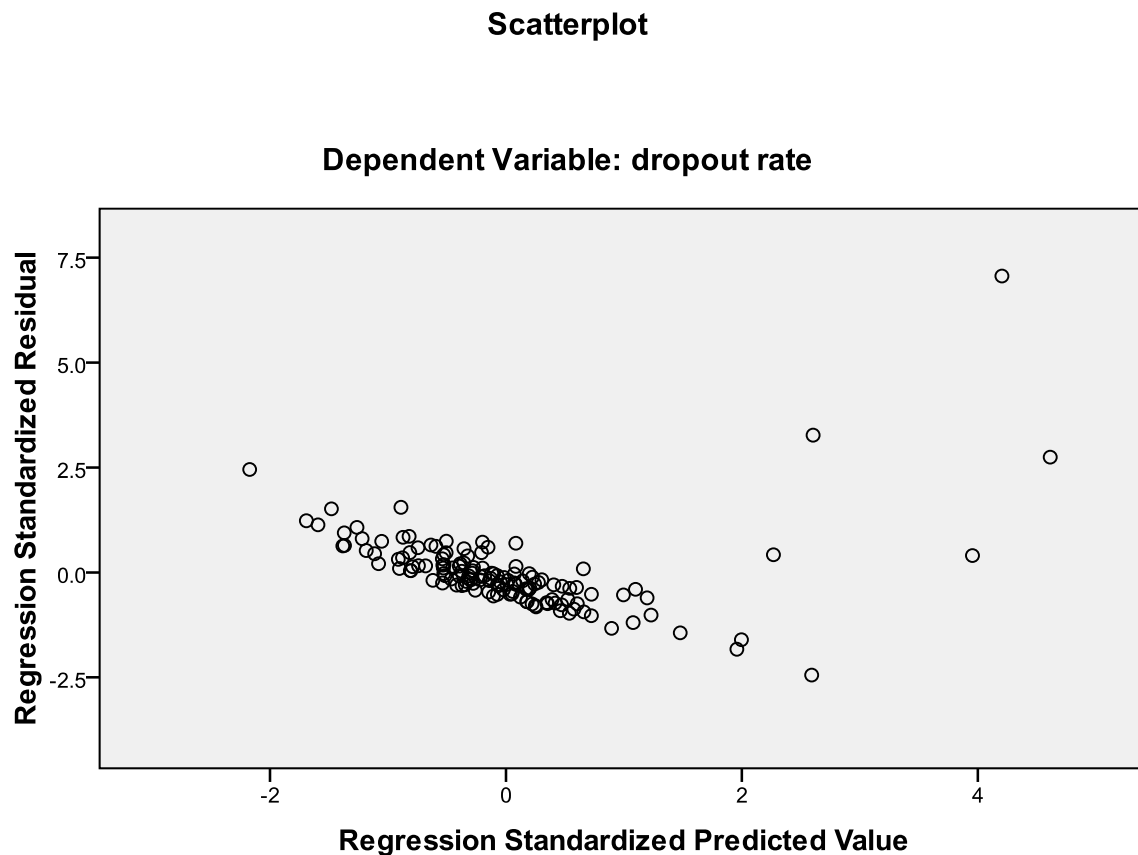
Figure 2. The Violation of the Assumption of Equal Variance of Residuals.

The Box-Cox method, which is used to specify an appropriate transformation in order to correct the non-normality and non-constant variance, suggested a log transformation of $\lambda = 0$ (Appendix C). After the log transformation was conducted and the dependent variable or dropout rate was converted to the log dropout rate, both the assumption of normality (Figure 3) and the assumption of equal variance (Figure 4) were satisfied.

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: log Dropout rate
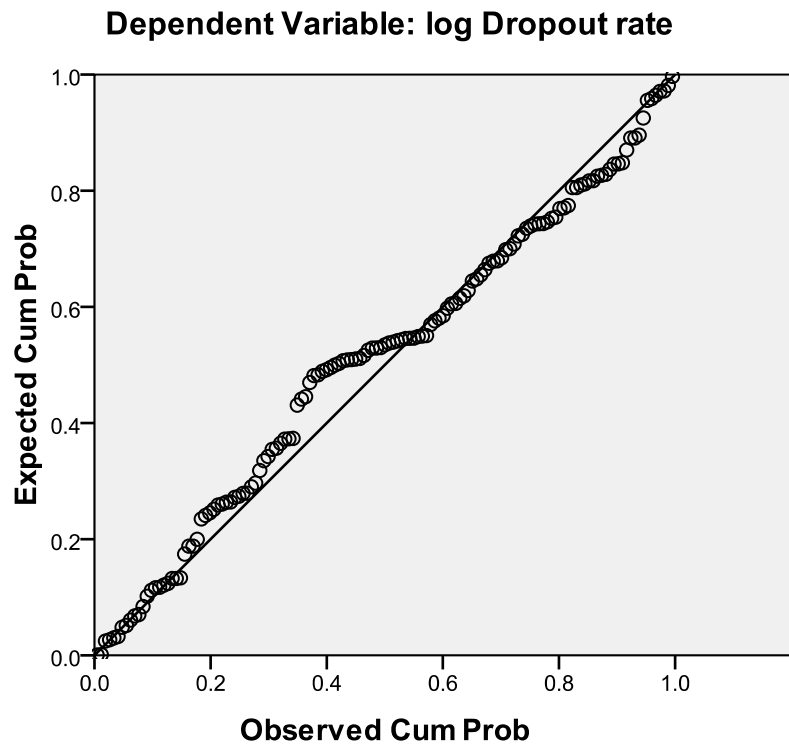
Figure 3. The Assumption of Normality is Satisfied.

Scatterplot

Dependent Variable: log Dropout rate
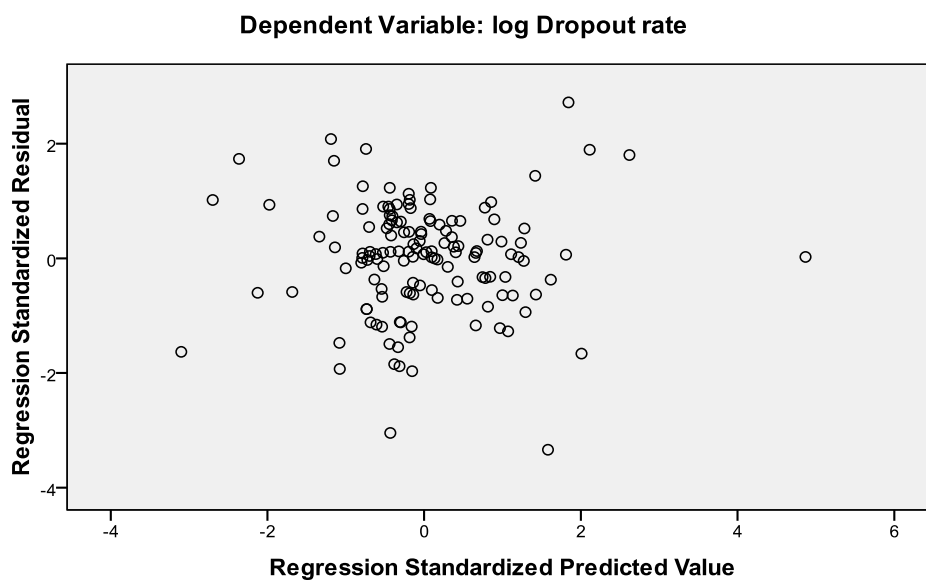
Figure 4. The Assumption of Equal Variance is Satisfied.

Once the assumptions of normality and equal variance of residuals were satisfied as a result of the transformation of the dependent variable to the log dropout rate, the data were analyzed. Utilizing SPSS, multiple regression analysis was conducted to determine which variables predicted higher dropout rates among students who attend school in a large metropolitan area.

Results for Research Question 1

Which variables are more likely to predict higher dropout rates among students who attend high school in a large metropolitan area?

Results. Because the *F*-test result from the multiple regression analysis was 3.875 and the *p* value was .000 or < .05, it can be concluded that the model was significant and can be used to predict the outcome variable, the log dropout rate (Table 4).

Table 4

Model of Significance Test for Multiple Regression Analysis

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	31.118	10	3.112	3.875	.000[a]
Residual	102.796	128	.803		
Total	133.914	138			

a. Predictors: (Constant), medium school size, Black, limited English proficiency, with disability, suburban, small school size, male, urban, Hispanic, White

b. Dependent Variable: log Dropout rate.

Using the unstandardized coefficients, the multiple regression analysis indicated that the variables that would predict higher dropout rates among students who attend schools in the large metropolitan area studied were gender, ethnicity, and school size (Table 5).

Table 5

Multiple Regression Analysis Coefficients Table

Variables	Unstandardized coefficients		Standardized coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	-7.248	2.582		-2.807	.006
Black	.039	.019	1.251	2.081	.039
Hispanic	.095	.026	.750	3.671	.000
White	.039	.020	1.198	1.975	.050
Male	.078	.035	.215	2.229	.028
Medium school size	.458	.220	.179	2.082	.039

Note: p value is significant if less than .05.

Gender. The proportion of male students had a significant impact on log dropout rate. Specifically, increasing the percentage of male students by one (1) increased the log dropout rate by 0.078 (p = 0.028). Thus, increasing the percentage of male students by 1 percentage point will increase the dropout rate by 1.08 times ($e^{0.078}$ = 1.08).

Ethnicity. Ethnicity, expressed as the percentage of students who were Hispanic or Black, had a significant impact on the log dropout rate. Specifically, increasing the percentage of Hispanic students by 1 percentage point increased the log dropout rate by 0.095 (p < 0.0001). This result indicates that increasing the percentage of Hispanic students by 1 percentage point will increase the total dropout rate by 1.1 times ($e^{0.095}$ = 1.1). Furthermore, increasing the percentage of Black students by 1 increased the log dropout rate by 0.039 (p = 0.039). This result can be further elucidated by concluding that increasing the percentage of students who are Black by 1 percentage point will increase the total dropout rate by 1.04 times ($e^{0.039}$ = 1.04).

School size. Medium school size had a significant impact on log dropout rate compared to large school size. The log dropout rate in medium schools increased by 0.458 compared to log dropout rate in large schools ($p = 0.039$). Thus, the dropout rate in medium schools increases 1.58 times ($e^{0.458} = 1.58$) compared to the dropout rate in large schools. Consequently, if the dropout rate in large schools increases in the future, the dropout rate in medium schools will likely increase by 1.58 times the revised large-school dropout rate. The log dropout rate for small schools increased by 0.434 compared to large schools. This result indicates that the dropout rate in small schools increases by 1.54 times ($e^{0.434} = 1.54$) compared to the dropout rates in large schools. However, the difference between small schools and large schools is not statistically significant ($p = 0.116$).

The variables that were considered statistically significant in the multiple regression analysis can be used in to help predict school dropout rates. Using the following regression formula, $Z = Ln(Y) = -7.248 + 0.039$ Black $+ 0.095$ Hispanic $+ 0.078$ male $+ 0.458$ medium school size and $Y = e^{Z}$, future dropout rates can be estimated by applying expected changes in the independent variables.

The multiple regression analysis revealed that ethnicity (Hispanic or Black), gender (male), and school size (medium) were the variables that were more likely to predict higher dropout rates among students who attend schools in the large metropolitan area studied. The unstandardized coefficients were useful to determine which specific segments within each group were more likely to predict higher dropout rates. However, unstandardized coefficients cannot be used to compare all variables because each variable is based on a different unit of measure. In contrast, the standardized coefficients have been adjusted to make them comparable across all variables and, therefore, provide a means to compare coefficients across all variables, regardless

of original unit of measure. Consequently, the standardized coefficients from the multiple

regression analysis were used to determine, across all variables, which groups have the greatest

relative impact on dropout rates.

Results for Research Question 2

Which variables—ethnicity, gender, school size, school location, special education status,

socioeconomic status, and limited English proficiency status—have the greatest impact on

dropout rates?

Results. Using the standardized coefficients, the multiple regression analysis indicated

that the variables most important in determining which attributes have the greatest impact on

dropout rates in the large metropolitan area studied were ethnicity, gender, and school size

(Table 5). Specifically, the standardized coefficients from the multiple regression analysis

indicated the most important variables were ethnicity (Hispanic, Black), gender (male), and

school size (medium).

The standardized coefficients (beta weights) were used to compare which variables had

the greatest impact on dropout rates. Black students had the highest standardized coefficient

(1.251), followed by Hispanic students (.750), male students (.215), and medium-sized schools

(.179). Thus, increasing the standardized percentage of Black students by 1 increases the

standardized log dropout rate by 1.251 and increases the standardized dropout rate by $e^{(1.251)} =$

3.5. Furthermore, increasing the standardized percentage of Hispanic students by 1 increases the

standardized log dropout rate by 0.75 and increases the standardized dropout rate by $e^{(0.75)}$

$= 2.11$. Increasing the standardized percentage of male students by 1 increases the log dropout

rate by 0.215 and increases the standardized dropout rate by $e^{(0.215)} = 1.24$. Finally, increasing

the proportion of medium schools by 1 percentage point increases the standardized log dropout

rate by 0.179 and increases the dropout rate by e $^{(0.179)}$ = 1.20. Therefore, based on the sample analyzed, increasing the percentage of Black students has the greatest impact on dropout rate, followed by Hispanic students and male students in general. Finally, compared with large schools, medium-sized schools have the greatest impact on dropout rates in the metropolitan area studied.

Summary

Using multiple regression analysis, it was determined which variables were most important in predicting dropout rates as well as which variables had the greatest impact on dropout rates. Unstandardized coefficients from the multiple regression analysis revealed that ethnicity (Hispanic, Black), gender (male), and school size (medium) were the variables more likely to predict higher dropout rates among students who attend schools in the large metropolitan area studied. Furthermore, the standardized coefficients from the multiple regression analysis indicated the percentage of school population that is Black was the variable with the greatest impact on dropout rates, followed by the percentage of Hispanic students, male students, and medium-sized schools compared to large schools. With the information collected from the data, recommendations can be made to help reduce dropout rates in school districts located in the large metropolitan area in the southeastern U.S.

CHAPTER 5

CONCLUSIONS, LIMITATIONS, AND RECOMMENDATIONS

Introduction

The final chapter in this study provides conclusions based on the data analyzed and illustrates how these results impact our understanding of the issue of high dropout rates for school districts in a large metropolitan area. Furthermore, this final chapter recognizes limitations of the study and makes recommendations for further research. Finally, this chapter provides appropriate recommendations, based on the results of the study, designed to help improve dropout rates for school districts in a large metropolitan area.

As stated before, much research has been conducted to determine the factors most useful in predicting high-school dropout rates (e.g., Alexander et al., 2001; Gleason & Dynarski, 2002; Hammond et al., 2007; Scanlon & Mellard, 2002). However, Hammond et al. (2007) reported in their landmark study that "it is essential to collect local data to best predict who will drop out in a particular locality and identify the major contributing factors" (p. 23). Thus, it was determined the study would focus on school districts in one large metropolitan area in the southeastern U.S. instead of a more regionally based study that would cover a larger geographical area.

Conclusions

The purpose of this study was to determine the variables associated with higher dropout rates in high schools in a large metropolitan area in the southeastern U.S. Findings from this study can influence the actions taken to improve dropout rates for the school districts examined.

The study identified variables most useful in predicting high-school dropout rates in the metropolitan area. Results corroborated other studies conducted on the topic of high-school dropout rates and the possible variables to use to predict dropout rates by determining which groups of students affect dropout rates. For example, this study revealed that ethnicity impacts the dropout rate, a finding that corroborates previous research indicating a students' race or ethnicity can be used to identify which student groups are more at risk of dropping out of school and, therefore, contribute to higher dropout rates (e.g., Ekstrom et al., 1986; Goldschmidt & Wang, 1999). Furthermore, it was determined that gender has a significant impact on student dropout rates. More specifically, male students have a significant impact on the dropout rate. These results affirm previous studies that have concluded that gender can be used to determine which students are most at risk of dropping out of school, leading to higher dropout rates (e.g., Rumberger, 2001; Schargel, 2004).

The results also supported the finding that the National Dropout Prevention Center (NDPC, 2007) indicated was one of the most important conclusions from its research. This conclusion was that data must be collected on a local basis to understand which factors have the greatest impact on dropout rates in that local area. Consequently, the implication is that using data from national studies to implement intervention strategies designed to reduce dropout rates locally might result in targeting the wrong students (Gleason & Dynarski, 2002). For example, this study revealed socioeconomic status was not a significant contributor to predicting dropout rates. However, previous research has indicated that socioeconomic status can be used to determine which students are more at risk of dropping out of school and increasing dropout rates (Battin-Pearson et al., 2000). Furthermore, limited English proficiency classification was not significantly important in explaining dropout rates. However, previous research has indicated

that students with limited English proficiency status are more susceptible to dropping out of school and increasing dropout rates (Reardon-Anderson, Capps, & Fix, 2002; Swanson, 2004). Additionally, it was revealed that special education status did not significantly impact dropout rates for the school districts included in this study, a finding that differs from the results of other studies indicating that students with special needs are at greater risk of dropping out compared to those who are not classified as special-needs students (Blackorby & Wagner, 1996; Repetto, Pankaskie, De Palma-Hankins, Schwartz, & Perry, 1997; Schargel, 2004). Medium school size classification was more useful in predicting dropout rates than a large or small school size classification. This conclusion is surprising in light of previous research indicating that students in large schools are more at risk of dropping out of school (Montecel, Cortez, & Cortez, 2004).

Although the medium school size result is in contrast to other current research regarding school size and dropout rates (e.g. Lee & Burkham, 2003), an analysis of the data set revealed factors that may have contributed to this result. First, it was discovered that, on average, medium schools in the data had a higher percentage of students classified as economically disadvantaged. While this variable did not surface as significant in predicting dropout rates, it is conceivable that a higher proportion of economically disadvantaged students in medium schools contributed to the current results. Additionally, the analysis revealed that a higher proportion of the schools in the data set classified as medium are also classified as urban. Given the existing research concluding that students in urban schools have higher dropout rates, the stronger urban presence in the medium school sample may have contributed to the impact of medium schools on the dropout rate (Montecel, et al., 2004).

Even though results from this study revealed that some variables identified as important in previous research did not significantly contribute to dropout rates in the metropolitan area

studied, it does not mean that these factors have no impact at all on dropout rates. However, the impact, if any, of these variables on dropout rates is not strong enough to be considered at a significant level. By determining which variables have the greatest impact on dropout rates for a specific locale, the researcher was able to address one of the key findings of previous research conducted by the National Dropout Prevention Center (2007).

With these results, educators, practitioners, and other school system personnel can predict school dropout rates in order to prioritize the allocation of resources and attention across schools. Additionally, these stakeholders can address the dropout issue with greater clarity by developing a better understanding of the factors that have the greatest impact on dropout rates as well as determining where to focus efforts to reduce dropout rates. As a result, intervention strategies can be designed to help reduce the risk of students dropping out of high school in the metropolitan school districts studied. Furthermore, because the variables chosen for this study were also the focus of intervention programs outlined in the review of the literature, some of the programs reviewed are appropriate as recommendations arising from this present analysis.

The importance of research on this topic cannot be overstated because research has indicated that Georgia ranks near the bottom in graduation rates in the U.S. (Greene & Winters, 2006). Similarly, research has indicated that Georgia has one of the highest dropout rates in the U.S. (Green & Winters, 2006). The sample used in this study represents schools that are, like many large metropolitan school districts throughout the U.S., struggling to reduce dropout rates. In order to determine which factors to use to predict dropout rates and which variables had the greatest impact on dropout rates, the following two questions were addressed:

1. Which variables —ethnicity, gender, school size, school location, special education status, socioeconomic status, and limited English proficiency status—are more likely to predict higher dropout rates among students who attend school in a large metropolitan area?

2. Which variables—ethnicity, gender, school size, school location, special education status, socioeconomic status, and limited English proficiency status—have the greatest impact on dropout rates?

Question 1

For Question 1, which inquires as to which variables are more likely to predict higher dropout rates among students who attend school in the large metropolitan area studied, it was determined that multiple regression analysis would be used to answer this question. Results from this analysis indicated that gender, ethnicity, and school size were the variables more likely to predict higher dropout rates among students who attend school districts in the large metropolitan area studied.

First, results from the gender portion of the analysis revealed that the proportion of male students had a significant impact on dropout rates. Given the results of this analysis, one can deduce that, if the percentage of males in the population for a given school increases in the future, the school dropout rate will increase as well. Additionally, results from the regression analysis indicate that ethnicity also plays a major role in predicting dropout rates. Specifically, the proportion of Hispanic and Black students contributes significantly to the prediction of dropout rates for the school districts included in the study. Furthermore, as school populations change, if the number of schools that are medium-sized or, more specifically, schools with populations between 1,001 and 1,500 students increases compared to the number of schools classified as large schools, the dropout rate will increase as well.

Recommendations for Question 1

Given the fact that the multiple regression analysis identified which variables were most useful in predicting dropout rates, the results of this analysis can be used to help predict school dropout rates. Using the following regression formula, $Z = Ln(Y) = -7.248 + 0.039$ Black $+ 0.095$ Hispanic $+ 0.078$ male $+ 0.458$ medium school size and $Y = e^Z$, future dropout rates can be estimated by applying expected changes in the independent variables. For example, a projected future dropout rate for a given school can be estimated by inserting the projected future percentage of population for the specified ethnic groups into the formula.

Using the aforementioned formula, if the percentage of Hispanic students increases by 1 percent in a given school, while the other variables remain fixed, the projected dropout rate can be estimated by multiplying the existing dropout rate by 1.1 ($e^{0.095} = 1.1$). For example, since a metropolitan area school from the sample, classified in the data as school 71, currently includes a Hispanic population of 7 percent, the projected dropout rate, assuming the Hispanic percentage in this school increased by 1 percent, could be calculated by multiplying the current dropout rate of 1.4 percent times 1.1, for a projected dropout rate of 1.540. This calculation represents a 10% increase in dropout rate. Furthermore, if, in the same school, the percentage of Black students increases by 1 percent from 49.3 to 50.3, while the other variables remain fixed, multiplying 1.04 ($e^{0.039} = 1.04$) times the current dropout rate of 1.4 results in a predicted total dropout rate for the school of 1.456, which represents a 4% increase.

The Georgia Department of Education (GADOE; 2007) reports that, during the academic school year of 2009-2010, Hispanic students make up 7% of the overall k-12 population in the state. This is the same percentage of students who are Hispanic in school 71 in the data. The GADOE projects that the state Hispanic population in k-12 will increase to 12% during the

2014-2015 school year. Given these statistics, if the population of Hispanic students in school 71 increases at the same rate as in the state of Georgia by increasing from 7 to 12%, the predicted impact on the dropout rate for school 71 can be calculated by increasing the dropout rate by 10% for every 1% increase in the Hispanic population. Thus, in this example, the school dropout rate would be predicted to increase from 1.4 to 2.1%, a 50% increase in the dropout rate.

Similarly, the regression model can be used to predict school dropout rates, given projected growth rates for the male population and Black student population. With these data, legislators will be able to direct funds to the appropriate school systems that might need additional funding based on the projected growth rates of Black, Hispanic, and male student populations as well as the proportion of schools with a medium-size classification. The results of this study can be used by school leaders to inform county-level personnel, boards of education, community leaders, key business persons, and other invested stakeholders. Furthermore, school leaders will be able to illustrate how the dropout rate will increase based on projected changes in demographics if the appropriate funding is not provided to deliver the programs necessary to address the student groups that impact the dropout rate.

Question 2

For Question 2, which asked which variables—ethnicity, gender, school size, school location, special education status, socioeconomic status, and limited English proficiency status— have the greatest impact on dropout rates, it was determined the most effective approach in addressing this question, given the available data, was to use the standardized coefficients from the multiple regression analysis to rank the relative importance of the variables in explaining dropout rates. As a result, several recommendations regarding how to help reduce dropout rates can be made.

The standardized coefficients from the regression analysis revealed that the percentage of Black students, with a standardized coefficient of 1.251, was the most important variable in explaining dropout rates and, therefore, indicated that Black students represent the group with the greatest impact on dropout rates in the sample used for this study. The rank order for the rest of the variables for which the standardized coefficients were statistically significant was Hispanic (.750), followed by male (.215), and medium-sized schools (.179).

Recommendations for Question 2

As a result of the regression analysis, it was determined which variables had the greatest impact on dropout rates. Ascertaining which variables influenced dropout rates the most enabled the recommendation of specific intervention strategies that can be implemented to help reduce dropout rates.

Before reviewing the recommendations made as a result of the findings from this study, one aspect of the variables selected needs to be addressed once more. As alluded to in the introduction of chapter 1 and extensively in the review of literature, it is important to remember that a school system's policies and decisions can have a direct impact, positive or negative, on the issue of dropout rates. Furthermore, the conceptual framework developed to support the selection of variables analyzed involved focusing on the areas in which the education system is currently failing students. Consequently, it is important to recognize that, while the vast majority of decisions made by school system personnel, policymakers and other invested stakeholders are based on the best intentions and backed by sound research, it should be noted that not every decision made is in the best interest of all students and particularly for minority students. Therefore, a more complex, underlying issue may exist that goes beyond the scope of this study but that needs to be addressed in order to truly combat dropout rates.

For State and Federal Policymakers. One aspect of improving dropout rates is to develop and enact policies and procedures at the state and federal level that ensure every student receives the support necessary to be successful. The following recommendations could be enacted at the state or federal level to help reduce dropout rates. First, a uniform definition for dropout and graduation rates needs to be established. As noted in chapter 1, there exists much discrepancy over how best to calculate dropout and graduation rates. Without a clear definition of what constitutes a dropout, no one can definitively assess the dropout issue. Additionally, without a clear definition of what constitutes a dropout, states are left to develop their own definitions which can lead to underreporting dropout rates (Green & Forster, 2003). Therefore, a recommendation would be to adopt uniform definitions for graduation and dropout rates. This would allow federal and state policymakers to address the issue of dropout rates at a more consistent level and prevent local school systems from underreporting the dropout rate (Green & Forster, 2003). Furthermore, state and federal policymakers should develop a system whereby students are tracked by state and federal statisticians so local school systems and state policymakers have a better idea of what happens to students who do not graduate and can pinpoint when they actually stop attending school (Viadero, 2004).

Federal and state policymakers need to address the issue of inadequate funding for schools (Barr & Parrett, 2007). By addressing the issue of inadequate funding, schools should become more effective in preventing students from dropping out of school by having the necessary resources to implement intervention strategies and programs to help reduce dropout rates (Levin, Belfield, Muennig, & Rouse, 2007).

Further data collection is necessary and additional research needs to be conducted on the dropout problem and federal and state policymakers should help with the funding of such

research. Since research indicates that Georgia is one of the leading states in the country for high

dropout rates, state policymakers should further analyze and investigate what is causing the

dropout rate to be so high.

Another approach to reducing dropout rates that could be addressed by state

policymakers would be to increase the age at which a student may drop out of school legally.

Even though much debate exists about the topic of compulsory attendance laws, recent studies

have demonstrated that raising the age for compulsory attendance can reduce dropout rates and

improve lifetime earnings for those students who stay in school and graduate (Bhanpuri &

Reynolds, 2003; Mingliang, 2006).

For School Systems. There are several recommendations that can be made to local school

system personnel to address the issue of dropouts. Recognizing the impact of ethnicity,

specifically the proportion of Black students, on the overall school dropout rate is important

because the percentage of Black students will likely affect dropout rates in the future, according

to the unstandardized coefficients in the regression analysis. Furthermore, the standardized

coefficients indicated that the percentage of Black students had a greater impact on current

school dropout rates than the other variables. These results are corroborated by other research

studies that have indicated Black students typically have the lowest graduation rates compared to

all other ethnicities (Pinkney, 2000; Roderick, 2003).

Schools need to recognize and respect the cultural diversity that currently exists in so

many school systems located in large metropolitan school districts. For example, schools need to

understand the negative impact that traditional curriculum can have on diverse populations,

including Black students, and recognize the potential for curriculum, if not correctly chosen, to

have an adverse affect on the graduation rate (Gallagher, 2002; Minhui, 2007). In addition, Hale

(2001) pointed out that students perform better if they are given culturally relevant educational materials. The use of a multicultural-based curriculum is needed to bridge the gap between the many diverse populations of students that are often represented in metropolitan school systems (Shealy, 2006). Therefore, school system personnel need to be aware that Black students should be given the opportunity to learn and develop from culturally relevant material and a multicultural-based curriculum that provides adequate motivation to persist to graduation.

Research has indicated that, oftentimes, schools do not offer enough programs or support mechanisms to meet the needs of Black students (Mitchell, Bush, & Lawson Bush, 2002). Therefore, schools need to ameliorate this lack of support mechanisms and programs to reduce the dropout rate for Black students. For example, schools should team up with local business leaders, community officials, social service agencies, and other community stakeholders to develop or replicate successful early intervention programs aimed at reducing the truancy rate for Black students in order to help reduce the dropout rate (Shore, 2003).

An intervention program that has been implemented and has shown progress in reducing the dropout rate of Black males is called MAAT (Motivated Action towards Achievement and Transformation) (Mitchell et al., 2002). The MAAT program was started during the 2000-2001 school year in a large metropolitan city in southern California. This program involves male mentors who function as positive role models for Black males and serve to help motivate Black students to finish school. The mentors provide guidance on getting involved in extracurricular sports, getting parents involved in the education process, engaging in activities that are culturally relevant and help build self-esteem, and provide additional help with academic lessons (Mitchell, Bush, & Lawson Bush, 2002). As a result of the success of this program, a parallel program has been set up that focuses on Black female students; however, it is too early to ascertain the results

of this parallel program and, therefore, too early to recommend this strategy. Given the focus on Black students as a result of this study, the MAAT program would be an appropriate intervention program to implement to help reduce the dropout rate.

Another recommendation that could be effective in reducing the dropout rate by focusing on Black students is to make use of the Coca-Cola Valued Youth Program. This program was examined extensively in the review of literature and is designed to help reduce the risk of dropping out of school. This program has been in place for a number of years and has been proven effective in reducing the dropout rate in various school systems throughout the country.

Recognizing the impact that the percentage of the school population that is Hispanic has on the dropout rate is of particular importance for three reasons. First, according to the data, the percentage of Hispanic students is the variable with the second greatest impact on dropout rates in the sample studied. Second, with demographics shifting within the U.S., it is important to recognize that the number of Hispanics entering school systems is rising and, according to the NCES (2006), approximately one-third of all Hispanic students do not graduate from high school. Third, it is reported that Georgia's school system will see its enrollment of Hispanic students increasing from 7% during the 2009- 2010 school year to 12% by the year 2015. Consequently, given the results of this study and the expected increase in the percentage of Hispanic students in Georgia high schools, it is likely that dropout rates in Georgia high schools will continue to increase.

A concerted effort must be made by school systems to meet the challenges that come with educating students from Hispanic backgrounds (Lockwood, 2000). Programs should be put in place to help parents of Hispanic students become involved in their children's educational process because research has shown that lack of parental involvement is one of the biggest

challenges in ensuring that Hispanic students succeed in their educational pursuits (Pong &

Dong-Beom, 2000). Another recommendation that could be implemented by school systems to

help reduce the dropout rate for Hispanic students involves the use of counselors with Hispanic

backgrounds. These counselors would provide assistance to high school students who might need

additional help preparing for and navigating the challenges of high school. In addition, Hispanic

counselors could act as liaisons between students, parents, and school system personnel,

especially for those students with parents who do not speak English fluently. Furthermore,

school teachers and administrators should be better trained at the college level on how to meet

the needs of Hispanic students (Lockwood, 2000).

One intervention program that could be implemented by school systems to reduce the

dropout rate for Hispanic students is entitled ALAS (Achievement for Latinos through Academic

Success). This program, highlighted in the review of literature, would be an appropriate program

to implement because it is designed specifically to work with Hispanic/Latino students to help

keep them from dropping out of school. Additional successful programs that should be

considered for implementation in order to help reduce the dropout rate include Achieving a

College Education (ACE), Jobs for America's Graduates (JAG), and Advancement Via

Individual Determination (Montecel et al., 2004).

As indicated by the results of the regression analysis, the percentage of male students

impacted the current dropout rate more than the percentage of female students. Therefore, an

effort needs to be made by school systems to ensure male students who are at risk of dropping

out of school are given every opportunity to succeed. For example, staff development

opportunities designed to focus on strategies aimed at getting male students integrated into the

school organization in order to help reduce the dropout rate need to be explored and presented to

teachers. Research has shown that students who are integrated into the school culture or organization have lower dropout rates (Cole-Henderson & Serpell, 2001). Additionally, male teachers and administrators need to be recruited and retained in these school systems so as to be mentors and provide daily guidance to those male students who are most at risk for dropping out of school (Cunningham & Watson, 2002).

The research also revealed the medium size school classification, specifically those schools with a population between 1,001 and 1,500, had a greater impact on dropout rates compared to the large or small school size classifications. Again, this result was somewhat surprising because a great deal of research has indicated that students who attend large schools are more apt to drop out than those students who attend schools with lower populations (Lehr et al., 2004). However, a review of the data set revealed that, on average, medium schools in the data had a higher percentage of students classified as economically disadvantaged and a higher proportion of the medium schools in the data set were also classified as urban. These two factors might have affected dropout rates for students in medium schools. Therefore, local school systems can use tax dollars to support the appropriate schools based on the knowledge that the medium size school classification has a greater impact on dropout rates than the large or small classifications and that the increased number of economically disadvantaged students in urban schools might need to be addressed in order to reduce dropout rates for medium sized schools.

Limitations and Future Research

As with any study that is conducted, there are, to some degree, limitations or aspects that are beyond the scope of a study, and this study is no different in that regard. It is important to point out that, even though the study has limitations, these limitations do not disqualify it from being a valid study. However, such limitations do offer an opportunity for exploration of

additional areas for further research. Limitations of this study are highlighted along with suggestions for further areas to study.

Even though the study made an attempt to include as many variables as possible, there were some limitations in the number of variables selected for the study. Even though this study included seven different variables that are, based on previous research, considered highly related to dropout rates, the National Dropout Prevention Center suggested that there are as many as 30 different risk factors associated with students dropping out of school. Furthermore, even though the seven different variables investigated in this study were further broken into 12 subgroups, the actual reasons that some of the students dropped out could have been associated with one of the other risk factors highlighted by the NDPC but not selected for this study. Therefore, one of the potential areas to explore for further research is a study incorporating additional variables that were not selected for this study but have been highlighted by research as being associated with higher dropout rates. Examples of possible risk factors not included in this study but that could be investigated include low attendance (Rumberger, 2001; Scanlon & Mellard, 2002; Suh et al., 2007), students being above age for their appropriate grade level (Gleason & Dynarski, 2002), and number of years retained in school (Alexander et al., 2001).

Another limitation of this study is related to the particular region that was selected. It was determined that the geography selected for this study would include only one metropolitan area in the southeastern U.S. to align with the findings of the NDPC (Hammond et al., 2007). As the metropolitan area examined continues to expand, further studies could be conducted to include any counties added to the metropolitan statistical area as defined by the U.S. Census Bureau.

Many students drop out of school after the 9th grade. It is estimated that approximately 10% of 9th graders in 2003 did not return to complete grade 10 (NCES, 2005). Enrollment levels

for students in Georgia entering grade 10 are as much as 20% lower than grade 9 enrollment levels (Wheelcock & Miao, 2005). As a result of these findings, research could be conducted on just one grade level rather than including all four years of high school, the approach taken in the current study.

An additional limitation of this study that could lead to further research pertains to the level of data analyzed. Because student level data were not available for analysis in this study, the information analyzed was at the school level. If student level data could be obtained, student level analysis could shed more light on which specific students could be classified as most at risk of dropping out rather than which variables have the greatest impact on dropout rates.

One final limitation of the study that could lead to further research includes the use of a theory relating to dropping out of school. While it has been referenced in several places in this study, it is important to reiterate that most studies conducted regarding the issue of dropout rates are "atheoretical" (Holland & Andre, 1987). One way that further research could be conducted would be to test one of the many prevailing theories regarding the issue of dropping out. For example, it has been suggested in the literature that the theory of social control could be used to explain why a student drops out of school (Marcus & Sanders-Reio, 2001). However, no studies have been conducted to support this theory (McNeal, 1995). Therefore, many opportunities exist to conduct research on the topic of dropping out through the lens of the theory of social control or other contemporary theories.

Summary

This study was designed to help shed more light on the topic of which variables have the greatest impact on high-school dropout rates, a topic that has been investigated and researched but remains one of the most challenging issues facing school systems today. As the U.S.

becomes part of a more global society, it is more imperative now than ever before to make sure that students have the tools necessary to compete in the workforce of the 21st century. Therefore, schools, parents, community members, administrators, school system personnel, and local state and federal governmental agencies will have to join forces in a collaborative manner if they ever hope to improve the graduation rate by lowering the dropout rate.

As a result of conducting this quantitative research study, it is hopeful that the findings can be used to reduce dropout rates. By acquiring the ability to use specific variables to predict dropout rates, legislators and school system personnel can predict school dropout rates in order to prioritize the allocation of resources and the focus of intervention efforts. Furthermore, by developing a better understanding of which variables have the greatest impact on current dropout rates, schools will have the requisite information necessary to prioritize intervention efforts and, ultimately, combat this most perplexing issue.

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APPENDICES

Appendix A

All-Possible-Regressors Model

```
Number in
  Model     C(p)  R-Square        MSE  Variables in Model

      8   6.3904    0.3827   21.50208  __hispanic_ __white __male with_disabilities
                                       with_ltd_engl_prof size1 size2 sloc1
      8   6.6568    0.3815   21.54567  __black __hispanic_ __male with_disabilities
                                       with_ltd_engl_prof size1 size2 sloc1
      7   7.8573    0.3665   21.90597  __black __hispanic_ __male with_disabilities
                                       with_ltd_engl_prof size2 sloc1
      7   7.8838    0.3663   21.91027  __hispanic_ __white __male with_disabilities
                                       with_ltd_engl_prof size2 sloc1
      9   8.0176    0.3845   21.60229  __hispanic_ __white __male with_disabilities
                                       with_ltd_engl_prof _econ_disadvantage size1 size2
                                       sloc1
      9   8.1118    0.3841   21.61782  __black __hispanic_ __male with_disabilities
                                       with_ltd_engl_prof _econ_disadvantage size1 size2
                                       sloc1
      9   8.3469    0.3830   21.65659  __black __hispanic_ __white __male with_disabilities
                                       with_ltd_engl_prof size1 size2 sloc1
      9   8.3484    0.3829   21.65683  __hispanic_ __white __male with_disabilities
                                       with_ltd_engl_prof size1 size2 sloc1 sloc2
      9   8.5489    0.3820   21.68988  __black __hispanic_ __male with_disabilities
                                       with_ltd_engl_prof size1 size2 sloc1 sloc2
      6   8.8821    0.3522   22.23261  __black __hispanic_ __male with_disabilities
                                       with_ltd_engl_prof sloc1
      7   8.9909    0.3611   22.09011  __black __hispanic_ __male with_disabilities
                                       with_ltd_engl_prof size1 sloc1
      7   9.0224    0.3610   22.09522  __hispanic_ __white __male with_disabilities
                                       with_ltd_engl_prof size1 sloc1
      6   9.0773    0.3513   22.26409  __hispanic_ __white __male with_disabilities
                                       with_ltd_engl_prof sloc1
      7   9.4199    0.3591   22.15979  __hispanic_ __male with_disabilities
                                       with_ltd_engl_prof _econ_disadvantage size2 sloc1
      7   9.5277    0.3586   22.17730  __hispanic_ __male with_disabilities
                                       with_ltd_engl_prof size1 size2 sloc1
      8   9.6193    0.3676   22.03050  __black __hispanic_ __male with_ltd_engl_prof
                                       _econ_disadvantage size1 size2 sloc1
      8   9.7158    0.3671   22.04628  __hispanic_ __white __male with_ltd_engl_prof
                                       _econ_disadvantage size1 size2 sloc1
```

The REG Procedure

Model: MODEL1
Dependent Variable: Dropout_rate

C(p) Selection Method

Number of Observations Read   143
Number of Observations Used   143

Appendix B

Variable Correlation Matrix

		dropout rate	black	hispanic	White	male	with disability	limited english proficiency	school location	school size
dropout rate	Pearson Correlation	1	0.073	0.051	-0.064	.397**	0.109	-0.059	-0.102	-.269**
	Sig. (2-tailed)		0.395	0.55	0.456	0	0.202	0.491	0.234	0.001
	N	139	139	139	139	139	139	139	139	139
black	Pearson Correlation	0.073	1	-.223**	-.921**	-.229**	0.125	-0.159	-.415**	-0.041
	Sig. (2-tailed)	0.395		0.007	0	0.006	0.138	0.058	0	0.624
	N	139	143	143	143	143	143	143	143	143
hispanic	Pearson Correlation	0.051	-.223**	1	-0.141	0.071	-0.108	.935**	-0.107	0.046
	Sig. (2-tailed)	0.55	0.007		0.093	0.4	0.199	0	0.203	0.584
	N	139	143	143	143	143	143	143	143	143
white	Pearson Correlation	-0.064	-.921**	-0.141	1	.202*	-0.07	-.207*	.489**	-0.016
	Sig. (2-tailed)	0.456	0	0.093		0.016	0.405	0.013	0	0.852
	N	139	143	143	143	143	143	143	143	143
male	Pearson Correlation	.397**	-.229**	0.071	.202*	1	.473**	0.053	.206*	-0.111
	Sig. (2-tailed)	0	0.006	0.4	0.016		0	0.529	0.013	0.188
	N	139	143	143	143	143	143	143	143	143
with disability	Pearson Correlation	0.109	0.125	-0.108	-0.07	.473**	1	-0.115	0.062	-.223**
	Sig. (2-tailed)	0.202	0.138	0.199	0.405	0		0.17	0.461	0.008
	N	139	143	143	143	143	143	143	143	143
limited english proficiency	Pearson Correlation	-0.059	-0.159	.935**	-.207*	0.053	-0.115	1	-0.158	0.025
	Sig. (2-tailed)	0.491	0.058	0	0.013	0.529	0.17		0.059	0.769
	N	139	143	143	143	143	143	143	143	143
school location	Pearson Correlation	-0.102	-.415**	-0.107	.489**	.206*	0.062	-0.158	1	0.001
	Sig. (2-tailed)	0.234	0	0.203	0	0.013	0.461	0.059		0.988
	N	139	143	143	143	143	143	143	143	143
school size	Pearson Correlation	-.269**	-0.041	0.046	-0.016	-0.111	-.223**	0.025	0.001	1
	Sig. (2-tailed)	0.001	0.624	0.584	0.852	0.188	0.008	0.769	0.988	
	N	139	143	143	143	143	143	143	143	143

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix C

Log Transformation (Box-Cox Method)

The Box-Cox transformation in SAS

The SAS System

The TRANSREG Procedure

Transformation Information
for BoxCox(Dropout_rate)

Lambda	R-Square	Log Like
-3.00	0.13	-859.249
-2.75	0.13	-769.817
-2.50	0.13	-681.752
-2.25	0.13	-595.408
-2.00	0.13	-511.285
-1.75	0.13	-430.091
-1.50	0.13	-352.837
-1.25	0.13	-280.925
-1.00	0.14	-216.198
-0.75	0.15	-160.858
-0.50	0.16	-117.206
-0.25	0.18	-87.419
0.00 +	0.21	-73.682 <
0.25	0.26	-78.555
0.50	0.32	-104.351
0.75	0.37	-150.946
1.00	0.39	-214.768
1.25	0.39	-290.899
1.50	0.38	-375.307
1.75	0.37	-465.346
2.00	0.35	-559.376
2.25	0.34	-656.359
2.50	0.32	-755.603
2.75	0.31	-856.624
3.00	0.30	-959.074

< - Best Lambda
* - Confidence Interval
+ - Convenient Lambda

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