The Effects of Students' MUSIC Model Perceptions on
Their Academic Identification and Achievement

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ABSTRACT

The widespread effects of student failure and dropout have social, judicial, and economic implications. This study addressed factors that can affect students' academic identification, an element that can influence dropout among U.S. high school students identified as *at-risk*. Research indicates that student motivation and academic identification may be linked to improvements in students' academic achievement and reductions in dropout rates. The purpose of this quantitative investigation was to address high dropout rates among at-risk, high school students by exploring the extent to which students' motivational beliefs in school predicted their academic identification and achievement. Specifically, I explored the extent to which the MUSIC^SM Model of Academic Motivation Inventory (MUSIC Inventory) produced valid scores among at-risk high school students, and the extent to which students' motivational beliefs about school predicted their academic identification and achievement. This quantitative study utilized structural equation modeling (SEM) and involved a sample of 100 at-risk students from an alternative high school in the Mid-Atlantic United States. Data were collected via paper surveys, which I administered to students during October, 2015. All survey data were entered into SPSS 23 for analysis. Results indicated that Cronbach's alpha coefficients were low for all MUSIC Model components except for care, which demonstrated modest reliability. Data analysis also indicated that three of the five components of the MUSIC Model – usefulness, success, and caring – were positively associated with academic identification. Thus, there is preliminary evidence to suggest that teachers may be able to have a positive effect on the academic success of at-risk high school students by finding ways to improve students' perceptions of usefulness, success, and care. Educational stakeholders can utilize findings from the present study to prompt an exploration of ways to improve these motivational components to promote greater academic success among this student population.

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CHAPTER 1: INTRODUCTION
Overview

The rate of high school dropout among at-risk learners, defined as students who are at an elevated risk for academic failure (Horn & Carroll, 1997), is a significant social and economic problem in the United States (Bemak et al., 2005; Christle, Jolivette, & Nelson, 2007; Khatiwada & McLaughlin, 2009). To address this issue, a better understanding of academic motivation and identification among these learners is needed (Voelkl, 1997). The aim of this research was to investigate the extent to which students' motivational beliefs about school predicted their academic identification and achievement.

This chapter begins with a discussion of the background of the problem explored during this study. I define the problem and purpose, and present the significance of the research problem. I outline the study's key terms, research questions, assumptions, limitations, and nature. Finally, the chapter concludes with a brief summary.

Background of the Study

In the 1960s, the high school graduation rate in the United States was first among all countries in the Organization for Economic Co-Operation and Development (OECD, 2007). The incredible increase in U.S. graduation rates from the start of the twentieth century fueled the country's economic growth and boosted household incomes (Murnane, 2013). However, improvements slowed after the 1970s, and the United States slipped to the 13th position among the 19 OECD countries for high school graduation (OECD, 2012). Although slight improvements in U.S. graduation rates occurred between 2000 and 2010, striking achievement gaps between groups of students remained (Murnane, 2013). For example, students of lower socioeconomic status (SES) have much lower graduation rates than students of higher SES

(Murnane, 2013). In addition, African American and Hispanic students have significantly lower graduation rates than Caucasian students. According to Murnane (2013), "… the estimated high school graduation rates of white, black, and Hispanic youth born between 1986 and 1990 (86.3 78.2, and 77.8 percent, respectively) result in a black-white gap of 8.1 percentage points and a Hispanic-white gap of 8.5 percentage points" (p. 21). Further, the majority of high school dropouts are concentrated in schools with large percentages of African American, Hispanic, and low SES students (Balfanz, Bridgeland, Bruce, & Fox, 2012).

The dropout rate among at-risk minority students and those of low SES in the United States continues to be a problem with significant social implications. In response to the continued gap in the academic and career achievement of minority students and those of low SES, researchers and educational stakeholders have endeavored to find ways to reduce dropout rates among at-risk high school students. However, the relatively unchanging rates of dropout among these students (DePaoli et al., 2015; Murnane, 2013) indicate that more effective academic interventions are needed.

Statement of the Problem

The general problem that this study addressed was the high rate of dropout among U.S. high school students identified as *at-risk*, which has widespread social, judicial, and economic implications (Bellair & Kowalski, 2011; Sampson & Wilson, 1995). Although U.S. dropout rates have improved in recent decades, certain minority students and those of low SES remain at an elevated risk for dropout (DePaoli et al., 2015; Murnane, 2013). Addressing the dropout problem, especially among at-risk learners, is critical to closing the gap in academic, economic, and career achievement.

Research indicates that student motivation and academic identification may be linked to improvements in students' academic achievement and reductions in dropout rates (Anderman & Wolters, 2006; Fan & Wolters, 2014; Osborne, 1997; Osborne & Jones, 2011). Thus, one way to address high rates of dropout among at-risk students may be to improve their levels of motivation and academic identification. Jones' (2009) MUSIC Model combines motivational constructs that teachers can use to improve student motivation. Researchers provided evidence for the validity of the model (Jones & Skaggs, in press; Jones & Wilkins, 2013; Parkes, Jones, & Wilkins, 2015) and indicated that students' perceptions, as related to components of the MUSIC Model, may affect their identification and achievement within specific domains (Jones, Osborne, Paretti, & Matusovich, 2014; Jones, Sahbaz, & Chittum, 2015; Jones, Tendhar, & Paretti, 2015). However, research was needed to understand if the MUSIC Model was applicable to at-risk, high school learners, and the extent to which motivational beliefs may predict academic domain identification among these learners.

Purpose of the Study

The purpose of this quantitative investigation was to investigate the extent to which students' motivational beliefs in school predicted their academic identification and achievement. Specifically, I explored the extent to which the MUSIC[SM] Model of Academic Motivation Inventory (MUSIC Inventory) produced valid scores among at-risk high school students, and the extent to which students' motivational beliefs about school predicted their academic identification and achievement. A better understanding of academic motivation and identification among at-risk, high school students may provide teachers and educational stakeholders with more effective strategies for reducing dropout rates and closing the achievement gap.

Significance of the Problem

High dropout rates among at-risk students, including racial minorities and students of low SES, is a problem with significant social and economic implications. For example, Sum, Khatiwada, and McLaughlin (2009) reported that 23 percent of incarcerated African American males between the ages of 16 and 24 were also high school dropouts. The annual costs associated with high school dropouts, in terms of lost earnings and taxes dollars, are in the billions. The academic and economic achievement gaps suffered by minority and impoverished at-risk students are likely to prevail until more effective interventions are developed and implemented.

This study has potential to help educators and researchers understand how motivational factors can affect students' academic identification and achievement. If effective motivational models are instituted by teachers of at-risk learners, high school graduation rates among these students may increase. Effective student motivational models are needed to help secondary educators improve students' academic motivation and identification, and thus, reduce dropout rates.

Rationale

Researchers have established the validity of the MUSIC Inventory for use with certain populations of students. For example, Jones and Skaggs (in press) provided validation evidence for the MUSIC Model among U.S. college students. The model has also been tested among engineering undergraduates (Rakes & Jones, 2015), middle school science students (Jones & Wilkins, 2013, 2015), and fifth through twelfth grade music and band students (Parkes, Jones, & Wilkins, 2015). The comprehensive approach of Jones' (2009) MUSIC Model addresses many aspects of student motivation. Thus, I set out to determine whether the MUSIC Inventory produced valid results with at-risk students.

Academic identification is strongly linked to academic performance among college and high school students (Osbourne, 1997; Osborne & Rausch, 2001). Studies indicate that academic identification is critical to student success (Finn, 1989; Goodenow & Grady, 1993; Osborne, 1997; Osborne, Walker, & Rausch, 2002; Voekl, 1995, 1996, 1997; Wehlage, Rutter, Smith, Lesco, & Fernandez, 1989); however, additional research is needed to explore how identification may be improved among at-risk high school students. Because a positive relationship between MUSIC Model components and academic identification was reported by other researchers (Jones et al., 2014; Jones et al., 2015), I investigated whether the same positive relationship existed among at-risk students.

Research Questions

This study was guided by the following research questions:

RQ1: To what extent does the MUSIC Model of Academic Motivation Inventory produce valid scores with at-risk high school students?

RQ2: To what extent do students' motivational beliefs predict their academic identification and achievement?

Assumptions

Certain assumptions were inherent to this research. I assumed that all participants possessed the basic reading and writing skills required to complete the study survey. I also assumed that all participants would respond to the survey items openly and honestly.

Limitations

This research also had inherent limitations. It is possible that the quantitative methodology I used did not detect students' underlying perceptions or experiences related to academic motivation and identification. Thus, future use of a qualitative method, such as a case study or phenomenology, may provide a more in-depth understanding of the phenomena of

academic motivation and identification among at-risk learners. The characteristics of the

proposed sample also presented additional limitations. The sample was drawn from a population

of students in two alternative high schools located in the same U.S. school district. This posed a

sample limitation in itself; however, because only three usable surveys were retrieved from the

first study site, I was only able to use data from the second site. In addition, while student SES

data may have provided useful insights, measurement of this variable was outside the scope of

the present investigation.

Summary

The aim of this quantitative study was to address high dropout rates among at-risk, high

school students by exploring the extent to which the MUSIC Inventory produced valid scores for

these learners. I also investigated the extent to which students' motivational beliefs predicted

their academic identification and achievement. This chapter included a discussion of the

background of the problem, the problem and purpose statements, and the significance of the

research problem. I also outlined key terms, research questions, assumptions, and limitations.

The following chapter contains a comprehensive review of the existing literature related to at-

risk students, dropout, academic motivation, and domain identification. Chapter 3 provides a

detailed description of the methodology employed during this research. Chapter includes a

comprehensive analysis of study results. Finally, I present the study's discussion and

implications in Chapter 5.

CHAPTER 2: LITERATURE REVIEW

Introduction

One of the keys to addressing the stubborn academic achievement gap in the United States is to develop more effective methods for meeting the needs of at-risk students (Williams, 2003). The term, *at-risk*, is most often used to describe learners who are at risk for academic failure (Horn & Carroll, 1997). A variety of factors can place a student at-risk, including low socioeconomic status, race, family structure, access to support and resources, pregnancy, learning disorders, emotional disabilities, and truancy (Audas & Willms, 2001; Bemak, Chi-Ying, & Siroskey-Sabado, 2005; Cataldi, Laird, Ramani, & Chapman, 2009; Kasarda, 1993; Lee & Staff, 2007; Montgomery & Hirth, 2011). The multitude of factors that may place students at risk for academic failure can complicate the identification of at-risk learners. However, once they are identified, it is critical that teachers and administrators work together to quickly provide at-risk students with the support they need to improve their chances for academic success (Suh, Suh, & Houston, 2007).

Researchers have created many programs based on a variety of learning theories to motivate, teach, and support at-risk students (e.g., Blair, 2009; Brink & Yoast, 2004; Lauer et al., 2006; Nelson & Sneller, 2011). One theory that has received recent attention as a tool to help educators improve student motivation is Jones' (2009) MUSIC Model. This comprehensive model is comprised of five characteristics, including empowerment, usefulness, success, interest, and caring. The MUSIC Model has been applied to a variety of learning environments and groups of learners, but researchers have yet to consider the model's applicability to high school at-risk learners. However, prior to the present study, the usefulness of the MUSIC Model was unexplored among at-risk learners in traditional or alternative settings. The MUSIC Model is consistent with characteristics of many programs that have proven beneficial to populations of

at-risk learners; thus, it was important to explore its utility among this student population. Providing teachers with effective pedagogical models for teaching at-risk students could have far-reaching effects, including reducing the achievement gaps among disadvantaged students. Ultimately, if more effective models are adopted to guide teachers of at-risk students, through professional development and preparation, it is possible that the academic success of an entire group of students could be positively affected.

Another factor that may significantly affect the academic success of at-risk students is domain identification. Researchers have found that identification with a domain is related to performance outcomes in that domain (i.e., Kanungo, 1979; Pasley. Futris, & Skinner, 2002). In this way, academic identification may influence the academic outcomes of students (Finn, 1989; Osborne, 1997; Voelkl, 1997). Students' academic identification refers to the extent to which they base self-esteem on academic performance, feel as if they *belong* in academic environments, and place value on academic success (Osborne, 1997; Voekl, 1997). Students who identify with academics may be more motivated to succeed in school and experience better academic outcomes (Walker, Greene, & Mansell, 2006). Thus, academic identification may be an important factor in student motivation.

The aim of this literature review is to provide a comprehensive review of prior studies on at-risk students, academic motivation and identification, and dropout rates. It begins with a description of the search strategy employed to locate literature discussed in this chapter. A synthesis of existing studies is provided, followed by a discussion of the MUSIC Model and academic identification. The chapter concludes with a brief summary.

Search Strategy

Studies for this review were located via online search methods. Several online databases were utilized, including JSTOR, PsychINFO, ProQuest, EBSCO, Emerald Journals, ERIC,

FirstSearch, Gale, Sage Premier, SpringerLink, and Taylor & Francis. The following key terms were used: *at-risk learners, high school dropout rate, at-risk characteristics, student socioeconomic status, student language barriers, at-risk programs, underprivileged students, minority students, learning theories, traditional at-risk programs, alternative education.* Additional seminal studies were located as I became familiar with the authority figures in these areas of research. The combined results for these search terms reached over 8,323. I filtered through these results to locate studies that were most relevant to the proposed study. When possible, I included studies that were published within the last five years. The final number of articles selected for this review totaled 113. See Table 1 for a summary of the preliminary search results.

Table 1: *Preliminary Search Results*

Search Term	Number of Articles
At-risk learners	122
High school dropout rate	408
At-risk characteristics	34
Student socioeconomic status	255
Student language barriers	12
Minority student	6,511
Learning theories *and* at-risk students	97
Alternative education	884
Total	8,323

Review of the Literature

Characteristics of At-Risk Learners

It is important to begin this discussion with an examination of the characteristics of at-risk students according to current research. The term, *at-risk*, is usually used to describe students at risk for dropping out of school (Horn & Carroll, 1997). In primary and secondary grades,

those most at-risk of dropout are students who: (a) are of low SES; (b) have siblings that have dropped out; (c) are being raised in single parent homes; (d) have failed a grade; or (e) have changed schools multiple times (Horn, Chen, & Adelman, 1998). Many educational stakeholders have revised the definition of *at-risk* students to include those at risk of not attending a postsecondary institution (Choy, Horn, Nunez, & Chen, 2000). However, the conceptual definition of *at-risk students* for this paper describes educationally disadvantaged students in danger of dropping out of high school.

Understanding the characteristics of at-risk students and being able to identify individuals who may become at-risk is helpful to teachers and administrators (Scott & Nelson, 1999). In educational environments where at-risk students make up the majority of a student population, the restructuring of traditional pedagogy is needed to develop more effective methods to help learners and reduce dropout (Suh, Suh, & Houston, 2007). Although the U.S. high school graduation rate is at an all-time high, the rates for English language learners (ELLs), minority students, and those of lower SES are comparatively low (DePaoli et al., 2015). According to a report released by the Alliance for Excellent Education, the graduation rate for African American and Hispanic students is 10- to 15% below the national average, and low SES students graduate at about 15% below the average rate (DePaoli et al., 2015). Thus, as at-risk students permeate the regular public school systems, it is increasingly critical for teachers to understand the most effective methods for helping at-risk students succeed (DePaoli et al., 2015). As shown in Figure 1, at-risk students often contend with many social issues that schools and educators have little control over. It is common for them to become alienated from school due to unsuccessful school experiences, such as poor attendance, disciplinary action, and frequent relocations (Martin, Tobin, & Sugai, 2002).
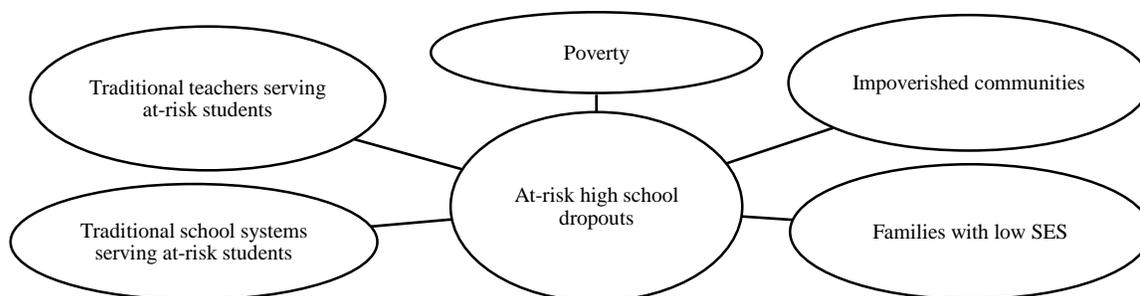
Figure 1. Factors that Contribute to At-Risk Status.

Socioeconomic Status

  Poverty and race have historically affected students' educational outcomes (Leone et al., 2003). Balfanz and Letgers (2004) found that individuals enrolled in schools where the majority of students were minorities were five times more likely to experience retention. Socioeconomic status may also affect how well students comprehend learning materials. In an analysis of the National Assessment of Educational Progress (NAEP) – assessments issued by the National Center for Education every two years – Boser and Rosenthal (2012) examined student questionnaire data from reports regarding classroom experiences. The researchers found that students from disadvantaged backgrounds had less access to rigorous learning opportunities. Significant disparities were also found between higher- and lower-income students, in terms of self-reported levels of material comprehension. For example, 74% of higher-income fourth graders reported *often* or *always* understanding their science teachers, while only 56% of lower-income fourth graders reported the same level of comprehension. They also found that 80% of higher-income middle school students reported high levels of math comprehension, and 10% fewer lower-income students reported high math comprehension. Thus, students from socioeconomically disadvantaged backgrounds are at an increased risk of school failure and dropout.

Effects of Poverty

Social structure theories can be used to examine the disadvantages faced by at-risk students. According to Bellair and Kowalski (2011), disadvantage indicators include poverty, dropout rates, unemployment rates, and family structure. These theories help explain how disadvantage indicators can widen the achievement gap between high and low SES households. In turn, these factors increase students' risks for dropping out and/or becoming delinquent. Research indicates that many crimes in the United States are committed by individuals who have dropped out of school (Sampson & Wilson, 1995). Thus, there are direct social, judicial, and economic implications for individuals who drop out. These factors are discussed in greater detail in later sections of this chapter.

The effects of growing up in poverty are far-reaching (Bemak & Chung, 1998; Fall & Roberts, 2012). The United States government defines the poverty level for a family of four as living on a total yearly income of less than $23,050 (U.S. Department of Health and Human Services, 2012). Impoverished students are often identified as those who qualify for free and reduced school lunches. Poverty places students at risk for academic failure in multiple ways. For example, those who grow up in impoverished communities are often subject to experiences of violence. Researchers have coined the phrase, *psychological recoil effect*, to describe the experiences of those who suffer post-traumatic stress after witnessing violence (Bemak & Chung, 1998). Knowledge of this type of social disorder and the damaging effects violence can have on students is relevant because impoverished inner-city communities affect students' academic motivation and achievements (Bemak, Chi-Ying, & Siroskey-Sabdo, 2005). Students from poor neighborhoods are more likely to use drugs, experience academic failure, and become pregnant teenagers. Ultimately, each of these circumstances can significantly affect school involvement (Bemak et al., 2005).

In addition, at-risk students who demonstrate behavioral problems, attendance issues, or low levels of academic achievement often contend with a bevy of social, familial, and community issues (Bemak et al., 2005). For example, children of parents who dropped out of high school are at a greater risk of poor academic performance, failure, and dropout than children of parents who completed high school (Orfield, 2006). Christle, Jolivette, and Nelson (2007) conducted an important study that contributed to the growing body of literature that links poverty to school failure. The researchers explained that the "demographic of poverty seems to create vast inequities in our public education system, from federal funding to employment of experienced teachers and administrators" (Christle et al., 2007, p. 333). What is particularly unsettling is that the web of social and community issues associated with poverty can create a cycle of low academic achievement and poor socioeconomic status for at-risk students and their future generations (Fall & Roberts, 2012). Thus, to improve the outlook for tomorrow's children, it is essential to address the risk factors of today's children.

Race/Culture

In the quest to gain a better understanding of factors that place students at risk for academic failure, much attention has also been given to the issue of race. Researchers have examined reasons for the differences in dropout rates among Black, Hispanic, and White students (e.g., Dunham & Wilson; Perreira, Harris, & Lee, 2006). Although the high school dropout rate has decreased across all categories of race in recent decades, significant differences between White and minority students remain (Cataldi, Laird, Ramani, & Chapman, 2009). According to Jackson (1999), one reason for the gap may be cultural misunderstandings and stereotyping by teachers and administrators, which create educational inequities for disadvantaged students. Although the quality of education for disadvantaged students can be improved through teacher education and proper faculty training, faculty and administrators must

first acknowledge cultural misunderstandings and stereotypes in order to overcome them. This represents a significant barrier for many at-risk students.

Juvenile Offenders

Many *at-risk* students are also juvenile offenders. According to Deutsch, Crockett, Wolff, and Russell (2012), the problem of juvenile offenders is a serious one that permeates society's educational, health, financial, judicial, and vocational systems. Juveniles commit 26% of property crimes and 16% of violent crimes in the United States. Racial differences among at-risk students are also evident in the jail population. For example, Sum et al. (2009) reported that 23% of Black males between the ages of 16 and 24, who were high school dropouts, were serving time in prison or a juvenile detention facility.

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Dropout Rates

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At-risk status indicates that a student is at a significantly elevated risk of dropping out of school (Horn & Carroll, 1997). Student failure and dropout are problems of international importance (Ruiz-Gallardo, Verde, & Valdez, 2013). Over a million students drop out of school each year (Swanson, 2008), costing billions in tax dollars and lost earnings (Catterall, 1985). While dropping out is not the only predictor of a student's future success, individuals who drop out of school are more likely to be unemployed and live in poverty than those who earn high school diplomas (Leuchovius, 2006). Research indicates that individuals who graduate from high school have a 39.6% advantage in steady employment, and a 76.9% advantage in income over students who drop out (Levanthal-Weiner & Wallace, 2011). According to Princiotta and Reya (2009), an estimated 4.9 million young adults between the ages of 18 and 24 do not have a high school diploma, which equates to a dropout rate of one in five students. Because more students now complete high school, the societal value placed on education has increased— as have the negative consequences for dropping out (Swanson, 2009).

The dropout rate among students from low socioeconomic communities is three times higher than the rate for those of higher socioeconomic status (Bemak et al., 2005; Kasarda, 1993). According to the Annie E. Casey Foundation (2003), the dropout rate for impoverished students is 14%. For the past 30 years, the reported dropout rate in the United States has remained steady, at approximately 10.9% (Kaufman, Alt, & Chapman, 2001). However, it is likely that the rate is actually much higher because nationally-reported data does not include information for students under 16 years of age, or those below tenth grade (Hayes, Nelson, Tabin, Pearson, & Worthy, 2002). According to Hayes et al. (2002), nationally reported dropout rates were not an accurate representation of the actual dropout rates, because of these exclusions.

Additional Causes of Academic Failure

Just as positive school experiences can be attributed to student achievement, negative ones can contribute to student failure (Audas & Willms, 2001; Lee & Staff, 2007; Montgomery & Hirth, 2011). A variety of social, political, and economic factors all affect a student's decision to leave school (Campbell, 2003). These are all areas where educators have little control. Students who drop out share similar "developmental histories, educational experiences, and current circumstances" (Campbell, 2003, p. 326). Researchers also blame limited support and resources for the association between dropout rates and socioeconomic status (Audas & Willms, 2001). Other factors that contribute to elevated risks for academic failure include pregnancy, drug use, debt, and intensive jobs (Lee & Staff, 2007). Low levels of family organization and support (Montgomery & Hirth, 2011) and peer pressure (Princiotta & Reyna, 2009) can also contribute to dropout.

Dropout Rates: Rural vs. Urban

Location may also factor into dropout rates, as some studies indicate that students in urban areas are more likely to drop out than those in rural settings (Dutch Ministry of Education

Culture and Science, 2011; Paasch & Swaim, 1995). Increased poverty, transience, larger school size, and higher rates of teacher turnover can all negatively affect student dropout in urban schools. This is an important consideration when examining characteristics of at-risk students because minority students are more highly concentrated in urban settings. An estimated 50% of all African American and Hispanic students attend schools in which 75% of the student population is of low socioeconomic status (Montgomery & Hirth, 2011). Clemmitt (2007) reported that of the approximately 15,000 high schools in the United States, 2,000 account for most of the nation's high school dropouts. Most of those schools are located in urban settings. Because urban schools are often larger than rural schools, they also tend to have less effective dropout prevention programs and disciplinary strategies (Montgomery & Hirth, 2011).

Not all researchers have reported such differences between urban and rural students, however. As Jordan, Kostandini, and Mykerezi (2012) pointed out, rural areas of the United States are undergoing significant changes that are causing the spatial and social boundaries of rural and urban areas to blur. Some researchers have found that distinctions not linked to region, such as race and class, are stronger predictors of dropout rate than locale. In response to these changes, Jordan et al. (2012) explored the "extent to which the process of human capital formation is structurally different in rural and urban areas" (p. 1). The researchers used nationally representative datasets to analyze high school dropout rates, with a focus on rural and urban differences. Unlike many previous researchers, Jordan et al. were unable to detect any significant differences in the dropout rates between high school students residing in rural versus urban areas. They found that the overall dropout rate across all settings had increased by 3% since the 1980s, and that social characteristics, such as gender, race, family assets, the presence

of biological parents, and peer characteristics were far stronger predictors of dropout than geographic region.

Dropout Prevention

As Montgomery and Hirth (2011) explained, many predictors among at-risk students create chains of events that promote dropout. For example, single-family homes are often low-income (Montgomery & Hirth, 2011), so students in these settings may feel pressured to get jobs and contribute to the family income. In turn, the importance of academics is deemphasized. Similarly, students who are English language learners may demonstrate poor academic performance due to language barriers. Language barriers can lead to frustration, disruptive behavior, disinterest, and truancy—thus, increasing dropout risks (Allensworth & Easton, 2005; Goldschmidt & Wang, 1999; Montgomery & Hirth, 2011). In addition, specific academic factors may also contribute to a student's at-risk status. For example, Neild, Balfanz, and Herzog (2007) reported that any of the following indicators might place middle school students at risk of dropout: (a) failure in a math or English class; (b) yearly average attendance below 80%; or (c) unsatisfactory behavior score in at least one class.

Dropout is a serious issue in many Western societies (Eiffers, 2013). Many student characteristics have been associated with dropout risks, such as minority status or low SES. However, as Eiffers (2013) explained, overemphasis of such indicators may cause educators and administrators to overlook other factors that contribute to dropout, such as employment seeking, not enjoying school (Curtis & McMillan, 2008), disinterest and lack of motivation, poor self-esteem, feeling like teachers are adversaries (Vazquez & Ojeda, 2010), low levels of family support (Dunham & Wilson, 2007), and inadequate support from schools and teachers (Lee & Burkam, 2003). Some of these factors, such as relationships with teachers and support from

schools, are malleable by educators and administrators. Similarly, the behavioral engagement of students is another factor that educators can influence.

      Behavioral engagement. Behavioral engagement describes a student's involvement in school, through behaviors such as attendance and the completion of assigned work (Fredericks, Blumenfeld, & Paris, 2004). Because behavioral engagement is a prerequisite for persistence in school, it can help explain why some at-risk students succeed while others drop out (Eiffers, 2013). Studies indicate that low behavioral engagement can be a predictor of dropout (Fredericks et al., 2004; Janosz, Le Blanc, Boulerice, & Tremblay, 2000). Much of the research on dropout prevention focuses on models aimed at engaging students (i.e., Spielhofer, White, O'Donnell, & Sims, 2005). For example, Spielhofer et al. (2005) recommended the following practices for engaging at-risk students: (a) provide meaningful activities, (b) foster participation, (c) create unconventional learning environments, (d) provide one-on-one support, and (e) assist students with transition into other education or training opportunities. In addition, schools can nurture behavioral engagement by providing students with a variety of programs, extracurricular activities, and vocational work programs to foster feelings of connectedness to school (Montgomery & Hirth, 2011).

Setting Rigorous Standards

      A challenge to closing the achievement gap and simultaneously catering to the wide range of student abilities, including those considered *at-risk*, is determining the most appropriate level of academic rigor. Research indicates that many students feel their classes are too easy, which causes them to disengage from rigorous learning (Boser & Rosenthal, 2012). For example, Pearson and Banerji (1993) found that students often skipped classes that had lower standards because they did not believe they would miss much if they did not go. States have responded to such findings by raising academic standards and revising benchmarks to increase

student achievement (Montgomery & Hirth, 2011). However, a serious problem with increasing the performance standards in public schools is that increased rigor may cause at-risk students to fall behind even further. As Montgomery and Hirth explained, "While the national movement to raise performance standards may encourage high-achieving students to learn more, the new focus on higher student performance may discourage at-risk students who are experience difficulty to continue school" (p. 248). Consequently, it is vital for schools to raise performance expectations while providing necessary and effective remediation to struggling students who are already at-risk or on the verge of becoming so. While pushing some at-risk students to achieve more academically may be an effective tactic for keeping them in school, it can create further discouragement and disengagement for others (Montgomery & Hirth, 2011). Thus, standard setting must be done with much thought and consideration.

Promotion vs. Retention

Another issue that has received significant attention from researchers is student promotion and retention. Retention refers to preventing promotion to a subsequent grade until a student has demonstrated grade-level proficiency; promotion refers to the successful completion of subsequent grade levels through graduation (Bonvin, Bless, & Schuepbach, 2008). Much of the academic literature favors promotion over retention to support at-risk students and prevent dropout, as many earlier researchers reported that retention did not positively affect student performance (e.g., Doyle, 1989; Overman, 1986). In fact, many studies have indicated that being held back at any grade may increase a student's risk for dropping out (Bonvin et al., 2008; Goldschmidt & Wang, 1999; Roderick, 1994).

The decision of whether to promote or retain a struggling student can present a conundrum for educators because on one hand, retention may significantly *increase* an at-risk student's odds of dropping out (Bonvin et al., 2008; Goldschmidt & Wang, 1999; Roderick,

1994). On the other, promoting a struggling learner may cause them to feel overwhelmed, fall even further behind, and eventually quit school. Such a hypothetical predicament offers powerful support for early interventions that provide students with resources and support needed to succeed, before they fall far enough behind that promotion/retention decisions require evaluation. Thus, perhaps one of the most important keys to assisting at-risk students is early identification.

Identifying At-Risk Learners

One of the challenges to addressing the dropout rate is identifying students who need extra support (Montgomery & Hirth, 2011). Adolescents who demonstrate no risk factors may become dropouts, while those with multiple risk factors may successfully complete school (Baker & Sansone, 1990). Although emphasis on the importance of early identification of students at risk for academic failure has increased, few schools have developed systems to accurately identify these learners (Scott & Nelson, 1999). Walker, Cheney, Stage, and Blum (2005) hypothesized that a number of factors may contribute to the lack of effective identification systems for at-risk youth. For example, teachers may be reticent to identify a student as *at-risk* for fear of the negative stigma associated with the label. Educational personnel may also hesitate to categorize a student as at-risk unless they feel confident they have adequate resources to provide him or her with required interventions. Finally, principals may be reluctant to identify students as at-risk due to the financial pressures that would result from the additional resources required to meet the needs of these students (Walker et al., 2005).

When at-risk students are identified, it is often through the reliance on disciplinary referrals; however, office referrals are usually only given to students who display disruptive, externalizing behaviors (Walker et al., 2005). Thus, students with internalizing problems may struggle in silence without teachers recognizing their elevated risk of academic failure (Walker et

al., 2005). Consequently, the best way to identify at-risk students involves monitoring of office

referrals *in conjunction with* the use of systematic screening processes (Walker et al., 2005).

Another challenge in the identification of at-risk students is that school personnel have

historically viewed their responsibilities for identification of at-risk learners to be limited to

those with learning disabilities. As Severson et al. (2007) explained, schools view,

> …their primary mission as accomplishing the academic development of all students. The
>
> social-behavioral development of students, in contrast, is commonly regarded as a
>
> secondary mandate, and many educators have questioned this goal as a legitimate priority
>
> for schools. (p. 194)

Because there are many factors besides learning disabilities that place students at risk for

academic failure, disregarding social and behavioral factors during the identification of at-risk

students may result in many learners slipping through the cracks. This is especially problematic

because as many as 20% of primary and secondary students have emotional or behavioral

problems that place them at risk and require intervention (Burns & Hoagwood, 2002).

Encouraging teachers to dedicate time and effort to identifying and solving behavioral

issues can be difficult because they often view such problems as someone else's responsibility.

According to Kauffman (2004), arguments for the emphasis on addressing students' academic

performance instead of their behavioral needs, as well as those against labeling at-risk students

with any type of social or behavioral disorders, prevent students from accessing the support and

resources they need to ensure academic persistence. Severson et al. (2007) recommended early

screening by school counselors and teachers for problem behaviors in order to provide effective

interventions as soon as possible.

Negative Labels

The purpose of an at-risk label is to distinguish students with special needs in order to provide them with the support and resources they need to excel. However, another issue related to the identification of at-risk learners is the negative connotation associated with the *at-risk* label. As Calabrese, Hummel, and San Martin (2007) posited, at-risk students are typically viewed from a deficit perspective. Many educators view students' home environments or cultures as ones of deprivation. Such a "deficit view of at-risk students often leads to stereotyping and obfuscates the inherent strengths they bring to the educational process" (Calabrese et al., 2007, p. 267). When teachers and administrators view at-risk students from a deficit perspective, they often fail to acknowledge the assets those students possess (Calabrese et al., 2007).

In response to the negative associations with the at-risk label, Calabrese et al. (2007) conducted a study founded in appreciative inquiry (AI), a method that shifts the traditional problem-focused research paradigm to one that emphasizes the positive experiences of individuals and the future possibilities for an organization. The researchers' goal was to use an AI process to act as change agents through the discovery of positive, common experiences. Researchers elicited these experiences from teachers' and administrators' shared stories. During the study, the AI process highlighted positive experiences that teachers and administrators had while working with at-risk students. Researchers reported that participants spoke with deep emotion and passion when recounting such experiences. On the other hand, teachers were also harsh in their descriptions of at-risk students, their parents, and their home environments. The researchers posited that participating teachers and administrators were hampered in their attempts to improve the academic achievement of at-risk students because they were stuck in a negative mentality when it came to perceiving and responding to these students. This problem-

based language was deeply ingrained in teachers and administrators and detracted from the relationships they developed with at-risk students. The researchers concluded that a strong core of positive experiences with at-risk students existed among teachers and administrators, upon which these personnel could build to help them depart from the deficit-based perspective.

<div align="center">**Programs for At-Risk Learners**</div>

Traditional Programs

Many programs designed to help at-risk learners are carried out after school, in addition to school, or for a brief amount of time during the school year. The reported success of these programs can be difficult to generalize because they are designed to cater to specific groups of students, rather than to change the general pedagogy employed at public school systems with large at-risk populations. This makes the identification of effective teaching methods with at-risk students even more important. Table 2, adapted from Chandler (1999), provides an overview of pedagogical characteristics found in traditional schools.

Traditional schools focus heavily on test scores and quantitative results, thus emphasizing statistics over individual student needs (Heilig & Darling-Hammond, 2008). In fact, "schools with the highest grade retention and drop-out rates experienced some of the steepest increases in test scores" (Heilig & Darling-Hammond, 2008, p. 80). Traditional schools are encouraged to increase test scores rather than focusing on decreasing drop-out rates by meeting individual student needs.

Table 2

Characteristics of Traditional Schools

Instruction	Direct instruction by the teacher, with homogenous grouping
Reading	Reliance on phonics
Mathematics	Reliance on direct instruction; drill; computational skills
Assessment	Reliance on periodic testing with norm-referenced, objective assessments. Grades are assigned by comparing performance with ages/grades of peers.
Social Studies	Focus on civics, history, geography, the American heritage, and cross-cultural studies.
Outcomes	Emphasizes skills as demonstrated in the traditional core areas.
Curriculum	Focuses on academic areas. Standards are set so that all children seek the same level of minimal competency.
Teacher's Role	Academic instructor, source of knowledge, authority figure.

Alternative Programs

The Department of Education (2002) defined alternative schools and programs as public elementary and secondary schools that address the "needs of students that typically cannot be met in a regular school, provides nontraditional education, serves as an adjunct to regular school, or falls outside the categories of regular, special education, or vocational education" (p. 55). Many alternative programs have been created to educate at-risk high school students outside of

the traditional classroom. However, at-risk teachers rarely receive the professional development and training they need to effectively support at-risk students. This is problematic because preparation to meet the needs of these students may be critical in improving the experiences of teachers in these schools (National Center for Education Statistics, 2005).

According to Nelson and Sneller (2011), many at-risk adolescents are sent to alternative education programs and are isolated from mainstream students. As the concept of alternative education has expanded, the number of suspended and expelled students have increased dramatically. According to the U.S. Department of Education, Office of Civil Rights (2000), the number of suspended and/or expelled students in the United States doubled between 1975 and 2000.

Alternative schools often serve as last resorts for students who have experienced failure in traditional settings (Martin & Calabrese, 2010). Although the goal of alternative programs is to cater to the needs of at-risk and delinquent youth, programs are not always successful. According to Grunbaum et al. (2009), adolescents placed in alternative programs are more likely to engage in violent behaviors, suffer from poor health, become pregnant, and contract sexually transmitted diseases than students in traditional schools. The *at-risk* label can also exacerbate student risk factors (Kleiner, Porch, Fams, & Greene, 2002). According to Martin and Calabrese (2010), most alternative high school programs fall into one of the following categories: (a) innovative charter and magnet schools with unconventional approaches; (b) correctional, last chance schools for students who have been expelled from traditional schools; and (c) remedial settings that focus on behavior modification and remediation.

As Martin and Calabrese (2010) pointed out, alternative schools are often labeled by researchers as "dumping grounds for disciplinary issues" (p. 111). In response, the researchers

conducted a study to explore the strengths and assets of at-risk students. They wanted to explore how at-risk students in alternative settings believed they learned best in order to inform more effective teaching practices. The researchers defined an alternative setting as one in which attending students were at risk for dropping out, lacked successful educational experiences, and were unhappy with traditional settings.

Martin and Calabrese (2010) employed an AI design, encouraging participants to "reflect on and share personal past experiences of achievement" (p. 112) in school. Interviews were conducted with four male and four female students enrolled in an alternative school. The researchers sought to understand how the students described their most enjoyable learning experiences and effective learning. Analysis revealed the following four themes: (a) relevant learning experiences were important for learning; (b) cooperative and respectful learning environments were critical; (c) learning should be fun; and (d) family became an important metaphor for the learning environment. The researchers concluded that the four themes were connected to the concept of empowerment. The AI method of inquiry empowered participants by giving them opportunities to meaningfully contribute to how their learning environments were defined and shaped. The researchers recommended that stakeholders empower at-risk students in alternative programs by helping them to take ownership over their learning environments and educations.

While there is no single program or approach for alternative programs, there are multiple variables that may benefit at-risk students, such as well-trained teachers, effective curriculums, and support services provided through the collaborative efforts of multiple stakeholders (Quinn & Rutherford 1998). Finnan and Chasin (2007) found that effective alternative programs targeted the needs of individual students through experiential learning and included the following

characteristics: (a) accelerated learning options, (b) school age parenting programs, (c) cluster

programs, and (d) work and learn centers. The accelerated learning options provide over-age

students with opportunities to move more freely and easily toward their grade level completion

through a self-pacing curriculum. School-age parenting programs are those that allow students

with children to bring their children to daycare, which is provided by the school system in an

effort to increase student attendance. Many at-risk students cite the lack of childcare as a major

deterrent for returning to school. Thus, such programs are in place to help young mothers and

fathers complete high school.

Cluster programs are another example of an alternate means of education. These

programs include smaller groups of students focused on building skills and addressing specific

academic concerns in small classroom settings (Renzulli, Gentry, & Reis, 2003). In many

alternative programs, teachers' ability to work with at-risk students in a one-on-one setting is a

leading factor for keeping students in school (Kerr & Legters, 2004; Rumberger, 2001). By

providing a smaller learning community for at-risk students, relationships between students and

teachers are built, and students can be helped more directly with their academic problems. Work

and Learn Centers are set up to help students to work on real-world skills. Combining the

application of learned skills with academic curriculum has proven effective because students are

able to learn in authentic settings with assignments that are applicable to their lives. By

addressing the culture of the student population, alternative programs are able to meet many

diverse students' needs.

One of the most important aspects of each of the alternative programs outlined above is,

that as a whole, academic alternative schools normally have lower student to teacher ratios,

which creates environments in which teachers and students can work closely together (Bosworth,

1995; Murray, 2002). Small schools have less violence, better attendance rates, lower dropout rates, and offer students a stronger sense of belonging (Wang, Haertel, & Walberg, 1997). When classrooms are smaller, teachers are better able to work with individual students, which help them to cultivate effective relationships. Large populations of at-risk students seem to thrive within smaller learning communities that nurture the relationships between at-risk students and their teachers.

Examples of Alternative Approaches

Many alternative approaches have been used to engage at-risk learners. For example, garden-based learning has been employed to engage primary and secondary students in science classes (Blair, 2009; Brink & Yoast, 2004). Among a group of at-risk students, Ruiz-Gallardo et al. (2013) reported that garden-based learning reduced risks of dropout and failure, decreased disruptive behaviors, improved attitudes toward learning, and increased self-esteem, self-confidence, and sense of responsibility.

Service-learning is another alternative approach that has demonstrated success with at-risk students. According to Nelson and Sneller (2011), service-learning is a type of experiential learning that "capitalizes on students' positive assets, their potential, and the possibilities therein" (p. 14). Service-learning involves service to others and encourages self-efficacy by forcing learners to take an active role in solving problems, making decisions, and constructing their identities, with the help of supportive adults. Students labeled as *at-risk* play an integral role in the development of service-learning programs. Researchers have found that participation in in-service educational programs can close the achievement gap between socioeconomically advantaged and disadvantaged students (Scales & Roehlkepartain, 2004).

Nelson and Sneller posited that the students who may reap the most benefits from service-learning programs are those who: (a) are in disciplinary alternative education programs;

(b) are English language learners; (c) have received low standardized test scores; or (d) are receiving free or reduced lunch. The researchers reported on two particularly effective service-learning programs, *Never Chat with Strangers* and *Animal Welfare.* Student participants of these two programs demonstrated palpable improvements to their levels of self-confidence and self-esteem. The researchers concluded,

> Service-learning programs allow us to harness the tremendous capacity of youth to change as they learn about serving the world. As with all other educational programs, service-learning provides the greatest impact on student success and behavioral changes when the projects adhere to the highest standards. (p. 17)

In conclusion, Nelson and Sneller urged educators to learn about standards for service learning programs so they can be incorporated into educational settings to help at-risk students.

Motivating At-Risk Learners

Motivation to learn has a significant influence on students' beliefs and actions in relation to their behavior and academic performance (Anderman & Wolters, 2006). Many motivational theories related to student education have been developed. For example, Tinto (2003) posited that the ways students perceive their educational experiences and the expectations they have of their own success greatly influences educational persistence. Individuals who feel that education has intrinsic and extrinsic rewards are more likely to value their educations and expect to achieve more. Similarly, Wigfield and Eccles (2000) proposed that students' interest levels and self-efficacy beliefs related to academic competence were fundamental to their expectations of success and academic performance. As the researchers explained, "students' intentions of dropping out, their actual leaving behavior, and their expectations for education are closely intertwined in many ways" (p. 25). Results from other studies have demonstrated how students'

educational expectations relate to high school graduation (e.g., Ensminger & Slusarcick, 1992; Muller, 1998).

Fan and Wolters (2014) built upon Wigfield and Eccles' (2000) motivational theory to explore how motivational beliefs influenced persistence and dropout among high school students. Data were acquired from the National Center for Education Statistic's Educational Longitudinal Study of 2002. This dataset included information from students in 10th grade through their post-secondary educations or career decisions. The researchers focused on students' persistence and dropout rates. The following two main themes were reported from the study: (a) when students were confident in their abilities to learn and succeed in math and English classes, they believed more strongly in their abilities to obtain higher levels of education; and (b) when they were more interested in math and English subjects, they expected themselves to obtain higher levels of education, which increased their likelihood of persisting through graduation. The researchers concluded that students who had low beliefs about their academic abilities were less likely to have expectations of acquiring high levels of education.

Goal Setting and Self-Efficacy

As discussed earlier, many factors can contribute to a student's at-risk status or delinquent behaviors, such as SES, minority status, or stressful home situations (Carroll, Gordon, Haynes, & Houghton, 2013). However, it is also important to understand the elements that motivate adolescents to act in ways that place them at risk. A variety of behavioral theories may be useful for explaining these risk factors, such as Strain Theory (Agnew, 2006), Social Control Theory (Gottfredson & Hirschi, 1990), and Rational Choice Theory (Cornish, 1993). However, according to Carroll and Gordon (2013), none of these theories explains what intrinsically motivates students to engage in behaviors that place them at-risk for academic failure or delinquency.

One way to discourage adolescents from at-risk behaviors may be to nurture self-efficacy and engage in positive goal-setting (Carroll & Gordon, 2013). Many researchers have found that self-efficacy and educational expectations are linked (e.g., Bandura, Barbaranelli, Caprara, & Pastorelli, 2001; Tang, Pan, & Newmeyer, 2008). Carroll, Houghton, Durkin, and Hattie (2009) reported that at-risk and delinquent adolescents placed greater emphasis on goals that increased their autonomy and discouraged delinquent activities. At-risk students are more likely to emphasize the importance of educational and physical goals, such as athleticism, than students who are not at-risk. Researchers have found that adolescents tend to organize goals around factors such as identity and education (Durkin, 1995; Wentzel, 1994), and are likely to pursue multiple goals at once. Carroll et al. (2013) recommended that educators understand the delinquent and non-delinquent goals set by adolescents and the purposes they serve, so they are better able to help these students set positive goals that will discourage delinquency. Goal-setting is particularly important for at-risk students because it can influence their trajectories toward the groups they wish to affiliate with (Carroll & Gordon, 2013). The researchers concluded that adolescents must be provided with support for their goals, which should be socially-conforming and enhance a student's sense of self-efficacy, so he or she is able to independently create positive goals in the future.

MUSIC Model of Motivation

The MUSIC℠ Model of Motivation was developed by Jones (2009) and encompasses five main components: eMpowerment, Usefulness, Success, Interest, and Caring. The model is based on theory and research, and was created as a tool for instructors to motivate students in the classroom. The "M" in the MUSIC model stands for eMpowerment, which refers to the perceived level of control students feel they have over their learning environments (Jones, 2009). Usefulness in the MUSIC Model speaks to the relevance of information in a student's life. For

the success component, students need to be able to feel as though they can find success within the classroom. Interest is the model's fourth component, which describes the extent to which students enjoy or are interested in the learning activities. Caring is the final component of the MUSIC Model, which speaks to the importance of mutually respectful and caring relationships between teachers and students (Jones, 2009).

Motivation. The definition of motivation employed for the MUSIC Model is based on Schunk, Pintrich, and Meece's (2008) conceptualization, which states that motivation involves actions and verbalizations that lead to goal-directed activities. According to this definition, motivated learners choose to engage in activities that help them succeed academically.

Development of the model. According to Jones (2009), each component of the MUSIC Model (empowerment, usefulness, success, interest, and caring) was derived from theory and research in fields such as education and psychology. While much educational research has been conducted outside of the classroom, Jones explored the use of the MUSIC Model in and out of higher education classroom settings. The five components of the MUSIC Model were selected because researchers suggested that the inclusion of these components into instruction increases students' academic motivation and engagement, which can result in increased learning. The MUSIC Model is rooted in a social-cognitive framework, which acknowledges that learners' social environments affect how their psychological needs are met, which influences their perceptions and behaviors toward education.

Components of the MUSIC Model

Empowerment. Research indicates that at-risk students respond better to learning environments that promote autonomy (Carroll et al., 2001). Thus, the empowerment of the MUSIC Model may be particularly beneficial to at-risk populations. Empowerment helps students feel they have control over their educational success. Providing students with a degree

of choice and utilizing their input to develop learning activities may increase their enjoyment of the learning process (Jones, 2009). Teachers who allow students to share in responsibility for the pace of their own learning empower learners to accept responsibility for their own education. For example, Martin and Calabrese (2010) reported that nurturing a sense of empowerment among at-risk students by allowing them to take ownership over their learning environments can improve student's behavioral engagement. Nelson and Sneller (2011) found that service-learning activities were effective ways to improve students' sense of self-efficacy, leading to empowerment. Goal setting has also been found to improve empowerment among at-risk students (Carroll & Gordon, 2013).

Research indicates many students who drop out of high school do not do so because they are academically unable to complete high school; rather, they have not been given adequate choice (Franklin et al., 2006; Franklin, Streeter, Kim, & Tripodi, 2007). A survey of 470 high school drop-outs revealed that students who dropped out actually believed they could have graduated if they tried more and if their classes were more engaging and challenging (Bridgeland, Dilulio, & Morrison, 2006).

Usefulness. Student motivation is also affected by how useful they perceive material to be for future use (Kauffman & Husman, 2004). If students perceive their assignments to have little relevance to their goals, they may be less motivated to complete the work (Simons et al., 2004). Montgomery and Hirth (2011) reported that students who dropped out often viewed academics as unimportant and useless. To improve students' conceptualization of learning materials as useful, Spielhofer et al. (2005) recommended that teachers provide students with meaningful activities. Nelson and Sneller (2011), who recommended service-learning for its empowering qualities, also suggested that this type of learning can help learners perceive

education as useful because it allows them to apply their knowledge to actively help others. Thus, it is important for students to understand what they are learning and how it will benefit their career goals or apply to their lives. To integrate usefulness, Jones (2009) offered the following suggestions: (a) clearly explain how materials relate to students' interest, goals, or lives; (b) provide students with ample opportunities to demonstrate how the materials relate to their future careers; and (c) provide students with opportunities to demonstrate how the materials apply to the *real world*.

  Success. Research indicates that students who experience low levels of academic achievement are more likely to drop out (Alexander et al., 2001; Griffin, 2002). Neild et al. (2007) reported that failure in classes could increase student dropout rates. For this reason, the *success* component of the MUSIC model is critical to the academic success of at-risk students. According to the Consortium on Chicago School Research, "one of the key factors in prediction of high school drop-outs is not finding success in the ninth grade" (as cited in Allensworth & Easton, 2005, p. 178). This does not mean students will not encounter struggles, failures, and difficulties, but that teachers must provide them with assistance and resources to overcome these obstacles.

  If teachers follow the MUSIC Model and address the challenges that many at-risk high school students struggle with, it could be key in reducing dropout rates by keeping these students in environments where they feel they can be successful. For example, it is important to set up students for success, and not subject them to unrealistic levels of rigor that will cause them to fall further behind (Montgomery & Hirth, 2011). It is also important that students be successfully promoted into subsequent grades, because research indicates that retention can increase dropout risks (Bonvin, Bless, & Schuepbach, 2008; Goldschmidt & Wang, 1999; Roderick, 1994). At-

risk students who have a difficult time coping academically tend to view school negatively and behave accordingly (Calabrese, 1987; Goodenow, 1993).

Jones (2009) offered the following suggestions for integrating the Success component into lessons: (a) clearly define expectations for activities; (b) give clear, comprehensible directions for all activities; (c) create challenging activities for students; (d) break longer, complex lessons into sessions that challenge learners without overwhelming them; (e) provide help when students are struggling with an assignment; and (f) give students opportunities to re-do assignments.

Interest. Connections between learning and the *real world* are imperative; students need to understand how academic materials are useful to them. This is especially true for at-risk students because such understandings are critical to maintaining students' interests. Balfanz (2007) reported that "50% of drop-outs cite loss of interest in classes as a reason for dropping out of high school, 70% claimed they were not motivated and not much was demanded of them, they sought real-world application of skills, 1/3 left for personal reasons, and 1/3 left because they were failing" (as cited in Cohen & Smerdon, 2009, p. 180). Disinterest and lack of enjoyment in classes are strong predictors of dropout (Curtis & McMillan, 2008; Neild et al., 2007). Students tend to view decreases in academic achievement as indicated by grade point averages and standardized test scores. When viewed from the interest theory standpoint, failure can cause at-risk students to lose interest in subjects they are not successful in, which may increase their risks of dropout.

One way that teachers can increase student interest levels is through culturally responsive instruction (Bowers & Flinders, 1991). In order to teach topics that many at-risk students can identify with, teachers must be aware of and sensitive to cultural diversity. As Williams (2003)

explained, "students need individualized and differentiated instruction that respects their unique interests and past learning experiences because the 'one size fits all' strategy governing the current structures of schools ignores the complexity of the dynamics influencing the gaps among groups" (p. 15). Students are less likely to be interested in history lessons, a literary canon, and other curriculum that does not include them. According to the MUSIC Model (Jones, 2009), it is important for teachers to understand the importance of teaching to a cultural identity, celebrating diversity, and including their students' histories in curriculum.

Jones (2009) stated that one of the most important aspects of interest is to develop classroom activities and make content selections based on students' background knowledge and interests. According to Alexander, Entwisle, and Kabbani (2001), engagement behaviors may be a stronger predictor of dropout than students' explicit academic successes or failures.

The following suggestions were made by Jones (2009) to help educators integrate the interest component into their pedagogy: (a) create activities that draw upon students' background knowledge and interests; (b) vary presentation styles; (c) incorporate information into lessons that students will find surprising or inconsistent with what they believe to be true; (d) demonstrate personal interest or enthusiasm when teaching lessons; (e) give learners the opportunity to ask questions regarding course content before, during, or after class.

Caring. Caring is the final component of the MUSIC Model (Jones, 2009), which describes the level of trust, respect, and care that teachers demonstrate toward learners. Low levels of caring support from teachers are associated with increased dropout (Lee & Burkham, 2003). Researchers have noted the importance that students place on caring relationships with their teachers. For example, Cushman (2006) asked 65 students to describe the qualities of teachers they most wanted. Participating students explained they wanted engaging classes taught

by teachers who liked and cared about the materials they taught, who treated their students as if they were smart and capable of challenging work, and who were respectful, caring, and trustworthy. In another investigation, Fine (1991) studied students at an urban high school, including 100 students who had dropped out and then returned to an alternative program to complete their educations. Participants indicated they had previously felt overwhelmed by the school environment and perceived their teachers as disinterested and uncaring. Thus, caring and trusting relationships between teachers and students can have a significantly positive impact on the success of at-risk students.

In the MUSIC Model, the caring component echoes what is continually found in research on successful programs for at-risk students. As Larsen and Birmingham (2003) posited, "time and again, studies have shown that the greatest protective factor for children and teens is caring relationships" (p. 84). A teacher's demonstration of caring behaviors can make a phenomenal difference in students' lives. The ways that students adapt to the changes high school brings about occur differently for each individual. Flexible and varied approaches are integral to the academic success of at-risk students (Cohen & Smerdon, 2009); this is why many at-risk students find success in student-centered schools with faculty who demonstrate caring attitudes and emphasize students' capabilities (Barr & Parrett, 2001). Caring is an often overlooked practice that can make a difference in a student's life (Werner & Smith, 1992).

Class size also seems to make a difference for at-risk students because of its influence on teachers' abilities to develop meaningful, caring relationships with students. Christle et al. (2007) found that more affluently populated schools were able to target and then intervene with their at-risk students to help them succeed; poorer schools whose at-risk populations permeated the student body were not able to do this. A small group approach was necessary—and

impossible— in poor schools where much of the student population was characterized as at-risk. Christle et al. (2007) also found that students became attached to schools that offered supportive and caring environments that recognized students' individuality and supported their academic and future endeavors.

In Christle's et al. (2007) study of the characteristics of Kentucky schools with high drop-out rates, the following variables were studied: "school demographics, environment, policies, and disciplinary procedures; classroom environment and instruction' administrator characteristics, philosophies, beliefs, attitudes, and behaviors; staff characteristics, beliefs, attitudes, and behaviors; and student characteristics and behaviors" (p. 327). Through direct observations, interviews, and surveys, many variables were determined to affect student dropout. Findings suggested poorer school systems report administrators with less experience and poor family involvement (Christle et al., 2007). Researchers also observed that teachers in poor schools were often not as experienced when compared to schools of greater income levels. In poorer schools, there was a greater student-to-teacher ratio, which can be detrimental to the success of at-risk students, who often need caring, one-on-one approaches (Christle et al., 2007). The report also found in these low performing school systems there was a less authoritative staff and the expectations regarding student behavior were unclear. Another result of the higher student to teacher ratio showed that there was less praise by the staff and less student and teacher interaction during class (Christle et al., 2007). Croninger and Lee (2001) reported that teachers were an important source of social capital for students, which had the capacity to reduce dropout probabilities by half. The effects teachers have on at-risk students are important because often teachers are the only role models these students encounter. The findings from the Christle et al.

(2007) study indicated that the characteristics and behaviors of teachers had a significant effect on student success.

To integrate the caring component, Jones (2009) provides the following recommendations to instructors: (a) demonstrate concern for successes and failures of students; (b) demonstrate value for students' ideas and opinions; (c) devote time to helping students; (d) be open to making accommodations for students who experience extenuating circumstances in their lives; and (e) create activates that foster engagement and interaction with one another.

The MUSIC Model and At-Risk Students

The MUSIC Model addresses the use of an effective motivational and instructional model to improve student success (Jones, 2009). As Featherstone (2010) explained, "Providing alternative educational options are pivotal, but cannot be effective unless teachers differentiate their teaching and curriculum to meet the needs of the student" (p. 73). At-risk students taught with traditional techniques are likely to experience repeated failures. Because there is no common instructional model for at-risk populations, teachers need specific tools to administer effective instruction to at-risk students (Featherstone, 2010).

In conjunction with what past studies have indicated about at-risk populations, a review of the components of the MUSIC Model (Jones, 2009) suggests consistency with the needs of at-risk learners. Teachers and schools may effectively utilize the MUSIC Model with large at-risk populations. However, prior to this study, no research existed on the use of the MUSIC Model among at-risk populations.

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Academic Identification

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Definitions of Academic Identification

Osborne (1997) defined academic identification as "the extent to which academic pursuits and outcomes form the basis for global self-evaluation" (p. 59). Voekl's (1997)

definition of academic identification was slightly different, in that the researcher included the sense of belonging. Voelkl defined academic identification as a student's sense of bonding or attachment to academics, which has two components: (a) a student's sense of belongingness in the school; and (b) his or her value of academic outcomes. It is important to distinguish the major difference between the ways these two researchers defined academic identification. Voelkl's definition included a student's sense of belonging, while Osborne's did not. The following adaptation of Osborne's (1997) original definition of academic identification, developed by Osborne and Jones (2011), will be used for the proposed research: "the extent to which an individual defines the self through a role or performance in a particular domain, in this case schooling and academics" (p. 132-133).

Outcomes of Academic Identification

Studies indicated that identifying with a domain related to performance outcomes in that domain (e.g., Kanungo, 1979; Pasley et al., 2002). Specifically, identification with school activities may influence students' academic outcomes (Finn, 1989; Osborne, 1997; Voelkl, 1997). As Walker, Greene, and Mansell (2006) explained, students who identify with academics may be more motivated to succeed academically, which can result in better academic outcomes. Similarly, Walker et al. argued that academically *unidentified* students were more likely to demonstrate reduced motivation, poorer academic performance, higher rates of absenteeism, and more withdrawal from school than students who identified academically.

Voelkl (1997) posited that identification with academics involved a combination of a students' academic success and his or her participation in classroom learning activities. Thus, the relationship between academic identification and academic success is likely due to students' successful school experiences and classroom participation. The more a student identifies with academics, the more likely he or she is to engage in learning activities. The more a student

engages in learning, the more academically successful he or she will be. In this way, a student's level of identification with academics can have a significant effect on his or her academic outcomes. Because identification is strongly linked to success in school, Voelkl offered recommendations for improving students' academic identification, such as calling on students for answers, moving their seat to the front of the room, and having students engage in small-group learning activities.

Researchers have explored the relationship between academic identification and academic outcomes, such as behavior (Osborne, Walker, & Rausch, 2002), engagement with curriculum (Voekl, 1995, 1996), academic achievement (Osborne, 1997; Voekl, 1997), sense of belonging (Goodenow & Grady, 1993) and dropout (Finn, 1989; Wehlage et al., 1989). For example, Goodenow and Grady (1993) explored the relationship between sense of school belonging, perceptions of friends' academic values, and personal academic motivation among a group of 301 African American, Caucasian, and Hispanic students in an urban middle school. The researchers discovered a significant relationship between school belonging, expectations of academic success, academic motivation, and efforts put into classwork. The researchers also reported that sense of belonging was a stronger indicator of expectations for success among Hispanic students and girls than among African Americans and boys.

In another study, Voekl (1996) explored the extent to which gender and race affected academic identification among a large sample of 3,539 eighth-grade students in Tennessee. Voekl argued that poor behaviors, such as truancy and disengagement from school, were associated with students' sense of academic belonging. The researcher explained, "students who fail to identify with school may be predisposed to a likely pattern of negative school behaviors and eventual withdraw" (p. 761). On the other hand, those who identify with school are more

likely to participate in school and experience greater academic success. Results from Voekl's research indicated that African Americans demonstrated greater academic identification than Caucasians, and girls demonstrated greater academic identification than boys did. As a group, Caucasian boys experienced the lowest levels of academic identification, suggesting this group may be at an unexpectedly elevated risk for withdrawal than other groups.

A model of domain identification posited by Osborne and Jones (2011) is shown in Figure 2. This model illustrates how students' experiences in school may relate to academic identification, engagement, and outcomes. Many factors can affect academic identification, including group membership, race/ethnicity, social class, gender, family, peers, community environment, school climate, and school experiences (Osborne & Jones, 2011). Students' beliefs related to their educational experiences can influence their academic identification, including their: (a) beliefs in their abilities to be academically autonomous; (b) beliefs that academics will benefit their goals; (c) beliefs that they can succeed academically; and (d) beliefs that they belong within the academic environment. Further, Osborne and Jones explained that school experiences can be "contextualized in relation to the outcomes of those around the individual, making social comparison important" (p. 139). Thus, outcomes (academic achievement) may be influenced by a student's academic identification and school experiences (such as MUSIC Model perceptions). Osborne and Jones explained,

> …students who are more strongly identified with academics should choose to engage in academic activities, put forth more effort to succeed academically, and persist longer in the face of frustration or failure than those who have disidentified because their self-esteem would be more strongly influenced by academic performance. (p. 139)
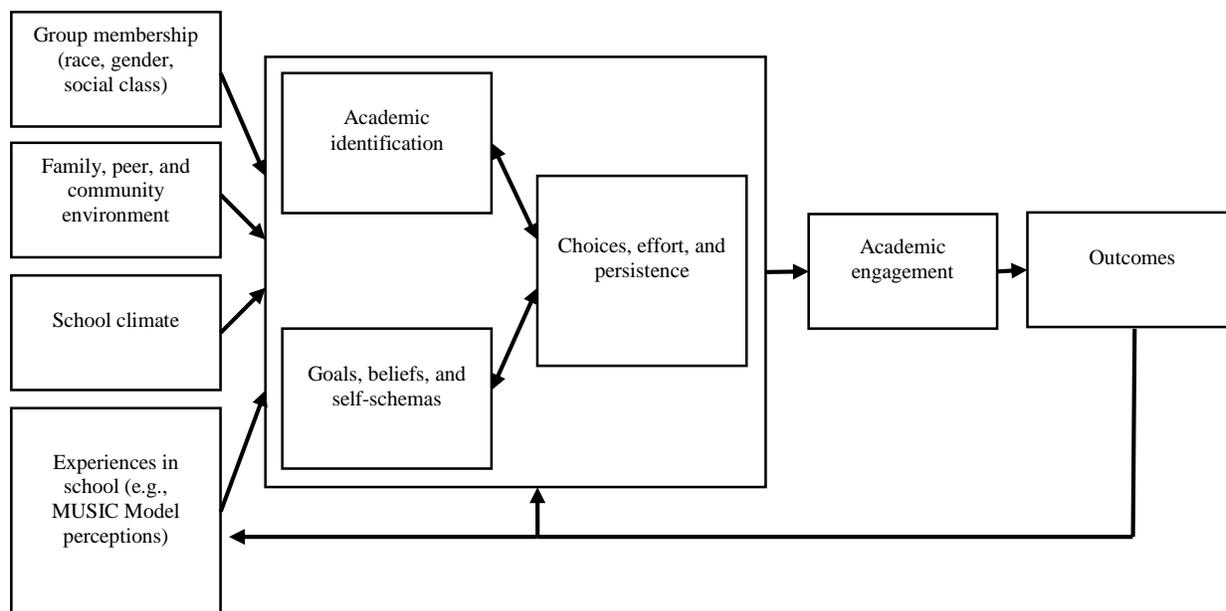
Figure 2. Precursors and Consequences of Academic Identification (modified from Osborne & Jones, 2011).

Students who identify strongly with academics are more likely to have goals, beliefs, and self-schema that nurture academic success. Similarly, academically identified students demonstrate choices, efforts, and persistence that lead to school engagement, such as completing homework, studying, or attending class. In turn, such behaviors increase the likelihood of desirable academic outcomes, such as earning good grades and graduating from high school. Positive academic outcomes are likely to have a positive effect on students' academic identification; goals, beliefs, and self-schema; and choices, efforts, and persistence. Such outcomes may also have a positive influence on students' school experiences. Figure 2 illustrates the theoretical link between students' (a) background factors; (b) academic identification; (c) choices, efforts, and persistence; (d) goals, beliefs, and self-schema; (e) behaviors; and (f) academic performance and outcomes (Jones & Osborne, 2011).

Assessing Students' Academic Identification

Osborne (1997) developed an assessment for identifying students most likely to need interventions in order to improve academic identification. Osborne's study consisted of 165 college freshmen who were predominantly White (91%) and female (64%). Students were from a poor, rural area in the United States. The researcher studied the cohort for two years, exploring variables of sex, age, race, self-esteem, GPA, academic standing, graduation status (at the end of the two years), and identification with academics. An assessment was constructed to measure academic identification, which "fared well in predicting academic performance up to two years into the future" (p. 66). Osborne suggested that the scale could be used to guide teachers and educational leaders when making decisions as to which students should receive interventions, such as tutoring and special advising. Such information is particularly important in light of the limited resources schools have to expend on interventions; thus, the academic identification measure could help stakeholders target interventions to the students that need them most.

Jones, Paretti, Hein, and Knott (2010) developed another identification scale from an adaptation of the instrument Schmader, Major, and Gramzow (2001) developed to assess the degree to which students devalued academics. Jones et al. (2010) reverse coded the items from Schmader's et al. instrument. Schmader's et al. scale demonstrated good Cronbach's alphas (0.78 and 0.85), as did the adaptation by Jones and his colleagues. Since the aim of the study conducted by Jones et al. was to measure students' identification within the domain of engineering, the researchers replaced general terms, such as "school," with engineering-specific terms, such as "engineering school." This scale was also utilized by Jones et al. (2014, 2015) in later studies.

In the current study, I utilized an adaptation of the engineering identification scale that Jones et al. (2010) developed. To generalize the scale back to academic identification, I replaced

engineering-specific language with more general terms for the assessment of academic identification. This four-item scale required participants to respond to statements such as, "Being good at academics is an important part of who I am" using a Likert scale ranging from 1 (*Strongly disagree*) to 6 (*Strongly agree*).

Relationship between the MUSIC Model and Domain Identification

Academic identification is an important factor in student motivation, and one that is particularly important for teachers and educational leaders to be aware of because of its malleability (Osborne, 1997). Unlike many static qualities that may affect student performance, such as race and socioeconomic status, academic identification can be changed through intervention. Osborne and Jones (2011) offered several suggestions for increasing students' identification with academics, including the following: (a) empowerment, (b) demonstrating usefulness, (c) supporting student success, (d) triggering student interest, and (e) fostering a sense of belonging. From these recommendations, it is easy to see how the MUSIC Model may be utilized to improve students' academic identification.

Researchers have already established a positive relationship between the MUSIC Model and increased academic identification (Jones et al., 2014; Jones, Sahbaz, et al., 2015; Jones, Tendhar et al., 2015). For example, Jones et al. (2014) explored how the MUSIC Model affected engineering students' motivational beliefs, course efforts, grades, and career goals. The researchers discovered that all five components of the MUSIC Model correlated with students' identification with engineering and their motivational beliefs related to the course.

More recently, Jones, Tendhar, et al. (2015) examined how undergraduate engineering students' perceptions of MUSIC Model components related to their identification with engineering. The researchers conducted exploratory factor analyses and structural equation modeling (SEM) to investigate the relationship. Results of data analysis indicated that students'

perceptions of the model components correlated with their engineering identification, their beliefs regarding engineering, and their educational and career goals related to engineering. The specific MUSIC model components that predicted identification included empowerment, usefulness, success, and caring. The researchers concluded that "These findings are important because they offer the possibility of teaching implications beyond those provided by theories that focus mostly on self-efficacy and expectancy for success" (p. 9). The researchers also explained that results demonstrated the significance of students' perceptions of the empowerment, usefulness, and caring components to the general field of academic motivation.

In another study, Jones, Sahbaz, et al. (2015) investigated the extent to which the MUSIC Model assessed the motivational beliefs of elementary and middle school science students. Research results on the cohort of science students in primary grades differed from earlier findings on the cohort of college level engineering students (Jones et al., 2014). The researchers reported that only the components of usefulness and success appeared significantly related to science identification among the younger students. Jones et al. (2014) suggested that the reason for this may have been that usefulness and success had a greater effect on science identification than the other MUSIC Model components. These varied results indicated the need for further research to assess the link between the MUSIC Model and academic identification among different groups of learners.

Summary

The research reviewed in this chapter presented a strong argument for motivational interventions among students at-risk for academic failure. Because the comprehensive approach of Jones' (2009) MUSIC Model addresses all of aspects of student motivation, the current study was needed to determine if it might be an effective tool for teachers to use with at-risk students. Although previous researchers explored the MUSIC Model's utility on other cohorts of students

(Jones, 2009; Jones & Wilkins, 2013, 2015; Parkes, Jones, & Wilkins, 2015), no research had been conducted to determine the model's effectiveness on at-risk high school students.

In addition, because research indicated that academic identification played a key role in student success (Finn, 1989; Goodenow & Grady, 1993; Osborne, 1997; Osborne, Walker, & Rausch, 2002; Voekl, 1995, 1996, 1997; Wehlage et al., 1989), research was needed to explore how identification might be improved among at-risk high school students. A positive relationship between components of the MUSIC Model and increased academic identification had been reported (Jones et al., 2014; Jones, Tendhar, & Paretti, 2015), but results warranted further investigation of the relationship among different student cohorts.

The current study shed new light on the utility of the MUSIC Model among at-risk students and any relation between the Model and academic identification. Essentially, the current study was needed to determine if the MUSIC Model of motivation could be used to improve academic identification among at-risk, high school students, to increase students' academic success (see Figure 3).
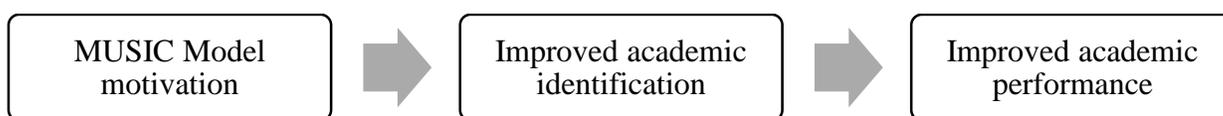

Figure 3: Possible Relationship Between MUSIC Model, Academic Identification, and Academic Performance Among At-Risk High School Students.

This chapter provided a comprehensive examination of existing research on academic motivation, academic identification, and at-risk students. Chapter 3 includes a detailed explication of the methodology that was employed for the current study.

CHAPTER 3: METHODOLOGY

Introduction

The rate of dropout among high school at-risk students in the United States is a significant problem (Bellair & Kowalski, 2011; Sampson & Wilson, 1995). To reduce dropout rates, researchers and educators must acquire a better understanding of academic motivation and identification among these learners (Anderman & Wolters, 2006; Fan & Wolters, 2014; Osborne, 1997). In the current study, I investigated dropout among at-risk, high school students by exploring the extent to which the MUSIC Inventory (Jones, 2015) produced valid scores for these learners. In addition, I explored the extent to which students' motivational beliefs predicted their academic identification and achievement.

This chapter provides a detailed explanation of the methodology used in this study. It includes a discussion of the study's design, population, sampling strategy, research questions, and instrumentation. The data analysis and collection plans are described, as are reliability, validity, and important ethical considerations. Finally, the chapter concludes with a brief summary.

Research Questions

I designed this study to address the following two research questions.

RQ1: To what extent does the MUSIC Model of Academic Motivation Inventory produce valid scores with at-risk high school students?

RQ2: To what extent do students' motivational beliefs predict their academic identification and achievement?

Research Design

I employed a quantitative methodology to evaluate the validity of the MUSIC Model among at-risk high school students and to objectively assess the extent to which students'

perceptions of the MUSIC Model components predicted their academic identification and achievement. Quantitative methods are useful for evaluating statistically significant effects of measurable concepts (Howell, 2010). Correlational designs are appropriate for research that explores the relationships between variables within a study sample. The application of structural equation modeling allowed me to evaluate potential relationships between MUSIC Model components and academic identification and achievement.

Participants and Setting

I intended to draw the sample for this study from the population of at-risk students at two alternative high schools. Both schools were located in the same school district in a mid-Atlantic U.S. state. To be eligible for the study, participants had to meet the following inclusion criteria: (a) be classified as *at-risk* due to their enrollment at one of the two study sites, and (b) be in grades 9, 10, 11, or 12. From the first school, School A, 100 students participated. However, I was only able to obtain three participants from School B. Due to the low sample size from School B, I did not include participants from that school in my study.

School A

School A is an alternative school in a Mid-Atlantic state. The majority of students are over-age, under-credited, and at-risk of dropping out of high school. Students are referred to School A from one of the two other public high schools in their district. Students apply to School A and undergo an in-person interview that normally includes their parent/guardian. In the interview, administrators, various teachers, and attendance specialists meet with each referred student and accept those students whose needs will be best met within the school. Once accepted, each student's schedule is designed to fit their exact needs. Some students are in computer labs at different times during the day working on credit recovery courses with a

teacher, while others are in regular classrooms. Students can work at their own pace, and the class sizes are very small which leads to a more one-on-one type of learning environment. Not passing state tests keeps many students from graduation, so carefully planned and executed ongoing remediation programs occur throughout the year to help students pass the state standard tests necessary for graduation.

Outside services are also a part of the school environment. For students who have been given a psychiatric evaluation and approved through Medicaid, School A also houses a counseling agency which staffs one or two counselors. The approved students check in daily with the counselors as well as when they have an immediate need. Another organization that reaches out to teen moms comes once a week for 50 minutes and talks to females who are pregnant or who already have children. They talk to the students about pregnancy, parenting, and help with student's specific needs. Also, there are two attendance specialists assigned to School A with degrees in social work. The attendance specialists report truancy and deal with students not attending school regularly. Both specialists go out into the community and make home visits alone (and with teachers and administrators) to check up on students not regularly attending school. These specialists are also able to help students apply for relevant social service programs. A teen outreach program also visits the school a few times a month and takes students enrolled in various electives out to volunteer in the community. As well, the faculty and staff regularly bring in food and clothing for the attendance specialists to send home with students in need.

Recruitment. After the principal at School A agreed to include his school in the present study, I was informed that the school district had their own IRB process that I would have to comply with. I completed and turned in all IRB forms required by the district and received

approval shortly thereafter. I was sent a list of student names from the school counselor and then asked English teachers for their class rosters. A total of 109 students had an English class, so the principal advised me to distribute permission forms and conduct the surveys in English classes. The teachers were extremely helpful and worked hard to help collect the student consent and parent permission forms. After one week, 70 students had completed and returned the required forms, so I began to pull small groups from English classes at regular intervals to conduct the survey. Of all students who returned consent or parent permission forms, only one student opted out of the research. My final number of participants was 100.

School B

After receiving approval by the Virginia Tech IRB, I contacted the principal of School B to present her with details of the research and request her approval for me to utilize the location as one of my study sites and the principal agreed. I needed a list of student names so I could help teachers keep track of parental permission and student consent forms. However, the school requested that I send them the forms for the teachers to handle. Accordingly, I sent them 80 forms, but after two weeks of repeated attempts to follow-up on student forms, only five parent permission forms had been received. Of those five students with permission, only three were present on the day I conducted the survey. Because three students were not enough to permit me to generalize my findings I decided to exclude the school from the study.

Measures

MUSIC Model of Academic Motivation Inventory

I assessed academic motivation with the MUSIC^{SM} Model of Academic Motivation Inventory, Middle/High School Version (MUSIC Inventory; Jones, 2015). The MUSIC Inventory allows researchers to measure the five components of the MUSIC Model of Academic Motivation, including empowerment, usefulness, success, interest, and caring. The inventory

consists of 18 statements to which students respond on a six-point Likert scale, ranging from 1 = *strongly disagree* to 6 = *strongly agree.* Each item on the MUSIC Inventory corresponds with one of the five components of the model. For example, responses to four items such as, "I had control over how I learned the course content," measures student empowerment. Usefulness is assessed with three items such as, "The coursework was beneficial to me." Success is measured with four items such as, "I was capable of getting a high grade in this course." A student's level of interest is gauged by his or her response to three statements such as, "The coursework held my attention." Finally, students' perceptions of instructors' care is assessed by responses to four items such as, "The instructor was respectful of me."

The MUSIC Inventory has been validated for use among college students in the United States (Jones & Skaggs, in press) and in Egypt (Hanaa, Hussein, & Jones, 2013). A Middle/High School version of the instrument was developed, tested, and validated among 5th through 7th grade science students (Jones & Wilkins, 2013, 2015), and 5th through 12th grade music and band students (Parkes, Jones, & Wilkins, 2015). In the current study, I tested the validity of the MUSIC Inventory for Middle/High School students for use with at-risk high school students.

Academic Identification

I measured academic identification using a four-item Identification with Academics instrument, adapted from the four-item measure developed by Schmader, Major, and Gramzow (2001; $\alpha = .78$). Academic identification was defined as "the extent to which an individual defines the self through a role or performance in a particular domain, in this case schooling and academics" (Osborne & Jones, 2011, p. 132-133). This instrument produced Cronbach's alpha values of 0.84 and 0.89 in Jones et al. (2010), and 0.92 in Jones et al. (2014) among engineering students. It was also used to assess science identification among upper elementary and middle school students (Jones et al., 2015). The inventory prompts students to respond to statements

such as, "Being good at academics is an important part of who I am." Responses range from 1 = *strongly disagree* to 6 = *strongly agree*. In studies with undergraduate engineering students, instrument scores were positively related to a variety of students' beliefs about engineering, such career goals (Jones et al., 2010; Jones et al., 2014), engineering expectancy, self-efficacy, interest, attainment value, and utility value (Jones et al., 2010). Jones et al. (2015) used the Identification with Academics scale to determine that the MUSIC Model components of usefulness and success were significantly related to science identification among upper elementary and middle school science students.

Academic Achievement

Academic achievement was measured by students' Grade Point Average (GPA) at the end of their first nine-weeks. GPA was calculated by dividing total grade points by total letter grade units. Letter grade units included the following letter grades: A, B, C, D, and F. Each letter grade has a designated numerical value, as follows: A = 4.0; B = 3.0; C = 2.0; D = 1.0; and F = 0. A student's GPA is calculated at the end of each nine weeks, after letter grades for each class have been recorded.

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Data Collection

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The questionnaire consisted of the MUSIC Inventory for middle/high school students (Jones, 2015), the Identification with Academics scale (Schmader et al., 2001), and three items that measured students' demographic data, including race, gender, age, and grade level. I administered the questionnaire as a paper and pencil survey to a sample of 103 at-risk high school students in attendance at the two schools. I acquired consent, in the forms of student consent (for students 18 years or older), parent consent, and student assent (for students younger than 18 years old), prior to any data collection (as described in the *Ethical Considerations* section of this chapter). I collected the data during the month October 2015. I administered the

questionnaires to participating students in classes that teachers and administrators agreed to. I surveyed students in three English classes, in groups of approximately 20 at a time. A period of 15 minutes was allotted for all participating students to complete the survey. Once completed, I collected and placed all surveys into a locked briefcase, where they remained until I converted them into digital data. I obtained participating students' GPAs for the first nine weeks and entered them into the electronic file along with students' survey responses.

I pulled students with permission to participate in the study from their English in small groups over a 15-minute period. Students were taken to a quiet setting, where I explained the purpose of the study and read the assent form. At that time, students with parent permission forms signed and assent form if they wanted to continue. Students who were 18 were given their assent forms as well. I then distributed one paper and pencil survey to each student. On average, each group contained approximately 20 participants, and a total of five groups were pulled during the data collection period, until completed surveys were gathered from all 100 participants. An explanation of the study and the completion of surveys took approximately 15 minutes. Five minutes of that time were used to complete the surveys.

After surveys were complete, I collected them from each participant and transferred them to a locked case, to which only I had access. All paper data were kept in this case until all surveys had been completed. At that time, I entered the data digitally into SPSS 23 for analysis. These data included the following for each participant: (a) responses to the study survey; (b) demographic information (see Table 3); and (c) average nine-week grades, calculated based on a 4.0 GPA model. The genders of participants were evenly distributed, with 51% male and 49% female. The majority of the participants were African American (63%), followed by multiracial (15%) and White (13%). Five percent of participants reported a race of "other." Over half of

participants were in 12th grade (55%); 34% were in 11th grade; 7% were in 10th grade; and 4% were in 9th grade. School A has many more juniors and seniors because it is a school for over-age and under-credited at-risk youth. Also, with self-pacing in certain courses, students have the ability to move up grade levels within a shorter time span, depending upon their commitment to the work. This is why the student ages were not evenly distributed in the study (although it is representative of the overall student population in School A). The average GPA of all participants was 2.76.

Table 3

Participant Demographics

Gender	Male			Female			
	51 (51%)			49 (49%)			
Race	White	African American	Hispanic	Asian/Pacific Islander	American Indian	Multiracial	Other
	13 (13%)	63 (63%)	4 (4%)	0 (0%)	0 (0%)	15 (15%)	5 (5%)
Grade	9th		10th		11th		12th
	4 (4%)		7 (7%)		34 (34%)		55 (55%)

Data Analysis

I employed the two-step structural equation modeling (SEM) approach that Anderson and Gerbing (1988) suggested. The first step was to use AMOS 6.0 software to compute a measurement model to assess the fit to the data. The second step was to estimate the structural model to explore the relationships between MUSIC Model components, academic identification, and grade point average (GPA), as shown in Figure 4.
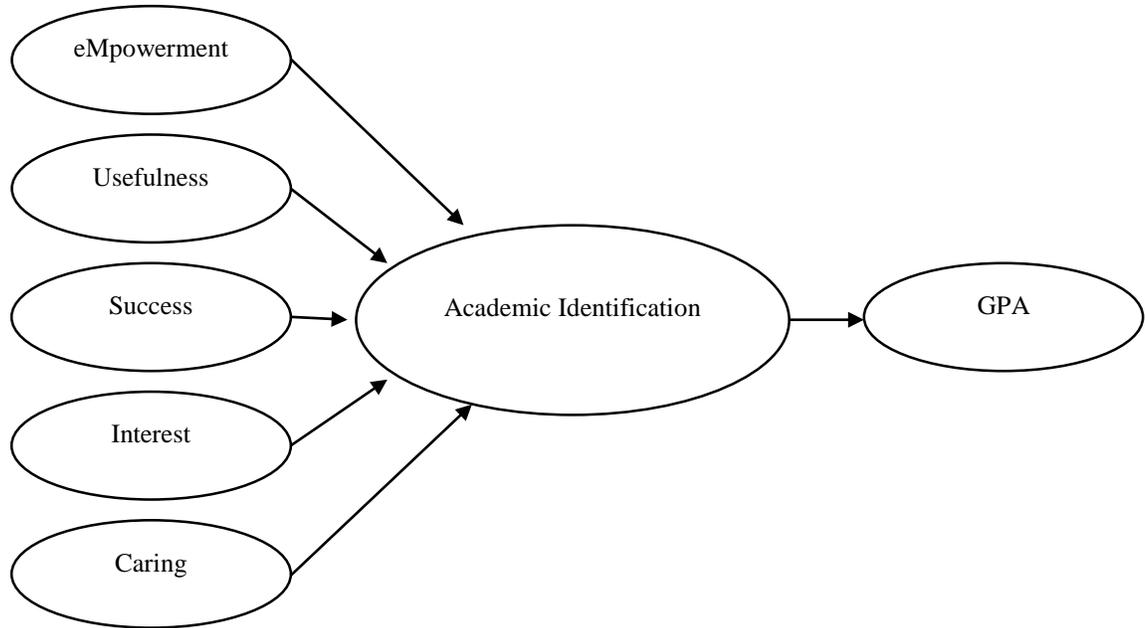
Figure 4. Relationships Between Students' Perceptions of their School Academics, their Academic Identification, and their GPA.

Internal Consistency Reliability

I used SPSS 23 to estimate the internal consistency reliability of the MUSIC Inventory (Jones, 2015) and the Identification with Academics scale (Schmader et al., 2001) by computing Cronbach's alpha using the following criteria to judge the values (George & Mallery, 2003): greater than 0.9 as *excellent*, between 0.8 and 0.9 as *good*, between 0.7 and 0.8 as *acceptable*, between 0.6 and 0.7 as *questionable*, between 0.5 and 0.6 as *poor*, and below 0.5 as *unacceptable*.

Construct Validity

To gauge the fit of the MUSIC Model, I created an SEM and used several indexes of fit: the Chi-Square statistic (χ^2), the Comparative Fit Index (CFI), the Standardized Root Mean Square Residual (SRMR), and the Root Mean Square Error of Approximation (RMSEA). The chi square statistic is used to test the fit of the model, with statistical significance indicating rejection of exact fit. Given complex models or large samples, the chi-square statistic is often found to be statistically significant, yet the model is a reasonable representation of the theory. Thus, additional fit indexes were used to control for the sensitivity of the chi-square statistic. The CFI varies between 0 and 1, with values closer to 1 indicating better fit, values above .90 representing reasonable fit, and values close to and above .95 representing good fit (Hu & Bentler, 1999). The SRMR also varies between 0 and 1, but values closer to 0 indicate better fit. SRMR values less than .05 indicate good fit (Byrne, 2001) and SRMR values less than .10 represent reasonable fit (Kline, 2005). The RMSEA also varies between 0 and 1 with values closer to 0 indicating better fit. RMSEA values less than .08 indicate reasonable fit and values less than .05 indicate good fit (Browne & Cudeck, 1993; Byrne, 2001; Kline, 2005). Along with the RMSEA value, the 90% confidence interval is reported which can be used to make judgments of close fit (pclose < .05) or poor fit (pclose > .10).

Discriminant/Convergent Validity

As a subgroup of construct validity, I gathered discriminant/convergent validity by examining factor loading and correlation tables. Using MUSIC Inventory subscales, I was able to examine the validity by assessing the correlations. For a subscale to be considered distinct, they must not be found to be highly correlated among themselves; instead, they must

discriminate. The convergence is when they are correlated. The correlations of subscales should be lower than the item correlation within the subscales (Thorndike, 1997).

Ethical Considerations

Ethical and moral considerations must be taken whenever research involves human subjects. According to the Belmont Report (U.S. Department of Health & Human Services, 1979), all research involving human subjects is bound by ethical principles of justice, beneficence, and respect. The current research will be guided by these principles, which include: (a) respect for individuals; (b) protection of participants and efforts to maximize benefits to them; and (c) justice through equity and fairness (Belmont Report, 1979).

Before conducting any research, I acquired approval from the institutional review board (IRB) at Virginia Tech. Following IRB approval, I acquired study permission from the administrators at each of the study sites (two alternative schools located in the same county in the Mid-Atlantic United States), as well as the IRB for the school district. All students under the age of 18 acquired parental consent before participating in the study. Participants over the age of 18 were required to sign the informed consent form prior to participation. Before administering questionnaires, I read an assent script to all participants. This script explained the purpose of the study to all participants and iterated that participation was voluntary. If any participant decided, at any point during data collection, that he or she no longer wished to participate, any data collected from that individual would be destroyed and the individual removed from the study. Only one student withdrew. Students received no incentives for their participation. I accessed student data from the counselors at School A in order to obtain the first nine-week GPAs for each participant.

The identities of all participants were protected. I assigned numerical identifiers to each survey for data analysis. I converted all data from paper surveys into electronic data and entered all data into an electronic spreadsheet for analysis. Paper questionnaires were stored in a locked filing cabinet, to which only I had access. Although all research includes some degree of inherent risk, I mitigated potential harm to participants by obtaining their consent, disclosing the purpose of the research, and protecting participants' identities (Rajendran, 2009). The threat to participants was very minimal.

Summary

The purpose of this quantitative investigation was to address high dropout rates among at-risk, high school students by exploring the extent to which students' motivational beliefs predicted their academic identification and achievement. I conducted the present investigation to determine whether the MUSIC Inventory (Jones, 2015) would produce valid scores when used with at-risk students. This chapter presented the design of the current research, including a discussion of the population, participant selection, and instrumentation. Data collection and analysis procedures were also discussed, as were ethical considerations. In the following chapter, results from data analysis are provided. Finally, a discussion of the study's results and implications is provided in Chapter 5.

CHAPTER 4: RESULTS

Introduction

The aim of this quantitative research was to explore the extent to which students'

motivational beliefs predicted their academic identification and achievement. Specifically, I

investigated the extent to which the MUSIC Model of Academic Motivation (Jones, 2009)

produced valid scores with at-risk high school students, and the extent to which students'

motivational beliefs predicted their academic identification and achievement. This chapter

provides an in-depth discussion of the findings from the present study, including a review of the

methodology presented in Chapter 3 and minor alterations that I performed.

Internal Consistency Reliability

The Cronbach's alpha coefficients for the instruments were low for usefulness ($\alpha = .55$),

success ($\alpha = .56$), and interest ($\alpha = .50$); however, they were good for caring ($\alpha = .80$) and

academic identification ($\alpha = .81$). The Cronbach's alpha coefficient for empowerment was

acceptable ($\alpha = .63$) (Nunnaly & Bernstein, 1994).

Construct Validity

Table 4 shows the factor loadings from the CFA that I conducted with all of the MUSIC

Model variables included. All of the variables loaded on their hypothesized factor with a loading

above 0.32 (ranging from 0.33 to 0.84), which indicated that the loadings were acceptable

(Tabachnick & Fidell, 1996). Table 5 shows the factor loadings from the CFA that was

conducted with the Identification variable. The factor loadings for the identification variable

were acceptable and ranged from 0.62 to 0.92. Many of the factor loadings were over 0.50,

which is considered a solid factor (Costello & Osborne, 2005).

Table 4

Factor Loadings from the CFA for the MUSIC Variables

Item	M	U	S	I	C
M1	0.66	--	--	--	--
M2	0.38	--	--	--	--
M3	0.51	--	--	--	--
M4	0.64	--	--	--	--
U1	--	0.33	--	--	--
U2	--	0.80	--	--	--
U3	--	0.46	--	--	--
S1	--	--	0.50	--	--
S2	--	--	0.44	--	--
S3	--	--	0.56	--	--
S4	--	--	0.53	--	--
I1	--	--	--	0.43	--
I2	--	--	--	0.59	--
I3	--	--	--	0.47	--
C1	--	--	--	--	0.53
C2	--	--	--	--	0.68
C3	--	--	--	--	0.84
C4	--	--	--	--	0.79

Note. The following abbreviations are used: M = eMpowerment, U = Usefulness, S = Success, I = Interest, C = Caring.

Table 5

Factor Loadings from the CFA for Identification

	Factor loading
IDENT1	.63
IDENT2	.93
IDENT3	.65
IDENT4	.72

Note. The items listed (IDENT 1, IDENT2, IDENT3, and IDENT4) correspond with the four items on the Identification with Academics scale.

Discriminant and Convergent Validity

In Table 6, the mean and standard deviations are included for MUSIC Model components and academic identification. In statistics, the mean describes the average and the standard deviation is a measure of the variation in the data. A standard deviation close to zero indicates data points are close to the expected values/means (Bland & Altman, 1996). In the current study, the standard deviations were low for all of the MUSIC and identification components. Hence, all of the components in the Music Model were found to be close to the mean. A 6-point Likert scale was used in the study, and the means for all of the components were 4.41 or higher. Care had the highest mean, 5.24. The original SEM model was modified to take out empowerment and interest; however, as indicated in Table 6, both were still fairly high on the 6-point scale (empowerment had a mean of 4.69 and interest had a mean of 4.41).

Table 6

Sample Correlation Matrix

	M	U	S	I	C	GPA	Identification
M	1.00	.076	.450	.437	.527	.079	.177
U	--	1.00	.145	.371	.071	.015	.332
S	--	--	1.00	.461	.526	.389	.316
I	--	--	--	1.00	.418	.071	.395
C	--	--	--	--	1.00	.261	.337
Mean	4.69	4.80	5.23	4.41	5.24	2.76	5.14
SD	0.73	0.78	0.54	0.78	0.76	0.94	0.79

Results of the Structural Equation Model

After running the hypothesized SEM measurement model, the following values were

produced: an overall χ2 value of 13.187, *df* = 4; RMSEA = .152 (for which < .05 is good and <

.08 is reasonable; Browne & Cudeck, 1993; Bryne, 2001, Kline, 2005); SRMR = .054 (for which

< .05 is good, and < .1 is reasonable); and CFI = .936 (for which closer to 1 is better; Hu &

Bentler, 1999). The hypothesized model worked with all of the variables as composite measured

variables. Academic identification and GPA interacted with each other.

All of the model pathways were statistically significant except for empowerment and

interest. Therefore, I reran the model with both of these paths removed. The results of the

modified model produced the following values: an overall χ2 value of 7.795, *df* = 2, with the

goodness of fit indices showing RMSEA = .171 (90% confidence interval is .057 to .305) (for

which < .05 is good and < .08 is reasonable; Browne & Cudeck, 1993; Bryne, 2001, Kline,

2005); SRMR = .057 (for which < .05 is good, and < .1 is reasonable); and CFI = .913 (for which

closer to 1 is better; Hu & Bentler, 1999). It is significant that the modified model, which

excluded empowerment and interest, fit the data well. Usefulness, success, and caring were all

significant to academic identification and GPA.

RMSEA

Models that demonstrate small degrees of freedom (*df*) and small sample sizes can

demonstrate inaccurately high RMSEA values. Accordingly, Kenny, Kaniskan, and McCoach

(2014) argued that RMSEA should not be utilized for models with low *df*. Degree of freedom is

a function of the number of observations and the number of variables in a model. Degrees of

freedom define *effective* sample sizes and describe the number of pieces of useful information

(Eisenhauer, 2008). A *df* of 2, which was found in the modified model, was still not able to provide enough information; *df* loses power when it is lower.

The smaller sample size could be another reason why the RMSEA turned out at .171 on the modified models. The lower value of the 90% confidence level was very close to .05, but the upper value of the 90% confidence was too large; it needed to be .08, not the .30 found in the modified model. The RMSEA with smaller values indicated better model fit. If *p*>.05 is found as it was in this study, indicating the fit of the model is considered a pclose, which is not ideal, but is also not a worst fit, as indicated by a *p*<.05. Confidence intervals can be computed for RMSEA. A lower value of the 90% confidence interval is at or near zero, and the upper value is typically less than .08. The width of the confidence interval provides important information on the precision of the RMSEA.

Standardized Root Mean Square

SRMR describes the absolute measure of fit, which is determined by the standardized difference between observed and predicted correlations. Values closest to zero indicate perfect fit, while .08 is generally considered a good fit (Hu & Bentler, 1999). Thus, the SRMR in the hypothesized model (.054) and in the modified model (.057) both indicated good fit.

Chi-Square

Chi-square was a reasonable measure of fit for the sample size used in this study. For the hypothesized model, $X^2 = 13.187$ and *df* = 4, making the chance probability, .010. For the modified model $X^2 = 7.795$ and d = 2 making the chance probability, .020. Therefore, the chance probability for both models was .020 and .010, making the probability levels low. As observed values diverge from expected values, the chi-square test statistic becomes larger. Large values of chi-square are associated with large differences between observed and expected values**.** However, the chi-square test is only a *reasonable* measure of fit because many Type 1 errors can

affect smaller sample sizes. Because the current study had a relatively small sample size, an increase in participants could have yielded significantly different chi-square results. It is possible that the SRMR indication of a good fit was more important than the fit on the Chi-Square because the SRMR is an absolute measure of fit, whereas the Chi-Square is only considered reasonable, is fraught with many Type 1 errors, and is greatly affected by small sample size.

Comparative Fit Index (CFI)

The CFI is used to analyze models by exploring discrepancies between data and hypothesized models, while accounting for sample size issues inherent to chi-square tests. The comparative fit index calls for 0.95 as a desirable result and can range between 0 and 1. In the hypothesized model, CFI was at .936 and the modified model had a CFI of .913. Both models showed a good fit level because the larger values indicate a better fit. The CFI could also help to explain and show there were issues of sample size inherent in the chi-squared test of model fit.

CHAPTER 5: DISCUSSION AND IMPLICATIONS

Introduction

The purpose of this quantitative investigation was to explore the extent to which students' motivational beliefs predicted their academic identification and achievement. I investigated the extent to which the MUSIC Inventory (Jones, 2015) produced valid scores among at-risk high school students and the extent to which students' motivational beliefs predicted their academic identification and achievement. The influence of students' perceptions of the MUSIC Model components on academic identification was established by previous researchers (Jones et al., 2014; Jones, Tendar, et al., 2015); however, the model had not been tested for validity with at-risk high school students. Results from this study indicated that three of the MUSIC Model components have the potential to be useful tools for improving academic achievement among at-risk students. I present these factors, along with a discussion of the two that did not produce significance, in this chapter. This discussion chapter also includes details of study limitations, implications, and directions for future research.

Reliability Estimates

The Cronbach's alpha coefficient for empowerment was acceptable ($\alpha = .63$) (Nunnaly & Bernstein, 1994), but it was low for all other components, except for care (.80) and identification (.81), which both had modest reliability. The low alphas could suggest a problem with using the MUSIC Inventory items with this population of students. This study was the first time the MUSIC Inventory (Jones, 2015) had been used as a measure of all of a student's classes, instead of in reference to a particular class. Therefore, when students answered the inventory items, they were answering based on perceptions for five to seven different classes and teachers, rather than a single subject or teacher. Students may have averaged their perceptions in their minds based on the consensus of the information they recalled.

Implications for further research in this area bring acute awareness of how difficult it may be to measure these MUSIC model variables with high school students across several academic domains, due to students' varied classes, teachers, and assignments. For example, one of the questions for interest asks students to rate on a Likert scale from 1 to 6 how they feel about the following statement: "My class work is interesting to me." Such a statement could have posed a problem for students whose perceptions varied from class to class. A student may believe that her science class work is interesting, but finds assignments in her English class to be boring. Thus, she may have chosen a score to balance out her perceptions in different classes. An item in the empowerment scale asks students to assess the following statement: "I have options in how to achieve the goals in my classes." Such a statement could be difficult for students to answer if their levels of autonomy and freedom are not the same in every class. Students may feel they do not have options in some classes, such as Standards of Learning (SOL) courses. In SOL courses, students must take benchmark tests, remediate, and take SOL tests, all of which can affect students' self-perceptions of empowerment and eventual interest in these courses.

In the future, researchers may consider assessing just one domain, such as an English or science class, to improve the reliability of the MUSIC Inventory scales. In fact, the reliabilities have been acceptable for these skills when used in science classes (Jones & Wilkins, 2013, 2015) and music and band ensemble classes (Parkes et al., 2015).

Hypothesized Model

The data fit the hypothesized model with all of the variables measured as composite variables. However, empowerment and interest were not statistically significant predictors of identification. Thus, theoretical questions regarding the reason for the lack of significance of these two variables emerged. In the Jones et al. (2015) study of middle school students using the Middle/High School version of the MUSIC Inventory, the researchers found that only usefulness

and success were statistically related to identification; thus, empowerment and interest did not appear to be significant predictors of identification among the sample of middle school students. Although all five components of the MUSIC Model, including empowerment and interest, were found to be significant in studies of undergraduate students, it is possible that age-related differences in perception of empowerment and interest may be responsible for the different results produced by students of different ages. It is possible that all five components of the model did not fit with the sample of at-risk high school students used for the current study because the perceptions and background experiences – related to empowerment and interest – of younger students may differ from those of undergraduate students. Nonetheless, it is interesting that the current study and the Jones et al. (2015) study documented significant positive correlations from usefulness and success to identification, but a lack of correlation from empowerment and interest to identification.

Modified Model

I reran the hypothesized model with all of the variables, except I removed the two paths that were not significant (the paths from empowerment and interest to identification). The exogenous variables in this modified SEM included usefulness, success, and care. The model revealed that usefulness, success, and care remained significantly related to academic identification and GPA.

The indication that care was a significant pathway to identification and GPA is important for research on the academic success of at-risk high school students. When teachers demonstrate care, and when students perceive curriculum as useful and believe in their abilities to succeed, at-risk students may identify more strongly with academics and begin to demonstrate greater academic success.

Reciprocal Relationship between Achievement and GPA

Although outside the scope of the current study, it is important to address the reciprocal relationship between academic achievement and GPA, because I used GPA to measure academic performance in this study. Research indicates that a reciprocal relationship exists between GPA and academic engagement, which is directly related to academic identification. Thus, GPA and academic identification are related. For example, Poorhuis et al. (2015) found that GPA was directly related to students' emotional and behavioral engagement. Those who perceived their performance to be high (as gauged by a superior GPA) responded with increased academic engagement. Thus, while grades have traditionally been viewed as the result of school engagement (and academic identification), they may also serve as antecedents to engagement and identification.

Discussion

The aim of the second research question was to investigate the extent to which students' motivational beliefs predicted their academic identification and achievement. Data analysis indicated that all five of the five components of the MUSIC Model were positively correlated with academic identification ($r = .18$ to $.40$). Yet only the paths from usefulness, success, and caring to academic identification were significant in the full model. All of the model components can be tied to constructs developed by earlier researchers. For example, usefulness is related to Wigfield and Eccles' (2000) concept of utility value. Usefulness describes the potential ways that a student believes that he or she may benefit from coursework. Teachers can help students see the usefulness in coursework by relating class activities to students goals and helping students to value long-term academic success (Ormrod & Jones, 2015). The path from success to academic identification was also significant.

Results from the current study also indicated that success was related to academic identification. The construct of *success* describes a student's ability to succeed at completing coursework. While a student's ability to complete coursework is important, it is also critical that the student believes in his or her ability to successfully perform academically. Thus, the construct of success is related to Wigfield and Eccles (2000) expectancy for success. According to Wigfield and Eccles, "ability beliefs are defined as the individual's perception of his or her current competence at a given activity" (p. 70), and are related to Bandura's (1997) self-efficacy theory. Teachers can nurture students' success by improving their self-efficacy beliefs. Teachers can support students' perceptions of success by making sure that they are provided with necessary information on a topic, and the opportunities to practice and develop skills required to implement what they have learned. In addition, they may provide students with constructive and encouraging feedback on assignments or during daily interactions.

Finally, the path from care to academic identification was statistically significant. The construct of care refers to teachers' caring attitudes toward students' academic success and well-being. According to Noddings (1992), cultivating caring attitudes toward students is one of the topics that matters most in schools. Teachers should focus on how they can help students become reflective and curious thinkers by promoting care across all subjects and in all classroom environments (Noddings, 1992). To promote caring attitudes, it is important for teachers to also understand that care is reciprocal; that is, it is an egalitarian construct characterized by collaboration. In order to maximize the positive effects of teachers' care, students must also reflect attitudes of care. Students' care toward their own success can be nurtured through the same principles that nurture usefulness and success: constructive and encouraging feedback.

Implications and Recommendations

Although all of the MUSIC Model components were positively correlated to academic identification, the paths from empowerment and interest to academic identification were not statistically significant, leading to some important implications. First, because results of the model indicated that usefulness, success, and care may improve academic identification and GPA, educators and administrators may be encouraged to interact with students and design curriculum in a way that fosters these three pathways. Table 7 provides recommendations to educational stakeholders on ways to foster usefulness, success, and care among students. These findings do not diminish the importance of empowerment and interest in an educational setting. In fact, the components of the MUSIC Model can interact in many different ways.

Table 7

Recommendations for implementation of Usefulness, Success, and Caring

Usefulness	Success	Care
Clearly explain how materials relate to students' interest, goals, or lives	Clearly define expectations for activities	Demonstrate concern for successes and failures of students
Provide students with ample opportunities to demonstrate how the materials relate to their future careers	Give clear, comprehensible directions for all activities	Demonstrate value for students' ideas and opinions
Provide students with opportunities to demonstrate how the materials apply to the real world	Create challenging activities for students	Devote time to helping students
	Break longer, complex lessons into sessions that challenge learners without overwhelming them	Be open to making accommodations for students who experience extenuating circumstances in their lives
	Provide help when students are struggling with an assignment	Create activates that foster engagement and interaction with one another
	Give students opportunities to re-do assignments	

Source: Jones, 2009

Limitations and Future Research

An aspect of the sample population that must be acknowledged was the uneven distribution of students' ages. Because the overwhelming majority of students were in 11th and 12th grade, future researchers may explore any differences in the MUSIC Model components across each grade level. Indeed, it is possible that background experiences and perceptions of empowerment, usefulness, success, interest, and caring may differ between students who are just beginning high school and those who are in their final year.

Domain

This study was one of the first times the MUSIC Inventory items had been written to assess students' general beliefs about academics instead of just one course or subject area. Rakes and Jones (2015) used similar items with undergraduates, but the current study is the first time the items were used in this manner with high school students. Responses to the MUSIC Model inventory difficult for students because they were required to respond to individual statements based on their cumulative experiences with a variety of teachers and classes. In this sense, students may have been forced to respond according to their average experiences with all of these teachers and courses. Future researchers may consider investigating the MUSIC Model with at-risk students in single domains, such as English or science classes. It may also be interesting to explore whether differences exist between domains. For example, researchers may explore the fit of the MUSIC Model among at-risk students in English classes to that of students in an elective course that provides them with greater autonomy. Such comparisons could also shed light on possible influences that the specific ways teachers organize curriculum, implement class structure, or interact with students may affect the fit of the MUSIC Model among at-risk students.

Timeframe

The timeframe of this study may have also affected results because it took place near the beginning of the school year. Thus, students may have drawn from limited experiences with teachers and classes up to that point. Later in the school year, once the "honeymoon" phase between teachers and students wore off, it is possible that students' responses to items in the Music Inventory (Jones, 2015) may differ. For example, students may develop stronger connections and rapport with their teachers over the course of the school year, causing them to gauge higher levels of caring from teachers at the end of the school year than at the beginning.

Similarly, students' sense of empowerment may change from the beginning of the school year to the end. Often, the first few weeks of school are spent learning class schedules, structures, expectations, assignment formats, classroom rules, etc. Thus, students may feel inundated with structure and formalities early in the school year, which reduces feelings of empowerment. Alternatively, toward the end of the school year, teachers may become more relaxed with students, provide them with more freedom and autonomy, and no longer need to facilitate rigid teaching structures to maintain control over classes. Consequently, students may infer these increases in freedom as empowering, and thus, respond to empowerment items on the MUSIC Inventory differently.

GPA may have also been affected by the study's limited timeframe. Since the research was conducted early in the year, I was only able to acquire GPA data from the first quarter. Had the research been conducted at the end of the school year, I would have been able to acquire GPAs from two or three quarters, which may provide a more accurate representation of students' academic performance over the school year.

Methodology

It may also be beneficial to conduct qualitative research to gain greater, more in-depth insights into these factors. For example, individual interviews of small focus groups would give the students the opportunity to elaborate on their perceptions of each of the MUSIC Model components in a way that is not possible when choosing closed responses along a six-point Likert scale. This type of in-depth study may also shed light on why empowerment and interest did not appear to be connected with academic identification. Qualitative researchers could also speak with at-risk high school students to gain a better understanding of the ways that they feel each component of the MUSIC Model can be fostered by teachers and administrators, to provide educators with more ideas for nurturing student motivation and academic identification among this group of students.

Another interesting study may be to explore how empowerment varies among high school students, based on their educational settings (i.e., traditional, online, home school). Such information may help researchers understand what factors improve educational empowerment among these students. For example, if online learners, who have the freedom to select when they complete coursework, perceive themselves to have more empowerment than students in traditional settings, educators may consider providing students with greater autonomy and less rigid class structures in order to nurture empowerment. Finally, because a larger sample may have yielded very different results, future investigations with a greater number of participants may provide more accurate data regarding the fit of the MUSIC Model components among at-risk high school students.

Conclusions

This study was the first of its kind to assess the validity of the MUSIC Inventory (Jones, 2015) when used with in a school that serves solely at-risk high school students. The aim of the

first research question was to explore the extent to which the MUSIC Inventory produced valid scores with at-risk high school students. Results indicated that Cronbach's alpha coefficients were low for all MUSIC Model components except for care (which demonstrated modest reliability) and empowerment (which demonstrated acceptable reliability). The low alphas with the other model components could suggest a problem with using the MUSIC Inventory to gauge students' perceptions of the model components across all of their classes. This study was the first time the MUSIC Inventory was used as a cumulative gauge of all of a student's classes, instead of in reference to a particular class. Therefore, when students answered the inventory items, they were answering based on their perceptions for multiple classes and teachers, rather than a single subject or teacher. For this reason, additional research is needed to determine whether the MUSIC Inventory is valid for use with at-risk high school students. Future researchers should explore at-risk students' perceptions of MUSIC Model components within the scope of single classes, similar to other studies (Jones & Wilkins, 2013, 2015; Parkes et al., 2015).

The most significant finding from the current study was that usefulness, success, and caring can have a positive impact on at-risk students' academic identification and GPA. Thus, there is preliminary evidence to suggest that teachers may have a positive effect on the academic success of these students by finding ways to improve students' perceptions of usefulness, success, and care. Educational stakeholders can utilize findings from the present study to prompt an exploration of ways to improve these motivational components among at-risk high school students in order to promote greater academic success among them.

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Appendix A: IRB Approval
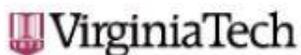
VirginiaTech

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MEMORANDUM

DATE: September 22, 2015

TO: Brett D Jones, Jennifer Dee Snyder, Thomas O Williams Jr

FROM: Virginia Tech Institutional Review Board (FWA00000572, expires July 29, 2020)

PROTOCOL TITLE: Students' Perceptions of High School

IRB NUMBER: 15-903

Effective September 22, 2015, the Virginia Tech Institution Review Board (IRB) Chair, David M Moore, approved the New Application request for the above-mentioned research protocol.

This approval provides permission to begin the human subject activities outlined in the IRB-approved protocol and supporting documents.

Plans to deviate from the approved protocol and/or supporting documents must be submitted to the IRB as an amendment request and approved by the IRB prior to the implementation of any changes, regardless of how minor, except where necessary to eliminate apparent immediate hazards to the subjects. Report within 5 business days to the IRB any injuries or other unanticipated or adverse events involving risks or harms to human research subjects or others.

All investigators (listed above) are required to comply with the researcher requirements outlined at:

http://www.irb.vt.edu/pages/responsibilities.htm

(Please review responsibilities before the commencement of your research.)

PROTOCOL INFORMATION:

Approved As:	**Expedited, under 45 CFR 46.110 category(ies) 5,7**
Protocol Approval Date:	**September 22, 2015**
Protocol Expiration Date:	**September 21, 2016**
Continuing Review Due Date*:	**September 7, 2016**

*Date a Continuing Review application is due to the IRB office if human subject activities covered under this protocol, including data analysis, are to continue beyond the Protocol Expiration Date.

FEDERALLY FUNDED RESEARCH REQUIREMENTS:

Per federal regulations, 45 CFR 46.103(f), the IRB is required to compare all federally funded grant proposals/work statements to the IRB protocol(s) which cover the human research activities included in the proposal / work statement before funds are released. Note that this requirement does not apply to Exempt and Interim IRB protocols, or grants for which VT is not the primary awardee.

The table on the following page indicates whether grant proposals are related to this IRB protocol, and which of the listed proposals, if any, have been compared to this IRB protocol, if required.

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