

AN EXAMINATION OF THE IMPACT OF EARLY INTERVENTION ON HIGH SCHOOL  
DROPOUT RATES

by

Kenton H. Johnson

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

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APPROVED BY:

Rebecca Lunde, Ed.D., Committee Chair

David Gorman, Ed.D., Committee Member

Robert Frazier, Ed.D., Committee Member

## ABSTRACT

This quantitative, correlational study focuses on the examination of at-risk student indicators and the practice of early identification and intervention as it pertains to high school graduation. It utilized logistic regression to determine whether a set of predictor variables (Criterion Referenced Competency Test math, final math and English grades, and number of absences) can accurately predict the criterion variable of graduation from high school. The analysis also determined which variables best predict the criterion variable. The analysis utilized archived data on African American males who entered ninth grade in a large U.S. school district during the 2013-2014 school year. The data was scrubbed to maintain the confidentiality of the students. Once all data was coded and assumptions were met, logistic regression analysis was run and analyzed by the researcher. The analysis determined all four predictor variables were significant predictors of high school end status (dropout or graduate) with CRCT math score, final English grade, and final math grade being the most significant predictors. The complete regression model utilizing all variables correctly classified 80.4% of cases.

*Keywords:* high school completion, at-risk student, high school dropout, high school graduation rate, early warning systems

**Copyright Page**

### **Dedication**

This dissertation is dedicated to every young minority male struggling to find the purpose in his life, but has a desire to be successful at something. I was in that place once and identify with your journey. I vow to do everything in my power to make your fight a fair one and help ease your path to success. I pray that God gives me the strength and the passion always to want to fight for my brothers in Christ.

## Acknowledgments

I first praise God for instilling within me the desire to pursue this prestigious accomplishment. I thank God for opening doors on my behalf each time I faced opposition. Thank you, gracious Lord.

I have been blessed to have many people support and encourage me through this journey. It is often said to save the best for last, but in this moment I would like to begin with the two people that meant the most to me during this process. Lorraine Monique Johnson and Kaylani Lorraine Johnson have been my two biggest supporters and have sacrificed so much to help me make it through this process. Isaac Newton was quoted as saying “if I have seen further than others, it is by standing upon the shoulders of giants,” you two are the giants on which I stood and I offer you my heartfelt thanks. I love you both more than you will ever know.

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**List of Abbreviations**

|      |  |
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| CRCT | Criterion Referenced Competency Test                   |
| GPA  | Grade Point Average                                    |
| IRB  | Institutional Review Board                             |
| NSLP | National School Lunch Program                          |
| OECD | Organization for Economic Co-operation and Development |
| SPSS | Statistical Package for Social Sciences                |
| VIF  | Variation Inflation Factors                            |

## **CHAPTER ONE: INTRODUCTION**

### **Overview**

High school graduation rates are a national, state, and local school district issue that have not been resolved (Ecker-Lyster & Niileksela, 2016). While many studies have been conducted regarding why students drop out of high school and how to improve graduation rates, high school students in the United States continue to leave high school prior to graduation at an alarming rate (Bowers, Sprott, & Taff, 2013). According to Radcliffe and Bod (2013), about 1.2 million students drop out of high school yearly, and of those more than half belong to minority groups. The transition from middle school to high school has proven to have a significant impact on an at-risk student's ability to graduate from high school (McIntosh, Flannery, Sugai, Braun, & Cochrane, 2008). The inability to adjust to the increased academic expectations and the increased freedom during transitions in high school are two of the most significant reasons students struggle with the transition from middle to high school (Roybal, Thorton, & Usinger, 2014). A majority of the students who decide to leave high school before completion make this decision prior to the end of their ninth-grade year. The importance of identifying at-risk students prior to them beginning high school and developing effective transition programs is highlighted by the trend of students leaving high school before completion (Allensworth, Gwynne, Moore, & De la Torre, 2014). This chapter includes background information regarding students dropping out of high school, a statement of the problem, the purpose of the study, the significance of the study, and the research question guiding this research.

### **Background**

Over the next decade, researchers expect approximately 12 million students to drop out of school, which will cost the U.S. Government about 3 trillion dollars (Robertson, Smith, & Rinka,

2016). As the drop out issue is examined further and categorized by subgroups, one group of high school students' risk of dropping out of high school appears to be considerably higher than that of other groups. High school graduation rates of African American males are substantially lower than those of African American females and their Caucasian counterparts (Murnane, 2013). Students who fail to complete high school encounter several negative outcomes when they become adults (Wilkins & Bost, 2016). These students face higher incarceration and unemployment rates, health consequences, and sustained financial dependence (Murnane, 2013). These alarming facts along with school reform make it necessary for researchers to explore methods for improving the on-time graduation rate (Ecker-Lyster & Niileksela, 2016).

In the 1960s, the United States high school graduation rate hovered around 80 percent and ranked first among the Organization for Economic Co-operation and Development (OECD) countries. For the next 30 years, the graduation rates for all the countries in the OECD, excluding the United States, experienced a steady increase. Due to the United States graduation rate remaining stagnant, the nation lost ground to the other countries in the OECD and ranked thirteenth out of nineteen countries in the year 2000 (Murnane, 2013). The United States responded to the stagnant national graduation rate issue with the No Child Left Behind Act of 2001, which required more accountability in education and improved graduation rates (Balfanz, Brideland, Moore, & Fox, 2010).

As a response to the high school graduation rate issue, researchers found evidence that suggested students at risk of dropping out of high school could be identified in middle school and in some cases elementary school (Kennelly & Monrad, 2007). Early identification of these students was important because many of the classes failed in high school occur during ninth grade and are a result of a poor transition from middle to high school (Wilkins & Bost, 2016).

This research had a few critics that found the predictors to be unreliable in the identification of students at risk of dropping out of high school (Gleason & Dynarski, 2002). While the critics presented their argument, there was an abundance of research that supported the notion that certain predictors or a group of predictors could be utilized to determine whether a student is at risk of dropping out of high school (Carl, Richardson, Cheng, Kim, & Meyer, 2013).

Subsequent research regarding this topic focused not only on the accurate identification of at risk students but also on the importance of the intervention provided to the student once they are identified (Rosenkranz et al., 2014). The most impactful interventions were found to be the interventions that occurred during the transition from middle to high school (Roybal et al., 2014). These interventions allowed rising ninth grade students to enter high school with the support and confidence necessary to perform well academically (Kieffer, Marinell, & Neugebauer, 2014). Successful intervention plans required high school personnel to conduct events for rising ninth grade students at both the middle school and high school aimed towards making those students and their families as aware and comfortable as they could be with the challenge that was ahead of them (Neild, Stoner-Eby, & Furstenburg, 2008).

While the research surrounding early identification of students at risk of dropping out of high school excited school officials, there was still some concern about how this information could be practically utilized by schools and school districts (Casillas, Robbins, Allen, Kuo, Hanson, & Schmeiser, 2012). The question of whether early identification information can be utilized by schools was answered by the implementation of early warning systems (Balfanz et al., 2010). Successful early warning systems were designed to measure a student's individual progress against the progress of their peers to determine whether that student is at risk of falling behind and dropping out of school. These systems utilize individual student's data and school

data concurrently to track each student's progress and provide an alert for school officials once a student has met a predetermined threshold (Allensworth et al., 2014).

Jordan, Lara, and McPartland (1994) and Watt and Roessingh (1994) introduced the *Push, Pull, or Fall out* framework to explain why students make the decision to leave school prior to graduation. The push-out theory focuses on the impact of factors within the school. The push-out theory highlights the way a student interacts with the school environment around them and the role that interaction plays in keeping a student engaged in the school culture (Doll, Eslami, & Walters, 2013). Another aspect of the framework is the pull-out theory, which considers the student's life outside of the school and the impact outside influences can have on a student while that student is enrolled in school. These factors can create an immense amount of pressure on a student, so much so that the student decides that it will be better to focus on addressing the outside influence and no longer attend school (Stearns & Glennie, 2006). In many cases, there are multiple factors within the school that combine to cause a student to make the decision to drop out of school (Jordan et al., 1994). The fall-out theory is the final theory in the framework, and it explains the influence poor grades and falling behind can have on a student's motivation to persist to completion of the graduation requirements (Jerald, 2006). Researchers have found that students experience disengagement over time as a result of poor academic performance, and if their performance improves, students can become reengaged and persist to completion (Watt & Roessingh, 1994).

Research has shown that students leave high school before completion for many reasons, but schools and school officials cannot impact many of the outside factors that contribute to the dropout rate, so they must focus on the issues they can impact (Doll et al., 2013). The identification of predictors that will combine to develop an early warning system for students has

been researched and published, but all this research points to predictors that are accurate for the entire student population (Carl et al., 2013). While the entire student population is a good starting point, there is a faction of the student population that is dropping out of high school at a far greater rate than the rest of the population. There is still research needed to support the notion that the predictors that most accurately identify at-risk students for the entire student body are the same predictors that will most accurately predict the black male students that are at risk of dropping out of high school (McKee & Caldarella, 2016).

### **Problem Statement**

This study focused on the identification of middle school, African American male students at risk for dropping out of high school. Approximately 12 million students are predicted to drop out of school over the next decade, and the cost to the United States government will be about \$3 trillion (Robertson et al., 2016). High school graduation rates of African American males are substantially lower than those of their Caucasian counterparts (Murnane, 2013). These students face high incarceration and unemployment rates, health consequences, and sustained financial dependence (Ecker-Lyster & Niileksela, 2016). These statistics paint a grim picture and highlight the need for increasing high school graduation rates. Current research surrounding middle school indicators and high school completion reports academic, attendance, and behavior indicators are the best predictors of high school completion (Carl et al., 2013).

McKee and Caldarella (2016) conducted a study of 416 eighth graders who transitioned to high school. They utilized a regression analysis to study attendance, academic, and behavior indicators and the ability of these indicators to predict students at risk of dropping out of high school. The researchers found that the strongest predictors were grades, attendance, middle school Grade Point Average (GPA), and standardized math test scores. Most of the research



surrounding this topic utilizes data from schools and school districts that are not racially diverse (McKee & Caldarella, 2016). Bowers et al. (2013) conducted a meta-analysis surrounding predictors for early identification of at risk students over the past 30 years and found predictors can accurately predict at-risk students, but also left recommendations to inform future research. The problem is that research does not sufficiently address the high dropout rates among African American male students and the variables that specifically predict high school graduation for this population (Bowers et al., 2013).

### **Purpose Statement**

The purpose of this quantitative, correlational study was to inform the theories of *Push, Pull or Fall out* and *Social Cognitive Theory* that relates middle school indicators ability to be utilized by school personnel to identify students at risk of dropping out of high school to graduation rates for high school students at a nearby school district. Archived data from a large southeastern United States school district pertaining to all African American male students in the 2013-2014 ninth grade cohort was utilized for this study. The researcher utilized logistic regression analysis to determine the predictor variable or set of predictor variables that best predict the black male students at risk of dropping out of high school entering high school in the 2013-2014 ninth grade cohort. The predictor variables of interest were Criterion-Referenced Competency Tests (CRCT) math, final math and English grades, and number of absences. CRCT math is generally defined as a standardized test that used to be given to middle school students in the area of math. Final math and English grades are generally defined as the numeric math and English numeric grades received by the student at the end of the school year (McKee & Caldarella, 2016). Number of absences is generally be defined as the total number of absences reported for each student by the end of the school year. The criterion variable of interest is high

school graduation rate of black male students and is defined as whether a high school senior graduated from school by the end of the school year.

### **Significance of the Study**

A recent study conducted by McKee and Caldarella (2016) examined the effectiveness of middle school academic predictors in the identification of at-risk students. When students are identified as at-risk before they enter high school, schools can increase the chances they will graduate through targeted intervention (Bowers et al., 2013). McKee and Caldarella (2016) focused on academic risk factors but urged future researchers to incorporate social risk factors such as gender, ethnicity, and socioeconomic status. Only 3% of the students in this sample were African American, which led the researchers to indicate a need for more studies that incorporate a more diverse population (McKee & Caldarella, 2016).

African American males and other subgroups have been inadequately examined regarding the topic of early identification predictors of students at risk of dropping out of high school (Bowers et al., 2013). The research surrounding this topic consistently ignores specific subgroups and the indicators that best predict at-risk students for those populations (McKee & Caldarella, 2016). Middle school indicators in the areas of academics, attendance, and behavior have been found to be the best predictors of students at risk of dropping out of high school (Carl et al., 2013). Current early warning systems utilized by schools and school districts incorporate the predictors found in the current research (Allensworth et al., 2014).

This study adds to the body of knowledge by examining African American males and the predictors that best identify African American males at risk of dropping out of high school. The results of this study also add to the literature regarding academic risk factor versus social risk factors due to the use of attendance as one of the predictor variables in this study. Findings from

this study will also help school officials adjust their early warning systems to account for the needs of African American male students, if necessary. Those changes will also lead to changes in the targeted interventions African American male students receive once they enter high school. Some of the interventions the school can offer are support classes in the subjects of math and English to ninth grade African American males that are at risk of dropping out of school, as well as an increase in the frequency of progress monitoring for these students. This study will allow for differentiation in the way African American male students are identified and served in their local schools.

### **Research Question**

This study addresses the following research question:

**RQ1:** Can high school end status (dropout or graduate) of African American male students be accurately predicted by the predictor variables of CRCT Math, final math grade, final English grade, and number of absences in eighth grade?

### **Definitions**

1. *At-risk student* - An at-risk student is a student that is at risk of dropping out of high school or not graduating from high school within the first four years of entering high school (Ecker-Lyster & Niileksela, 2016).
2. *High school dropout* - A high school dropout is a student that leaves high school prior to graduation (Bowers et al., 2013).
3. *High school graduation rate* - High school graduation rate is the percentage of students that graduate high school within the first four years of entering high school (Balfanz et al., 2010).

4. *CRCT* - The Criterion-Referenced Competency Test (CRCT) is a standardized test given to middle school students in the areas of English, math, and reading (Georgia Department of Education, 2013).
5. *Retention* - Retention is whether a student has been required to repeat a grade level (McKee & Caldarella, 2016).
6. *NSLP* - The NSLP (National School Lunch Program) is a Federal lunch program that determines if families receive free or reduced lunch based on their household income (McKee & Caldarella, 2016).

## **CHAPTER TWO: LITERATURE REVIEW**

### **Overview**

This chapter incorporates a review of previous research and theoretical frameworks that guide this study. The reviewed literature focuses on multiple areas surrounding the topic, including (a) the influence of a low high school graduation rate on society, (b) historical background of African American males and education in this country, (c) the issue surrounding the graduation rate of African American male students, (d) the importance of transition from middle school to high school, (e) the effects of early intervention on the high school graduation rate, (f) the routes to preventing students from dropping out of high school, (g) the creation of early warning systems as an answer to the high school dropout issue, (h) the belief that early identification of students at risk of dropping out of high school will allow school districts to intervene before the students disengage from high school, and (i) the quest to find effective middle school indicators that give school officials the ability to identify potential high school dropouts before they enter high school. The literature examined builds the foundation that supports the overall design and relevance of this study, which involves investigating the variables that best predict African American male students at risk of dropping out of high school.

### **Theoretical Framework**

This dissertation is grounded in multiple theories regarding factors that may affect the high school end status of African American male students. While research has been conducted regarding the factors contributing to the high school dropout issue, at-risk student populations have not been addressed specifically (Bowers et al., 2013). Due to the complex nature of the factors contributing to students dropping out of high school, several theories have emerged in an attempt to explain this phenomenon (Rumberger & Lim, 2008). Foundational theories such as

push, pull, or fall out theory and social cognitive theory are incorporated in this dissertation. The concept from which this study is derived relates directly to each theory and related literature. While these theories do vary greatly in factors they include, the interaction of the factors differ according to the theory.

### **Push, Pull, or Fall out Theory**

Jordan et al. (1994) and Watt and Roessingh (1994) contributed a combination of three theories that serve as the overall framework for this study. The following quote captures the thrust of these theories: “students drop out of school because they are either pushed, pulled, or fall out of school” (Doll et al., 2013, p. 2). The basis for the *pull-out* theory centers around the notion that school is only one aspect of a student’s life, and various influences outside of school including financial stability, family dynamics, and peer pressure can cause a student to decide to drop out of school (Stearns & Glennie, 2006). This theory highlights an inevitable decision that has to be made by students facing external issues such as the birth of a child, the need to work to help support the family, or a personal illness (Doll et al., 2013). These students must conduct a cost-benefit analysis in order to determine the most prudent course of action (Doll et al., 2013; Levin, Belfield, Muennig, & Rouse, 2007). Ultimately, if the student decides that the influences outside of school carry more weight than the benefits of school completion, the student will decide to leave and address the external influences (Alexander, Entwisle, & Horsey, 1997; Doll et al., 2013; Stearns & Glennie, 2006).

While the *pull-out* theory focuses on external factors, the *push-out* theory emphasizes internal factors that may cause a student to leave school prior to completion (Doll et al., 2013). This theory highlights factors within the school that may contribute to a student disengaging from school, such as strict discipline, a lack of effective classroom instruction, and inadequate

academic support (Doll et al., 2013; Jerald, 2006; Stearns & Glennie, 2006). While any one of these factors could individually cause a student to feel discouraged and decide to drop out, students more frequently experience multiple factors at the same time (Doll et al., 2013). If the school is not able to intervene before the factors become overwhelming, the student will likely feel a lack of school support and decide dropping out is the only option. In order to identify the circumstance as a *push-out* factor, the adverse situation must have originated within the school (Doll et al., 2013).

The final theory in the framework is the *fall-out* theory that states students leave school prior to completion due to failing grades and falling off track for graduation (Doll et al., 2013). *Fall-out* factors cited in the research include but are not limited to inadequate study habits, diminished parental involvement or support, negative school perception, and overall frustration with school (Doll et al., 2013). The fact that these students become off track for graduation led Watt and Roessingh (1994) to speculate that failing grades caused students to become uninterested and disheartened with the notion of completing school, which led to students' overall negative attitude towards academics and ultimately led to disengagement. The factors that contribute to *fall-out* focus on the gradual increase of student disengagement over a period, which eventually manifests into a decision to drop out of school (Doll et al., 2013).

These three theories provide educators with clarity regarding the student dropout issue. One or two variables do not adequately explain this complex process. Multiple variables such as gender, student developmental level, and personal characteristics must be taken into account (Doll et al., 2013; Stearns & Glennie, 2006). As a result, this framework has been utilized to create a foundation for research regarding the dropout process (Doll et al., 2013). Researchers cite the abundance of contributing variables to support the need for identifying variables that

play an integral role in the larger environmental framework of the student (Ecker-Lyster & Niileksela, 2016).

### **Social Cognitive Theory**

Bandura's (1986) social cognitive theory can be integrated with the push, pull, or fall out theory to be utilized as the framework to guide this study. This theory is based in the thought that behavioral, cognitive and personal, and environmental factors all influence each other bidirectionally and combine to determine an individual's path (Bandura, 1988). This interaction between personal and physical attributes, external environmental forces, and explicit behavior operate mutually and consistently to affect one another (Lent, Brown, & Hackett, 1994). With this interaction, which is part of the triadic reciprocal model, Bandura highlighted the notion that all factors play a role in the way individuals learn and their decision-making process (Bandura, 1991). One factor or group of factors will not overwhelm the process and become the driving force for what an individual learns or the decisions he or she make (Lent et al., 1994).

While Bandura's theory focuses on the interaction of factors, he also believed that factors can be altered to change the interaction and ultimately help that individual achieve a desired goal (Bandura, 1988). Bandura (1988) identified how an organization can apply social learning theory to help improve its overall functioning provides an example of this manipulation of factors. In this article, Bandura (1988) detailed a process utilizing competency development through mastery modeling, self-motivation enhancement through goal systems, and increased self-efficacy through skill perfection to alter how personal factors contribute to the dynamic of the bidirectional interaction of all factors (Bandura, 1988). Ultimately, social cognitive theory has provided organizations with specific guidelines for improving the individuals in their



organizations, which in turn helps the organization function at a much higher level (Bandura, 1988).

The notion that human behaviors can be predicted based upon the bidirectional interaction between environmental, behavior, and personal factors is a key concept associated with social cognitive theory (Cooper et al., 2016). Each of the three factors associated with social cognitive theory can be reduced to variables that can be utilized to predict human behavior (Cooper et al., 2016). The environmental factors consist of variables linked to social norms, community access, and influence over others. The behavior factors consist of variables linked to skills, ability to practice, and self-efficacy. The cognitive or personal factors consist of variables linked to knowledge, expectations, and attitudes (Cooper et al., 2016). These variables can be examined to determine whether a predictive relationship exists between variables, as well as the strength of the predicative relationship between variables (Cooper et al., 2016).

There is no simple answer as to why students drop out of high school. Due to the complexity of this phenomenon, there are diverse theoretical frameworks available that can be used to explain this complex issue (Rumberger & Lim, 2008). Jordan et al. (1994) and Watt and Roessingh (1994) identified three specific approaches to this issue and analyses of several different predictor variables. The founders of push, pull, or fall out theory designated one of the three theories as the primary reason a student drops out of school (Jordan et al. 1994; Watt & Roessingh, 1994). In the push, pull, or fall out theory, there is no room for an interaction between variables as the cause for the leaving high school prior to completion. The social cognitive theory incorporates a different dynamic from the previous theory by recognizing the interaction that happens between variables in route to a particular path (Bandura, 1986; Cooper et al., 2016). With this interactive approach, social cognitive theory acknowledges students may

drop out for multiple unrelated reasons. The determination of which predictor variable or set of variables is the strongest predictor is an important step in prevention and intervention (Bowers et al., 2013).

This particular study utilized student factor variables available within a school database, with the aim of determining the best predictors for African American male students at risk of dropping out of high school. This research expands upon the research conducted by Doll et al. (2013), where the authors emphasized the need for investigating several variables to determine effectiveness in predicting which students will leave high school prior to completion. Therefore, the primary focus of Bandura's (1986) social cognitive theory will allow for the predictive strength of the interaction of variables to be tested along with the predictive strength of individual variables. Key factors that are correlated to the risk of dropping out of school (e.g., school engagement, student achievement, and demographics) are addressed in the interactive perspective of social cognitive theory (Dooley & Schreckhise, 2016). Course grades, standardized test scores, and attendance are all variables associated with these factors and addressed in both aforementioned theoretical frameworks.

### **Related Literature**

The middle school predictor variables that are combined to create an early warning system are explored towards the end of this section. There are four groups of variables: academic variables, attendance variables, behavior variables, and social variables. Each group is explored, and the literature surrounding the variables is reported in this section. This section also includes an exploration of how each group of variables are related and the effect of the relationships. The section concludes with the researcher highlighting how school officials can utilize this research, and the importance of expanding the research related to predicting potential

high school dropouts. It also addresses the purpose for the present study, the problem the study will address, and how the study will add to the existing body of literature.

### **Long-term Implication of a Low High School Graduation Rate**

Students who drop out of high school face an enormous challenge in the future, and they are often linked to various negative outcomes as adults (Wilkins & Bost, 2016). These negative outcomes include poor health, low wages, extended periods of unemployment, incarceration, poverty, and persistent dependence on social service agencies (Lochner & Moretti, 2004; Radcliffe & Bos, 2013). Robertson et al. (2016) report approximately 12 million students are expected to drop out of school over the next 10 years, with an overall cost to the United States of almost 3 trillion dollars. While these statistics paint a grim picture of how high school dropout issues will affect the nation financially, there is also a powerful effect on the finances of each individual dropout. The annual average income of a high school graduate is \$27,380, in comparison a high school dropout will only make \$19,540 on average over the same time (Robertson et al., 2016). The low salaries of high school dropouts are not the only major issue; many are not able to find employment for long periods. As of January 2012, the unemployment rate for the nation was 8.3%. Students who did not receive their high school diploma experienced a 13.1% unemployment rate compared to 8.4% for students who earned a high school diploma (Wilkins & Bost, 2016).

The issue of low high school graduation rates in the United States is a high stakes issue that comes with substantial social and individual costs. To ignore this issue and allow it to continue to grow would force the government to financially support high school dropouts and be financially devastating to the American economy (Balfanz et al., 2010). With the increased levels of stress that comes from low income rates and high unemployment rates, high school

dropouts are more likely to experience depression and anxiety in comparison with high school graduates (Liem, Dillon, & Gore, 2001). High school dropouts also tend to participate in risky social behaviors more than high school graduates (Liem et al., 2001). These behaviors often lead to incarceration especially for minority male students who drop out of high school (Murnane, 2013).

The personal consequences for students dropping out of high school are not consistent for all high school students (Griffin, 2002). Male minority students experience high incarceration rates and have higher unemployment rates and experience more instances of depression because of failing to earn a high school diploma (Griffin, 2002; Liem et al., 2001; Robertson et al., 2016; Vitaro et al., 2001). Some researchers attribute the increased consequences for minority males to the fact that they make up most of the students who drop out of high school (Griffin, 2002; Murnane, 2013). Whether this is the case or not, the high dropout rates for minority males has bearing on the fact that there are grave consequences to students dropping out of high school, and preventing this from happening should be a priority (Griffin, 2002).

Given the high stakes associated with dropping out, both local and national education officials have made the goal of increasing the high school graduation rate a top priority (Bridgeland, Balfanz, Moore, & Friant, 2010; Robertson et al., 2016). In an effort to address this issue, Robertson et al. (2016) examined the high school dropout issue from a prevention perspective. With this perspective, researchers have identified evidence-based strategies aimed towards preventing students from dropping out of high school (Robertson et al., 2016). These strategies were developed for school level implementation, but were quickly transformed for implementation on the district level. This transformation was necessary due to the technical support, capacity, and adequate time needed to measure the outcomes of the strategies

(Robertson et al., 2016). The time necessary to analyze the outcomes of these evidence-based strategies highlighted the need for individuals at risk of dropping out of school to be identified before they entered high school. Research pertaining to the outcomes of evidence-based dropout prevention strategies determined that a vast majority of the students who decided to drop out of high school began making this decision in middle school (Neild, Stoner-Eby, & Furstenburg, 2008). Once these students entered high school, they were already experiencing varying levels of disengagement from school, and the transition from middle to high school furthered the engagement gap between the student and the school (Bowers, 2010; Henry, Knight, & Thornberry, 2012; Neild et al., 2008; Wilkins & Bost, 2016).

### **African American Males in Education**

African American males in the United States continue to face numerous challenges ranging from being overrepresented in struggling poorly funded schools to high unemployment rates and overincarceration (Downey, 2008; Howard, 2013). These challenges help to create a negative perception of Black males and promote a narrative that will continue to plague this group for generations (Howard, 2013; Howard & Flennaugh, 2011; Roderick, 2003). Black males are often seen by the majority of society as violent individuals who consistently cause problems. This perception leads to them being feared and viewed as undesirable in some circles (Howard & Flennaugh, 2011; James, 2012; Livingstone & Weinfeld, 2017).

The overall view of Black males in society mirrors the view of Black males in U.S. schools (Howard, 2013). Roderick (2003) tracked African American male and female students in Chicago from eighth grade through 12th grade. The researcher found very few differences in school performance between the two genders in eighth grade, but by the time the students arrived at high school graduation, only 40% of the males graduated while 80% of the females graduated.

Roderick (2003) placed African American males into three categories: withdrawers, disengaged, and graduated. The withdrawers were seen as students who withdrew from school and either pursued an alternative diploma or were unemployed. The disengaged were seen as students who were still enrolled in school but showed no meaningful interest in earning good grades or even passing courses. The final category was graduated, which included students able to meet the requirements for graduation, many of whom were doing just enough to get through high school and had no plans for the future. African American males are often seen as problem children by teachers and administrators, which leads to them being managed instead of taught, as well as being overrepresented as special education students (Aud, Fox, & KewalRamani, 2010; Downey, 2008; Dumas, 2014). This perception causes many African American males to have a negative self-perception, which leads to their disengagement from school (Downey, 2008).

In addition to disengagement from school, a study conducted by Durham and Wilson 2007 found that teacher perception of African American male students causes many teachers to have low expectations of African American males by the time the students enter the fourth grade. The low expectations cause teachers not to offer African American males the same opportunities as their classmates, leading to the disproportionately high failure rates African American male students displayed (Durham & Wilson, 2007). Students consistently experience interactions with adults in the school that range from rejection to neglect (Roderick, 2003). These interactions help create an environment that lacks adult guidance and undermines the ability of African American males to perform well academically (Murnane, 2013).

With research regarding African American male students constantly reporting the group as academically underachieving, there has been a push from researchers to determine the factors responsible for this disparity between African American males and other subgroups (Hines &

Holcomb-McCoy, 2013). Many factors such as socioeconomic status, racism, teacher quality, school quality, and parental involvement have been explored as factors that contribute to the negative academic outcomes of Black male students (Howard, 2013). While all of the research found links between each factor and the academic achievement of Black male students, none of the research could make a determination that one factor is the main cause for Black male students underachieving academically (Howard, 2013).

Howard and Flennaugh (2011) stated, “the need for carefully conducted, race-based research on Black males is critical, because much of the inquiry on this population has centered on deficit-based, pathological accounts of Black males” (p. 108). Howard and Flennaugh (2011) believed the aforementioned quote summarizes the overwhelming majority of current research pertaining to the education of Black males in the United States. When compared to other races and genders, Black males perform significantly worse academically than their peers (Aud et al., 2010; Downey, 2008; Durham & Wilson, 2007; Howard & Flennaugh, 2011). While this disparity cannot be explained by a single factor, it is important that researchers continue to address this issue and bring forth relevant research regarding the academic struggles of African American male students (Hines & Holcomb-McCoy, 2013; Howard & Flennaugh, 2011).

### **Black Male Graduation Rate.**

The concern over high school graduation rates of African American male students continuously falling behind the graduation rates of their peers is a valid concern (Bell, 2014; Robison, Jagers, Rhodes, Blackmon, & Church, 2017). While nationwide graduation rates are trending upward, the graduation rates of Black male students remain considerably lower than their Caucasian counterparts (Stetser & Stillwell, 2014). African American males are not only failing in comparison to other races and ethnic groups, but they are lagging when compared to

African American females (Robison et al., 2017). This major issue has caused many researchers to examine the factors that may be causing this subgroup of students to perform poor academically when the country is making strides in the same area (Robison et al., 2017).

Garibaldi (2014) addressed the issue of an expanding gender and racial gap in high school graduation, and suggested that the gender and race disparity existed prior to the Brown v. Board of education ruling. The author contended prior to the Brown v. Board of education ruling Black girls attended and matriculated through school more often than Black boys, because African American boys were more likely to attain jobs or join the military. The laws that have been implemented to help African American students receive a better education and attend college at a higher rate have not done enough to change the mindset of African American males or alleviate the challenges that force them toward dropping out of high school before completion (Garibaldi, 2014).

Researchers also explored school related factors when examining the disparity in the graduation rate of African American males in comparison to their counterparts (Bell, 2014; Robison et al., 2017). These factors included failing grades, free lunch status, school attendance, and school discipline (Robison et al., 2017). Robinson et al. (2017) found these school factors significantly influenced whether or not a student would drop out of school prior to completion. While all of these factors have a significant effect on the graduation rate of African American male students, student relationships outside of school also play a significant role in whether or not African American males graduate from high school (Robison et al., 2017). Schools can help positively affect the graduation rate of African American male students by offering multiple opportunities for them to recover failing grades and by adopting discipline policies that will keep



black males in school rather than out of school where they become more disengaged from the school environment (Robison et al., 2017).

The high school graduation rate of Black male students is not just an African American male student problem or an African American community issue; it is also a problem for the entire nation (Bell, 2014). The more African American male students fail to graduate from high school, the higher the costs will be for the nation to deal with the increased incarceration, poverty, healthcare, and welfare cost that comes because of students dropping out of high school (Bell, 2014; Garibaldi, 2014). The statistics regarding the graduation rates of African American male students in the United States is alarming and needs to be a cause for concern for everyone in the country because if these numbers do not improve they will affect the entire country (Bell, 2014; Garibaldi, 2014).

### **The Transition from Middle School to High School**

The following quote highlights the importance of the transition from middle school to high school: “Students will decide during the first few weeks of their freshman year if they intend to continue their high school education” (McIntosh & White, 2006, p. 40). With this in mind, educators do not have much time once a student begins high school to convince students they should see it through graduation (McIntosh & White, 2006). For many students, providing interventions for them when they arrive in high school is far too late (Neild, 2009; Parr & Bonitz, 2015; Smith, Akos, Lim, & Wiley, 2008). Students who are at risk for dropping out of high school need assistance through the tumultuous transition that occurs between 8th and 9th grade (Butts & Cruzeiro, 2005; Roybal, Thorton, & Usinger, 2014; McCallumore & Sarapani, 2010).

When middle school students think about heading to high school, they often think about the freedom they will encounter when they arrive and see it as this great new world in which they

can prove their independence (Smith et al., 2008). Often students miss the importance of passing classes and gaining credits toward graduation, or they miss how the courses selected during the development of an academic plan can shape their future (Smith et al., 2008). Parents spend much of the time during their students' transition to high school worrying about the difficulty of the classes and if their student will be lost in their new environment (Akos & Galassi, 2004; Johnson, Simon, & Mun, 2014). While both parents and students have valid concerns, they often miss the difference in expectations their child will face in high school and how those new expectations can negatively affect their academic performance (Butts & Cruzeiro, 2005; Johnson, Simon, & Mun, 2014; McCallumore & Sarapani, 2010; Neild, 2009).

The overwhelming nature of the transition from middle school to high school places a much larger burden on schools and school officials to help prepare families for the challenges ahead of them (Akos & Galassi, 2004; Johnson et al, 2014; McIntosh & White, 2006; Smith et al., 2008). High school and middle school officials must come together to create an effective transition plan that is aimed toward educating families about the increased expectations in high school and helping families feel comfortable with the organizational changes that come with the level change (McIntosh & White, 2006; Neild et al., 2008). Some schools utilize parent and student meetings in eighth grade designed towards informing families about the new academic and social expectations that will be placed on their students. Schools also utilize school visits to help eighth grade students become acclimated to a day in the life of a high school student (Neild et al., 2008). Any program or meeting that will give families a better understanding of what they are to expect when entering high school can be a valuable piece to an effective transition plan (Butts & Cruzeiro, 2005).

While it is important to inform families about the changes prior to the start of the ninth-grade school year, it is important to create an environment where students can be academically, socially, and emotionally successful (McIntosh & White, 2006). Many schools trying to achieve this goal turn to the freshman academy model as their answer to the middle school to high school transition problem (Butts & Cruzeiro, 2005). Schools can adopt aspects of the freshman academy model to suit their needs, but essentially the freshman academy will serve as a way to introduce gradually high school life to ninth grade students (McCallumore & Sarapani, 2010). The freshman academy will separate ninth grade students from the rest of the students in high school, giving them a chance to mature and become familiar with the high school process before being introduced to the full independence of high school (McIntosh & White, 2006). The freshman academy will function as a smaller school within the high school. They will have designated freshman teachers, counselors, and administrators (McCallumore & Sarapani, 2010; McIntosh & White, 2006). The separation of these students and staff members aims towards creating a family environment at school and a connection between the students and staff that will rival the connections made within middle school teams (McIntosh & White, 2006).

While there is research that supports the freshman academy model, one of the major concerns with the model is that it does not sufficiently support students who are not adequately prepared for high school (Neild, 2009). These students enter high school at a disadvantage compared to their more well-prepared classmates and often become discouraged regarding the completion of high school when they struggle during 9th grade (Butts & Cruzeiro, 2005; Neild, 2009). To remedy this issue, high schools must provide opportunities for students to build their foundation and acquire the skills necessary to be successful in high school (Butts & Cruzeiro, 2005; Johnson et al., 2014). This can be done through the offering of support classes that will

replace elective classes or increased academic opportunities after school (McCallumore & Sarapani, 2010). In order for these interventions to be successful students who need these opportunities must be identified early and accurately (Kennelly & Monrad, 2007).

Identifying students who need interventions before they enter high school is an important step in building the skills of inadequately prepared ninth grade students (McIntosh & White, 2006; Neild, 2009). These students need to receive support in their areas of weakness before they become discouraged and disengaged (Neild, 2009). Students who enter high school with skills that are below grade level are much more likely to get off track for graduation than students whose skills are on grade level (Neild, 2009). Information regarding the academic progress of students inadequately prepared for high school does not only help high school officials target those students, but it also helps high school officials target teachers who may not be prepared to teach students whose skills are below grade level (Neild, 2009). The earlier these students can be identified, the better prepared the high school will be to effectively serve all upcoming 9th grade students (McIntosh & White, 2006; Neild et al., 2008).

### **Effect of Early Intervention on High School Graduation Rates**

Research pertaining to early intervention of high school dropouts suggests school officials may identify a majority of the students who will drop out in high school as early as the sixth grade, and some can be identified before they begin middle school (Kennelly & Monrad, 2007). While a majority of researchers believe early identification is a key aspect of dropout prevention, there are some who conclude dropout prevention programs often serve the wrong students due to ineffective predictors (Gleason & Dynarski, 2002; Neild et al., 2008). Gleason and Dynarski (2002) concluded that even the best predictors of high school graduation such as failing grades, standardized test scores, attendance, and discipline infractions often targeted the

wrong students and omitted many who eventually dropped out of high school. Due to the overwhelming research that supports early identification and intervention, this study will continue under the premise that potential high school dropouts can be identified as early as elementary school (Balfanz, Herzog, & Mac Iver, 2007; Bowers et al., 2013; Carl et al., 2013; Casillas et al., 2012; Jerald, 2006; McKee & Caldarella, 2016). Wilkins and Bost (2016) highlighted the importance of early intervention by pinpointing the 9th grade as time where most students fail classes and failing in this grade is linked with dropping out of school. The disproportionate number of failed classes in ninth grade is linked to students making a poor transition from middle to high school (Wilkins & Bost, 2016). The students who struggle the most with the transition from middle to high school are those who were already struggling academically in middle school (Cauley & Jovanovich, 2006; Neild et al., 2008; Rosenkranz, de la Torre, Stevens, & Allensworth, 2014; Wilkins & Bost, 2016).

School districts possess the official school records necessary to identify students at risk of dropping out and have the resources to provide effective intervention for those students. When this identification and intervention is conducted at the middle school level, school districts can provide more effective transitions to high school and target students in need of intervention prior to the transition to high school (Carl et al., 2013; Henry et al., 2012). Early intervention systems utilize warning signs related to school attendance, student discipline, and academic achievement to identify potential dropouts ranging from elementary school up through middle school. School districts in the southern United States reported the most success in utilizing early warning systems. Louisiana, South Carolina, and Alabama lead the way in testing early warning systems. Preliminary results from these tests reveal students in the participating school districts have significantly improved their attendance, behavior, and course performance (Balfanz et al., 2010).

There are 10 large city school districts currently testing the Diplomas Now early warning system, and the preliminary results prompted officials to expand this test to 60 more schools (Balfanz et al., 2010).

### **Dropout Prevention**

The United States continues to face the challenge of ensuring students graduate from high school (Iachini, Rogelberg, Terry, & Lutz, 2016). There is no easy solution to this challenge, but it is critical to the nation that researchers continue the pursuit of effective dropout prevention methods (Iachini et al., 2016; Mac Iver, 2011). There has not been a consensus among researchers about how to remedy this issue, but many researchers agree that effective dropout prevention models will require a multifaceted approach (Iachini et al., 2016; Mac Iver & Mac Iver, 2010; Mac Iver, 2011; Messacar & Oreopoulos, 2013; Somers, Owens, & Piliawsky, 2009). It is important that dropout prevention models focus on the most significant factors associated with students dropping out of high school (Somers et al., 2009). While the nation's overall graduation rate is improving, there is still significant room for growth among minority males (Aud et al., 2010; Mac Iver, 2011).

Mac Iver and Mac Iver (2010) studied a multi-tiered dropout prevention model aimed towards incorporating interventions to address the entire student. The model integrates responsive interventions that specifically address attendance, behavior, and course performance, school wide reforms, and early warning systems (Mac Iver & Mac Iver, 2010). The three-tiered model begins with a base that incorporates school wide reforms and the early warning system, along with an overall approach of encouraging positive behaviors and regular attendance (Mac Iver & Mac Iver, 2010). The school wide reforms are designed toward ensuring students are

receiving engaging learning and high-quality instruction. This tier of prevention should encourage positive outcomes for up to three-quarters of the school (Mac Iver & Mac Iver, 2010).

The next two tiers of prevention are designed towards a much smaller, more targeted group of students and individual students (Mac Iver & Mac Iver, 2010). These students are those who did not benefit from the school wide intervention and still need further interventions to be successful (Mac Iver & Mac Iver, 2010). The second level addresses student needs in a small group setting and will utilize intervention programs based on monitoring students' progress closely, while interventions are implemented to address specific needs (Mac Iver & Mac Iver, 2010). The third and final level is for students who require individual attention to be successful in the school environment (Mac Iver & Mac Iver, 2010).

This final level involves individual meetings with students and referrals to social services providers (Mac Iver & Mac Iver, 2010). The level of attention required for students on the third level of prevention can be costly to the school, district, and state; therefore, this model's ability to address the needs of the vast majority of the school before reaching this level is a major asset to all stakeholders (Mac Iver & Mac Iver, 2010).

While the early warning systems is utilized to identify students in need of more targeted interventions, it is also utilized to track student progress and is vital to helping researchers and schools determine whether the model is successful (Mac Iver & Mac Iver, 2010). This model has had a positive effect on the pilot school, reducing the number of students with chronic absences by 52%, reducing the number of students displaying problem behavior by 45%, and reducing the number of students failing literacy and mathematics by 80% and 83%, respectively (Mac Iver & Mac Iver, 2010). The success of the model has allowed it to expand to nine other schools in major U.S. cities (Mac Iver & Mac Iver, 2010).

Somers et al. (2009) studied another dropout prevention program aimed towards improving 9th grade students' attitudes toward staying in school and achievement outcomes. This quasi-experimental study consisted of 140 predominantly African American 9th grade, male and female students from a public high school in a major U.S. city. The students volunteered to take part in the study that utilized daily academic tutoring along with monthly supplemental enrichment activities to change student attitudes and behavior (Somers et al., 2009). Four attitudinal and behavioral subscales were used to measure the attitudes and behavior (Somers et al., 2009). Student grade point average on a 4.0 scale was used to measure academic achievement (Somers et al., 2009).

The dropout prevention model utilized in this study was ineffective in improving the attitudes of the participants toward staying in school or raising the grade point averages of the participants in the study (Somers et al., 2009). While the study did not show significant positive change in the attitudes and grades of the participants, there were some positive themes drawn from narrative and description portion of the study (Somers et al., 2009). The researchers noted the careers students typically chose involved 4-year college degrees, this led the researcher to believe the students placed some value on completing high school and moving on to college (Somers et al., 2009).

Iachini et al. (2016) studied the motivational interviewing early intervention program, which is another dropout prevention program. This program consists of a nine-lesson curriculum that focuses on the development of skills, and designed towards students repeating the 9th grade who are at risk for dropping out. Thirteen students from three high schools participated in the program, which consisted of nine lessons (Iachini et al., 2016). Three graduate students pursuing their master's degree in social work, who received rigorous training in motivational interviewing



and assessment system for school-based application, delivered the lessons (Iachini et al., 2016). The participants took surveys before and after each lesson to gauge student interest, and overall satisfaction with the program was recorded through a survey administered at the end of the intervention (Iachini et al., 2016).

Results indicate the Aspire program, which utilizes motivational interviewing, is a viable prevention program for students at-risk of dropping out of high school (Iachini et al., 2016). The participants gave the individuals delivering the lessons high praise when completing the exit surveys and the participants showed progress in their ability to complete work autonomously (Iachini et al., 2016). Ultimately, there were several limitations to the study, sample size being the most notable (Iachini et al., 2016). Further research will need to be conducted in this area with larger groups of students, but this study has concluded the program can be implemented with fidelity on the school level and is acceptable for at-risk students (Iachini et al., 2016).

Mac Iver (2011) conducted a longitudinal study incorporating two urban high schools over a 5-year period. This study assigned 60 students from each high school to a facilitator at each of the schools (Mac Iver, 2011). The facilitator was responsible for encouraging the students in the areas of attendance, on-time promotion, and high school graduation (Mac Iver, 2011). A control group was also created at each high school in order to compare the results received from the intervention (Mac Iver, 2011).

Mac Iver (2011) did not indicate a significant difference in the graduation rates of the experimental group and the control group at the two high schools. The researchers for this study concluded students needed intervention prior to entering high school (Mac Iver, 2011). By the time the students entered high school, they were exhibiting behaviors that prevented them from fully benefiting from the interactions with the facilitator, and often times, they would not attend

school enough to have a meaningful relationship with the facilitator (Mac Iver, 2011). The researchers recommended school officials begin programs aimed toward dropout prevention in the middle grades, and these programs should be multi-faceted programs (Mac Iver, 2011).

The negative outcomes associated with students dropping out of high school prior to completion highlight the importance of developing effective dropout prevention programs (Iachini et al., 2016; Mac Iver, 2011; Mac Iver & Mac Iver, 2010; Messacar & Oreopoulos, 2013; Somers et al., 2009). Dropout prevention programs should utilize a multi-faceted approach to targeting disengagement in at-risk students as early as possible (Mac Iver, 2011; Messacar & Oreopoulos, 2013). If states fund programs aimed at disengagement, they will see a decrease in problem behaviors from school aged children and an increase in the number of students attending school until completion (Iachini et al., 2016; Messacar & Oreopoulos, 2013).

#### **Creation of Early Warning Systems.**

Presently, there are no universally accepted strategies or interventions to decrease the number of high school dropouts; however, researchers generally agree that these strategies can be most effective when key dropout indicators focus towards specific grade levels or populations that are at risk (Carl et al., 2013; Casillas, et al., 2012; Kennelly & Monrad, 2007). Early warning systems are important to schools and school districts because they allow schools to utilize the most up-to-date information regarding student performance, attendance, and discipline to make predictions of which students are likely to drop out of high school (Heppen & Therriault, 2008). These systems also allow schools to intervene on behalf of students before it is too late to make a difference (Uekawa, Merola, Fernandez, & Porowski, 2010). Schools and school districts can utilize this information to target individual students for intervention, or they can utilize the system to identify school wide issues (Carl et al., 2013; Heppen & Therriault,

2008). While the early warning system is just the first step in the process of delivering targeted intervention to those students who are in need, it is a very important step that can result in a higher percentage of high school graduates if utilized correctly (Heppen & Therriault, 2008; Kovacic, 2010; Marquez-Vera, Cano, Romero, Noaman, Fardoun, & Ventura 2016).

While school-level early warning systems are vital to identifying individual students in need and major school issues, district level early warning systems have proven to be valuable as well (Heppen & Therriault, 2008; Jerald, 2006). Since there are many different paths a student can take to becoming a high school dropout, a one-size fits all early warning system will not be the most effective tool schools can utilize (Heppen & Therriault, 2008). School districts can utilize district wide archived data to conduct a longitudinal study regarding the reasons students in their particular district have not completed high school (Carl et al., 2013). Individual schools do not have the data necessary to conduct a longitudinal study of this magnitude; therefore, they are limited to an analysis of school patterns (Heppen & Therriault, 2008).

While information gained from district-wide early warning systems can then be utilized to accurately predict current and future students at risk of dropping out of high school, school districts should not stop at creating their own early warning systems, but should take it a step further by linking their system with the systems at each school (Carl et al., 2013; Jerald, 2006). This process would allow the school district to continue the process of longitudinally studying the trends of individual schools and the overall district (Carl et al., 2013; Heppen & Therriault, 2008; Jerald, 2006). Along with the ability to constantly monitor trends, school districts can utilize the information gained through early warning systems to allocate resources effectively within the district (Heppen & Therriault, 2008).

The development of an early warning system requires accurate data targeting a relevant combination of interventions for specific students and groups. An electronic platform that utilizes and tracks individual student data over time while assessing risk factors can be the foundation for the most effective early warning system (Jerald, 2006). The early warning systems must be developed in such a way as to be able to utilize student and school data simultaneously to measure a student's risk factors against school outcomes and individual progress (Allensworth et al., 2014). It is imperative for school districts to be able to measure the individual achievement and engagement of individual students as well as the overall success of the school. This will allow school districts to determine the effectiveness of particular interventions versus the school's implementation of the interventions (Kennelly & Monrad, 2007).

In addition to developing an early warning system, school districts must ensure the system is being monitored effectively (Kennelly & Monrad, 2007). Allensworth and Easton (2005) explained that different advantages associated with each on-track indicator required the system to be monitored effectively throughout the school year. Each indicator plays a vital role at different points during the school year and can be utilized separately to achieve a common goal. Kennelly and Monrad (2007) explained the process of utilizing indicators in stating the following:

Schools can start in the first quarter with monitoring and addressing absences, then address first-quarter failing grades by offering immediate support. As semester grades are posted, the creation of individual dropout strategies would be called for. The end of the year would show who is at high risk for dropping out, and one-on-one interventions could then be intensified. (p. 11)

School districts must invest time and resources in developing an effective early warning system. Student and school level data must be accessible to individuals preparing the system, and adequate training must be provided to those individuals tasked with monitoring the system. The system must be able to utilize relevant indicators to help school district officials make informed decisions regarding interventions (Allensworth & Easton, 2007). The systems influence on academic performance as well as high school completion must be measurable and easily accessible. Both districts and schools need to have the ability to assess the current performance of their interventions through this system and be able to make informed decisions about the adjustment of those interventions to meet the needs of the students (Henry et al., 2012).

### **Relevant Middle School Indicators**

The discussion regarding predicting students who are most likely to drop out of high school begins with the identification of indicator variables (Bowers et al., 2013; Casillas, et al., 2012; McKee & Caldarella, 2016). Indicator variables represent the various groups students are placed in to predict a specific outcome (Casillas, et al., 2012). In this case, the outcome is becoming a high school dropout and the indicator variables can be separated into four distinct groups: academic performance variables, behavior variables, attendance variables, and social variables (Balfanz et al., 2007). These variables can be combined to predict high school completion or can be utilized individually for high school completion predictions. Even though the variables can be combined, it is important to explore the values of the variables as individual predictors of high school completion (Bowers et al., 2013).

**Academic performance variables.** A study conducted by McKee and Caldarella (2016) utilized a single case study design with embedded quantitative analyses to explore the relationship between middle school indicators and the ability to predict students at risk of

dropping out of high school. The study included 416 middle school students from three middle schools making the transition to a large suburban high school. McKee and Caldarella concluded that middle school grade point average (GPA), D grades, and standardized math test scores were the strongest predictors of high school performance and were ultimately linked to high school completion. The study also analyzed failing grades, suspension, expulsion, attendance, and standardized test scores in reading, science, and English.

The researchers in this study utilized the school district's archived data and ran a logistic regression analysis to determine which indicators were the best predictors of students who were academically at risk of dropping out of school. The results of this study were similar to the previous research regarding academic indicators of high school completion (Allensworth & Easton, 2007; Kennelly & Monrad, 2007; Neild & Balfanz, 2006). Research suggests while academic indicators are the strongest predictors of future academic success, the key indicator regarding high school performance and graduation is prior course performance (Casillas et al., 2012). Research also supports academic performance as a strong early indicator of potential student dropouts with the strongest of the academic indicators being teacher-assigned grades (Bowers, 2010). Future research is needed in the areas of testing more diverse schools, exploring the effect of D grades in middle school on predicting high school completion, and overall relationships between middle school indicators and high school dropouts (Bowers et al., 2013; Carl et al., 2013; McKee & Caldarella, 2016; Wilkins & Bost, 2016).

**Behavior variables.** Students who misbehave in school not only harm themselves, but also harm the entire school (Bohanon, Flannery, Malloy, & Fenning, 2009). These students not only cause classroom disruptions, they also use drugs, drop out of school, and break other serious school rules at a higher rate than students who do not exhibit disruptive behavior (Gregory,

Skiba, & Noguera, 2010). While the disruptions to class and school can cause teachers and other school officials to expect less from disruptive students can hinder their learning, more often than not it is the consequences assigned to these violations of school rules that limit the ability of disruptive students to learn (Bohanon et al., 2009). When a student is suspended valuable opportunities to ask the teacher questions and clarify misconceptions are missed (Bohanon et al., 2009; Gregory et al., 2010). The overall disengagement and negative outcomes that come with disruptive behavior make its effect on the completion of high school clear (Freeman et al., 2015).

Student behavior is another indicator predicting high school graduation. McIntosh et al., (2008) examined student problem behavior through the use of office discipline referrals. The researchers utilized a structural equation model to determine whether the number of discipline referrals a student received during middle school served as an accurate predictor of high school graduation. Results from the study indicated problem behavior in middle school was a powerful predictor of high school completion. The results were consistent with results from previous research and the research hypothesis that problem behavior in the 8th grade would predict academic achievement in high school.

In addition to the ability to predict high school graduation, researchers found a link between student discipline referrals and academic achievement (Jerald, 2006; McIntosh et al., 2008; Stearns & Glennie, 2006). This link is perceived as part of the reason discipline referrals are considered a strong predictor of high school completion. Research indicates students who do not perform well academically accumulate more discipline referrals and in turn are at a higher risk of not completing high school (McIntosh et al., 2008). Recommendations for future

research suggest studies involving discipline referrals and high school graduation should be conducted with students prior to the 8th grade (McIntosh et al., 2008).

**Attendance variables.** There is a very strong link between student attendance and high school dropout rate (Parr & Bonitz, 2015). This link has caused many researchers to attempt to find the reason for the link and possible remedies for attendance issues (Landis & Reschly, 2011; Parr & Bonitz, 2015). The extent to which a student attends middle school is seen as another strong predictor of whether a student will complete high school with a diploma (Allensworth & Easton, 2007; Neild & Balfanz, 2006). The absenteeism problem in middle school is highlighted by the quote, “for instance, of the eighth graders in Philadelphia who attended school less than 80% of the time, 78% eventually dropped out” (Kennelly & Monrad, 2007, p. 6). School officials must recognize the strength of school attendance as a predictor and have an effective attendance monitoring plan in place to provide interventions before students completely disengage (Neild & Balfanz, 2006). While attendance in middle school is a great indicator of high school completion, 9th grade attendance can also be utilized to determine whether a student is at risk. Though early identification is preferred, students new to a school district can also be identified as at risk in the 9th grade and supported with interventions designed towards improving school attendance (Allensworth & Easton, 2007). The earlier students with attendance issues can be identified and directed towards targeted interventions to improve their attendance, the higher their chances become for high school completion (Bowers et al., 2013).

**Social variables.** While many of the variables utilized in research regarding predictor variables and their ability to predict students at risk of dropping out of high school are directly related to academics, behavior, and attendance, there are some variables that do not fit in any of these categories (McKee & Caldarella, 2016). These variables are often referred to as social



variables and they affect whether students complete their high school graduation requirements (Allensworth et al., 2014; McKee & Caldarella, 2016). Researchers have identified variables such as race, gender, disability status, socioeconomic status, age entering high school, minority-language status, and parent's education as the social variables exhibiting the most influence on whether a student becomes a high school dropout (Allensworth et al., 2014; Carl et al., 2013; McKee & Caldarella, 2016; Murnane, 2013; Wilkins & Bost, 2016).

These social variables either affect student academic performance and cause students to disengage from school or they contribute to an environment where students are forced to choose whether continuing their education is the best option for them (McKee & Caldarella, 2016). Many of the students who are affected negatively by these social variables become disengaged due to a lack of family and school support. The lack of family and school support is often masked as academic performance issue, but the low academic performance ultimately stems from the inability to overcome the challenges triggered by the social variables (Allensworth et al., 2014; Neild & Balfanz, 2006).

Students also have the added challenge of being affected by multiple social variables at the same time. Students being affected negatively by multiple social variables at a given time will need more supports and targeted interventions in place to perform well academically than students who are being affected negatively by one social variable (Bowers et al., 2013). Students frequently encounter multiple social variables that negatively influence their academic performance due to the correlational relationship of many of the variables. A disproportionate number of minority families live in poverty; therefore, racial minority students are more likely to be on the low end of socioeconomic status (McKee & Caldarella, 2016). Whether negatively affected by one or many social variables, students will need school and family support to prevent

these social variables from negatively influencing their academics, attendance, and behavior (Bowers et al., 2013).

Social variables affect whether students earn their high school diploma, but the level of that influence requires further research (Balfanz et al., 2007). As this topic is researched further, researchers should focus on determining whether the influence of these social variables is simply the effect they have on academic, attendance, and behavior variables, or do the variables that can stand alone best predict students at risk of dropping out of high school (Allensworth et al., 2014). The ability to find more variables that will help predict students at risk of dropping out of school will help create more effective early warning systems and lead to students receiving the interventions and support they need to successfully earn their high school diploma (Carl et al., 2013).

### **Summary**

The concern regarding students dropping out of high school is a significant concern in the United States; as such, students are at risk of potentially negative outcomes (Wilkins & Bost, 2016). These concerns are especially urgent for African American male students who are graduating from high school at a significantly lower rate than their counterparts (Murnane, 2013). There is relevant research that indicates multi-tiered dropout prevention programs can be effective in limiting the number of at-risk students who dropout out of high school, but there is still further research needed in the area of dropout prevention to incorporate these programs on a large scale (Iachini et al., 2016).

This review of literature suggests there are multiple variables that can serve as early indicators of whether a student is at risk of dropping out of high school (McKee & Caldarella, 2016). These variables have been divided into four groups, consisting of academic performance

variables, attendance variables, behavior variables, and social variables. These variables are all related and oftentimes affect students simultaneously (Balfanz et al., 2007). However, the variable or combinations of variables that offer the most accurate prediction of high school completion remain unclear (McKee & Caldarella, 2016).

There is literature regarding factors inside and outside of the school building that influence a student's decision to complete high school (Doll et al., 2013). There is a stronger case for factors inside of the school building, particularly academic performance, discipline, and attendance for having the most powerful influence on whether a student progresses towards high school completion (McKee & Caldarella, 2016). The correlation between academics, attendance, and discipline leads one to believe that the three in combination are the best predictors of high school graduation, but further research is necessary to support such claims (Carl et al., 2013).

The literature also discusses how relevant indicators can be incorporated into an early warning system to help school districts identify at risk students and intervene on their behalf prior to students dropping out of school (Marquez-Vera et al., 2016). These early warning systems rely on accurate data related to proven predictor variables (Allensworth et al., 2014). Early warning systems have proven to be valuable tools in the dropout prevention process but require continuous improvement of the system along with predictor variables to meet the needs of students effectively (Henry et al., 2012). In order to help further research on this topic, researchers should continue to improve on the accuracy of dropout indicators to ensure the correct students are identified and at-risk students are not left out (Bowers et al., 2013).

## CHAPTER THREE: METHODS

### Overview

High school graduation rates of African American males are substantially lower than those of their white counterparts (Murnane, 2013). These students face high incarceration and unemployment rates, health consequences, and sustained financial dependence (Murnane, 2013). Current research has suggested that academic, attendance, and behavior indicators are the best predictors of high school completion (Carl et al., 2013). However most of the research on this topic has relied on data from schools and school districts that are not racially diverse (McKee & Caldarella, 2016). The research does not sufficiently address the high dropout rates among African American male students and the indicators that would most effectively predict completion for this group (Bowers et al., 2013; Kieffer, Marinell, & Neugebauer, 2014). Accordingly, the purpose of this correlational study was to test the theory of push, pull, or fall out, which claims that middle school indicators can be used to identify African American male students at risk of dropping out of high school, by examining their predictive performance with African Americans in a large U.S. school district. In this chapter, I describe the process by which the study was conducted, including the focus and the statistical analysis methods utilized. This study is a modified replication from an unpublished doctoral dissertation completed by Logan (2010) who investigated the predictive power of eighth grade predictor variables in the identification of high school students at risk of dropping out. This study took place at a school district in northwest Georgia where 91% of the district's student population were Caucasian. The Logan dissertation is being replicated due to the similarity of the research questions in the two dissertations. The current study focused on a more diverse school system and a specific

demographic subgroup, while incorporating variables that have proven to have high predictive power through previous research.

### **Design**

A quantitative, predictive correlational design was utilized for this study. Correlational design is used to measure the extent to which variables are related (Gall, Gall, & Borg, 2007). This design is appropriate for this study because it helps to explain the predictive relationship of the variables in this study. Logistic regression analysis was utilized to determine if a set of predictor variables (Criterion-Referenced Competency Test (CRCT) Math, final Math grade, final English grade, number of absences) can predict the criterion variable of high school dropout or high school graduate which can be operationally defined as whether or not a student successfully completes the state's graduation requirements within four years of entering high school (Gall et al., 2007). These specific variables were chosen because they can be accessed with permission and student demographic information can be scrubbed to maintain confidentiality (McKee & Caldarella, 2016). According to McKee and Caldarella (2016), the variables are formally and operationally defined as follows:

- (a) Criterion-Referenced Competency Test (CRCT) Math - Standardized test administered in participating state to assess students' academic achievement in Math. Student will either meet the standard or not meet the standard.
- (b) Final Math grade - Final grade given to student by eighth grade math teacher at the end of the school year.
- (c) Final English grade - Final grade given to student by eighth grade English teacher at the end of the school year.
- (d) Number of absences - total number of absences for eighth grade year.

- (e) High school end status – Either a student graduates from high school four years after entering high school or they do not graduate high school four years after entering.

### **Research Question**

This study addressed the following research question:

**RQ1:** Can high school end status (dropout or graduate) of African American male students be accurately predicted by the predictor variables of CRCT Math, final math grade, final English grade, and number of absences in eighth grade?

### **Hypothesis**

The null hypothesis for this study is:

**H<sub>0</sub>1:** There is no predictive relationship between high school end status (dropout or graduate) of African American male students and the predictor variables of CRCT Math, final math grade, final English grade, and number of absences in eighth grade.

### **Participants and Setting**

This study utilized archived data from a convenience sample of African American male high school students from a school district in the southeast United States who enrolled in ninth grade during the 2013-2014 school year and were supposed to graduate in 2017. The researcher gained access to this sample due to data being made public the State Department of Education in accordance with FERPA laws. According to information obtained from the Governor's Office of Student Achievement (2016), 2,320 African American male students entered ninth grade in the aforementioned school district in fall 2013. The data provided only include African American male students, the department of education's data team separated from the entire school district population according to self-reported race data. The number of final participants was lower than this initial figure due to students with incomplete data sets being excluded from the study, but the

population consisted of exactly 1,435 students, which was large enough to exceed the minimum of 15 participants per predictor variable needed to achieve a medium effect size (Warner, 2013). Students who do not have a complete set of records with regards to the predictor and criterion variables were excluded from the study.

The school district from which the data was obtained consists of 139 schools and has a student population of more than 179,000 students. The racial breakdown of the school district for the 2013-2014 school year was 34% Caucasian, 27% African American, 25% Hispanic, 10% Asian, 1% Pacific Islander, 1% American Indian/Alaska Native, and 2% multi-racial. The school district also has 12% special education students, 17% English Language Learners, 18% in its Early Intervention Program, and 56% eligible for free or reduced-price lunch (Governor's Office of Student Achievement, 2016). The district serves a suburban county with a total population of 907,135. The median household income in the county is \$60,289, which is \$7,000 higher than the states average income (U.S. Census Bureau, 2015).

### **Instrumentation**

This study utilized the Georgia Department of Education's graduation requirements as a basis for measuring whether a student graduated on time (Georgia Department of Education, 2011). These requirements include a total of 23 credits, with prescribed minimum numbers of credits in specific subjects (Georgia Department of Education, 2011). At the end of the school year, school counselors review the credits earned by each senior to determine if they meet the graduation requirements. If the requirements are met, the counselors record the student's graduation date in School Administration Student Information (SASI), the district's information system. If the student does not meet the requirement, the student is retained and no date is recorded in SASI. The researcher coded the item as 0 if the student did not graduate from high

school and 1 if the student did graduate.

The study also used the state's standardized test given to eighth-grade students. The Criterion-Referenced Competency Test (CRCT) is an academic achievement test that was previously administered in math, English, and reading throughout elementary and middle school (Georgia Department of Education, 2013). This test was administered to assess student learning throughout the school year and to serve as an accountability instrument for school districts. Each test was given a numerical score (Georgia Department of Education, 2013), which classified that student's performance with one of three ratings: "does not meet standards," "meets standards," or "exceeds standards" (Georgia Department of Education, 2013). A score of 800 or better was required to meet the standard. This study utilized the CRCT math scores to measure competency in that specific subject area (Georgia Department of Education, 2013). When scores are received from the state, the district inputs them into SASI. For each test the researcher coded the result as 0 if the student did not meet the standard and 1 if the student met or exceeded the standard.

An instrument is considered valid when it can measure what it claims to measure. Adequate sampling of each domain of the Georgia Performance Standards along with the test being inspected and found free of bias will lead to the validation of the test as an instrument. A four-step process was utilized in the development of the CRCT to ensure its validity. The process began with the test developers determining the purpose of the test. The guidelines for test development were then created and implemented. The next step in the process included qualified writers creating test questions. The questions were then incorporated as field test questions into the CRCT. A committee of Georgia educators were then assembled to determine whether the questions were biased. If they were not biased, they would be reviewed two more times before gaining final approval for insertion into the test (Darnell, 2012).



An instrument's reliability refers to how consistent an instrument is at measuring what it is created to measure. A reliable instrument should be able to consistently produce the same results for the same student and can be measured statistically. Darnell (2012) reported the reliability of the CRCT math to have a coefficient of .91, which is on the high end of the range for alpha coefficients.

Students' final grades in math and English as determined by grade eight classroom teachers were also be used as predictor variables in this study. Grades are inputted into the district's grading tool (PinPoint) and automatically exported to SASI at the end of each grading period. For each subject, the researcher recorded 0 if the student did not pass the class by receiving a grade lower than 70 percent and 1 if the student passed the class by receiving a grade of 70 percent or higher.

Student absences were among the predictor variables. When a student is absent from class, a teacher records the absence using the district's PinPoint tool. Student absences are automatically exported into SASI each night. The researcher recorded the total number of days that each student was absent in eighth grade.

For all instruments except CRCT math, no information on validity and reliability is available, and therefore the researcher cannot report a Cronbach's alpha coefficient.

### **Procedures**

The researcher obtained permission to collect and analyze the necessary data from the state's Department of Education and the Liberty University Institutional Review Board (IRB). After permission was obtained, the State Department of Education's systems analyst pulled the data from the Department of Education's database and de-identified the data to ensure that individual students could not be identified. The identifying information for each student was

replaced with a 32-character unique identifier so that the researcher could track the data once it was coded. Only data on students with complete data sets was analyzed in this study. The data was sent to the researcher in an Excel spreadsheet. Each row contained the predictor variable data for that specific student. The researcher then took the raw data and coded it in excel so that it could be transferred easily to SPSS.

In the coding of data for this study, a 1 was utilized for the criterion variable's positive outcome (Warner, 2013). The binary predictor variables were also coded using a method referred to as dummy coding with the positive outcomes as "1" and the negative outcomes as "0." The resulting system resembled the coding systems used by Gleason and Dynarski (2002) and Franklin and Trouard (2016) in their studies investigating the effectiveness of variables being utilized to identify students at risk of dropping out of high school. The coding of each variable has been presented in the previous section and is summarized below:

- (a) High school dropouts were coded as 0; high school graduates will be coded as 1.  
CRCT math scores will be coded as follows:
- (b) CRCT math scores reported as "did not meet standards" (scale score below 800) were coded as 0; scores reported as "meets standards" (scale score of 800 or above) were coded as 1.
- (c) Final course grades (English and math) were coded as follows: Failing grade (below 70 percent) as 0 or passing grade (70 percent or above) as 1.
- (d) A continuous scale was utilized for absences; the total number of absences was recorded.

Once the coding was complete, the researcher then transferred the spreadsheet containing the coded data from Excel to Statistical Package for Social Sciences 25 (SPSS 25). Complete

datasets are necessary to run the logistic regression analysis; therefore, students without complete datasets were removed from the study (Warner, 2013). Assumption tests were then run in SPSS 25.

### **Data Analysis**

Using SPSS 25.0, descriptive statistics were calculated for the following variables Criterion-Referenced Competency Test (CRCT) math scores, final English grade, final math grade, and number of absences. Included in the descriptive statistics is the frequency count for each category (CRCT math scores, final English grade, final math grade, and number of absences).

### **Predictor Variables**

CRCT math score was the first predictor variable of the prospective high school graduate. This variable is dichotomous (meet or does not meet) and was determined based upon the students' ability to receive a scale score of 800 or above. Students receiving a score of 800 or above met the standard, and students receiving a score below 800 did not meet the standard. This variable was coded as "0" for does not meet and "1" for meet.

The final English grade was the second predictor variable of the prospective high school graduate. This variable is also dichotomous (pass or fail) and was determined based upon the students' ability to receive a final grade of 70% or above in their 8th grade English class. Students receiving a score of 70% or above passed the class and students receiving a score below 70 failed the class. The final English grades were assigned by the 8th grade English teacher and only grades received at the end of the school year were considered for this study. This variable was coded as "0" for fail and "1" for pass.

The final math grade was the third predictor variable of the prospective high school graduate. This variable is also dichotomous (pass or fail) and was determined based upon the students' ability to receive a final grade of 70% or above in their 8th grade math class. Students receiving a score of 70% or above passed the class and students receiving a score below 70 failed the class. The final math grades were assigned by the 8th grade math teacher and only grades received at the end of the school year were considered for this study. This variable was coded as "0" for fail and "1" for pass.

Number of absences was the fourth predictor variable of the prospective high school graduate. This variable was recorded on a continuous scale and was determined based upon number of days each student was reported as absent by their eighth-grade teachers. The total number of absences was recorded for each student.

### **Criterion Variable**

The criterion variable was high school end status. This dichotomous variable was defined as either "high school dropout" or "high school graduate" and coded with "0" for high school dropout and "1" for high school graduate. A high school dropout is defined as any student who does not graduate from high school within 4 years of entering high school (Bowers et al., 2013). A high school graduate is defined as any student who completes the requirements for graduation within 4 years of entering high school (Balfanz et al., 2010).

This correlational study utilized logistic regression analysis to determine the predictive relationship between the criterion variable (high school end status) and the eighth-grade predictor variables: (a) Criterion-Referenced Competency Test (CRCT) math scores, (b) final English grade, (c) final math grade, (d) number of absences. The assumptions required for logistic regression are: (a) dichotomous outcome variable, (b) statistically independent score for the

outcome variable, (c) correctly specified model, and (d) exhaustive and mutually exclusive categories for the outcome variable (Warner, 2013). Data screening was conducted on each group's dependent variables (CRCT math scores, final English grade, final math grade, and number of absences) regarding data inconsistencies. The researcher sorted the data on each variable and scanned for inconsistencies. Once no data errors or inconsistencies were identified, the researcher tested the assumptions. All the assumptions listed related to the study design, therefore the researcher designed the study to ensure the data utilized for the analysis met all the assumptions.

The first assumption was met due to the outcome variable (high school end status) being dichotomous. The second assumption was met due to the lack of a relationship between the options for each category of the outcome variable. The third assumption was met when the researcher ensured the data contained no omitted or irrelevant variables and the form in which the data appeared was functional. The fourth and final assumption was met due to the lack of a relationship between options in each category of the outcome variable or the options in any category of the independent variables. Having met all the assumptions, the researcher ran the logistic regression analysis utilizing SPSS 25.

The researcher utilized logistic regression to determine if the identified set of predictor variables accurately predicts the criterion variable and, if so, which is the best predictor or set of predictors for the criterion variable. Logistic regression analysis was the most suitable statistical analysis for this study because the criterion variable is dichotomous and the predictor variables are either categorical or continuous (Warner, 2013). Logistic regression was the only analysis utilized in this study and provided an output that satisfied both research questions. At least 15 cases per predictor variable is necessary to achieve appropriate power at an alpha level of .05.

Data was screened for errors or inconsistencies and the following assumptions must be met: (a) dichotomous outcome variable, (b) statistically independent score for the outcome variable, (c) correctly specified model, and (d) exhaustive and mutually exclusive categories on the outcome variable. The Wald ratio was utilized to determine the odds of each predictor variable predicting the criterion variable (Warner, 2013).

## CHAPTER FOUR: FINDINGS

### Overview

This study was designed to determine whether high school end status (dropout or graduate) could be accurately predicted by a set of eighth grade predictor variables (CRCT Math, final math grade, final English grade, and number of absences in eighth grade). Chapter Four consists of the research question, null hypothesis, and descriptive statistics for the sample (i.e., frequencies, means, and standard deviations). The remainder of the chapter includes the results section consisting of assumption tests, analysis, alpha level, effect size, and whether the null hypothesis was rejected or not.

### Research Question

**RQ1:** Can high school end status (dropout or graduate) of African American male students be accurately predicted by the predictor variables of CRCT Math, final math grade, final English grade, and number of absences in eighth grade?

### Null Hypothesis

**H<sub>0</sub>1:** There is no predictive relationship between high school end status (dropout or graduate) of African American male students and the predictor variables of CRCT Math, final math grade, final English grade, and number of absences in eighth grade.

### Descriptive Statistics

Frequency data regarding the criterion variable (high school end status) and the categorical predictor variables (CRCT math, final math grade, and final English grade) are represented in Table 1. Table 2 shows the descriptive statistics for the continuous predictor variable (number of absences in eighth grade). All predictor variables included the minimum of 15 participants per predictor variable necessary to achieve a medium effect size (Warner, 2013).

Table 1

*Description of Categorical Variables (N = 1435)*

| Variable               | Graduate     | Dropout     |
|------------------------|--------------|-------------|
| Criterion Variable     |              |             |
| High School End Status | 1131 (78.8%) | 304 (21.2%) |
| Predictor Variables    |              |             |
| ELA Final Grade        |              |             |
| Pass                   | 1103 (97.5)  | 267 (87.8%) |
| Fail                   | 28 (2.5%)    | 37 (12.2%)  |
| Math Final Grade       |              |             |
| Pass                   | 1072 (94.8%) | 226 (74.3%) |
| Fail                   | 59 (5.2%)    | 78 (25.7%)  |
| Math CRCT Score        |              |             |
| Meet                   | 1076 (95.1%) | 235 (77.3%) |
| Does Not Meet          | 55 (4.9%)    | 69 (22.7%)  |

Table 2

*Description of Continuous Variables (N = 1435)*

| Variable           | Minimum | Maximum | Mean | Standard Deviation |
|--------------------|---------|---------|------|--------------------|
| Predictor Variable |         |         |      |                    |
| Days Absent        |         |         |      |                    |
| Graduate           | 0       | 39      | 4.31 | 5.06               |
| Dropout            | 0       | 40      | 6.76 | 6.66               |

## Results

### Data Screening

The researcher screened and sorted the data on each group's predictor variables (CRCT Math, final math grade, final English grade, and number of absences in eighth grade) for inconsistencies. No data errors or inconsistencies were identified.



## Assumptions

A binary logistic regression was used to test the null hypothesis that investigated the predictor variable that best predicted high school end status. The logistic regression required that the outcome variable was dichotomous (graduate or dropout). Another assumption was the absence of multicollinearity among predictor variables. Tolerance and variation inflation factors (VIF) tests were performed in SPSS to ensure multicollinearity did not exist among predictor variables. Table 3 provides Tolerance and VIF values for the predictor variables. A tolerance value of less than .1 and VIF values greater than 10 denotes multicollinearity among the predictor variables (Warner, 2013). Tolerance and VIF values for predictor variables in this study proved multicollinearity did not exist among the predictor variables in this study. The next assumption was met when the researcher ensured the data contained no omitted or irrelevant variables and the form in which the data appeared was functional. Finally, the researcher examined the data to determine whether the total number of participants in each cell was greater than 15. All assumptions were met.

Table 3

*Tolerance and VIF values for the Predictor Variables (N = 1435)*

| Variable         | Tolerance | VIF   |
|------------------|-----------|-------|
| ELA Final Grade  | .866      | 1.154 |
| Math Final Grade | .861      | 1.162 |
| CRCT Math Score  | .916      | 1.091 |
| Days Absent      | .948      | 1.055 |

## Hypothesis

A binary logistic regression analysis was conducted to determine the best predictor of high school end status at the 95% confidence level. The results of the binary logistic regression were statistically significant,  $X^2(4) = 169.95, p = .000$ ; however, the model was weak according to Cox and Snell R data ( $R^2 = .111$ ) and Nagelkerke R data ( $R^2 = .172$ ), and the classification success rate for this model was 80.4% (Warner, 2013). The statistical significance of the model required that the researcher reject the null hypothesis. For further review of this data, see Table 4 (Omnibus Tests of Model Coefficients) and Table 5 (Model Summary).

Table 4

### *Omnibus Tests of Model Coefficients*

|        |       | Chi-square | df | Sig. |
|--------|-------|------------|----|------|
| Step 1 | Step  | 168.945    | 4  | .000 |
|        | Block | 168.945    | 4  | .000 |
|        | Model | 168.945    | 4  | .000 |

Table 5

### *Model Summary*

| Step | -2 Log likelihood      | Cox & Snell R Square | Nagelkerke R Square |
|------|------------------------|----------------------|---------------------|
| 1    | 1313.8104 <sup>a</sup> | .111                 | .172                |

*Note*<sup>a</sup>. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Further investigation of the model revealed the following concerning each variable. The Wald ratio for English final grade was statistically significant,  $X^2(1) = 4.981, p = .026$ . This result showed significant difference in the odds of graduation based on English final grade. Exp(B) was 1.989, showing that students that passed English class in eighth grade were 1.99

times more likely to graduate than students that failed English class in eighth grade. The significant Wald test revealed that this difference was large enough to be considered statistically significant.

The Wald ratio for math final grade was statistically significant,  $X^2(1) = 47.040, p = .00$ . This result showed a significant difference in the odds of graduation based on a student's ability to pass math class in eighth grade. Exp(B) for math final grade was 4.146 and revealed that students who passed math class in eighth grade were 4.15 times more likely to graduate than students who received a failing grade in their eighth-grade math class. The significant Wald test exposed that this difference was large enough to be statistically significant.

The Wald ratio for CRCT math score was statistically significant,  $X^2(1) = 37.991, p = .00$ . This result showed a statistically significant difference in the odds of graduation based on a student's ability to meet the standard on the CRCT math test in eighth grade. Exp(B) for CRCT math score was 3.691; this showed that the odds of graduation for students who did not meet the standard on the CRCT math test in eighth tended to be lower than the odds of graduation of students that did meet the standard in eighth grade.

The Wald ratio for days absent from school was statistically significant,  $X^2(1) = 17.882, p = .00$ . This result showed a significant difference in the odds of graduation based on a student's ability to attend school more frequently. Exp(B) for days absent from school was .952. This showed that the odds of graduation increased for students as the number of days absent decreased. The significant Wald test demonstrated that this difference was large enough to be considered statistically significant. This information is summarized in Table 6 (Variables in the Equation).

Table 6

*Variables in the Equation*

|                |                                  | B     | S.E.  | Wald   | df | Sig. | Exp(B) | 95% C.I. for<br>EXP(B) |       |
|----------------|----------------------------------|-------|-------|--------|----|------|--------|------------------------|-------|
|                |                                  |       |       |        |    |      |        | Lower                  | Upper |
| Step           | CRCT Math                        | 1.306 | .212  | 37.991 | 1  | .000 | 3.691  | 2.437                  | 5.591 |
| 1 <sup>a</sup> | ELA Final<br>Grade               | .687  | .308  | 4.981  | 1  | .026 | 1.989  | 1.087                  | 3.637 |
|                | Math Final<br>Grade              | 1.422 | .207  | 47.040 | 1  | .000 | 4.146  | 2.761                  | 6.225 |
|                | Days<br>Absent<br>From<br>School | -.050 | .012  | 17.882 | 1  | .000 | .952   | .930                   | .974  |
|                | Constant                         | 4.362 | 1.087 | 16.091 | 1  | .000 | 78.439 |                        |       |

*Note.* <sup>a</sup>. Variable(s) entered on step 1: CRCT Math, ELA Final Grade, Math Final Grade, Days Absent From School.

## **CHAPTER FIVE: CONCLUSIONS**

### **Overview**

Chapter Five contains the discussion portion of the dissertation, beginning with a review of the study and its purpose. The discussion section also contains conclusions regarding the study and literature pertaining to the results of the study. The significance of the study and the additions made to the body of knowledge and theory addressed in this chapter as well and can be found specifically within the implications section. The final two sections of this chapter are limitations and recommendations for future research, both of which allow the researcher the ability to guide future researchers along the most productive path possible.

### **Discussion**

The purpose of this quantitative, correlational study was to determine whether the middle school indicators identified in previous research as effective in predicting students at risk of dropping out of high school would remain effective in predicting African American male students at risk of dropping out of high school. This study examined a set of predictor variables (CRCT Math, final math grade, final English grade, and number of absences in eighth grade) in order to determine whether or not the high school end status (dropout or graduate) of African American males could be predicted based on eighth grade data. The sample for this study included 2,320 African American male students who entered ninth grade in fall 2013 within a large southeastern United States school district. The number of final participants was lower than this initial figure due to students with incomplete data sets being excluded from the study, but the population consisted of exactly 1,435 students of which 1,131 graduated and 304 did not graduate by the end of their fourth year of high school.

### **Research Question One**

Research Question One asked, “Can high school end status (dropout or graduate) of African American male students be accurately predicted by the predictor variables of CRCT Math, final math grade, final English grade, and number of absences in eighth grade?”

Answering this question required a logistic regression analysis, which tested the null hypothesis that high school end status could not be accurately predicted based on the set of eighth grade predictor variables. When considering the set of four predictor variables, the overall model had a *p*-value less than .05 at a 95% confidence level, which caused the researcher to reject the null hypothesis. In addition to revealing that the group of predictors could accurately predict high school end status, the analysis also revealed the model was 80.4% successful in predicting high school end status.

Prior research regarding middle school predictor variables (Bowers, 2010; Casillas et al., 2012; McKee & Caldarella, 2016; Parr & Bonitz, 2015) similarly found academic predictors such as English and math final grades and math standardized test scores to be best predictors of high school end status. In a nationally representative study geared toward predicting high school dropouts conducted by Parr and Bonitz (2015), academic performance and absenteeism were found to be two of the most predictive variables of high school dropouts. McKee and Caldarella (2016) focused on predicting high school graduation by incorporating a sample of 416 middle school students from three middle schools transitioning to a large, suburban high school. Similar to the aforementioned studies, the McKee and Caldarella (2016) study found that grades, attendance, and standardized math test scores were among the most significant predictors of high school completion. The similar results gained from the aforementioned studies and this regional study went a great distance towards solidifying academic performance and absenteeism as

predictors that should be incorporated in any model predicting high school end status (dropout or graduate).

The variable with the highest predictive power was math final grade. Students who passed their math course in the eighth grade were four times more likely to graduate than a student who failed the math course. It seems reasonable that math final grade would be the highest predictor of students dropping out of high school because math is a foundational course; as a student falls behind in math, it is much more difficult than other subjects to get back on track. Research found that students who performed poorly in class became increasingly disengaged and began to exhibit avoidance behaviors (Allensworth & Easton, 2007).

The variable with the next highest predictive power was the CRCT math score. Students who passed the CRCT math test in eighth grade were 3.7 times more likely to graduate than students that did not pass this test. This result supports the growing body of research highlighting the importance of math standardized test scores as a predictor of high school completion (Henry et al., 2012; McKee & Caldarella, 2016). The predictive power of the math standardized test is likely enhanced by it being a promotion requirement in the state for this study's sample. Students who fail the math standardized test are far more likely to be retained in middle school. Retention in any grade has also been linked to elevated high school dropout rates (Dooley & Schreckhise, 2016; Kennelly & Monrad, 2007). One study determined that 64% of students who repeated at least one grade in middle school left school without a high school diploma (Alexander et al., 1997).

English final grade was the variable with the next highest predictive power. Students were almost two times more likely to graduate from high school if they passed their English course in eighth grade. This result is consistent with several studies regarding middle school

indicators that predict high school performance (Henry et al., 2012; Jerald, 2006; McKee & Caldarella, 2016). While the predictive power of English final grade is not as high as the predictive power of math final grade, it seems reasonable that students who fail English experience some of the same disengagement of students who fail math. This disengagement will cause students who fail English to avoid going to class and ultimately drop out of school.

The final predictor of days absent had the lowest predictive power of all predictor variables. Students were .952 times more likely to graduate from high school if they consistently attended school. With the link between poor grades and avoidance behavior, it makes sense for student absences to impact high school end status significantly. Previous research by Kennelly and Monrad (2007) found a clear link between the percentage of school missed by a student in middle school and his or her ability to complete high school. This link caused researchers to begin to explore the most common reasons for student absenteeism and possible remedies for this issue (Landis & Reschly, 2011; Parr & Bonitz, 2015).

The results from this study suggested that the bidirectional interaction explained in Bandura's (1986) social cognitive theory applied to the predictive nature of the middle school predictor variables. All of the variables in the study were significant predictors of high school end status and combined to predict high school end status correctly in 80.4% of the cases. This result highlights the interactive nature of the variables and aligns with the notion that while each interaction may have different strengths, these interactions can combine to form a strong model (Dooley & Schreckhise, 2016). The triadic reciprocal model in social cognitive theory states all factors play a role in the decisions made by individuals (Bandura, 1991). The results of this study prove that all variables are significant predictors that play a role in the eventual decision made by at-risk students on whether to complete high school or drop out.



The other theory that informed this research was the push, pull, or fall out theory. This theory explains the factors that lead to a student making the decision to leave school prior to graduating. In this theory, students either leave school because they are pushed out by the school structure, pulled out of school by factors outside of the school environment, or fall out of school due to the lack of academic achievement or success (Doll et al., 2013). This study utilized variables that focused on students either falling out from academic failure or being pushed out from disengagement and a lack of support. With the three most predictive variables focusing on academic achievement, this study aligns with the fall out portion of the theory.

While the push out theory remains relevant in this case due to attendance being a significant predictor, the results of this study indicate students who perform well academically are more likely to graduate than students who do not perform well academically. Incorporating the interactive nature of social cognitive theory with the push, pull, or fall out theory, can explain the link between academic performance, disengagement, and ultimately avoidance. Ultimately, the combination of these two theoretical frameworks along with the results of this study prove that while individual predictor variables may be stronger predictors than others, the interaction of predictor variables can still result in the most powerful model.

### **Implications**

As educators all across the nation attempt to increase the academic performance of students, they must also take responsibility for the nationwide low graduation rates. In order to combat this problem, high schools must make a concerted effort to identify the students at risk of not graduating as early as possible and offer those students interventions to increase their chances of high school completion. This study focused on the development of a model that will identify at-risk African American male students, which is the ethnic group within American

schools who have the lowest graduation rate (Robison et al., 2017). Increasing the graduation rates of African American males will require identification, specifically early identification, of these at-risk students to make a difference (Casillas et al., 2012). Targeting at-risk students prior to the transition from middle school to high school is an important aspect of increasing the high school graduation rate (McCallumore & Sarapani, 2010).

Once students are identified as at-risk prior to entering high school, the focus of the receiving high schools should be providing these students with interventions that meet their individual need and promote academic success. As discussed in Chapter Two, a multifaceted approach to dropout prevention is the most effective model (Iachini et al., 2016; Mac Iver & Mac Iver, 2010; Mac Iver, 2011; Messacar & Oreopoulos, 2013; Somers et al., 2009). Multifaceted models include interventions like early warning systems, response to intervention (RTI) process, group meetings, individual meetings, tutorial programs, and classroom instruction reform (Mac Iver & Mac Iver, 2010).

The findings of this study highlight the need for the high school dropout issue not to be viewed only as a high school issue, but rather a K-12 issue that requires a concerted effort by all stakeholders on all levels. The studied school district created a system that compiled real-time attendance, discipline, and course performance data. This system was created to help school officials efficiently view a student's progress and history. This system was utilized at all grade levels and was created with identifying at-risk students as the primary goal. While the system succeeds at identifying student once they are already struggling, it has no predictive capabilities. This study, along with previous studies (Balfanz et al., 2007; Bowers et al., 2013; Carl et al., 2013; Casillas et al., 2012; Jerald, 2006; McKee & Caldarella, 2016), created the foundation for the studied school district to incorporate predictive features into their system to create an early

warning system.

The studied school systems ability to create an early warning system could significantly enhance their ability to identify at-risk students prior to those students making the decision to drop out of school (Uekawa et al., 2010). When deciding to incorporate the predictive features of an early warning system the school district should lean on research such as this study to incorporate the indicators that yield the most accurate results. Research shows that early warning systems that do not utilize accurate data coupled with effective prediction indicators misidentify students, dilute interventions, and improperly allocate resources (Heppen & Therriault, 2008).

While early warning systems play an integral role in addressing the high school dropout issue, the work that is done to intervene on the behalf of at-risk students is most important and all stakeholders are necessary to address this problem effectively (Henry et al., 2012; Iachini et al., 2016). When deciding to take a multifaceted approach to dropout prevention, stakeholders should consider implementing the following interventions:

- (1) Develop or enhance alternative school options that nontraditional school hours, varied instruction delivery methods, and expanded course offerings.
- (2) Offer individual and group mentoring with school and community personnel for the most at-risk students.
- (3) Foster symbiotic relationships with post secondary institutions to allow students to explore all the different options they have at their disposal.
- (4) Create flexible scheduling options for student to be able to receive enrichment and remediation during the normal school day.
- (5) Implement a parent engagement program aimed toward informing parents of the

- challenges faced by the school and or school district, while solicting ideas for improvement and help with initiatives.
- (6) Create a well organized and targeted transition program for students as they move between the different school levels aimed towards acclimating students to the changes they will face in their new environment.
  - (7) Offer programs and activities geared towards educating students about the challenges they may be facing inside or outside of school (e.g., gang recruitment, financial struggles, and drug and alcohol abuse).
  - (8) Incorporate a comprehensive RTI process geared towards providing interventions for struggling students and identifying students with learning disabilities.

The transition between schools should be the primary focus of schools and school districts when addressing the school dropout issue. Students tend to find the change in atmosphere, daily routines, school building, and promotion requirements challenging. As a result, providing programs that help acquaint students with the numerous changes they will face in their new environment will go a long way towards enhancing student preparation for the next level. With many students deciding to dropout of high school within the first few weeks of school, the urgency of a comprehensive transition program is highlihgted (McIntosh & White, 2006). It is also important to incorporate the parents in these programs because it is a challenging process for them as well and they can offer support to their students when they are prepared adequately.

It is beneficial to involve parents in the transitions between school as well as in the school experience in general. Parental involvement seems to be a prioity for parents of younger children, but as students get older, the involvement of parents wane. Schools must make a

concerted effort to engage parents of high school students and require them to take an active role in the education of their children. Frequent communication and the opportunity to provide feedback help parents feel connected to the school and take responsibility for the advancement of their student at school. Developing the relationship between home and school enables all parties to take ownership of the problem and make the necessary changes to fix the issue.

School districts can also significantly reduce the number of high school dropouts each year by providing a variety of alternative schooling options. Schools can positively affect the graduation rate by consistently offering opportunities for students to recover credits and remain on track (Robison et al., 2017). Students often utilize alternative options for school to support their family financially by working and continuing to attend school during off hours. School districts can reduce the number of students making the difficult decision to drop out of school by reducing the barriers to obtain the courses necessary to graduate.

### **Limitations**

The limitations in this study were primarily related to the demographics of the studied school district and the availability of the data provided by the State Department of Education. The sample from this study was taken from one public school district in the southeastern United States. The demographics of the school district for the 2013-2014 school year were 34% Caucasian, 27% African American, 25% Hispanic, 10% Asian, 1% Pacific Islander, 1% American Indian/Alaska Native, and 2% multi-racial; additionally, the schools free and reduced lunch program participation was 56% (Governor's Office of Student Achievement, 2016). The state averages in the same categories for that school year were 43% Caucasian, 37% African American, 13% Hispanic, 4% Asian, 1% Pacific Islander, 1% American Indian/Alaska Native, and 1% multi-racial, with free and reduced lunch program participation of 62% (Governor's

Office of Student Achievement, 2016). With the school district averages falling consistently below the state averages, this study cannot be generalized to other school districts with different demographics.

While numerous predictor variables have been identified in previous research as having the capacity to predict students dropping out of high school, this study was limited to the use of variables available through local school records. Four variables proven most predictive through prior studies were identified, made available, and utilized for this study.

An additional limitation to this study was the ability only to include students who had data in the database regarding high school end status (dropout or graduate). Additionally, students with incomplete datasets were omitted in order to run logistic regression analysis (Warner, 2013). This resulted in the removal of 885 students, which reduced the study's sample from 2,320 students to 1,435 students. A sample that did not accurately reflect the graduation rate (67.2%) of African American males in the school district in 2014 was created by the removal of incomplete data sets (Governor's Office of Student Achievement, 2016). An inflated graduation rate was reflected in the study due to the likelihood that more of the incomplete datasets were high school dropouts. After removal of incomplete datasets, the study resulted in a graduation rate of 78.8%. The findings of the study were potentially skewed by this limitation and resulted in a sample that was not an accurate representation of the district. Finally, results of this study depended on the accuracy and consistency of record keeping and transfer by the State Department of Education, school district, and local schools.

### **Recommendations for Future Research**

The consequences for inadequately addressing the high school dropout issue could be significant for individuals as well as state and national governments. Consequently, the high

school dropout issue should be a focus for future researchers. There are numerous reasons students drop out of high school, leaving many variations of this topic for future study. This study focused on school data variables as the driving force for students dropping out of high school, but the need for further research in other areas is evident. Further research is suggested in the following areas to continue to expand the current research base:

- (1) In order to determine the accuracy and viability of this study, it should be replicated in other school districts with similar demographics.
- (2) The model in this study should be tested utilizing other ethnic groups to determine whether the same group of predictor variables is the best predictors of high school end status for those groups.
- (3) A much larger study encompassing data from schools across the nation is necessary to generalize the results from the study and provide the opportunity for the high school dropout issue to be addressed on a large scale.
- (4) Future studies on African American males incorporating predictor variables from the elementary school level needs to be conducted to determine whether at-risk students can be identified even earlier than the end of middle school.
- (5) Further research needs to be conducted on the social factors that cause students to decide to drop out of school and to determine if those factors largely work in conjunction with academic factors or work independently to affect student high school completion.

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## APPENDIX A

**LIBERTY UNIVERSITY**  
INSTITUTIONAL REVIEW BOARD

June 11, 2018

Kenton Johnson  
IRB Application 3355: An Examination of the Impact of Early Intervention on High School  
Dropout Rates

Dear Kenton Johnson,

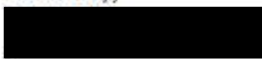
The Liberty University Institutional Review Board has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study does not classify as human subjects research. This means you may begin your research with the data safeguarding methods mentioned in your IRB application.

Your study does not classify as human subjects research because it will not involve the collection of identifiable, private information.

Please note that this decision only applies to your current research application, and any changes to your protocol must be reported to the Liberty IRB for verification of continued non-human subjects research status. You may report these changes by submitting a new application to the IRB and referencing the above IRB Application number.

If you have any questions about this determination or need assistance in identifying whether possible changes to your protocol would change your application's status, please email us at [irb@liberty.edu](mailto:irb@liberty.edu).

Sincerely,

  
**G. Michele Baker, MA, CIP**  
*Administrative Chair of Institutional Research*  
**The Graduate School**

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