ABSTRACT

Academic optimism is a latent construct used to represent a school’s optimistic belief system. Physical fitness, also a latent construct, is used to describe a person’s physical suitability to perform a specific task. Both are organizational properties of the school that share a common goal of contributing to the development of social capital. Social capital, is the label given by Coleman (1988) to social relationships that support action). The purpose of this study was to examine the relationship between the academic optimism level and fitness level of the school.

The SAOS, School Academic Optimism Scale, was used to measure the academic optimism level of each school and the ASPFT, Alabama State Physical Fitness Test, was used to measure the fitness level of the students. School fitness was calculated using the percentage of students who achieved health or high health rankings on fitness components. A total of 1,587 educators from 116 schools in northern Alabama were surveyed. Two hundred and five School Academic Optimism surveys were available for comparison with the physical fitness scores of 11,399 students from 40 schools. The academic optimism level of each school was compared to the fitness level of each school to determine if there was a correlation. School academic optimism, was compared to school physical fitness. A regression analysis was conducted to determine if academic optimism was responsible for the variance in physical fitness scores. The hypothesis that school academic optimism would be positively correlated to and predictive of school physical fitness was not supported by the data available for analysis in this study. Despite the lack of support for the hypothesis, the data did yield some results that provoke thought for
future analysis. Multiple variables in this study were strongly correlated to the size of the school and a method for calculating school level physical fitness was introduced.
DEDICATION

I would like to dedicate this project to my family whose tireless support has carried me through to the end. Keith, you have been my steadfast partner. You have always encouraged me to pursue my dreams no matter the sacrifice you had to make. The countless hours spent listening to me talk, talk, talk about things that meant nothing to you, is one of the most generous gifts you have ever given me. Your encouragement helped me through the tough times.

Casey, my cheerleader; Cameron, my rock; Chaylie, my inspiration; and Chelsea, my voice of reason . . . no mother could ask for more loving and supportive children. I know it has not been easy, but you have all been such an inspiration to me. God has blessed me with four wonderful children who inspire me and challenge me to be the best I can be. I am so proud of each of you and pray I can inspire you the way you have inspired me.

Mom, thank you for being such a shining example of God’s grace and love. You have always told me I could do it all and then showed me how! Thank you for praying for me, supporting me and believing in me, even when I had stopped believing in myself. Dad, thank you being such a shining example of humility and compassion. Your strength and character have been a steadfast guiding force in my life. Thank you for being a man of God.

“All things work together for good for those who love God and are called according to his purpose”-Romans 8:28; “Delight yourself in the Lord and He will give you the desires of your heart”-Psalms 37:4; “I can do all things through Christ who strengthens me!”-Philippians 4:13 . . . all verses I have lived by; Biblical truths that God has proven to me over and over.

Thank you Heavenly Father for giving me grace and strength.
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tr>
<td>AE</td>
<td>Academic Emphasis</td>
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<tr>
<td>ANOVA</td>
<td>Analysis of Variance</td>
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<td>ARMT</td>
<td>Alabama Reading and Math Test</td>
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<td>ASDE</td>
<td>Alabama State Department of Education</td>
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<td>ASPFA</td>
<td>Alabama State Physical Fitness Assessment</td>
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<td>β</td>
<td>Beta</td>
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<td>BMI</td>
<td>Body Mass Index</td>
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<td>CDC</td>
<td>Centers for Disease Control</td>
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<td>CE</td>
<td>Collective efficacy</td>
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<td>FG</td>
<td>FITNESSGRAM</td>
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<td>FRL</td>
<td>Free and reduced lunch</td>
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<td>FT</td>
<td>Faculty trust in parents and teachers</td>
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<td>H</td>
<td>Healthy fitness zone</td>
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<td>HFZ</td>
<td>High fitness zone</td>
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<tr>
<td>INOW</td>
<td>Information Now</td>
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<tr>
<td>IOM</td>
<td>Institute of Medicine</td>
</tr>
<tr>
<td>IRB</td>
<td>Institutional Review Board</td>
</tr>
<tr>
<td>N</td>
<td>Number of participants</td>
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<td>NASPE</td>
<td>National Association for Sport and Physical Education</td>
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<tr>
<td>NC</td>
<td>Non-compliant</td>
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<tr>
<td>Abbreviation</td>
<td>Description</td>
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<td>--------------</td>
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<tr>
<td>NI</td>
<td>Needs improvement</td>
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<tr>
<td>NT</td>
<td>Not tested</td>
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<tr>
<td>p</td>
<td>Probability of a value</td>
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<tr>
<td>PACER</td>
<td>Progressive Aerobic Capacity Endurance Run</td>
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<tr>
<td>Part</td>
<td>Semi-partial correlation</td>
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<tr>
<td>Partial</td>
<td>Partial correlation</td>
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<tr>
<td>PE</td>
<td>Physical Education</td>
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<td>QPE</td>
<td>Quality Physical Education</td>
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<td>r</td>
<td>Pearson correlation coefficient</td>
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<td>SAOS</td>
<td>School Academic Optimism Scale</td>
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<tr>
<td>SD</td>
<td>Standard deviation</td>
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<tr>
<td>SES</td>
<td>Socioeconomic status</td>
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<tr>
<td>SN</td>
<td>Special Needs</td>
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<tr>
<td>SPSS</td>
<td>Statistical Package for the Social Science</td>
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<tr>
<td>USDHSS</td>
<td>United States Department of Health and Social Services</td>
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ACKNOWLEDGMENTS

I would like to thank my committee chair Dr. Roxanne Mitchell for all of her guidance and support. Thank you for always listening, even when I had way too much to say, and coming to my rescue on more than one occasion. I greatly appreciate your willingness to take over chair of my committee and guide me through the final stages of completion.

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I would be remiss if I did not thank my biggest cheerleaders, my family. Thank you Keith for your patience and sacrifice, without you, I would not have survived. Casey, Cameron, Chaylie, and Chelsea, thank you for pitching in, doing without and cheering me on.

Lastly, thanks mom and dad for giving me a solid foundation of faith and love to build my life on. You have always told me I could do anything I put my mind to as long as I kept my
priorities in the right order-God first, others second, and myself last. Thank you Heavenly Father for peace and guidance.
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CHAPTER 1:
INTRODUCTION

The newly developed construct of academic optimism has been correlated with achievement in schools (Bevel & Mitchell, 2012; Goddard, 2001; Hoy, Tarter, & Hoy, 2006; Hoy, 2012; Kirby & DiPaola, 2011; Moghari, Lavasani, Bagherian, & Afshari, 2011; Smith & Hoy, 2007; Tschannen-Moran, Bankole, Mitchell, & Moore, 2013; Wagner & DiPaola, 2011; Wu, 2013; Wu, Hoy & Tarter, 2013). Academic optimism is used to describe the overall belief of teachers that their students can and will succeed. This belief propels students to higher levels of academic success and could possibly have an impact on other areas of a student’s life including a student’s achievement of desirable physical and mental health (Coon, Carey, Fulker, & Defries, 1993; Eccles, Midgley, & Adler, 1984; Folkins & Sime, 1981; Goudas & Biddle, 1994; Odeh, Oguche, Dondo, Dondo, & Dondo, 2015; Usaini & Bakar, 2015).

Background of the Study

“Reducing inequalities in health and academic achievement are national priorities . . . those with poor academic achievement are more likely as children and adults to have morbidities and premature mortality” (Ickovics, Carroll-Scott, Peters, Schwartz, Gilstad-Hayden, & McCaslin, 2014, p. 40). This quote from the Journal of School Health, highlights two national concerns--academic achievement and student health--and their interconnectedness. To address these concerns, the Alabama State Board of Education adopted a strategic vision for their students. Plan 2020 was developed to ensure that Alabama students are prepared for their future upon graduation. This plan proposes strategies to increase college and career readiness by
meeting students’ academic needs through rigorous programs and students’ physical needs by requiring that all students be provided with healthy meals, physical education, and health instruction. In short, that students’ academics and overall well-being be addressed (“Alabama State,” 2012). Research indicates a relationship between student health and well-being and academic success. Fraillon (2004) asserts “the relationship between student well-being and the other vital outcomes of schooling is unequivocal” (p. 12). According to Ickovics and associates (2014), “research is needed to test the premise that promoting student health will also support student achievement” (p. 41).

Research shows a relationship between academic optimism and student achievement (Bevel & Mitchell, 2012; Goddard, 2001; Hoy, Tarter, & Hoy, 2006; Hoy, 2012; Kirby & DiPaola, 2011; Moghari et al., 2011; Smith & Hoy, 2007; Tschannen-Moran et al., 2013; Wagner & DiPaola, 2011; Wu, 2013; Wu et al., 2013). Academic optimism is a theoretical construct made up of academic emphasis, collective efficacy, and faculty trust. The gist of academic optimism is “a faculty believes that it can make a difference, that students can learn and academic performance can be achieved” (as cited in Hoy, Tarter, & Woolfolk Hoy, 2006, p. 432). Research on academic optimism focuses on the faculty as a whole and how their behaviors, responses and judgements, along with their perceptions, affect the learning environment. Numerous studies show that there is a positive correlation between the latent construct of academic optimism and student achievement (Hoy et al., 2006; Bevel & Mitchell, 2012; Wagner & DiPaola, 2011).

Academic optimism should not be confused with dispositional optimism, or the general expectation of “favorable outcomes” (Harris & Willower, 1998, p. 355). Academic optimism is not simply a positive personality trait or a tendency to expect favorable outcomes. It is a belief
based upon the response of capable instruction (collective efficacy), a willingness to trust based upon experience (faculty trust in parents/students), and the experience of academic behavior being enhanced through its recognition (academic emphasis). The elements that comprise academic optimism have their origin in the antecedents of efficacy, trust, and academic emphasis.

Dispositional optimism is a generalized expectation that good things can and will happen. It is an individual trait that has at its foundation cognitive characteristics (Hoy et al., 2006). Academic optimism is an organizational property. It is a collective term meaning it represents the collective impact all three components (efficacy, trust, and emphasis) have on the organization (Wagner & DiPaola, 2011). Academic optimism includes cognitive, affective and behavioral components that are interdependent on each other (Hoy et al., 2006). An individual is optimistic, whereas an organization can poses academic optimism. A teacher can be optimistic that her students will succeed, but an organization can possess a positive learning environment that provides an atmosphere conducive to achievement. This positive culture promotes academic optimism (Hoy et al., 2006).

Student fitness has also been correlated to academic achievement. Numerous studies with students ranging in age from 9-18 have confirmed the correlation (Chih & Chen, 2011; Kall, Nilsson, & Linden, 2014; Wittberg, Northrup, & Conttrell, 2012; London & Castrechini, 2011). Simply put, a body of research exist that supports the premise that fit students achieve more than unfit students. The overall health of a student is also correlated with their level of academic achievement, according to a study by Ickovics et al. (2014). This study used health-assets, or the presence of positive health habits to rank their students. Students possessing a higher number of health-assets were also higher achievers (Ickovics et al. 2014). Psychological
well-being was one of the assets in this study, which is also mentioned in studies by Rasmussen, Scheier and Greenhouse (2009) and also by Malinauskas and Akelatis (2015), as their research indicates a relationship between dispositional optimism (a health-asset) and overall well-being and also between mental health (such as an optimistic/positive attitude) and levels of physical activity. This research strongly suggests a relationship between mental health and overall well-being and the impact it can have on both physical fitness and academic achievement. These same assets or characteristics are the foundation of the construct of academic optimism. One of the properties of academic optimism focuses on a teacher’s belief in their abilities, and their schools abilities (Beard, Hoy, & Woolfolk-Hoy., 2010). These, working with the property of trust, form academic optimism. All of these properties collectively become resources that provide social capital, which has been linked to academic success and overall health and well-being (Salloum, 2017). It seems to reason that if the empirical research indicates relationships between academic optimism and achievement and fitness and achievement, then a relationship should exist between academic optimism and the fitness levels of students.

While academic optimism and fitness are both predictors of school performance, in all likelihood they share another important aspect of organizations, namely, social capital. Coleman (1990) uses this term to describe assets created from social relationships which support or facilitate action. Social capital is created when these relationships within an organization change, resulting in a positive form of “deposit” creating an environment that is supportive and allows action to take place. Social capital involves taking these “deposits” and combining them to produce different outcomes. When this happens, something of value is produced such as academic success or an overall sense of health and well-being (Coleman, 1988, p. S101). A core theme of social capital is the value of social networks (Liou & Chang, 2008). These contacts
affect the success of the group or organization as a whole (Ferlander, 2007). Academic optimism is also an organizational property that promotes a culture of learning through positive interaction which promotes success (Hoy, 2012). Achieving good grades, being healthy, and being physically fit are all forms of success visible in the school environment. These achievements are assets that empower an individual and propel them to a greater level of success. These assets are forms of social capital (Schaefer-McDaniel, 2004). The accumulation of social capital promotes social cohesion, which empowers students through caring relationships built on trust (Liou & Chang, 2008). These trusting relationships, in turn, promote an “optimistic” academic environment where all forms of success, both mental and physical, are visible. The availability of social capital is related to the level of success in the school environment (Salloum et al., 2017). The level of academic optimism in the school and the fitness level of the school are both positive contributors to the social capital level and thus should vary together due to this relationship.

**Need and Purpose**

The purpose of this study is to examine the relationship between the academic optimism level of a school and the fitness level of the school. Optimistic people report better physical health and have fewer physical symptoms (Rasmussen et al., 2009). Simply put, on average, optimistic people are healthier and happier, which promotes a productive learning environment (Ickovics et al., 2014). If this is the case for individuals, it seems likely that the same could be said for the school environment. An optimistic environment should be a healthy environment. With the rise in childhood obesity levels and the increase in lifestyle-related diseases, such as high blood pressure and type II diabetes, Alabama educators can no longer ignore their responsibility to address the complete health and well-being of their students, which
encompasses not just the mental but the physical as well (CDC, “Obesity Facts”). What good is a brilliant mind and well-rounded education, if students do not live long enough to be productive members of society?

More and more focus in education is being placed on test scores as indicators of the depth of the knowledge students are gaining from the educational environment. As a result, leadership in the educational arena is continuously searching for strategies and programs that will lead to increases in student achievement. The school environment has been extensively studied and academic optimism has been shown to correlate positively with academic achievement in students as has physical fitness. As a result, educational leadership now has a strategy for improving student achievement: increase the academic optimism level of the school. And, because research does show a positive correlation between student fitness levels and academic achievement, increasing the fitness levels of students should increase the level of academic achievement as well. Given that both academic optimism and physical fitness are related to achievement and desirable physical and mental health, it is likely that academic optimism and fitness are related, which is an assertion this inquiry tests.

Definitions of Concepts

1. Academic optimism: is a latent construct used to describe the shared culture or optimistic belief system of a school as a whole, that student achievement is important and is attainable and that working together, parents, teachers, and students can achieve a measurable level of academic success (Hoy, Miskel, & Tarter, 2013).

2. Physical fitness: is a latent construct used to describe a general state of health and well-being--the quality of being suitable to perform a particular task. While physical health involves all
systems of the body working at their most efficient level, physical fitness is specific to a goal or task and only involves certain systems of the body (CDC, 1997; Shaw et al., 2015).

**Statement of the Research Problem**

Both academic optimism and student fitness are related to student achievement. A relationship should exist between academic optimism and fitness. The research question for this study was as follows: Is there a relationship between the academic optimism level of a school and the physical fitness level of the school? The hypothesis was tested by comparing the academic optimism of a school to the school fitness level.

**Scope and Limitations**

To answer this question, both a theory and supporting data were needed. Data for this study was obtained from a survey of public schools across northern Alabama. The focus was on Grades 2-12 as these grades are required to be fitness tested and the age group in which physical education is a requirement. A limitation to this study coincided with the collection of fitness data from the participating schools. Requesting fitness data for school systems required making a request from school Superintendents. This reduced the sample size, due to both a lack of response and strict data governance protocols making school systems leery of sharing sensitive student data. A smaller sample decreased the scope of the research possibly affecting the representativeness of the school population. This could have made the data more susceptible to outliers and skewed the results (DePaulo, 2000).

The sample analyzed in this study was a convenience sample comprised of a variation of elementary, middle, and high schools in northern Alabama. The generalizability of this study could be limited by the proportion of rural versus urban schools and/or elementary versus
secondary schools that were used. Other characteristics of the data in the sample, such as gender of participants and ethnicity could also have influenced the generalizability of results.

The central variables in this study are latent variables, that is, they cannot be directly measured. This could have limited this study due to measurement errors, lack of randomness, or some other characteristics of a non-random sample. Finally, a cross-sectional study always runs the risk of being overly influenced by a temporary characteristic of the sample. For example, these data could have been influenced by the time of the year in which it was collected or subject to influences within one year that were not present in another year, all factors which could affect the data analysis.

**Summary**

Academic optimism is a latent construct comprised of the components of collective efficacy, faculty trust, and academic emphasis. Academic optimism is positively correlated to student achievement. Physical fitness is also a latent construct that represents the overall fitness of a student. Fitness has also been shown to have both a direct and indirect relationship to achievement. As the number of healthy or high fitness assets increase, so does academic achievement. Social capital, is the label given by Coleman (1988) to social relationships that provide support for action. Academic optimism and physical fitness are sources of social capital in the school setting. An examination of the academic optimism level of the school and the fitness level of the school should reveal a correlation between these two variables.
CHAPTER 2:
LITERATURE REVIEW

Introduction

This chapter discusses the research history of academic optimism and fitness. It defines the concepts as they are used in this study, discusses the origin and development of the concepts, and interprets the relevant research. A theoretical explanation of the relationship of academic optimism and fitness to each other will be offered. Finally, hypotheses that test the theoretical explanation will be developed.

Conceptual Framework

This section will lay the foundation for a theory that argues academic optimism and physical fitness are organizational properties of the school and are related to each other, regardless of the school enrollment or the socioeconomic status of the participants. A case will be made that both academic optimism and physical fitness share a common goal of contributing to the development of social capital. To promote a logical discussion of this theory, a clear understanding of the concepts is necessary. As academic optimism and physical fitness are both latent constructs, a discussion of how each is measured is necessary to further clarify the measurable properties of each.

Academic Optimism

Hoy defines academic optimism as a school-level construct that represents a shared optimistic culture and teacher belief that student achievement is important, that school faculty
has the capacity to help students achieve, and that students and parents can be trusted to cooperate to improve learning (Hoy et al., 2006). Academic optimism is a latent construct, meaning that it is not a directly observable concept and thus it cannot be measured directly (Hoy, et al., 2013). Researchers working with latent constructs use indicators that represent the underlying construct that serves as the variable that is not observable (Garger, 2011). The underlying indicators for academic optimism are academic emphasis, collective efficacy, and faculty trust. Academic emphasis has evolved from the research of Hoy and colleagues on the organizational health of schools (Hoy, 2012). From Bandura’s work in social cognitive theory comes collective efficacy and lastly Coleman emphasizes the importance of trust in his analysis of social interaction (Hoy et al. 2006), in that trust helps establish group norms which promote an “open and healthy school environment” (Hoy, Smith, & Sweetland, 2003).

Components of Academic Optimism

Academic emphasis. Hoy defines academic emphasis as “the extent to which a school is driven by a quest for academic excellence—a press for academic achievement” (Hoy, et al. 2006, p. 427). Schools where academic emphasis is high are characterized by a serious learning environment in which high academic goals are stressed, teachers believe these goals can be reached by students and academic achievement is highly respected by teachers and students alike (Hoy, 2012). Goddard et al. (2000) declares that academic emphasis is a demonstration of the place of importance that academics hold in a school as viewed by the students, teachers, and administrators. Collectively, these views comprise the social perception of how important teaching and learning are in a school (Goddard, Sweetland, & Hoy, 2000). As a result this environment produces norms that perpetuate positive behaviors. These behaviors become evident and are measurable using the academic emphasis scale, and demonstrate the ability to
increase achievement (Goddard et al., 2000). Goddard and Hoy demonstrated this increase, as their study comparing academic emphasis with math and reading achievement showed that a one deviation increase in academic emphasis resulted in 40% of a standard deviation increase in achievement in math and 1/3 in reading (Goddard, et al. 2000). This research supported previous research by Hoy and Tarter that identified academic emphasis as “one school characteristic that explained achievement” in math and reading (Hoy, 2012, p. 81).

**Collective efficacy.** The concept of efficacy is the judgement or belief in one’s ability to bring about a desired outcome (Beard et al., 2010). In the school setting a teacher’s sense of self-efficacy is their belief they can affect change in a student as evidenced by the engagement and learning of said student (Tschannen-Moran & Hoy, 1998). The school environment fosters collective efficacy, which focuses on the perceptions that the faculty has, as a group, of their ability to affect a positive change in student behaviors and achievement (Goddard, 2002; Hoy, et al. 2006; Hoy, Sweetland, & Smith, 2002). He describes it as a sense of confidence a faculty has that working together they can execute tasks to reach a desired goal such as student achievement (Goddard, LoGerfo, & Hoy, 2004). Goddard (2001) affirms that “collective efficacy beliefs influence group performance by shaping the behavioral and normative environments of schools” (p. 469). Positive or constructive behaviors that are supported by the group become norms that affect student success. A strong sense of collective efficacy is characterized by persistence, high goal setting, and resilience in combating setbacks and failures (Hoy et al., 2002). Goddard’s research, along with Hoy, Sweetland, Smith, and LoGerfo, used the collective efficacy scale to measure the level of collective teacher efficacy and compared this to student achievement in math and reading (2000 & 2004). The results of their studies indicate a significant and positive relationship between the degree of collective efficacy in schools and differences in student
achievement (2001, 2000, 2002, and 2004). These results lend support to the theory that when teachers in a school believe they can affect change and reach struggling students, they are more apt to overcome negative outside influences and produce a positive learning environment that promotes student success (Goddard, Hoy, & Hoy, 2000).

**Faculty trust.** Faculty trust is a “unitary construct characterizing affective relationships among teachers, parents, and students” (Wagner & DiPaola, 2011, p. 895). Trust is a social interaction that occurs when a person or group believes another can be relied upon (Goddard et al., 2001). When applied to the school setting, this trust is described as “a willingness to be vulnerable to another party based on the confidence that that party is benevolent, reliable, competent, honest, and open” (Hoy et al. 2006, p. 429). These five characteristics embody the concept of trust and are evident in a school environment where trust is operating. The Faculty Trust survey measures the collective perception of the level of trust among faculty in a school (Hoy et al., 2003). In Moghari et al.’s (2011) research, teacher trust was shown to positively correlate with the self-efficacy of English language learners; the more trust evident, the greater the success. In their research, Goddard, Tschannen-Moran, and Hoy (2001) found that after controlling for student characteristics, trust was a significant predictor of variance in school achievement, even in high poverty situations stating that “in schools where there was greater trust, student achievement was generally higher” (p. 13). Trust produces a positive learning environment where students can succeed. Trusting relationships between teachers, parents, and students is also an important feature of an open school climate, which has a direct impact on student achievement (Goddard et al., 2001; Hoy et al., 2003). An open school climate, based on trust, builds social capital which ties the community together enabling the attainment of a common purpose (Hoy et al., 2013).
Hoy, Tarter, and Hoy (2006) “suggest that academic emphasis, collective efficacy beliefs, and faculty trust shape school norms and behavioral expectations” (p. 430). Their research, along with Kurz and many others, indicates that academic emphasis, faculty trust, and collective efficacy, “work together in a unifying fashion to form a general latent construct that can be labeled academic optimism” (Hoy et al., 2006, p. 439; Hoy, Hoy, & Kurz, 2008; Tschannen-Moran et al., 2013; Wagner & DiPaola, 2011; Wu, 2013). The construct of academic optimism, encompasses all three dimensions of learning, cognitive, affective and behavioral, which work together to produce a positive learning environment (Hoy, Tarter, & Hoy, 2006). Hoy describes academic optimism as a culture of the school that “leads teachers and students to set and embrace specific, challenging goals that are attainable, which in turn enhances motivation” (Hoy, 2012, p. 88).

Measurement of Academic Optimism

Academic optimism at the school level is measured using the School Academic Optimism Scale (SAOS). The SAOS is a valid and reliable instrument used to measure the academic optimism of schools (Bevel & Mitchell, 2012). It is comprised of three separate subscales measuring collective teacher efficacy, faculty trust in students and parents, and academic emphasis. Each subscale uses Likert-type responses that range from strongly agree to strongly disagree that are used to measure the degree to which participants feel they or their school believe they affect change, emphasize achievement and perceive trust to be working, in their school environment (Hoy, W.K., n.d.).

Collective efficacy is measured with a 12-item Likert-type survey developed from a longer 21 item Collective Efficacy Scale. This portion of the SAOS reflects the perceptions of teachers from a specific school of whether or not the faculty “as a whole will have positive
effects on students” (Goddard, 2002, p. 100). Examples of statements from this subscale follow: “Teachers in this school believe that every child can learn” and “If a child doesn’t want to learn teachers here give up” (reverse scored) (Hoy, n.d.). A collective efficacy score is calculated by first reverse ordering specified questions, then finding an average overall score for each individual by adding together all responses and dividing by 12. A school score is obtained by adding together all individual scores and dividing this number by the number of participants (Hoy, n.d.).

The second subscale of the SAOS, faculty trust in students and parents, measures the level of trust that teachers perceive exist between faculty, students, and parents. The 10-question 6-point Likert scale was derived from the Omnibus Trust Scale (Hoy, et al., 2006) and makes statements such as: “Teachers in this school trust their students” and “Teachers can count upon parental support” (Hoy, n.d.). The trust level of the school is calculated the same as collective efficacy to produce a school level score.

The final subscale of the SAOS instrument measures academic emphasis using an 8-question 4-point Likert scale developed from the Organizational Health Inventory (Goddard et al., 2000). This subscale measures “the extent to which the school is driven by a quest for academic excellence” (Goddard et al., 2000, p. 686). This subscale is the shortest containing statements such as “The school sets high standards for performance” and “Academic Achievement is recognized and acknowledged by the school” (Hoy, n.d.). The academic emphasis of the SAOS instrument is scored the same as the other two sections but with no reverse ordering needed.

The validity and reliability of these subscales have been tested and confirmed in multiple studies (Bevel & Mitchell, 2012; Hoy, 2012; Smith & Hoy, 2007; Wu & Sheu, 2015). Totaling
the scores from each subscale and dividing by three yields a school academic optimism score (Hoy, n.d.). This SAOS score can be used for correlational purposes to identify relationships between it and other properties of the school.

**Physical Fitness**

Physical fitness refers to health or skill related attributes that affect the body’s ability to perform everyday tasks with energy and intensity, while still retaining enough reserves to respond to any emergency that arises or to complete any desired task (CDC, 1997). The Centers for Disease Control and Prevention (CDC) defines health as not just an absence of illness, but “a state of complete physical, mental, and social well-being” (Centers for Disease Control [CDC], “NCHHSTP,” n.d.). Physical health is associated with the physical body and often correlates with conditions and diseases related to the functioning of the body as in diabetes, cardiovascular disease and high blood pressure. There is a subtle difference between physical health and physical fitness. Physical health involves all systems of the body working at their most efficient level while physical fitness is specific to a goal or task and only involves certain systems of the body (Simpson, 2015). Physical activity is a way of defining any body movement produced by the skeletal muscles of the body resulting in energy expenditure, whereas exercise is repetitive movement that is structured and planned (CDC, 1997).

Physical education is the “education of and through movement” (Dauer & Pangrazi, 1975, p. 2). It is the portion of the educational curriculum that contributes to the total growth and development of a child (Dauer & Pangrazi, 1975). As a part of the primary and secondary curriculum, physical education courses have their own course of study which outlines content standards in four areas labeled as development strands. These strands address the cognitive, social, physical, and health development of all students at each grade level, and are to be used to
design a quality physical education course for students (Alabama State Department of Education, 2012). Teaching the Physical Activity and Health strand, which states students should participate in regular physical activity and achieve and maintain a health-enhancing level of physical fitness, “should be the driving force for physical education teachers” (Alabama State Department of Education, 2012, p. 1). Quality physical education courses “could be one of the most effective strategies for reducing the public health burden of chronic diseases associated with sedentary lifestyles” (CDC, 1997).

In the school setting, physical education class is where fitness is measured and improved upon. As mentioned earlier, physical fitness is the quality of being suitable to perform a particular task (CDC, 1997). Skill related fitness focuses on specific skills needed for a task and includes agility, power, speed, coordination, and reaction time (Feith, 2017). However, health related fitness focuses on becoming healthier and fitter with the ultimate goal being the promotion of optimum health and the prevention of the onset of diseases and health problems (Admin, 2017). The APFA focusses on the health related components of physical fitness, and promotes maintaining a healthy level of fitness which could lower students risk for developing diseases and poor health (Alabama State Department of Education, 2012).

**Measurement of Physical Fitness**

In the school setting, components of physical fitness are used as a form of “standardized testing” to measure the current fitness level of students and chart progress or the lack thereof. The components measured with fitness testing vary from state to state, with the majority focusing on the health components of physical fitness: cardiovascular and muscular fitness, muscular endurance, flexibility, and body mass index (BMI) (Feith, 2017). “The Alabama Physical Fitness Assessment is a criterion-referenced assessment designed to provide students
with specific information about individual levels of personal health and physical activity levels” (Alabama State Department of Education, 2012, p. 26). The results of fitness testing are not only used to measure student fitness levels, but as variables in research to make comparisons with other measures of achievement.

Physical Fitness testing is used to measure the overall fitness level of students in public schools (“Monitoring Student,” n.d.). In the state of Alabama, testing is mandated for all students in Grade 2, who are at least 8 years of age, to Grade 12. In 2010, the Alabama State Department of Education formed the Quality Physical Education Task Force and charged it with the development of a fitness test specifically for Alabama’s students. The task force researched and reviewed existing fitness tests such as the President’s Challenge, FITNESSGRAM, and the Connecticut Physical Fitness Assessment and developed a comprehensive criterion-referenced fitness measurement based on the health-related components of fitness. This fitness assessment targets the achievement of healthy levels of fitness in the areas of aerobic cardiovascular endurance, muscular strength/endurance, abdominal strength/endurance, and flexibility. Each of these components has fitness zones for each age and gender, which set zones of needs improvement, healthy fitness, or high fitness. Each fitness component has a specific measure used for assessment. The APFA was piloted in each of the eight State Board of Education districts to determine validity and reliability (Alabama State Department of Education, [ASDE], “Alabama Physical,” 2012).

The four health components of aerobic cardiovascular endurance, muscular strength/endurance, abdominal strength/endurance, and flexibility have specific tests with criterion-referenced goals pre-set for each age and gender (Alabama State Department of Education, 2012). Aerobic cardiovascular endurance is a standard that measures the ability of
the heart to pump blood efficiently moving oxygen throughout the body (Feith, 2017). There are two options for measuring this component, the one-mile run and the PACER (progressive aerobic capacity endurance run). The mile run gives a time range for completing this distance for each fitness zone. The PACER test involves students running 20 meter lengths of the gym set to a timer which progressively gets shorter and shorter. Students continue to run as long as they can and are placed in a fitness zone based on the number of lengths they complete. The component of muscular strength/endurance is measured using 90 degree pushups to a cadence. Students must maintain correct form while lowering their body down till their arms form a 90 degree angle and back up to starting position with a cadence. Incorrect form, such as a sagging back or knees on the ground, constitutes an error at which point the student is finished and their score is the number of pushups done correctly in sequence. Partial curl-ups are used to measure abdominal strength/endurance. Students must lay on their back with their feet flat on the floor and hands on their thigh. Moving to a cadence, students must lift their shoulders off the floor (mat) moving their hands up their thigh towards their knee until their fingertips pass their knee. A score is awarded based on the number of times the student moves up and back down, using correct form. Flexibility is measured using either the back-saver sit-and-reach or the v-sit. Each of these tests measures the distance a student can stretch and awards one of two zones, needs improvement or healthy. No high-fitness zone is possible for students for the flexibility component (ASDE, “Alabama Physical,” 2012).

Fitness testing for Alabama students is done twice a year, once in the fall and once in the spring and is administered by certified physical education teachers. The testing manual along with the cadences used for the test are on the Alabama State Department’s website. Fitness zone criterion is also included. The three areas are needs improvement, healthy, and high fitness.
Students who score in the needs improvement zone are below the established healthy zone and are at a greater risk for health-related problems. Students in the healthy fitness zone have obtained a “suitable” level of fitness, while those in the high fitness zone have obtained an excellent level of fitness (ASDE, “Alabama Physical,” 2012). These fitness zones have been developed by “nationally recognized experts on the FITNESSGRAM Scientific Advisory Board” at the Cooper Institute, who “evaluate research, assess best practices, and adjust the healthy zone standards to match the best science available” (“What is,” n.d.). Students fitness scores are recorded and entered into the student’s health database available in INOW, where grades, attendance, and other important student information is kept private and secure. Students’ fitness scores are sent to the Alabama State Department of education through this database. This information is also accessible to parents where they can keep track of their child’s physical progress along with their academic progress (Alabama State Department of Education, 2012).

Both academic optimism and physical fitness are latent variables that can be used to measure both individual and group attributes that provide a “picture” of the underlying school structure. Each makes contributions to the organizational climate or school environment, and become resources that can “be combined with other resources to produce different system-level behavior or . . . different outcomes for individuals” (Coleman, 1988, p. S101). These behaviors or outcomes can become assets for change, or producers of capital (Schaefer-McDaniel, 2004).

Social Capital

Capital describes a resource or an asset that is available for action (Schaefer-McDaniel, 2004). There are several types of sustainable capital (Porritt, 2005). Cultural capital relates to beliefs, traditions, and standards of behavior that promote success. Schaefer-McDaniel (2004) says this type of capital is passed through family and available to a child only if the parent/child
relationship is strong (Ho, 2018). According to Ho (2018), financial capital works hand-in-hand with cultural capital at the family level. Being a member of the family unit gives the child access to this capital. However, children in single parent homes or those who come from large families do not have access to this type of capital and may not have the strong social connections necessary to overcome these deficits (Ho, 2018). According to Ho (2018), these students have a higher risk of dropping out of school unless other capital is available to fill in these gaps. Two such forms of capital evident in the school setting are human and social capital.

Whereas human capital refers to “changes in persons that bring about skills” (Coleman, 1988, p.100), social capital refers to relationships that facilitate action (Coleman, 1990). Exported from the field of sociology (Liou & Chang, 2008), Farr (2004) describes social capital “as the network of associations, activities, or relations that bind people together as a community via certain norms and psychological capacities, notably trust, which are essential for civil society” (p. 9). Sociologist and scholars such as Bourdieu, Putnam, and Coleman connect key elements to the concept of social capital. Bourdieu describes social capital as “cultural and social assets that” (McDaniel-Schaefer, 2004, p. 157) provide access to potential resources (Ferlander, 2007). Putnam describes these resources as networks that translate into community assets (McDaniel-Schaefer, 2004, p. 157). According to Coleman, these assets produce a “sense of belonging” (McDaniel-Schaefer, 2004, p. 158) that promotes a trusting social structure (Ferlander, 2007) in which these resources can “be combined with others to produce different outcomes for individuals” (Coleman, 1988, p. S101). According to Coleman (1988), besides the family, the school is one of the best examples of a “trusting social structure.”

Renowned psychologist and educational reformer John Dewey described schools as “social communities of cooperative learning” (Farr, 2004, p. 17), which contain a “fund of
accumulated power that society counts as its capital” (Farr, 2004, p. 17). Coleman (1988) describes this capital as social capital that “is productive, making possible the achievement of certain ends that in its absence would not be possible” (p. S98). Coleman’s focus is on relationships and how these relationships are “resources available to an actor” (p. S98). Coleman felt that social capital was important in the school setting and that “increasing social capital in the school (by strengthening the social relationships between parents, teachers, and students) would increase academic achievement in students” (as cited in McDaniel-Schaefer, 2004, p. 156). These social relationships thrive in an open school climate, where authentic interactions among teachers, students, and parents take place. In this environment, relational trust exist, as school personnel “pay attention to the students’ well-being” (Ruus et al., 2007, p. 931), help with the development of coping strategies, “support the students belief in being continuously successful,” and “develop a friendly, but challenging climate of learning” (Ruus et al. 2007, p. 931) A sense of belonging exist in this type of environment which research has shown promotes academic success (as cited in McDaniel-Schaefer, 2004, p. 163). Social capital involves taking these resources available to students and combining them to produce different outcomes, when this happens, something of value is produced such as academic success or an overall sense of health and well-being (Coleman, 1988, p. S101).

Two forms of social capital are particularly relevant to the educational environment: bonding social capital and bridging social capital (Hoy et al., 2013). Bonding social capital refers to certain features or commonalities that “bond” a network or community together, whereas bridging social capital refers to interactions between the community and external entities or organizations that benefit the “bonded” community (Hoy et al., 2013). Bonding social capital creates conditions necessary for bridging social capital to exist (Hoy et al., 2013). Both
forms of social capital are necessary in the “provision of essential supports and conditions that facilitate student performance” (Hoy et al., 2013, p. 314). Hoy et al. (2013) states “A school culture imbued with these features has a sense of the possible” (p. 314). This sense of the possible can permeate the organization and positively influence all facets of the school setting. Bonding social capital can positively “affect individual health through mechanisms such as promotion of self-efficiency (a sense of personal control) and reduction of stress” (Ferlander, 2007, p. 122). Bridging social capital has been influential in the “promotion of healthier behaviors” (Ferlander, 2007, p. 123) through the “reinforcement of positive health norms in society” (Ferlander, 2007, p. 123).

Academic optimism and physical fitness are both contributors to the social capital of the school. Social capital is an organizational property of the school (Salloum, Goddard, & Larsen, 2017), through which academic optimism and physical fitness contribute. Both constructs provide forms of bridging and bonding social capital through the promotion of academic achievement and facilitation of desirable physical and mental health.

**Academic Optimism and Achievement**

Multiple studies have examined the relationship between the two latent constructs of academic optimism and academic achievement (Bevel & Mitchell, 2012; Goddard, 2001; Hoy, Tarter, & Hoy, 2006; Hoy, 2012; Kirby & DiPaola, 2011; Moghari et al., 2011; Smith & Hoy, 2007; Tschannen-Moran, 2013; Wagner & DiPaola, 2011; Wu, 2013; Wu et al., 2013). Whereas academic optimism relates to a set of beliefs, academic achievement relates to a set goals (Steinmayr, Meibner, Weidinger, & Wirthwein, 2014). The accomplishment of these specific goals represents a level of achievement. According to Steinmayr et al. (2014), in the school
setting, cognitive goals “should be considered to be a multifaceted construct that comprises different domains of learning” (p. 1).

Hoy et al. (2008) examined the relationship between academic optimism and academic achievement by conducting a study in Ohio using third and fourth grade students in 350 schools. They theorized that there was a positive relationship between the concept of academic optimism and student achievement. This theory was based on the premise that teachers who believe their students can succeed make instructional and management decisions that support this belief, thus providing a learning environment more conducive to success. In their study Hoy et al. (2008) found that academic optimism was related to student performance on achievement test. Teachers who possessed a sense of academic optimism believed their students could and would be successful on their yearly achievement test. These teacher beliefs correlated positively with their student’s performance thus indicating a relationship between the academic optimism of the teacher and the students’ academic achievement (Hoy et al. 2008).

This same relationship was observed in high school students in research by Wagner and DiPaola (2011). Their research examined responses from over 1,200 high school teachers serving Grades 9-12 students in Virginia public schools. Achievement data covering end of course assessments in biology, history, reading, and writing were collected and compared to the survey responses of their teachers. This data supported their hypothesis that even after controlling for students socioeconomic status (SES), academic optimism had a significant effect on all four of the measures of achievement (Wagner & DiPaola, 2011). Using this same data from Virginia public schools, Kirby partnered with DiPaola to compare these survey responses with Grades 3-5 mean reading and math scores to determine what, if any, effect the academic optimism of the teachers had on their student’s achievement. Applying correlation, multiple
regression, and factor analyses Kirby and DiPaola (2011) tested their theory that the academic optimism of urban teachers would be positively correlated with their students’ achievement. Through an examination of the data, it was determined that “academic optimism had a statistically significant independent effect on mean student achievement scores” (Kirby & DiPaola, 2011, p. 554). In a later study, the research of Bevel and Mitchell (2012) achieved the same results when they explored the relationship between fifth grade reading ARMT scores and the academic optimism of teachers in rural Alabama. Their hypothesis that academic optimism would positively correlate with and predict ARMT reading achievement was confirmed through principal components factor analysis on data from 26 rural & urban schools (Bevel & Mitchell, 2012).

Numerous studies have also examined the relationship between student math achievement and the level of academic optimism of their teachers (Kirby, & DiPaola, 2011; Smith, & Hoy, 2007; Tschannen-Moran et al. 2013; Wu et al. 2013; Wu & Sheu, 2015). Smith and Hoy (2007) surveyed 99 urban elementary schools in Texas. Achievement test and survey responses were examined using multiple regression and factor analysis to test their hypothesis that academic optimism predicts achievement (Smith & Hoy, 2007). In Virginia, Tschannen-Moran, Bankole, Mitchell, and Moore (2013) conducted similar research in 49 urban elementary, middle and high schools. They hypothesized that academic optimism would explain a significant amount of the variance in achievement. The Virginia standards for English and math scores were used for this confirmatory factor analysis (Tschannen-Moran et al. 2013). In both studies, math achievement and academic optimism showed a significant, positive, and direct effect on academic achievement (Smith & Hoy, 2007; Tschannen-Moran et al., 2013).
Wu had slightly different results in his research when he, along with Hoy and Tarter, examined research from Taiwan to determine if the relationship between achievement and academic optimism was evident in a Chinese culture (Wu & Sheu, 2015). One hundred and three elementary schools with over 1,095 valid teacher responses were compared with data from fifth and sixth grade basic competency tests for Chinese and mathematics (Wu et al., 2013). As in the USA, academic optimism was shown to have a strong significant impact on student achievement; however, this effect was indirect, working through collective responsibility to affect achievement (Wu et al., 2013). In other words, “without high collective responsibility, academic optimism alone would not likely guarantee an improvement in student achievement” in the Chinese culture (Wu, 2013, p. 430). These findings demonstrate that academic optimism, as a school level construct, can work through other properties to stimulate change.

Hoy asserts, “It should come as no surprise that academic optimism predicts student achievement” (Hoy, 2012, p. 85). “Efficacy, trust, and academic emphasis produce a powerful force that engenders motivation, creates optimism, and channels behavior toward the accomplishment of high academic goals” (Hoy, 2012, p. 86). Academic optimism promotes “an overall optimism among teachers that students can, should, and will achieve academically” (Wittberg et al., 2012, p. 899).

Physical Fitness and Achievement

Although often confused and misunderstood, there are clear differences between physical health, physical fitness, and physical education. However, in an examination of the literature, the commonality of the relationship of each to academic achievement is evident. This discussion will focus on physical fitness and physical health, and the impact they have on achievement.
Differences in fitness levels and achievement indicate an achievement gap between fit and unfit students beginning as early as fourth grade (London & Castrechini, 2011). One New York study evaluated over 83,000 students over a five-year period using language and math achievement and fitness scores and noticed the same phenomenon, of a decrease in achievement among children who decreased in fitness over time. Conversely, as physical fitness levels improved so did academic rankings in middle school students (Bezold et al., 2014).

Fitness tests are divided into criterion referenced zones that label students as either in the needs improvement zone, healthy zone, or high health zone (Alabama State Department of Education, 2012). Research by Chomitz, Slining, McGowan, Mitchell, Dawson, and Hacker (2009) and Blom, Alvarez, Zhang & Kolbo (2011) on students in the grade range of third-eighth, indicates a linear trend between the fitness zone of the student and their achievement level in math and language. They hypothesized that there would be a significant positive relationship between student fitness levels and academic achievement. They found that “The odds of high academic achievement increased with the number of healthy fitness zones achieved” (Blom et al., 2011, p. 16; Chomitz et al., 2009). These results were replicated in two longitudinal studies, one in California and one in New York. California students in two separate cohorts of over 1,000 each were tracked over a four-year period to study to see if there would still be a significant relationship between math and language achievement and fitness levels over time. They theorized that the same characteristics that are associated with decreased physical fitness would also be associated with lower academic achievement. The results of their research indicated that improved fitness is associated with academic achievement over time (Bezold et al., 2014; London & Castrechini, 2011).
In two separate studies, Cottrell, Northrup, and Wittberg (2007) evaluated 2,600 9-13-year-old students to check for correlations between all five fitness components and performance on the WESTEST, which covers reading/language arts, math, science, and social studies. Highly significant correlations were found between achievement and cardiovascular fitness in Cottrell’s study with Wittberg, Davis and Northrup (2010). In a separate study with Wittberg and Northrup (2012), students who scored low on all five fitness tests were also the lowest performers on all academic subjects compared with students obtaining the highest fitness scores. In a study of 968 fifth graders conducted by the same researchers, they hypothesized that a positive relationship exists between the individual fitness test components and academic achievement. Their findings revealed “a positive association between aerobic capacity and improved cognitive function” (Wittberg, Northrup, & Cottrel, 2009, p. 33).

Ickovics et al. (2014) use the term health assets as an inclusive term to describe positive physical health attributes. Their study examined 940 fifth and sixth grade students in the areas of fitness, achievement, absenteeism, and nutrition. Students were given a health index score related to the presence of positive health assets as compared to negative health behaviors. Health index scores of students were compared to standardized achievement test scores and the results revealed that students with a higher health index score were more likely to achieve their goal on all three standardized tests, even after adjusting for socioeconomic differences. “As health index scores rise, the proportion of students who achieve academic goals also increases . . . indicating a strong cumulative relationship between health and academic achievement” (Ickovics et al., 2014, pp. 44-45). Similar results were obtained in Iceland by Kristiansson, Sigfusdottir, and Allegrante (2010) in their examination of over 5,000 14-15 year olds. They hypothesized that healthy behaviors such as good dietary habits and maintaining a lower body weight would be associated
with higher academic achievement and greater self-esteem. This hypothesis was supported by their data.

“Research results have maintained that physical activity in the school environment has positive effects on student concentration, self-discipline, mood, and academic skills.” (Ryan & Panettini, 2011, p. 26). Physical activity has a “positive impact on academic performance through a variety of direct and indirect physiological, cognitive, emotional, and learning mechanisms” (Ardoy et al., 2014, p. 57). “Enhancing physical activity in the school curriculum may yield tangible benefits in the academic achievement and psychological health of children, particularly girls” (Kall, Malmgren, Olsson, Linden, & Nilsson, 2015, p. 712).

Hernandez (2014) documented a direct relationship between the health of the school, physical education, and students’ academic success both in and out of school. “Reducing inequalities in health and academic achievement are national priorities . . . those with poor academic achievement are more likely as children and adults to have morbidities and premature mortality” (as cited in Ickovics et al., 2014, p. 40). According to a study conducted by Ruus and his colleagues, which surveyed over 3,000 high school students, “it is very important for students that the school emphasizes not only academic achievement” (Ruus et al. 2007, p. 928), but also pays attention to the student’s overall well-being (Russ et al. 2007).

Academic Optimism and Physical and Mental Health

In a study conducted by Beard et al. (2010), they theorized that the academic optimism of teachers would be correlated with general optimism. In their research they found that possession of positive personal traits led teachers to have a more positive or optimistic outlook and thus led to more positive outcomes. They theorized that this positive outlook would extend to the classroom expanding to encompass and therefore influence the performance of their students.
They examined the individual teacher beliefs of 260 elementary school teachers, and confirmed their theory, as the results indicated the relationship between academic optimism and general life optimism, also known as dispositional optimism, was significant (Beard et al., 2010).

Seligman, who also studied “life” optimism, went so far as to argue that “optimism matters as much as talent or motivation in achievement” (as cited in Hoy et al 2006, p. 440). In their article on Optimism vs Pessimism, Harpaz-Itay and Kaniel (2012) contend that “extreme optimists have high actual confidence in their ability to accurately evaluate their general expectations, including how well they will succeed at school” (p. 273). El-Anzi (2005) studied a sample of 400 male and female students using cumulative grade averages, the Beck Anxiety Inventory, self-esteem scale, and the Arabic scale of optimism and pessimism. Using Pearson correlations, the results revealed a positive correlation between optimism and self-esteem supporting their hypothesis that a significant relationship exists between optimism/pessimism, anxiety, and self-esteem). Malinauskas and Akelaitis (2015) also point out the connection between optimism and self-esteem in their research and add to this list positive emotions and the absence of emotional problems. They say, “Optimism provides self-confidence, strength, and determines a positive attitude” (p. 31).

In addition to mental and emotional benefits, optimism has demonstrated a connection to positive health outcomes as well. In a meta-analysis conducted by Rasmussen et al. (2009), of 84 studies that examined the relationship between optimism and physical health, the findings “strongly suggest that optimism is a significant predictor of physical health” (p. 246). The relationship between physical health and general “life” optimism has also been established in research. Rasmussen and his colleagues conducted a meta-analysis of 84 studies that tested the relationship between optimism and physical health. Their analysis shows that “optimism is
significantly related to physical health” (Rasmussen et al., 2009, p. 244) and “strongly suggest that optimism is a significant predictor of physical health” (Rasmussen et al., 2009, p. 247).

The existence of a positive correlation between academic optimism and dispositional optimism (Beard et al., 2010) and dispositional optimism and physical health (Rasmussen et al., 2009), would seem to suggest a relationship exist between academic optimism and physical health. Although academic optimism is an organizational property and physical health an individual property, each rely on actions of the individual for change to occur. One such catalyst for change is the attribute of physical fitness.

**Physical Fitness and Physical and Mental Health**

“The relationship between student well-being and the other vital outcomes of school is unequivocal. Improved outcomes in all aspects of student well-being are positively associated with improved outcomes in all other aspects of schooling” (Fraillon, 2004, p. 12). This quote from a discussion paper commissioned by the South Australian Department of Education and Children’s Services highlights the importance of student well-being in the school setting.

“Children who experience a greater sense of well-being are more able to learn and assimilate information in effective ways,” and are “more likely to engage in healthy and fulfilling social behaviours” (as cited in, Ontario, 2016, p. 1). There are five dimensions of well-being identified most consistently in child well-being literature: physical, economic, psychological, cognitive, and social (Pollard & Lee, 2003). The physical domain of well-being encompasses “the areas of nutrition, preventive health care, physical activity, physical safety and security, reproductive health, and drug use (as cited in Fraillon 2004, p. 28). According to Fraillon (2004), consistent throughout well-being literature is the assertion that school programs that support physical well-being promote positive health outcomes. An abundance of instruments and measurement
techniques have been used to measure well-being, yet there is little consensus on how best to measure this concept (as cited in Fraillon, 2004). The most common technique is to use multiple individual assessments of indicators of well-being (Fraillon, 2004). Health related fitness is one such indicator that can be used to “monitor and assist students in improving overall health and fitness” (Alabama State Department of Education, 2012). Being physically fit has positive benefits for today’s youth. “Physical fitness is associated with improved confidence, increased attention, reduction in obesity, increased organization, and a host of potentially protective factors for students at risk for poor school outcomes” (Shaw et al., 2015, p. 116). It increases coping skills in children with chronic illness and lowers absenteeism (Shaw et al., 2015).

The most widely discussed childhood physical health issue in recent years has been childhood obesity. When a child is way above normal height and weight parameters for their age, they are considered obese (CDC, “Child Obesity,” n.d.). Obesity is a major cause of ill health and can also affect psychological well-being; specifically self-esteem and behavior (Reilly et al., 2003). Children who are obese in particular are placed as “high risk for academic problems and failure” and are often the focus of Tier 2 and 3 interventions (Shaw et al. 2015, p. 120). Obesity is often a result of inactivity, or a lack of appropriate amounts of exercise (Pietiläinen et al., 2008).

“Research indicates that exercise . . . profoundly benefits brain function” (Berg, 2010, p. 24). “Bouts of physical activity act in a way similar to psychostimulant drugs by facilitating attention . . . raising the energy level and improving the ability to focus on a learning task” (Berg, 2010, p. 25) and “enhancing readiness to learn” (Berg, 2010, p. 27). Brain activity in fit children is higher, making them better prepared to learn (Peters, 2014). Research by Hillman, Erickson, and Kramer (2008) shows that physical activity during childhood promotes lasting changes in
brain structure and is beneficial across one’s lifespan to reverse cognitive and neural decline (Hillman et al., 2008). The research of Bala (2014) on children’s math skills showed that “increased brain activity in physical training increases . . . the entire functioning of the nervous system,” (p. 20; Davis et al., 2011), including levels of concentration (Bala, 2014). Physical activity also increases brain plasticity and hippocampal volume for improved memory and cognitive function (Aberg et al., 2009; Chaddock et al., 2010).

According to the CDC, “mental health in childhood means reaching developmental and emotional milestones, and learning healthy social skills and how to cope when there are problems” (CDC, “Children’s Mental,” n.d.). Healthy brain development is an important component of mental health. Brain plasticity is a term used to describe “the ability of the brain to adapt, adjust and respond to a new situation, environment or stress” (Bass, Brown, Laurson, & Coleman, 2013, p. 832). Executive function references a control system used to guide or direct behavior toward a goal such as planning and strategy development or computational processes. It also helps in coordination of self-monitoring, inhibition, and self-control (Davis et al., 2007; Green, Nelson, Martin, & Marsh, 2006; Hartman, Smith, & Visscher, 2014; Hillman et al., 2009).

Physical fitness is significantly associated with improvements in executive functioning (Davis, et al., 2007; Davis & Cooper, 2011; Hartman et al. 2014; Schott & Liebig, 2007). Executive functioning enables children to learn more readily and helps them to better control their behavior (Davis et al., 2007). Research by Bass et al. (2013) shows that “fitness is positively associated with attention and working memory, neuroelectric activity, response speed and cognitive processing speed” (p. 836).
As demonstrated in the research connecting brain development and physical fitness, physical fitness/activity improves brain function and mental health (Malinauskas & Akelaitis, 2015). It “enhances the level of key nerve transmitters that improve mood and motivation” (Berg, 2010, p. 25; Ryan & Panettini, 2011). Changes in fitness result in changes in cognitive performance which affects attitudes (Ardoy et al., 2014). Long-term physical activity improves self-esteem and helps to promote a positive or optimistic attitude (Ryan & Panettini, 2011; Shaw et al., 2015).

Dispositional optimism is the tendency to look at the positive side of life and is equated to positive self-esteem. “Optimism provides self-confidence, strength, and determines a positive attitude” (Malinauskas & Akelatis, 2015, p. 31). Bulotaite (as cited in Malinauskas & Akelatis, 2015) states that “optimism and positive personal self-esteem are like a social vaccine that builds an immune system to help overcome violence, bullying and inability to learn” (p. 31). In research conducted by Kavussanu and McAuley (1995), highly active individuals were significantly more optimistic than inactive individuals (Hamid, 1990). “Students start to think more optimistically when their physical activity increases” (Malinauskas & Akelaitis, 2015, p. 35).

**Socioeconomic Status (SES)**

Academic optimism and physical fitness are both predictors of achievement and desirable physical and mental health. However, achievement and fitness are also affected by other factors such as the economy and education level of the surrounding community and the individual and group resources available to its members (Morgan, Farkas, Hillemeier, & Maczuga, 2009). These factors are indicators of socioeconomic status (SES). SES is an all-encompassing term that is characterized by “multiple physical and psychosocial stressors,” it “encompasses not just
income but also educational attainment, financial security and subjective perceptions of social status and social class” (“Education and Socioeconomic,” 2018, p. 1). Research suggests that low socioeconomic environments provide limited resources that can adversely impact student health and academic performance (Jensen, 2009). “Low SES in childhood is related to poor cognitive development, language, memory, and socioemotional processing” (“Educational and Socioeconomic,” 2018, p. 1). “Socioeconomic factors are powerful shapers of student performance . . . in large-scale studies such as those of Coleman et al. and Jenks, SES overwhelms the association between school properties and achievement” (Hoy et al., 2006, p. 426). Due to the probability that SES impacts the achievement and fitness levels of the school, school, SES was used as a control variable in the test of this relationship to ensure any correlation between academic optimism and fitness was not the result of socioeconomic factors.

**School Enrollment**

School enrollment is a measure of the total number of students enrolled in a school (Wu, 2013). Although the researcher only found a few studies where enrollment was used as a variable, Urick and Bowers (2014) refer to enrollment as a school level variable associated with student achievement. In their study, which examined the relationship between academic climate perception and achievement, school demographic variables were used as control variables, with enrollment being one of the components used (Urick & Bowers, 2014). Wu (2013) in his research on academic optimism and collective responsibility and Hoy (2012) in his research on collective efficacy and achievement, both used the school as the unit of analysis and enrollment or school size as a control variable to ensure that the size of the school did not impact the results of their analysis. Due to the varying grade configurations and enrollment numbers of each school, enrollment was used as a control variable in the test of this relationship to ensure any
correlation between academic optimism and fitness was not the result of the size of the school enrollment.

**Academic Optimism and Social Capital**

Academic optimism is a concept that represents the culture and belief system of the teachers of a school. It is a latent construct used to describe the shared culture or optimistic belief system of a school as a whole, that student achievement is important, is attainable, and that working together, parents, teachers, and students can achieve a measurable level of academic success (Hoy, Miskel, & Tarter, 2013). Academic optimism encompasses the cognitive, affective and behavioral dimensions of learning (Hoy et al., 2008) and has been shown to positively correlate with academic achievement in both short- and long-term studies of students from Kindergarten through college (Beard et al., 2010; Bevel & Mitchell, 2012; Hoy et al., 2008; Kirby & DiPaola, 2011; Smith & Hoy, 2007; Tschannen-Moran et al., 2013; Wagner & DiPaola, 2011; Wu, 2013; Wu et al., 2013). Academic optimism has also been positively correlated to desirable physical and mental outcomes. Beard, Hoy, and Woolfolk Hoy, theorized that the academic optimism of teachers would be correlated with dispositional optimism (2010). The results of their study confirmed their theory that a significant relationship between academic optimism and dispositional optimism exist (Beard et al. 2010).

Russ (2007) and his associates assert that the school is responsible, “as a living and learning environment” (p. 932), for not only the academic success of students, but for their optimistic acceptance of life as well. According to their study, “it is very important for students that the school emphasizes not only academic achievement, but also humane values, such as caring, self-improvement, security, and good interpersonal relations” (Russ et al., 2007, p. 928). The establishment of these values promotes social exchanges that establish relational trust that is
characterized by reciprocated respect (Hoy, 2010). Trust and respect, integral attributes of academic optimism, shape school norms and behavioral expectations (Hoy et al., 2006). These norms are “powerful though sometimes fragile forms of social capital” (Coleman, 1988, p. 104).

Physical Fitness and Social Capital

Physical fitness is a general state of well-being that is more than just the absence of disease or defect and includes positive emotional and cognitive attributes such as self-confidence and mental stability. Besides the obvious physical benefits of high levels of physical fitness, mental benefits in cognitive functioning, self-regulation, motivation, self-esteem and increases in levels of concentration have also been significantly correlated to fitness levels (Davis et al., 2007; Davis & Cooper, 2011; Green et al., 2006; Hartman et al., 2014; Hillman et al., 2009; Ryan & Panettini, 2011; Schott & Liebig, 2007; Shaw et al., 2015). These benefits increase sociability, trust, and a sense of belonging promoting social networks or sociability (Schaefer-McDaniel, 2004). According to Bourdieu (as cited in Schaefer-McDaniel, 2004), sociability is “the ability to sustain and utilize one’s social network” (p. 161) and is a feature of social capital.

According to Liou and Chang (2008), social capital is a resource or asset, embedded in individual relationships. Close relationships create avenues for obtaining social capital, developing social cohesion and extending social networks (Liou & Chang, 2008). Maeroff (as cited in Liou & Chang, 2008) has stated that “the strength of contacts enables students to transform social networks into key forms of capital” (p. 118) and according to Schaefer-McDaniel (2004), increases in social networks has been linked to beneficial health outcomes.

Academic Optimism, Physical Fitness, and Social Capital

Social capital is an organizational property of schools that promotes a trusting social structure (Ferlander, 2007) and helps establish group norms that promote an “open and healthy
school environment” (Hoy, Smith, & Sweetland, 2003). These group norms not only promote a healthy learning environment, but foster the development of social capital, resulting in a positive form of “deposit” that is supportive and facilitates change. Social capital is like gas in a gas tank. As social capital is created, this “gas” fills the tank (school) enabling more action, like fuel does in a gas tank. Without gas in the tank, the car cannot accomplish much; without social capital, the same could be said about a school (Schaefer-McDaniel, 2004).

Social capital is an organizational property that is an attribute of schools that enables the achievement of important outcomes (Salloum et al., 2017). Increases in social capital have been shown to promote achievement, increase parental involvement and enhance relationships between teachers, students, and parents (Schaefer-McDaniel, 2004). Social capital allows the combining of resources to promote different behaviors or outcomes for individuals. The result is the production of something of value, which is an additional resource available to actors (Coleman, 1988). These resources benefit all who are a part of the organization; “benefits of actions that bring social capital into being are largely experienced by persons other than the actor” who generated the social capital (Coleman, 1988, pp. 118-119). This relational aspect of social capital is “beneficial to individuals by transferring one type of capital into other key forms of capital such as economic capital or human capital” (Liou & Chang, 2008, p. 109).

Social capital enables the achievement of important outcomes in the school setting (Salloum, et al., 2017) and is a result of changes in relationships (Coleman, 1988). These changes produce “assets that a person or persons can use as a resource” (Schaefer-McDaniel, 2004, p. 155). Academic optimism and physical fitness are both contributors to the social capital of a school in that they promote achievement (Bevel & Mitchell, 2012; Bezold et al., 2014; Blom et al., 2011; Chomitz et al., 2009; Goddard, 2001; Hoy, Tarter, & Hoy, 2006; Hoy, 2012;
Theoretical Rationale

As organizational properties of the school, academic optimism and physical fitness have demonstrated a relationship both to academic achievement and desirable physical and mental health (Bevel & Mitchell, 2012; Goddard, 2001; Hoy, 2006, 2012; Hoy et al., 2013; Kirby & DiPaola, 2011; Moghari et al., 2011; Ryan & Panettini, 2011; Smith & Hoy, 2007; Tschannen-Moran et al., 2013; Wagner & DiPaola, 2011; Wu, 2013; Wu, Hoy, & Tarter, 2013). Through these common relationships, both concepts are contributors to and products of the development of social capital (as cited in McDaniel-Schaefer, 2004).

Optimism, health, and achievement are all viewed as positive assets that, according to Coleman (1988), promote a sense of belonging and a “trusting social structure” (p. S101). Coleman identifies the school as the best example of this trusting social structure (p. S101) and postulates that the relationships nurtured in this environment promote success (as cited in McDaniel-Schaefer, 2004). As contributors to the social capital of a school, a relationship should exist between academic optimism and physical fitness. Higher levels of academic optimism should correlate with higher levels of physical fitness.

The hypothesis for this study was as follows:

\[ H_1: \text{School academic optimism will be positively correlated to and predictive of school physical fitness.} \]
Summary

This chapter presented a review of the research literature related to the variables of this study. A theory was outlined to support the hypothesis that academic optimism and physical fitness are organizational constructs related to each other through social capital. Lastly, SES and enrollment were identified as a factors that could possibly influence the results of data analysis, and therefore was used as control variables in the test of the hypothesis of this study, which is the school academic optimism level is positively correlated to and predictive of the school physical fitness level.
CHAPTER 3:

METHODOLOGY

The chapter will describe the methodology of this non-experimental study, which tested the hypothesis the school academic optimism level is positively correlated to and predictive of the school physical fitness level. An explanation of the sample will be presented along with a detailed discussion of the instruments used for data collection. The method of data collection and how analysis of the data was conducted will be discussed as well. This chapter concludes with a summary of the information in Chapter 3.

Study Design

The study conducted by the researcher was a correlational study that utilized quantitative data for analysis. The variables of this study were academic optimism, physical fitness, socioeconomic status (SES), and school enrollment. Academic optimism was the independent variable, physical fitness the dependent variable, and SES and enrollment were used as control variables. The unit of analysis was the school.

Sample

The target population for this study was a convenience sample of public schools located in north Alabama that served students ranging from Grades 2-12. Schools were chosen based on their proximity to the researcher. Of the 116 schools surveyed, academic optimism surveys and fitness scores for 40 schools were available for use as the sample for this study. Data for this study was collected after IRB approval had been granted and permission had been obtained from each district Superintendent and school principal. Academic optimism survey data was collected
at the school level using surveys, while physical fitness data was obtained either from the district Board of Education via the Superintendent or their designee, or via the individual school principal depending on the district Superintendent’s wishes. Schools from which optimism surveys had been previously obtained, were the schools targeted with fitness data requests. The sample for this research became 40 schools from which both optimism and fitness scores were available.

Data Collection

Data collection began after IRB approval (see Appendix A) was obtained from The University of Alabama. The superintendent of each school system was contacted, via phone, email, or personal visit, to gain permission to collect data from their teachers (see Appendixes F-J). Academic optimism data was collected at the school level while fitness data had to be requested from the Superintendent who decided how fitness data would be shared and by whom.

Academic Optimism Data Collection

Academic optimism data collection took place in regularly scheduled faculty meetings either by the researcher or a designated representative. Teachers were given a written explanation (see Appendix K) of the purpose of the study and reassured that participation was voluntary and all answers were completely confidential. Surveys were distributed randomly as each survey packet contained a mixture of all instruments from the “Rigatoni Group.” Each packet was returned by the subject to an envelope which was sealed and returned to the researcher. All manila envelopes were labeled only with a number designating the school, to maintain anonymity. A corresponding number was used on the fitness data collection form for the purpose of matching the student fitness data with the corresponding school. The only exception to this process was the surveying of the five K-12 schools included in this study. K-12
schools were originally excluded due to concerns over the ability to separate elementary and high school participants. The five K-12 schools close to the researcher were surveyed by the researcher using only SAOS surveys. Only elementary teachers were surveyed at these five schools as these faculties, although housed on the same campus, have separate facilities, administration, and meetings. Surveying only teachers who work with one age group was easily accomplished while still allowing participants voluntary participation and anonymity.

**Physical Fitness Data Collection**

Fitness data collection was much more complicated than originally anticipated. Strict data governance policies and the placement of fitness data in the health database caused initial confusion as to what could and could not be shared. Once IRB approval had been obtained, the Superintendent of each of the systems participating was sent a request (see Appendices F) for spring fitness data. Fitness data was sent both from the board and from school principals as each Superintendent made an individual decision whether to designate a contact at the central office or forward the request to the school principal.

All fitness data received by the researcher was clean of any identifying information and specific fitness data scores (numbers). The data was saved by school number in an excel workbook and emailed to the researcher. These reports were saved by school number in a password protected google file, and also downloaded and printed for scoring by the researcher. All scored school fitness data reports were stored by school number in unmarked envelopes and kept locked in the researcher’s office. Each report contains only words and letters and cannot be associated with any grade level or individual.
Instrumentation

This study was non-experimental. Surveys were used to measure the level of academic optimism in the schools and spring physical fitness data was used to calculate a fitness level for each school. The instruments used for this research are widely used to measure the variables of this study. The SAOS, School Academic Optimism Scale, was used to measure the academic optimism level of each school and the ASPFT, Alabama State Physical Fitness Test, was used to measure the fitness level of the students at each school.

School Academic Optimism Scale (SAOS)

The SAOS is a valid and reliable instrument used to measure the academic optimism of schools. It is comprised of three separate subscales measuring collective teacher efficacy, faculty trust in students and parents, and academic emphasis. The validity and reliability of these subscales has been tested and confirmed in several studies (Bevel & Mitchell, 2012; Hoy et al. 2012; Smith & Hoy, 2007; Wu & Sheu, 2015). For example, in Bevel and Mitchell’s (2012) study of the effects of academic optimism on elementary reading achievement, the reliability of each of the subscales ranged from 0.83-0.94, indicating a high degree of reliability. Similar reliability of the SAOS instrument was documented by Wu and Sheau in their study which examined the relationship of preexisting conditions of a school and its level of academic optimism. The reliability of each subscale ranged from 0.85-0.95 (Wu & Sheu, 2015).

The SAOS survey consists of 30 questions divided into two sections, each utilizing a Likert scale to measure a response for each item. Questions 1-22 use a 6-point Likert-type scale that is as follows:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Somewhat Disagree</th>
<th>Somewhat Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
Questions 23-30 utilized a 4-point Likert-type scale that is as follows:

<table>
<thead>
<tr>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

This instrument measures the three facets of academic optimism; sense of collective efficacy (1-12), faculty trust in students and parents (13-22), and school academic emphasis (23-30) (see Appendix E).

Once completed, the surveys were scored by a graduate student retained by the University using the parameters outlined by the developer Wayne K. Hoy, downloaded from Waynekhoy.com. Sample questions included the following:

Collective efficacy items such as, *Teachers in this school are able to get through to the most difficult students.*

Faculty trust in students and parents items such as, *Teachers can count upon parental support.*

School academic emphasis items such as, *The school sets high standards for performance.*

The Alabama State Physical Fitness Assessment (ASPFA)

Individual fitness data reports for each school were collected via the Superintendent or their designee using step-by-step instructions provided by the researcher (see Appendix C). Fitness data is available through the INOW health database used by school systems. INOW, or Information now, is a data storage portal where teachers store information about students’ progress. This portal is accessible by parents. Fitness data is kept in the student’s health file and stored in the health database used by Alabama schools, where it is accessible by school administrators and designated school board personnel. Each school’s data was scored and documented on a school fitness form created by the researcher (see Appendix D). A school
fitness score was then calculated by the researcher. This school fitness score was used to compare the academic optimism level of the school to the physical fitness level of the school.

**Student Physical Fitness Score**

Student physical fitness was measured using the Alabama State Physical Fitness assessment (ASPFA). The ASPFA is a physical fitness test adopted by the state to measure the fitness levels of students in Grades 2-12. The ASPFA is based on FITNESSGRAM (FG), a well-known norm-referenced test developed by the Cooper Institute (Plowman & Meredith, 2013). The major difference between FG and the ASPFA is the FG uses body mass index as a measurement tool while the ASPFA does not. The fitness components measured are cardiorespiratory endurance, flexibility, muscular strength/endurance, and abdominal strength/endurance. Each component has a specified test used for measurement.

Cardiorespiratory endurance is measured using either the one-mile run or the PACER, which stands for Progressive Aerobic Cardiovascular Endurance Run. Flexibility is measured using the back-saver sit-and-reach or V sit-and-reach. Muscular strength/endurance is measured using the 90 degree pushup test, while abdominal strength/endurance is measured using the partial curl-up test.

Every student age 8 through Grade 12 in physical education class should have been tested during the month of March as mandated by the Alabama State Department of Education and these scores recorded by the physical education teacher from each school and entered into INOW. The score for each component fell into one of three categories, based on pre-set standards for age and gender. These categories are needs improvement (NI), healthy zone (HZ), and high-health zone (HFZ). Each students’ fitness scores are compared to pre-set criterion referenced standards. These standards have been converted to zones: N-needs improvement, H-
Healthy, HFZ-High fitness zone. When students’ scores are entered into the Health Data Base in INOW, the program automatically “grades” their score and identifies the zone in which it falls. For each student the computer lists if their score needs improvement (NI), is healthy (H), or is very healthy (HFZ).

The researcher received individual student fitness data from each school listed, by grade. Each report was clean of any identifying information and only contained letters to represent the score given by the computer (see Appendix L for example). In a report, each student should have four scores where a score of healthy (H) or high (HFZ) is a desirable score and the needs improvement (NI) score is not. For statistical purposes, scores were converted to an ordinal scale. A “0” was given for all NI’s a student had and a “1” for all H or HFZ scores a student had, giving them a number to represent each criterion zone score they achieved. Each student had one number to represent their fitness level, with the number 4 being the highest score possible and 0 being the lowest score possible. Each student who was tested was assigned one number that represented their overall level of fitness based on how many acceptable (H & HFZ) scores and unacceptable (NI) scores they had. This number was used to calculate a fitness level for the school.

There are several examples in research where the “fitness number” was used for analysis (Coe et al., 2013 & Blom et al., 2011). In these studies, the researcher gave each student a number (calculated as previously mentioned) to represent their fitness level ranging 0-4. This process was used by the researcher in this study. The number given each student represented the number of fitness zones at the acceptable level (H & HFZ). For example, if a student’s report indicated their scores were N, H, H, HFZ, the number given this student would be a 3. The student received a “0” for the N and a “1” for each H & HFZ they obtained, so 0+1+1+1=3; the
score for this student is 3. Continuing this same process for each student on the report yields one number, ranging from 0-4, for each student. This “fitness number” represents how many “health assets” the student earned for this test and was used to calculate the school’s fitness level used for analysis.

In scoring, the following guidelines were used to provide consistency and preserve validity. As each student should have only four scores, duplicate scores were eliminated (ex. Pacer NI). If the student had two tests for the same component (applicable only to cardiovascular endurance and flexibility), the best score was used (ex. pacer-NI, mile Run-H; mile run would be used). If a student had an (NT-no time; NC-non-compliant; SN-special needs) notation and a score for the same test item (ex. Pacer-HFZ), the score was used. Students with missing data were not scored, if accounting for the missing score would affect a student being in the “lowest category” (having a 0, 1, or 2 as their fitness number) or the “highest category” (having a 3 or 4 as their fitness number). For example, sample scores: H, N, NT, NT . . . student scores could be a 2, 3, or 4, because there is no way to know what the “NT” represents, so this students’ scores were not useable). Conversely, if scores were missing (student had less than four scores), and the student could be scored without it affecting the overall outcome (ex. H, HFZ, H, NT . . . this would still be a 3 or 4 no matter what “NT” represents), then the students’ scores were used. Schools with missing second grade scores were used IF other grades, for the same school, were available.

School Physical Fitness Scores

Once individual fitness scores were converted to a fitness number using the process described in the previous section, a school fitness score was calculated; the school was the unit of measurement for this study. First, using the fitness number already assigned, students were
separated into homogeneous groups and a total for each number (0-4) was calculated (i.e., all 0s were added together, all 1s together, 2s, 3s, and 4s). Doing this yielded a report that listed how many students scored acceptably in 0 categories, 1 category, 2 categories, 3 categories, or 4 categories. The number of students who scored in each category (labeled “Fitness Zones” in example below) were added together. This number was listed in the student count column on the School Data Collection form (see Appendix D), as shown in the chart below. In the example below, for this school, there were 18 students whose fitness number was a “0,” 40 students whose fitness number was a “1,” 105 whose fitness number was a “2,” 149 whose fitness number was a “3,” and 128 whose fitness number was a “4.”

Table 1

*Example of Student Count for Student Data Collection Form*

<table>
<thead>
<tr>
<th>Fitness Zones</th>
<th>Student Count</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>105</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>149</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>128</td>
<td></td>
</tr>
</tbody>
</table>

The researcher then took the totals in the “Student Count” column and divided each one by the total number tested (in the above example, there were 443 students tested) to obtain the percentage of students tested that fell within each fitness zone. For example, in the 0 zones category: 18 ÷ 443 = .04. This number is placed in the percentage column of the form (see chart at the top of the next page).
Table 2

Example of Completed Student Data Collection Form

<table>
<thead>
<tr>
<th>Fitness Zones</th>
<th>Student Count</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>18</td>
<td>.04</td>
</tr>
<tr>
<td>1</td>
<td>40</td>
<td>.09</td>
</tr>
<tr>
<td>2</td>
<td>105</td>
<td>.24</td>
</tr>
<tr>
<td>3</td>
<td>149</td>
<td>.34</td>
</tr>
<tr>
<td>4</td>
<td>128</td>
<td>.29</td>
</tr>
</tbody>
</table>

Note. Total # of Students Tested: 443

As one number was needed for comparison to the academic optimism level of a school, each chart was divided where 0-2 fitness zones were grouped together and 3-4 were grouped together, just like Coe et al. (2013) and Blom et al. (2011) (studies previously referenced) did for their studies calling the 0-2 the “lowest category” and 3-4 the “highest category” (see example above).

The “highest category” was used to represent the fitness level of the school for comparison to the academic optimism level of the same school. For the school above, based on the numbers in the chart, .63 would be the fitness level of this school. This number was used for comparison to the academic optimism level of the same school. In the above example, 63% of the students that were tested at this school scored in the “highest category.”

This process, assigning a fitness number to individual students for each grade and then calculating a school fitness score as explained above, was repeated for each of the 40 schools in
the sample. Each school was coded using a school number (placed at the top of the School Data Collection Form; see Appendix D). This number corresponded with the number on the same school’s SAOS results and was used to ensure school SAOS scores were compared to the same school’s fitness scores and also to help maintain anonymity.

**Socioeconomic Status (SES)**

Socioeconomic status, or SES, was used as a control variable in this study. SES was calculated using the free/reduced lunch (FRL) percentage of each school, which was pulled from the Alabama State Department of Education website for the 2016-2017 school year. School SES is most commonly measured using the proportion of students at a school who are eligible for free/reduced lunch (FRL) (Sirin, 2005). FRL is a government subsidized free breakfast and lunch program for low-income children (Rothstien, 2004). To qualify for free or reduced lunch, families must fall below the income allowance for their family size (“Alabama School . . .,” n.d.). The Department of Agriculture has pre-set eligibility guidelines that are used by local school districts to determine eligibility. The FRL level of a school district is a direct reflection of the socioeconomic status of the surrounding community (Sirin, 2005). The SES value for each school was calculated (1-FRL). The lower the FRL percentage for a school, the higher the SES level.

**Enrollment**

School enrollment was also used as a control variable in this study. Enrollment numbers for each school were pulled from the Alabama State Department of Education website for the 2016-2017 school year. Urick and Bowers (2014) refer to enrollment as a school level variable associated with student achievement. In their study, which examined the relationship between academic climate perception and achievement, school demographic variables, such as
enrollment, were used as control variables to help increase the validity of the results (Urick & Bowers, 2014). Wu (2013) and Hoy (2012), each in their individual research, used the school as the unit of analysis and enrollment or school size as a control variable to ensure that the size of the school did not impact the results of their analysis. In this study, enrollment was used as a control variable in the test of the relationship between academic optimism and fitness to help ensure the result of the analysis is not influenced by the school enrollment.

**Analysis**

The academic optimism level of each school was compared to the fitness level of each school to determine if there was a correlation between the academic optimism level and the fitness level of the school. The independent variable was school academic optimism, which was compared to the school physical fitness level, the dependent variable. School physical fitness was determined using the percentage of students who were tested and achieved either a health or high health ranking on any fitness components. A regression analysis was conducted to determine if academic optimism was responsible for the variance in physical fitness scores. A positive correlation would have indicated that as the level of academic optimism increased in the school, so did the school’s level of fitness. Conversely, a negative correlation would have indicated that as academic optimism decreased, physical fitness increased and no correlation, no relationship between the two variables. In addition, a correlation analysis was conducted to determine the strength of any relationship. The higher the number, the stronger the relationship. SPSS software was used to conduct the analysis.

**Summary**

This chapter contained all relevant information related to the methodology used in this study. The researcher chose a survey and a fitness collection form for data collection in this non-
experimental study to test the hypothesis, school academic optimism is positively correlated to and predictive of school physical fitness and answer the research question: What is the relationship between academic optimism and fitness in schools? A regression analysis was used to determine if any relationship existed between the two variables and a correlation analysis determined the strength of any existing relationship. SES (socioeconomic status) was used as a control variable. A partial correlation was conducted using additional steps in SPSS.
CHAPTER 4:

RESULTS

This chapter presents the results of the data analysis of the relationship between school academic optimism and school physical fitness. The beginning of this chapter summarizes the descriptive statistics of the sample and the variables used in this study. Academic optimism and physical fitness were examined at the school level to test the hypothesis that, the school academic optimism level is positively correlated to and predictive of the school physical fitness level. SES and enrollment are briefly discussed as control variables. The statistical results of the analysis will be outlined and a summary of the findings, as they relate to this study, will be discussed.

Descriptive Statistics

This section provides the descriptive statistics for the sample and all dependent, independent, and control variables. All variables have been aggregated to the school level since the school was the unit of measurement. The dependent variable for this study was fitness. The independent variable was school academic optimism. The control variables were SES and enrollment.

A total of 1,587 educators from 116 schools were surveyed. Two hundred and five School Academic Optimism surveys were available for comparison with the physical fitness scores from 40 schools. In all 11,399 student fitness scores were analyzed from these 40 schools. Table 3 outlines the characteristics of the schools used in this study and Table 4 gives the fitness test sample statistics.
Table 3

*Characteristics of Schools*

<table>
<thead>
<tr>
<th>Grade Configuration</th>
<th>Number of schools</th>
<th>Average Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary K-6</td>
<td>22</td>
<td>500</td>
</tr>
<tr>
<td>Middle School 7-8</td>
<td>4</td>
<td>618</td>
</tr>
<tr>
<td>High School 9-12</td>
<td>9</td>
<td>824</td>
</tr>
<tr>
<td>K-12 School</td>
<td>5</td>
<td>965</td>
</tr>
</tbody>
</table>

Table 4

*Fitness Test Sample Statistics*

<table>
<thead>
<tr>
<th>Grade</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>5th</th>
<th>6th</th>
<th>7th</th>
<th>8th</th>
<th>9th</th>
<th>10th</th>
<th>11th</th>
<th>12th</th>
<th>Total tested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>1693</td>
<td>1800</td>
<td>1847</td>
<td>1359</td>
<td>1648</td>
<td>716</td>
<td>671</td>
<td>1238</td>
<td>214</td>
<td>122</td>
<td>91</td>
<td>11399</td>
</tr>
</tbody>
</table>

Academic optimism is comprised of three components: academic emphasis, collective efficacy and faculty trust of parents and students. It was measured with a questionnaire that had a Likert scale for responses. The mean and standard deviation of the school academic optimism level (SAOS) as well as each of the three components that comprise academic optimism are outlined in Table 5.

Physical fitness was measured using the state mandated physical fitness test comprised of aerobic cardiovascular endurance, muscular strength/endurance, abdominal strength/endurance, and flexibility. Each component was compared to a pre-set criterion-reference set by age and gender. Table 5 gives fitness test sample statistics by grade level.

For this study school academic optimism, school fitness, socioeconomic status, and enrollment were used as variables. To further expand the information included in the analysis, SAOS was broken down into its three parts (CE-Collective Efficacy, FT-Faculty Trust, AE-Academic Emphasis), and the mean score for each school included in the descriptive statistics. Characteristics of the variables and the mean score for CE, FT and AE are outlined in Table 6.
These characteristics include the number of schools (N), the range of scores, mean and standard deviations.

The average SES percentage was 48.77, indicating that 51.23% of the students in participating schools qualified for assistance through the free and reduced lunch program. Average enrollment for these schools was 643 students with enrollment ranging from 235-1,371 students. The mean score for SAOS was 3.71. This mean would appear to be a little low on a 6-point Likert scale; however the mean score is reduced significantly by the 4-point Likert scale used for the Academic Emphasis portion of the SAOS survey. When looked at individually, the mean scores for each component of academic optimism (CE, FT, and AE), are relatively high, with each falling at the 66% point or higher. The majority of teachers participating in this study trust their students, believe they can get through to their students, and that all students have the ability to learn.

Table 5

Descriptive Characteristics of the Measures

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Range</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fitness</td>
<td>40</td>
<td>.73</td>
<td>.27</td>
<td>1.00</td>
<td>.66</td>
<td>.17</td>
</tr>
<tr>
<td>SAOS</td>
<td>40</td>
<td>3.93</td>
<td>1.37</td>
<td>5.30</td>
<td>3.71</td>
<td>.89</td>
</tr>
<tr>
<td>Collective Efficacy</td>
<td>40</td>
<td>4.68</td>
<td>1.46</td>
<td>6.14</td>
<td>4.28</td>
<td>.96</td>
</tr>
<tr>
<td>Faculty Trust</td>
<td>40</td>
<td>4.06</td>
<td>1.59</td>
<td>5.65</td>
<td>3.97</td>
<td>1.02</td>
</tr>
<tr>
<td>Academic Emphasis</td>
<td>40</td>
<td>3.62</td>
<td>1.07</td>
<td>4.69</td>
<td>2.90</td>
<td>.85</td>
</tr>
<tr>
<td>SES</td>
<td>40</td>
<td>.63</td>
<td>.10</td>
<td>.73</td>
<td>.49</td>
<td>.17</td>
</tr>
<tr>
<td>Enrollment</td>
<td>40</td>
<td>1136</td>
<td>235</td>
<td>1371</td>
<td>643</td>
<td>340</td>
</tr>
</tbody>
</table>

Reliability of Scales

A Cronbach Alpha test is used to measure how consistently respondents answer questions on a survey. This measure of reliability was performed on the SAOS survey. Table 6 gives the reliability score (labeled Cronbach’s Alpha) of .88 for SAOS. When separated into each of the three components of academic optimism, faculty trust with a reliability of .93 is in the excellent
reliability range, academic emphasis in the good range, while collective efficacy having the
lowest at .68 is in the questionable range. The Alpha Coefficient for this survey as a whole is
well above the .70 needed to indicate reliability.

Socioeconomic status (SES) was calculated using the free/reduced lunch (FRL)
percentage of each school which, along with school enrollment totals, was pulled from the
Alabama State Department of Education website for the 2016-2017 school year. School SES is
most commonly measured using the proportion of students at a school who are eligible to receive
services through the free/reduced lunch (FRL) (Sirin, 2005). FRL is a government subsidized
free breakfast and lunch program for low-income children (Rothstein, 2004). To qualify for free
or reduced lunch, families must fall below the income allowance for their family size (“Alabama
School . . .,” n.d.). The Department of Agriculture has pre-set eligibility guidelines which are
used by local school districts to determine eligibility. The FRL level of a school district is a
direct reflection of the socioeconomic status of the surrounding community (Sirin, 2005). The
SES value for each school was calculated (1-FRL).

Student physical fitness was measured using the Alabama State Physical Fitness
assessment (ASPFA). The ASPFA is based on FITNESSGRAM (FG), a well-known norm-
referenced test developed by the Cooper Institute (Plowman & Meredith, 2013). The
FITNESSGRAM “is considered valid and reliable for use with children in a field setting” (Coe et
al., 2013). Every student age 8 through Grade 12 is tested twice each year as mandated by the
Alabama State Department of Education and scores entered into INOW. The Health Data Base in
INOW, automatically “grades” each score and identifies the zone in which it falls based on pre-
set criterion referenced standards for age and gender. These zones, needs improvement (NI),
healthy zone (HZ), and high-health zone (HFZ), were used to calculate a fitness score for each
school. Fitness data was received from either a central office designee or the school principal. Step-by-step directions (see Appendix C) were provided by the researcher to ensure that all fitness data was retrieved in the same manner for the same timeframe for each school to ensure validity. Each report was saved by school number to ensure data would be compared with optimism surveys from the same school. As no cumulative reporting measures are available for fitness scores, the researcher hand scored each fitness report, using the method described previously, documented totals on the fitness data collection instrument (see Appendix D) and calculated the percentage of students scoring in the highest category. This percentage was used to represent the school fitness level.

Table 6

*Alpha Reliability for Academic Optimism Surveys*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number of Respondents</th>
<th>Number of Items</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAOS</td>
<td>205</td>
<td>30</td>
<td>.88</td>
</tr>
<tr>
<td>Collective Efficacy</td>
<td>205</td>
<td>12</td>
<td>.68</td>
</tr>
<tr>
<td>Faculty Trust</td>
<td>205</td>
<td>10</td>
<td>.93</td>
</tr>
<tr>
<td>Academic Emphasis</td>
<td>205</td>
<td>8</td>
<td>.85</td>
</tr>
</tbody>
</table>

**Correlation Analysis**

This study hypothesized that school academic optimism would be positively correlated to school physical fitness. To test this hypothesis, a correlation analysis was conducted. Results of the correlation analysis are outlined below in Table 7. Both positive and negative correlations are indicated in this analysis. A positive correlation exist when as one variable rises so does the other, as illustrated by the .59 correlation between enrollment and SES; as enrollment rises so does the socioeconomic level. A negative correlation exist when one variable increases but the other decreases, as illustrated by the -.29 correlation between SAOS and enrollment; as the enrollment increases, the school academic optimism level decreases. Although correlations are
indicated in this analysis between the variables, no significant relationship is indicated by this analysis in relationship to the stated hypothesis that a correlation exist between school academic optimism and school physical fitness.

Table 7

Correlation Analysis of All Variables

<table>
<thead>
<tr>
<th></th>
<th>Fitness</th>
<th>Enroll</th>
<th>SAOS</th>
<th>SES</th>
<th>CE</th>
<th>FT</th>
<th>AE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fitness</td>
<td>--</td>
<td>.19</td>
<td>.02</td>
<td>.22</td>
<td>.04</td>
<td>-.04</td>
<td>.08</td>
</tr>
<tr>
<td>Enroll</td>
<td>-.29</td>
<td></td>
<td>.59**</td>
<td>-.24</td>
<td>-.37*</td>
<td>-.23</td>
<td></td>
</tr>
<tr>
<td>SAOS</td>
<td>-.06</td>
<td></td>
<td></td>
<td>.97**</td>
<td>.95**</td>
<td>.91**</td>
<td></td>
</tr>
<tr>
<td>SES</td>
<td>-.10</td>
<td></td>
<td></td>
<td>-.06</td>
<td></td>
<td>.00</td>
<td></td>
</tr>
<tr>
<td>CE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.89**</td>
</tr>
<tr>
<td>FT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.83**</td>
<td></td>
</tr>
<tr>
<td>AE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.78**</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed).
*Correlation is significant at the 0.05 level (2-tailed).

School Academic Optimism and School Physical Fitness

The hypothesis that school academic optimism would be positively correlated to and predictive of school physical fitness was not supported by the data available for analysis in this study. A correlation analysis was conducted using SPSS software. The result of this analysis was $r = .02$, $p > .05$, indicating no significant relationship between the two variables.

To further test this hypothesis, a regression analysis was conducted on the variables. The results of this analysis are presented in Table 8. This table shows both standardized and unstandardized regression coefficients, standard error, $t$, and significance, which explains whether the Beta is statistically significant. The Beta is a measure of how strongly the subtest influences fitness. Table 8 also shows the results of a partial and semi-partial analysis of the variables. For this regression the researcher used the three subcomponents of SAOS and controlled for SES and enrollment. Neither the Betas nor the multiple $R$ indicate statistically
significant relationships. The coefficients’ analysis confirmed the lack of significance of the relationship between SAOS and the dependent variable of fitness with $\beta$ of .37 for CE, -.46 for FT, and .12 for AE, each with a significance level above the .05 level. A partial correlation (Partial) and a semi-partial (Part) correlation analysis was conducted to see if one subcomponent of academic optimism might cause a variance in fitness if the other two subcomponents, SES and enrollment were controlled for. The partial correlation analysis indicates only 1.5% (CE), -2.1% (FT), and .7% (AE) of variance in fitness can be explained by these variables and an even smaller portion (1.4%, -2.0% & .7%) can be explained by each uniquely.

Table 8

*Regression Coefficients Examining All Components of SAOS on the Dependent Variable Fitness*

<table>
<thead>
<tr>
<th></th>
<th>Un-B</th>
<th>S.E.</th>
<th>B</th>
<th>T</th>
<th>Sig</th>
<th>Partial</th>
<th>Part</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE</td>
<td>.07</td>
<td>.07</td>
<td>.37</td>
<td>.88</td>
<td>.38</td>
<td>.15</td>
<td>.14</td>
</tr>
<tr>
<td>FT</td>
<td>-.08</td>
<td>.06</td>
<td>-.46</td>
<td>-1.25</td>
<td>.22</td>
<td>-.21</td>
<td>-.20</td>
</tr>
<tr>
<td>AE</td>
<td>.02</td>
<td>.06</td>
<td>.12</td>
<td>.41</td>
<td>.68</td>
<td>.07</td>
<td>.07</td>
</tr>
<tr>
<td>SES</td>
<td>.23</td>
<td>.16</td>
<td>.23</td>
<td>1.38</td>
<td>.18</td>
<td>.21</td>
<td>.22</td>
</tr>
<tr>
<td>ENROLL</td>
<td>5.4</td>
<td>.00</td>
<td>.11</td>
<td>.53</td>
<td>.60</td>
<td>.09</td>
<td>.09</td>
</tr>
</tbody>
</table>

$R^2 = .092$ Adjusted $R^2 = -.011$

Un-hypothesized findings

The results of the analysis indicates there is a significant moderate relationship between the enrollment and the SES level of the school ($r = .59, p < .000$). This means that as the enrollment of the school increases, the socioeconomic status of the school increases. These findings suggest that in northern Alabama, larger schools are more affluent. A second un-hypothesized finding is a negative relationship between enrollment and a sub-component of academic optimism--faculty trust in parents and teachers ($r = -.37, p < .020$)---indicating that as the school size increases, the level of trust between faculty and parents decreases.
Conclusion

This chapter outlined the results of the statistical analysis used to examine the relationship between school academic optimism and school physical fitness while controlling for (SES) socioeconomic status and enrollment. Descriptive statistics of the samples were discussed and a table of reliability was included. A correlation analysis with a linear regression analysis was completed on the data to test the hypothesis that school academic optimism is positively correlated to and predictive of school fitness. A review of the correlation analysis and the beta shows no significant relationship between these two variables. Analysis of the data did have some un-hypothesized results, which will be discussed in the next chapter. A brief discussion of factors that may have influenced the results of this study are included along with ideas for future research.
CHAPTER 5:

DISCUSSION

Introduction

This chapter begins with a discussion of the findings from the analysis of data comparing school academic optimism and school physical fitness and briefly discusses un-hypothesized findings of the analysis. This is followed by the theoretical and practical implication of this research. Lastly, ideas for future research are presented.

Summary of Findings

The purpose of this study was to examine the relationship between school academic optimism and school fitness. The hypothesis was that school academic optimism would be correlated to and predictive of school fitness. The data analyzed for this study showed no statistically significant relationship between school academic optimism and school fitness; the hypothesis was not supported by the data.

The analysis of school academic optimism (as a whole and with each individual component), school fitness, SES, and enrollment, did reveal some un-hypothesized results. The results of the analysis indicate there is a significant relationship between the enrollment and the SES level of the school. A second un-hypothesized finding is a negative relationship between enrollment and a sub-component of academic optimism--faculty trust in parents and teachers.

Theoretical Implications

Both academic optimism and physical fitness influence achievement (Bevel & Mitchell, 2012; Goddard, 2001; Hoy, 2006, 2012; Kirby & DiPaola, 2011; Moghari et al., 2011; Ryan &
Panettini, 2011; Smith & Hoy, 2007; Tschannen-Moran et al., 2013; Wagner & DiPaola, 2011; Wu, 2013; Wu et al., 2013) and contribute to a positive healthy learning environment (Hoy et al., 2013), which in turn promotes the building of social capital (as cited in McDaniel-Schaefer, 2004). Academic optimism is a predictor of student achievement (Hoy, 2012), and has been correlated to positive teacher traits such as an optimistic life outlook (Beard et al., 2010). Research by Rasmussen et al. (2009) “strongly suggest that optimism is a significant predictor of physical health” (p. 246). Optimism, health, and achievement are all viewed as positive assets that, according to Coleman (1988), promote a sense of belonging and a “trusting social structure” (p. S101). Coleman (1988) identifies the school as the best example of this trusting social structure (p. S101) and postulates that the relationships nurtured in this environment promote success (as cited in McDaniel-Schaefer, 2004). The influence of these positive relationships is not easily measured, and other mitigating factors can influence outcomes in a positive or negative direction. The following sections will explore the implications and limitations of this study.

**Direct Implications**

In an effort to understand the finding of no statistically significant relationship between the latent constructs of academic optimism and physical fitness, many explanations are possible. Is a theory of social capital sufficiently robust to explain a relationship between academic optimism and fitness? It may be that social capital is so broad a concept that optimism and fitness respond to different elements in the social environment; all social environments are broad and complex and it may be that academic optimism and fitness pull from different parts of a setting of social capital. According to Coleman (1988), “a given form of social capital that is valuable in facilitating certain actions may be useless or even harmful for others (p. S98). The
structure of the school environment is such that increases in academic optimism and physical fitness may be the result of very different elements within this environment.

Academic optimism is a collective property and thus involves three separate elements working together (Hoy et al., 2006). Changes in the academic optimism level of a school involves changes in each of the separate components and focus mainly on the cognitive, behavioral, and affective domains of learning. Changes like increases in academic expectations (academic emphasis-cognitive), improved group dynamics that help to overcome negative setbacks (collective efficacy-behavioral), and improved trusting relationships (faculty trust-affective) (Hoy et al., 2006). Changes in physical fitness involve changes in the body, more specifically how efficiently it works to complete the desired task, and although it could be said that there are cognitive, behavioral, and affective influences, changes mainly involve the physical domain (Dettmer, 2006) of learning. Although intertwined, it is possible that each domain of learning responds differently to social elements in the school environment thus relying on different forms of social capital for change. However, varying forms of social capital were not used as variables in this study, therefore it is not possible to make this assumption without further research.

There is also the possibility that academic optimism may arise more from the social capital in the school and much less from the general environment. Academic optimism can be enhanced by an enabling school structure. In other words, a school that supplies structures and processes that support and enable teachers to do their work can promote academic optimism regardless of socioeconomic influences (McGuigan & Hoy, 2006). Research by Wu and Sheu (2015) identified organizational factors that influenced the level of academic optimism in schools. They studied school resources and investments in 326 junior high schools in Taiwan to
determine to what extent academic optimism was affected by the environment of the school. Their study indicated that investments in the schools such as quality incentives for student learning and incentives for professional development promoted academic optimism despite the SES levels of students (Wu & Sheu, 2015). As mentioned in the literature review of Chapter 2, SES is an umbrella term used to categorize environmental influences that could exert negative influence on the school environment. The fact that academic optimism is a predictor of academic achievement despite SES supports the explanation that academic optimism arises from the social capital within the school.

In this study, student physical fitness scores were used to calculate a school fitness score for statistical analysis. Varying amounts of fitness data was available from each school depending on the grade configuration of the school. This study did not take into account the decline in available fitness scores by grade, which could have influenced school fitness scores. For example, every student is required to take physical education class in Grades K-8 and all are required to be fitness tested (Alabama State Department of Education, 2012). However, only one year of physical education is required in Grades 9-12 greatly reducing the availability of fitness scores for analysis. It is possible that the number of fitness scores available per grade could have influenced school fitness levels. Further research would be needed to discover if variations in available fitness scores were responsible for changes in school fitness levels.

It is also possible that variations in the physical education programs of the schools were responsible for variations in fitness. Colquitt et al. (2011), at Georgia Southern University, state that “only trained practitioners can evaluate, plan, and implement appropriate instruction that will promote improvement in areas of physical fitness” (p. 10). According to the CDC, quality physical education is a crucial component for promoting physical fitness in school-aged children
(CDC, 2011). However, this study did not measure the quality of the physical education program of each school, a factor which has been shown to influence fitness levels. For example, in a study conducted by Chen, Mason, Hypnar, and Hammond-Bennet (2016) from the University of Michigan, 1,200 fourth and fifth grade students and their teachers were studied to see if quality physical education teaching (QPET) was associated with healthy levels of physical fitness. The results of their research indicated that quality physical education teaching was “significantly associated with students’ health-enhancing physical fitness” (Chen et al., 2016, p. 342). This study did not include measures to identify quality physical education programs; therefore, the assumption that quality physical education could be responsible for the variations in fitness scores cannot be made without further research.

Lastly, the literature review in Chapter 2 supports the existence of a common outcome of academic optimism and physical fitness in that both facilitate positive changes in the mental, physical, and emotional well-being of students, both directly and indirectly (Ardoy et al., 2014; Hoy et al., 2013). In his discussion of the findings of his research on enabling school structures, Hoy (2013) states, “organizational characteristics that affect student achievement do so indirectly through academic optimism” (p. 187). Hoy also states that if “the path to student success runs through academic optimism” (Hoy et al., 2013, p. 188) then could quality physical education working through academic optimism foster higher levels of fitness? Could these two elements (quality physical education and academic optimism) working together have a cumulative effect that when combined produce changes in school fitness? Coleman (1988) identifies social capital as a facilitator of action that allows the combining of resources to produce different outcomes. It could be that the combination of quality physical education working through academic optimism
might produce something of value; namely increases in physical fitness. However, this assumption cannot be made without further research.

**Limitations**

Limitations related to the sample of both variables could have influenced the results of this study. In order to make comparisons between the two variables, both fitness data and academic optimism data was needed from the same school. Even with IRB approval, there were conditions beyond the control of the researcher which greatly influenced the collection of data for analysis.

**Academic Optimism**

Limitations on the number of academic optimism surveys available for analysis varied greatly between schools. School Academic Optimism (SAOS) surveys were distributed in packets with other surveys. Distribution was random and participation was voluntary, therefore, the number of SAOS surveys returned varied greatly from school to school. It is possible that with a larger return of SAOS surveys from low return schools, that the school optimism level would vary from the level used in this analysis. This change might possibly result in a variation of the school academic optimism level for any number of the schools that participated in this study. A more representative sample could have influenced the results.

**Fitness Data**

Limitations on the validity and reliability of fitness scores could also have influenced the results of this study. A convenience sample of schools was used for data collection. The size of the sample was greatly influenced by the availability of fitness data. Fitness data was requested from over 100 schools. However, a lack of clarity related to the strict data governance guidelines greatly reduced the sample available for analysis. Due to student fitness data being stored in the
Health database of the electronic data storage system used by school systems (INOW), student fitness data is fiercely protected by privacy laws. This limited the researchers’ access, greatly reducing the fitness sample. In addition, fitness scores were calculated using spring fitness scores gathered by physical education teachers in their classrooms. The testing environment for these schools varies greatly from one school to the next and although test training is offered, it is not mandatory, leaving correct testing procedures to chance. These factors along with missing scores, and incorrectly entered data, could have easily influenced the results of this study contributing to the lack of significance noted in the results.

**Practical Implications**

Although the results of this research failed to support the hypothesis that school academic optimism is positively correlated to and predictive of school physical fitness, this study makes several contributions to research. Perhaps the most obvious result is the attention it brings to a lack of consistent fitness testing procedures and test monitoring in the area of physical fitness. Although state mandated testing and reporting has been around for some time, only in the last few years have teachers been required to enter this data into the secure online database known as INOW in the very sensitive and protected Health database (ASPFA, 2012). At the time of this study, no system of checks and balances was in place to ensure testing and data entry was conducted according to mandated guidelines. The consistency and accuracy of fitness scores could be improved with the addition of more supervision by school administration and stricter monitoring of submitted data by the State Department of Education. Even though great strides have been made to improve fitness data reporting from schools, no report, at the state or local level, has been published, leaving physical educators as well as school officials in the dark as to student fitness status. This research clearly sheds light on an issue that needs to be addressed.
Due to problems with procedures and reporting, it is much harder to evaluate student fitness levels and the reliability of Alabama physical education as it relates to promoting measurable fitness changes in students.

Despite the lack of support for the hypothesis of this study, the data did yield some results that provoke thought for future analysis. Two variables in this study exhibited a significant correlation to the size of the school. A significant correlation was found between SES and enrollment and also between enrollment and faculty trust.

**Socioeconomic Status and Enrollment**

SES was shown to have a significant positive relationship to school enrollment indicating that as enrollment increases, so does the socioeconomic status of the school. A possible reason for this might be that a larger district has a larger tax base to pull from, which could increase financial resources available to the school (Sirin, 2005). Greater financial resources might possibly result in improved facilities, increases in academic choices and extracurricular offerings such as clubs and sports. These extracurricular offerings could attract families to the district increasing funds available to schools. The school districts in the sample for this study are predominantly suburban and rural communities where populations are not as dense as urban inner city districts. This contributes to the affluence of the community, lowering the percentage of free/reduced lunch participants and increasing the SES level of the community. As the concept of SES encompasses more than just the availability of financial resources (Rothstein, 2004), further research would be needed to uncover all contributing factors to this finding.

**Enrollment and Faculty Trust**

The second un-hypothesized finding was a negative relationship between enrollment and faculty trust in parents and teachers, which indicates as enrollment increases, the level of
trust between teachers and parents and teachers and other teachers decreases. A possible explanation for this finding could be that more students mean larger class sizes and larger schools. This size could intimidate parents and overwhelm teachers. Another possibility relates to the sample for this study. As mentioned, the school districts in the sample for this research are in predominantly suburban and rural communities. This might promote a host of job related issues, including longer commutes for traveling farther to cities or plants or possibly longer hours of work on farms, which could reduce the amount of time available to parents for involvement. These factors could decrease parental involvement, a major contributor to levels of trust (Goddard et al., 2001).

Studies examining the influence of organizational factors, such as school size, on faculty trust in parents and teachers have yielded mixed findings. Maele and Houtte (2009) found that school size “explained a substantial proportion of the variance in faculty trust” (p. 578), while the research of Goddard, Tschannen-Moran, and Hoy (2001) found no significant relationship. However, both studies did show that SES and school size when combined accounted for more of the variance in faculty trust (Goddard et al., 2001; Maele & Houtte, 2009). A further examination of the data would be needed to uncover any such interactions in this sample.

**Future Research**

While the findings of this research did not indicate a significant relationship between school academic optimism and school physical fitness, the research process, specifically the collection of student fitness data, was such that many questions were raised related to fitness testing procedures that might impact the validity and reliability of the Alabama Physical Fitness Assessment and reporting procedures. The validity and reliability of the fitness test and the criterion references used has been established through the research of the Cooper Institute.
(Plowman & Meredith, 2013). However, are student fitness scores invalidated when testing is performed by untrained individuals? Would fitness analysis by school differ if school fitness data could be pulled by school electronically, eliminating the likelihood of human error? Would fitness data aggregated at the district level yield different results when compared to academic optimism? This is a question only future analysis could answer.

As discussed earlier, sample size is another factor that could have impacted the results of this study. The larger the sample, the higher the certainty that the sample accurately represents the population being studied (Gogtay, 2010). An analysis of a larger more diverse sample of one or both variables, could yield very different results. It would also be interesting to see how much results change if this study were a longitudinal study where students are monitored over the course of several years. This might give a truer picture of the fitness level of students and possibly change a school’s fitness level.

As mentioned earlier in this chapter, quality physical education instruction impacts student fitness (Chen, 2005, 2012, 2016; Colquitt et al., 2011). Based on the assertion of Colquitt et al. (2011) that “only trained practitioners can evaluate, plan, and implement appropriate instruction that promotes improvement in all areas of physical fitness” (p. 10), could inclusion of fitness scores from only schools whose students receive quality physical education instruction change the outcome of this analysis? Would the addition of more qualified physical education teachers, reducing the class sizes, result in significant changes?

Lastly, a fitness level for each school was computed based on the fitness level of the student population. A “fitness number,” was given to each student based on the number of acceptable fitness scores said student obtained. Although this method has been used previously in research (Blom et al., 2011; Coe et al., 2013), the establishment of a valid and reliable
procedure for assigning a fitness score for schools would provide a more stable variable for analysis. Having a set established procedure for school fitness analysis could provide much needed data on the true fitness level of our schools. This data could be used by school leadership to argue for increased funding for quality physical education programs and stricter rules regarding teaching facilities, teacher-student ratios, and students missing physical education instruction.

**Summary**

This chapter provided a more detailed discussion of the results of the data analysis testing the hypothesis that school academic optimism is positively correlated to and predictive of school physical fitness. Findings were stated and the theoretical and practical implications were explored. Un-hypothesized results were discussed and recommendations for future research were given. As school leadership searches for more ways to improve the learning environment of our schools and each student’s ability to perform at their very best, the topics of academic optimism and fitness, at the school level, will continue to be relevant and timely.
REFERENCES


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What is the meaning of Physical Education? (n.d.). Retrieved from https://www.reference.com/education/meaning-physical-education-c2a8492a0876d09c


APPENDIX A:

IRB APPROVAL
May 1, 2017

Roxanne Mitchell, Ed.D
ELPTS
College of Education
Box 870302

Re: IRB#: 17-OR-157 "Rigatoni Study"

Dear Dr. Mitchell:

The University of Alabama Institutional Review Board has granted approval for your proposed research.

Your application has been given expedited approval according to 45 CFR part 46. You have also been granted the requested waiver of written documentation of informed consent. Approval has been given under expedited review category 7 as outlined below:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies

Your application will expire on April 30, 2018. If your research will continue beyond this date, complete the relevant portions of the IRB Renewal Application. If you wish to modify the application, complete the Modification of an Approved Protocol Form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, complete the appropriate portions of the IRB Request for Study Closure Form.

Please use reproductions of the IRB approved stamped consent form to obtain consent from your participants.

Should you need to submit any further correspondence regarding this proposal, please include the above application number.

cerely,

T. M, MSM, CIP

Director

358 Rose Administration Building | Box R70127 | Tuscaloosa, AL 35487 0127
205-348-8461 | Fax 205-348-7189 | Toll Free 1-877-820-3066

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APPENDIX: B

DATA COLLECTION LETTER
RE: UA Data Collection

Thank you again for allowing our Doctoral Cohort to collect data in your school system. We have collected completed surveys from each of your schools and are currently compiling the data for analysis. The second phase of our data collection involves the collection of fitness data for each Elementary school.

According to an INOW representative at the ALSDE, fitness data are not available at the state level in the format we need, only at the district level. Ms. Nancy Ray, ALSDE, noted that fitness data are protected data and may not be shared without permission. The ALSDE governance committee, upon review of the University of Alabama’s IRB permission, agreed in the following email that districts may at their discretion give us the data:

From: Data Governance <datagovernance@ALSDE.edu>
Sent: Tuesday, June 20, 2017 1:10 PM
To: Leslie Thorn
Subject: RE: Request for Fitness Data from the State Department of Education

Ms. Thorn,

Your request of 5/23/2017 has been denied. You may contact the individual Local Education Agencies involved in your search.

Your school’s response will provide the data necessary to develop a correlation between academic optimism, a concept currently advocated by ALSDE, and fitness. We think these elements should be related, but we need empirical support to make the case.

Although ALSDE will not gather the specific data needed, Fitness reports can easily be pulled by school and grade through INOW by local districts. Step-by-step instructions on how to pull this report and maintain anonymity and confidentiality of the data are attached. No individual, no school, and no district will be identified. These data, which give the number
of students tested in fitness and the number passing, can be emailed to doctoral student, Leslie Thorn, or simply printed to be retrieved by a member of the UA cohort. Researcher Leslie Thorn is available to answer any questions you may have about this easy process and is willing to travel to your office and assist if needed.

Thank you in advance for your timely response and your help in completing this valuable research.

Respectfully,

C. J. Tarter
Professor of Educational Administration
ctarter@bamaed.ua.edu

Leslie Thorn
Member UA Cohort
Florence City Schools
APPENDIX C:
DATA RETRIEVAL INSTRUCTIONS
Directions for retrieving Fitness data report by grade level from INOW

**The only information needed is School name (or code), Grade, Type and Result**

In INOW database:

- Under preferences, select the **school** (if NOT at the central office, you may **not** need to select your school—it will likely be the only school in your database) and the **academic session (2016-2017)** *Important! If you do not go back to last school year, it removes students who have moved to a different grade!!*
- Click Health
  - Reports
    - Fitness screening
    - In this section, make the following changes:
      - In “Group by” chose: grade level
      - In “Start Date”: March 1, 2017
      - In “End Date”: Sept. 1, 2017
      - “Format”: Excel
    - Select the preview button

**This will download a complete report for the school by grade level. From here, all excess/personal/private information can be deleted.**

The only columns I need are “Type” and “Result.”

*To delete identifying information:*

- Click just under the words “grade level” and drag to the right to highlight the first four columns then down to the bottom of the spreadsheet and press delete. (This removes number, student name, date, date of birth, grade age and area).
- Leave the “type” column
- Click just under the words “Ethnicity/Score” and drag to the bottom-Delete
- Click under “Homeroom/administrator” and drag to bottom-Delete
*All this will leave on the page is “Type” and “Result” (also leaves gender by default because gender and type overlap)*

**Save file by grade and school name or code**

-the report will look like this:
<table>
<thead>
<tr>
<th>Name</th>
<th>Grade</th>
<th>Test Taken</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student 1</td>
<td>A</td>
<td>Math</td>
<td>Passed</td>
</tr>
<tr>
<td>Student 2</td>
<td>B</td>
<td>Science</td>
<td>Failed</td>
</tr>
<tr>
<td>Student 3</td>
<td>C</td>
<td>English</td>
<td>Passed</td>
</tr>
<tr>
<td>Student 4</td>
<td>D</td>
<td>History</td>
<td>Failed</td>
</tr>
<tr>
<td>Student 5</td>
<td>E</td>
<td>Geography</td>
<td>Passed</td>
</tr>
</tbody>
</table>

Legend: **( )** Withdrawn Student | Results: Passed (P), Failed (F)
APPENDIX D:

SCHOOL DATA COLLECTION INSTRUMENT
Data Collection Instrument

School code: ________________

Total # of Students Tested: ______

<table>
<thead>
<tr>
<th>Fitness zones</th>
<th>Student Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX E:

SAOS SURVEY
**SAOS**

**Directions:** Please indicate your degree of with each of the statements about your school from strongly disagree to strongly agree. Your answers are confidential.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Somewhat Disagree</th>
<th>Somewhat Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Teachers in this school are able to get through to the most difficult students.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2.</td>
<td>Teachers here are confident they will be able to motivate their students.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3.</td>
<td>If a child doesn’t want to learn teachers here give up.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4.</td>
<td>Teachers here don’t have the skills needed to produce meaningful results.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5.</td>
<td>Teachers in this school believe that every child can learn.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6.</td>
<td>These students come to school ready to learn.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7.</td>
<td>Home life provides so many advantages that students are bound to learn.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8.</td>
<td>Students here just aren’t motivated to learn.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>9.</td>
<td>Teachers in this school do not have the skills to deal with student disciplinary problems.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10.</td>
<td>The opportunities in this community help ensure that these students will learn.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>11.</td>
<td>Learning is more difficult at this school because students are worried about their safety.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>12.</td>
<td>Drug and alcohol abuse in the community make learning difficult for students here.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>13.</td>
<td>Teachers in this school trust their students.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>14.</td>
<td>Teachers in this school trust the parents.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>15.</td>
<td>Students in this school care about each other.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>16.</td>
<td>Parents in this school are reliable in their commitments.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>17.</td>
<td>Students in this school can be counted upon to do their work.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>18.</td>
<td>Teachers can count upon parental support.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>19.</td>
<td>Teachers here believe that students are competent learners.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>20.</td>
<td>Teachers think that most of the parents do a good job.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>21.</td>
<td>Teachers can believe what parents tell them.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>22.</td>
<td>Students here are secretive.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Directions:** Please indicate the degree to which the following statements characterize your school from Rarely Occurs to Very Often Occurs. Your answers are confidential.

<table>
<thead>
<tr>
<th></th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>24.</td>
<td>The school sets high standards for performance.</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>25.</td>
<td>Students respect others who get good grades.</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>26.</td>
<td>Students seek extra work so they can get good grades.</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>27.</td>
<td>Academic achievement is recognized and acknowledged by the school.</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>28.</td>
<td>Students try hard to improve on previous work.</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>29.</td>
<td>The learning environment is orderly and serious.</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>30.</td>
<td>The students in this school can achieve the goals that have been set for them.</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>31.</td>
<td>Teachers in this school believe that their students have the ability to achieve academically</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

(Copyright© Hoy 2005)
To the Superintendent of Instruction:

Researchers from The University of Alabama are conducting research on the causes and consequences of school culture and school climate and the impact on academic performance of students and other desirable school outcomes. A school or schools (or enter number here) from your system have been selected along with approximately 60 schools in North and Central Alabama. We are hoping you will grant us permission to contact the principal(s) of the school(s) and make arrangements for data collection. We also ask that you provide us with your approval and any other approvals required at the district level to conduct our research. You have our sincere assurance that these procedures will not be disruptive or in any way cause the district or school embarrassment.

Since the study focuses on schools as the unit of analysis, the only individual data that will be collected will be gender, ethnicity, and years of teaching experience of the participants completing the surveys. In fact, there will be no schools named or identified by specific location. Our interest is in the broad relationships between perceptions and characteristics of schools and student performance.

As you can see from the attached materials, we will collect data from the school principal and teachers. It will be made clear that participation is voluntary and that the most stringent protections of participant anonymity will be observed. Participants will be asked to read and keep for their records an informed consent form but they will not be required to turn in a signed consent form in order to protect their anonymity. There will be no publicized reports by school or district. It will be made clear to all participants that this research is being conducted by researchers from The University of Alabama who have received appropriate permissions to conduct the research in your school(s). Should you desire an individualized report of our findings, such a copy of it will be made available to you after the data have been analyzed.

In a few days, a member of our research team will be calling you to encourage your cooperation with this project. We look forward to working with members of your school community to better understand the importance of school culture and climate, as well as
their causes and consequences. Thank you in advance for your
careful review and consideration of our request.
Sincerely,

Dr. Roxanne M. Mitchell                      Dr. C. John Tarter
Associate Professor of
Administration
rmmitchell@ua.edu

Enclosures:  District Permission Form
  IRB Approval Letter
  Consent Forms
  Sample of surveys to be administered
  List of schools and principals sampled from your
district
APPENDIX G:

LETTER TO PRINCIPALS
Dear Principal,

Researchers from The University of Alabama are conducting research on the causes and consequences of school culture and climate, especially as related to academic performance of children. Your school has been randomly selected from the public schools in North and Central Alabama. Your district has given permission to approach you with our proposal to collect data in your school (see attached permission). You have our sincere assurance that these procedures will not be disruptive or in any way cause the school embarrassment. Ultimately, we are hoping for more than 60 schools to participate.

A brief description of the study, instruments, and approval of the University of Alabama Institutional Review Board are enclosed for your review. Since the study focuses on schools as the unit of analysis, the only individual data that will be collected is the gender, ethnicity, and years of teaching experience of teachers participating in the study. No individual data regarding your school will be analyzed or reported. In fact, there will be no schools named or identified by specific location. Our interest is in the broad relationships between perceptions and characteristics of schools and the effects on student performance.

As you can see we will collect data from the school principal and all teachers who are willing to participate in this project. It will be made clear that participation is voluntary and that the most stringent protections of participant anonymity will be observed. Participants will also be given an informed consent form to keep for their records but they will not be asked to sign a consent form in order to protect their anonymity. Their consent to participate will be given by their willingness to fill out the surveys. There will be no reports by school or district. It will be made clear to all participants that this research is being conducted by researchers from The University of Alabama who have received appropriate permissions to conduct the research in your school.

In a few days, a member of our research team will be calling you to encourage your cooperation with this project. We look forward to working with members of your school community to better understand the importance of school climate and school culture.
and its causes and consequences. Thank you in advance for your careful review and consideration of this request.

Sincerely,

Dr. Roxanne M. Mitchell
Associate Professor of Administration
rmitchell@ua.edu

Dr. C. John Tarter
Professor of Educational Administration
carter@ua.edu

Enclosures: District Permission Form
IRB Approval Letter
Sample surveys
Teacher Informed Consent Form

You have been invited to take part in a research study to learn more about the effects of trust and efficacy on student academic performance and identification with school. This study will be conducted by Dr. Roxanne Mitchell – Assistant Professor – Department of Educational Leadership, Policy, and Technology Studies at The University of Alabama as a part of her continued research.

If you agree to participate in this study, you will be asked to do the following:

1. Complete a survey on various aspects of your schools climate and culture.

Participation in this study will involve approximately 15 minutes of your time to complete the questionnaire. There are no known risks associated with your participation in this research. Although you will receive no direct benefits, this research may help the investigator to understand the causes and consequences of school trustworthiness on student academic performance and identification with school.

Confidentiality of your research records will be strictly maintained. You will not be asked to record any identifying information on the survey forms. Surveys will be collected by the researcher or one of her colleagues at a staff meeting in the absence of the principal. Participation in this study is voluntary. You may refuse to participate simply by not completing the survey. If there is anything about this study or your participation that is unclear or that you do not understand, or if you have questions or wish to report a research related problem, you may contact Dr. Roxanne Mitchell at 205-348-0348 or rmitchell@ua.edu or at The University of Alabama, P.O Box 870302, Tuscaloosa, Alabama, 35487.

If you have questions about your rights as a person taking part in a research study, or if you would like to make suggestions or file complaints and concerns, you may call Ms. Tanta Myles, the Research Compliance Officer of the University at (205)-346-8461 or toll-free at 1-877-820-3066. You may also ask questions, make suggestions, or file complaints and concerns through the IRB Outreach Website at http://osp.ua.edu/site/PRCO_Welcome.html. You may email us at participantoutreach@bama.ua.edu.

Agreement to Participate

By completing the survey you are consenting to participate in this research study.

This is your copy of the consent document to keep for your own personal records.
APPENDIX I:

PRIINCIPAL INFORMED CONSENT LETTER
Principal Informed Consent Form

Dear Principal:

You have been invited to take part in a research study to learn more about the effects of trust and efficacy on student academic performance and identification with school. This study will be conducted by Dr. Roxanne Mitchell – Assistant Professor – Department of Educational Leadership, Policy, and Technology Studies at The University of Alabama as a part of her continued research.

If you agree to participate in this study, you will be asked to do the following:

1. Complete a survey on various aspects of your schools climate and culture.

Participation in this study will involve approximately 15 minutes of your time to complete the questionnaire. There are no known risks associated with your participation in this research. Although you will receive no direct benefits, this research may help the investigator to understand the causes and consequences of school trustworthiness on student academic performance and identification with school.

Confidentiality of your research records will be strictly maintained. You will not be asked to record any identifying information on the survey forms. Surveys will be collected by the researcher or one of her colleagues. You will place your survey in a sealed envelope.

Participation in this study is voluntary. You may refuse to participate simply by not completing the survey. If there is anything about this study or your participation that is unclear or that you do not understand, or if you have questions or wish to report a research related problem, you may contact Dr. Roxanne Mitchell at 205-348-0348 or rmitchell@bamaed.ua.edu or at The University of Alabama, P.O Box 870302, Tuscaloosa, Alabama, 35487.

If you have questions about your rights as a person taking part in a research study, or if you would like to make suggestions or file complaints and concerns, you may call Ms. Tanta Myles, the Research Compliance Officer of the University at (205)-348-8451 or toll-free at 1-877-820-3066. You may also ask questions, make suggestions, or file complaints and concerns through the IRB Outreach Website at http://osp.ua.edu/sites/PRCO_Welcome.html. You may email us at participantoutreach@bama.ua.edu.

Agreement to Participate

By completing the survey you are consenting to participate in this research study.

This is your copy of the consent document to keep for your own personal records.
School District Approval Form

In keeping with the authority of my office and consistent with the policies of this school district, by my signature I hereby grant permission to researchers from The University of Alabama to conduct a study within the schools of this district, consistent with the human subject protections described in their approved proposal to The University of Alabama Institutional Review Board. The general nature and procedures of the research have been given and/or described to me and the researchers have volunteered to answer any questions I might have concerning the research.

Signature of District Representative       Title       Date

Print Name       Print Title

PLEASE RETURN:
At this Fax Number: 205-348-2161
Or mail to:
Roxanne M. Mitchell, Associate Professor Educational Administration
The University of Alabama
P.O. Box 870302
Tuscaloosa, Alabama 35487
APPENDIX K:

TEACHER SURVEY SCRIPT
The University of Alabama is conducting research on the causes and consequences of school climate and school culture especially as related to children's success in school. This important work can help improve public schools in Alabama. Your school has been selected as one of the schools in this study. Your school system and principal have given us permission to seek your cooperation and we genuinely need your help. Participation will take only a few moments of your time.

Participation is on a voluntary basis. I will hand you a consent form with contact information of the researchers and university personnel to contact in case you have questions. You will not be required to sign the consent form as a way of protecting your confidentiality. No one at the school will be shown your responses. When you are finished I will place your survey in an envelope. Please do not put your name on the survey. Thank you, most sincerely, for your help. We know you share our belief that Alabama's schools should be the best they can be.
APPENDIX L:

SCHOOL FITNESS REPORT SAMPLE
### SCHOOL FITNESS REPORT SAMPLE

![Fitness Screening All](image)

<table>
<thead>
<tr>
<th>Number</th>
<th>Student Name</th>
<th>DOB</th>
<th>Age</th>
<th>Gender</th>
<th>Ethnicity</th>
<th>Results</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Doe</td>
<td>01/01/2000</td>
<td>18</td>
<td>M</td>
<td>Asian</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Smith</td>
<td>02/02/2000</td>
<td>19</td>
<td>F</td>
<td>Caucasian</td>
<td>Normal</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Johnson</td>
<td>03/03/2000</td>
<td>20</td>
<td>M</td>
<td>Hispanic</td>
<td>Neutral</td>
<td></td>
</tr>
</tbody>
</table>

**Legend:**
- M: Male
- F: Female
- W: White
- A: Asian
- H: Hispanic
- C: Caucasian

**Results:**
- Good
- Normal
- Neutral