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Collective Efficacy, Teacher Beliefs and Socioeconomic Status in Title I and Non-Title I Schools

Betsy Furr

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Collective Efficacy, Teacher Beliefs, and Socioeconomic Status in Title I and Non-Title I
Schools

By
Betsy B. Furr

A Dissertation Submitted to the
Gardner-Webb University School of Education
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Education

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Approval Page

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Abstract

Collective Efficacy, Teacher Beliefs, and Socioeconomic Status in Title I and Non-Title I Schools. Furr, Betsy B., 2018: Dissertation, Gardner-Webb University, Collective Efficacy/Teacher Beliefs/Socioeconomic Status/Student Achievement/Title I

The purpose of this quantitative study was to examine the association between collective efficacy, teacher beliefs, and socioeconomic status with reading and math student achievement in the Title I and Non-Title I schools of one school district. This study examined factors that influence student achievement in a district with a majority of Title I schools. Of the eight K-8 schools in the participating district, five are Title I.

Collective efficacy and teacher beliefs were used to gather data about what teachers believe regarding student learning. The efficacy survey in this study provided data about instructional strategies and student discipline. The beliefs survey provided data on teacher beliefs about student learning, problem-solving, and instructional effectiveness. The EVAAS growth scores indicated reading and math achievement for the participating district. Socioeconomic status was determined by the number of students receiving free and reduced lunch and was collected from district reports.

Descriptive statistics, multiple linear regression analysis, and Pearson's product-moment correlations were used to determine the significance of the association between collective efficacy, teacher beliefs, and socioeconomic status with reading and math student achievement in the Title I and Non-Title I schools of one school district.

The multiple linear regression model for reading produced usable models for Title I and Non-Title I schools; however, the model for math was not reliable. Teacher beliefs were not found to have a significant association of either reading or math achievement in this study. Socioeconomic status and reading indicated a statistically significant p value, but the effect size was too small to determine practical significance. Correlation values for collective efficacy overall and both the instructional strategies subscale and the student discipline subscale produced moderate associations. The pairing for socioeconomic status and student achievement did not produce significant associations.

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Chapter 1: Introduction

Introduction

School districts and government agencies confront the issue of poverty on a daily basis. Students living in poverty face emotional and social challenges, chronic stressors, cognitive lags, and health and safety issues (Jensen, 2013). According to the Southern Education Foundation (SEF), 51% of public school students in the nation's public schools now come from low-income households (Association for Supervision and Curriculum Development [ASCD], 2015). Poverty is now the majority. At the ASCD (2015) Whole Child Symposium, Steve Suitts (SEF Senior Fellow) commented, "When one group becomes the majority of our students, they define what the future is going to be in education more than any other group" (p. 5). In addition to the current student majority, the pervading perception that poor people, simply by the virtue of being poor, share a predictable and consistent culture, is a stumbling block for education (Gorski, 2013). The concept is perpetuated by a collection of smaller stereotypes including lack of motivation, lack of value for education, poor parenting skills, and laziness. These stereotypes have crept into mainstream thinking and into the schools and classrooms with students and families of poverty (Gorski, 2008). With such an overwhelming presence, it is no wonder that negative stereotypes of people living in poverty are so deeply entrenched. Teachers are well aware of poverty's influence on student achievement; however, the danger in accepting poverty's importance may also lead to accepting negative outcomes (Levin, 1995). Problems inherent to circumstances should not be attributed to the lack of success for students of poverty. Hattie's (2015) report on effect size indicated that collective efficacy and teacher estimates of achievement are the two highest factors that affect student achievement. Remarking on Hattie's 2016 effect size

update, Killian (2017) commented,

collective teacher efficacy is a factor that can be manipulated at a whole school level. It involves helping all teachers on the staff to understand that the way they go about their work has a significant impact on student results – for better or worse. Simultaneously, it involves stopping them from using other factors (e.g. home life, socioeconomic status, motivation) as an excuse for poor progress. (p. 1)

This study examined student achievement by comparing the constructs of collective efficacy, teacher beliefs, and socioeconomic status in the Title I and Non-Title I settings of one school district. Title I is the federal program that provides funding to local school districts to support the academic environment for disadvantaged students. As part of the Elementary and Secondary Education Act (ESEA) first passed in 1965, it is the cornerstone of federal aid to K-12 schools.

Chapter 1 reviews current issues of student achievement within a context of poverty and explains the purpose of this quantitative study. Research questions aligned with the conceptual framework are presented. The setting is described and the significance of the study is explained.

Problem Statement

Poverty and education have a difficult relationship. Schools in a context of poverty, often identified with Title I status, frequently experience situations of low student achievement. Many initiatives have been put into place to help offset the effects of poverty on student achievement. The most notable initiative is Title I, established in 1965 by the ESEA. Title I now serves 21 million students across the 50 states and territories (National Title I Association, n.d.).

In addition to the Title I legislation, there have been numerous reports and studies on topics such as instructional practice and management, relationships, and school culture that fill educational texts and academic journals to provide support and encouragement to struggling schools (Gruenert & Whitaker, 2015; Machtinger, 2007; Moore & Kochan, 2013). Jensen (2009, 2013) explored the topics of teaching and student engagement with poverty in mind. Jensen (2009) is one of the leading texts explaining how poverty affects the physical, social, and emotional well-being of students. Jensen's research went further to explain that exposure to poverty does not preclude students from achievement. In fact, "the brain's very ability to adapt from experience means that poor children can also experience emotional, social, and academic success" (Jensen, 2009, p. 2). Jensen (2009, 2013) provided teachers with a realistic view on poverty in schools and strategies to mitigate the differences caused by poverty. In addition, Gorski's (2013) text worked to deconstruct myths and misconceptions that continue to hinder the achievement of low-income students.

This study investigated the significance of the association between collective efficacy and teacher beliefs on student achievement within a context of poverty. Research indicates that there is a link between collective efficacy and student achievement (Bandura, 1993; Goddard, Hoy, & Hoy, 2004; Hattie, 2015; Tschannen-Moran & Barr, 2004); however, just recognizing the link does not automatically promote student achievement. Knowledge of the strength of the collective efficacy and teacher beliefs is critical to understanding the influence on teachers' professional work and, in turn, student achievement; because despite the multiplicity of efforts to provide resources and support, there are still many schools with high poverty that are working toward high achievement (Goddard et al., 2004). For this study, poverty in schools is determined by

Title I identification and the percentage of students who are eligible for the free and reduced-price meal program (Parrett & Budge, 2012).

Significance of Study

This study is significant because it examined factors that influence student achievement in Title I and Non-Title I schools. This study measured the significance of the association between collective efficacy, teacher beliefs, and socioeconomic status with student achievement in reading and math.

This study is significant in this context because five of the eight schools in this study were identified by the participating district as Title I. Three of the participating Title I schools reported more than 50% of the students were eligible for free and reduced lunch (Table 1). In this setting, poverty is a critical issue that affects families and schools on a daily basis.

Table 1

School Eligibility

School	Free/Reduced Percent
A	45.82
B	62.35
C	34.66
D	22.22
E	61.68
F	49.12
G	42.20
H	56.82

Note: **Bold** denotes Title I school.

Gaps in the Research

By investigating the relationships between collective efficacy, teacher beliefs, and student achievement, this study provides additional support to the body of research that will further empower schools to positively influence teacher support and student

achievement. Existing research shows that there is a connection between collective efficacy and student achievement; however, efficacy in the context of poverty needs further research.

This study differentiates itself by reporting the effect size of the variables along with the p values for Title I and Non-Title I schools. Comprehension of the effect size helps the reader to have a better understanding of the magnitude of the differences, whereas reporting p value alone only reports statistical significance (Aarts, van den Akker, & Winkens, 2014; Becker, 1999; Sullivan & Feinn, 2012). By determining the effect size of collective efficacy, teacher beliefs, and socioeconomic status, this report will help schools and administrators build teacher capacity and positively influence the instructional cycle. Learning the effect size will help in understanding which of the variables are significant predictors of student achievement. Larger sizes may indicate a more significant association. This study provides an additional avenue to continue helping Title I schools improve student achievement.

Purpose of the Study

The purpose of this quantitative study was to examine the association between collective efficacy, teacher beliefs, and socioeconomic status with student achievement at Title I and Non-Title I schools. Parrett and Budge (2012) wrote,

for children from a diverse spectrum to learn at high levels, they need to be taught by people in schools who believe they can learn, who approach teaching with the idea that students will learn if taught well, and who take seriously an ongoing effort to improve their practice in line with the best thinking and examples in the field. (p. xi)

Conceptual Framework

The concept for the study was based on the constructs of collective efficacy and teacher beliefs and how they affect student achievement, all within a context of poverty. Collective efficacy represents the belief of group members concerning “the performance capability of a social system as a whole” (Bandura, 1997, p. 469). It is the judgment of teachers in a school that the faculty as a whole can organize and execute the courses of action required to have a positive effect on students (Goddard et al., 2004). Tschannen-Moran and Barr (2004) further described efficacy as the “collective self-perception that teachers in a given school make an educational difference to their students over and above the educational impact of their homes and communities” (p. 190). This study used the Title I status of the schools to determine the context of poverty.

This study sought to understand the association of these constructs to better understand student achievement within a context of poverty in Title I and Non-Title I schools. Figure 1 identifies the constructs of collective efficacy, teacher beliefs, and socioeconomic status directly influencing student achievement, all within the context of poverty. Each of these constructs is contained within the context of poverty. Title I schools experience a context (or setting) with higher levels of poverty and thus have a lower socioeconomic status; Non-Title I schools experience lower levels of poverty with a higher socioeconomic status.

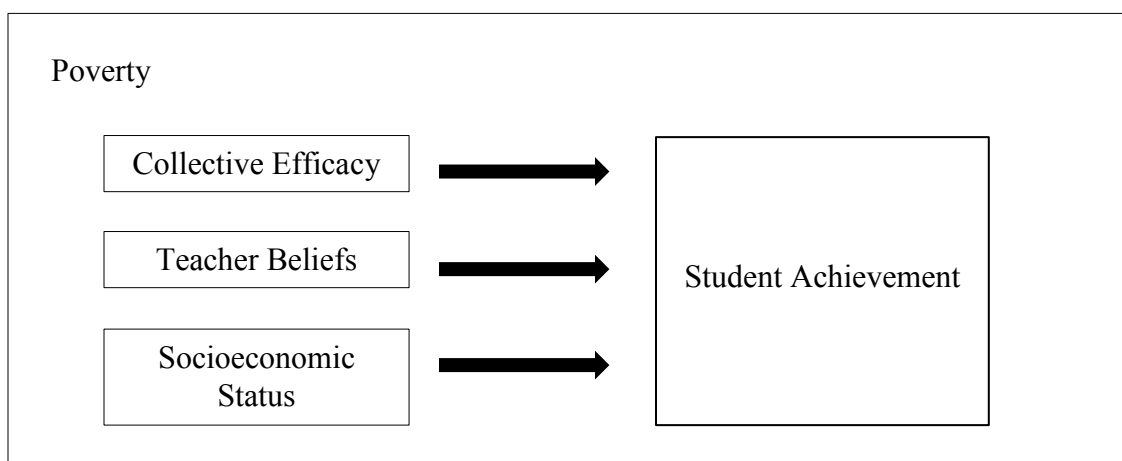


Figure 1. Conceptual Framework.

Research Questions

The research questions guiding this study were

1. To what extent is there a significant association between collective efficacy and student achievement in math in Title I and Non-Title I schools?
2. To what extent is there a significant association between collective efficacy and student achievement in reading in Title I and Non-Title I schools?
3. To what extent is there a significant association between teacher beliefs and student achievement in math in Title I and Non-Title I schools?
4. To what extent is there a significant association between teacher beliefs and student achievement in reading in Title I and Non-Title I schools?
5. To what extent is there a significant association between socioeconomic status and student achievement in math in Title I and Non-Title I schools?
6. To what extent is there a significant association between socioeconomic status and student achievement in reading in Title I and Non-Title I schools?

Operational Definitions

The following definitions are provided to maintain a consistent understanding of the terms used in this study.

Collective efficacy. Collective efficacy is “a group’s shared belief in its conjoint capabilities to organize and execute the course of action required to produce given levels of attainments” (Bandura, 1997, p. 477). Collective efficacy is the “collective self-perception that teachers in a given school make an educational difference to their students over and above the educational impact of their homes and communities” (Tschannen-Moran & Barr, 2004, p. 190). In this study, collective efficacy was determined by the Collective Teacher Efficacy Scale developed by Tschannen-Moran and Barr (2004). Participants used a rating scale to indicate efficacy beliefs for instructional strategies and student discipline.

Human agency. Agency is the capacity to act and effect change and is the ability to exert intentional influence over actions and events; it is the belief in your own capacity to produce certain action (Bandura, 2012).

North Carolina end-of-grade test (EOG). Tests designed to measure student performance on the goals, objectives, and grade-level competencies specified in the North Carolina Standard Course of Study (North Carolina Department of Public Instruction [NCDPI], 2017a).

Education Value-Added Assessment System (EVAAS). EVAAS produced by the SAS Institute is K-12 customized software system available to all North Carolina school districts. EVAAS provides North Carolina educators with tools to improve student learning and to reflect and improve on their own effectiveness (SAS, 2016).

Multi-Tiered System of Support (MTSS). MTSS is a multi-tiered framework

which promotes school improvement through engaging, research-based academics and behavioral practices. North Carolina MTSS employs a systems approach using data-driven problem-solving to maximize growth for all (NCDPI, 2017f).

Per pupil amount (PPA). The PPA of funds determines the school funds based on the number of low-income children (Title I Handbook, 2017, p. 27).

Poverty. For this study, poverty in schools is determined by Title I identification and the percentage of students who are eligible for the free and reduced-price meal program (Parrett & Budge, 2012, p. 39).

Socioeconomic status. Gorski (2013) described socioeconomic status as access to economic resources or access to more or less wealth. In this study, socioeconomic status is the percentage of students receiving free and reduced lunch identified in the 2017-2018 Eligibility Report provided by the participating district.

Student achievement. The reading and math growth scores for each of the schools in the participating district were used to indicate student achievement in this study. Scores from students in Grades 3-8 were used to create the reading and math growth scores.

Teacher beliefs. The relationship of attitudes and behaviors that is so critical to educational outcomes (Castillo et al., 2016). In this study, teacher beliefs were determined by the North Carolina MTSS Teacher Beliefs Survey. Participants used a rating scale to indicate teacher beliefs related to student learning, problem-solving, and expectation for instructional effectiveness (NCDPI, 2017f).

Title I. Title I of the ESEA provides financial assistance to local educational agencies and schools with high numbers or high percentages of children from low-income families to help ensure that all children meet challenging state academic

standards (U.S. Department of Education, n.d.b).

Summary

This quantitative study examined the association between collective efficacy, teacher beliefs, and socioeconomic status with student achievement in math and reading at Title I and Non-Title I schools. This study is significant in this context because five of the eight schools in this study are identified as Title I. Hattie's (2015) report on effect sizes indicated that collective efficacy can have a significant impact on student achievement regardless of context. Acknowledging the link will provide the participating district with information on the strength of the association between the constructs, which may indicate opportunities for support.

Existing research shows that there is a connection between collective efficacy and student achievement; however, efficacy in the context of poverty needs further research. In Chapter 2, the theoretical framework for the study is defined; and the constructs of collective efficacy, teacher beliefs, and socioeconomic status are described. Research regarding poverty and student achievement are explored, and a historical review of Title I further establishes the context of the study.

Chapter 2: Literature Review

Introduction

Chapter 2 provides a review of the literature related to the theoretical foundation for this study and the current literature relevant to the three main constructs of the study. Bandura's (1986, 1997) work regarding social cognitive theory and collective efficacy framed the theoretical foundation for the study. The remaining review examines the constructs of collective efficacy, teacher beliefs, and socioeconomic status. The connection between poverty and student achievement are examined, and the chapter concludes with a review of Title I and the context of poverty in the participating district. Existing research supports the relationship of collective efficacy and student achievement; however, the association in a context of poverty needs additional support. This literature review supports the purpose of this quantitative study to examine the association of collective efficacy, teacher beliefs, and socioeconomic status with student achievement by comparing the effect sizes of these constructs at Title I and Non-Title I schools.

Social Cognitive Theory

Since 1977 when Albert Bandura introduced the concept of self-efficacy perceptions, many areas, including academic achievement, have been related to efficacy beliefs (Bandura, 1977; Goddard et al., 2004). Social cognitive theory describes the human experience as one of action, forethought, and choice (Eells, 2011). Bandura's (1986) explanation of social cognitive theory described human functioning as a result of multiple influences from personal factors, environmental influences, and behavior continually interacting (Glanz, n.d.). This combination of factors, known as triadic reciprocal determinism, means that each of the factors is continually influenced by each

of the others (Eells, 2011). It can also be understood that a person can be both an agent for change and a responder to change (Glanz, n.d.).

Social cognitive theory finds its basis in human agency. Agency is the capacity to act and effect change and is the ability to exert intentional influence over actions and events; it is the belief in your own capacity to produce certain action (Bandura, 2012; Eells, 2011; Ramos, Costa, Pontes, Fernandez, & Nina, 2014). The “power to originate actions for given purposes” is the primary feature of human agency (Bandura, 1997, p. 3). Personal control through the exercise of agency is a person’s self-efficacy, the individual’s belief about his or her ability to organize and execute a specific course of action (Bandura, 1993; Cybulski, Hoy, & Sweetland, 2005); thus, human agency when applied to a group can explain collective agency or a group’s beliefs that when working together, desired effects can be achieved (Cybulski et al., 2005). The exercise of agency is the most fundamental assumption of social cognitive theory because it involves the choices collectives (and individuals) make; “school organizations are agentive when they act purposefully in pursuit of educational goals” (Goddard et al., 2004, pp. 4-5).

Social cognitive theory can be further extended to explain how not only individuals, but collectives exert control over their lives by their perceptions of efficacy (Bandura, 2000). Bandura’s theory was not only intended to be applied at the individual level but can also be applied to a group on a collective level (Cybulski et al., 2005). Goddard et al. (2004) explained that social cognitive theory is employed to explain that the choices teachers make, the ways in which they exercise personal agency, are strongly influenced by collective efficacy beliefs.

Collective Efficacy

Referring to Bandura’s (1997) work on social cognitive theory, Goddard et al.

(2004) clarified that collective efficacy beliefs are “judgments about capabilities to organize and execute the courses of action required to produce given attainments in specific situations or contexts” (p. 3). It is specifically noted that these judgments are beliefs about the group capabilities, not an assessment of capabilities. Collective efficacy is “a group’s shared belief in its conjoint capabilities to organize and execute the course of action required to produce given levels of attainments” (Bandura, 1997, p. 477). It is the “collective self-perception that teachers in a given school make an educational difference to their students over and above the educational impact of their homes and communities” (Tschannen-Moran & Barr, 2004, p. 190).

Donohoo (2017) explained the four sources of efficacy: mastery experience, vicarious experiences, social persuasion, and affective states. Each of these sources can be applied at the collective level (Eells, 2011; Goddard et al., 2004; Ramos et al., 2014).

Mastery experiences occur when teachers, as a group, experience success or failure. Mastery experience is the most powerful source of collective teacher efficacy. These experiences are important for organizations, because it is through the learning of the group members that organizational learning occurs (Goddard et al., 2004). When a group experiences success (mastery) and attributes the success to something in their control, collective efficacy increases; and the group expects that it can be repeated. Failure, however, tends to undermine the sense of collective efficacy (Donohoo, 2017).

Vicarious experiences and modeling affect efficacy by providing knowledge and the opportunity to provide a comparison. As the second most powerful source of collective efficacy, school groups see others who have faced similar circumstances and performed well and in turn generate positive expectations for themselves (Donohoo, 2017). Schools wanting improved educational gains may experience improved collective

efficacy by observing other successful educational programs (Goddard et al., 2004). Borrowing from other organizations is a form of vicarious learning that can provide encouragement to try something new (Goddard et al., 2004).

Social persuasion has the potential to “influence collective efficacy when groups are encouraged by credible and trustworthy persuaders to innovate and overcome challenges” (Donohoo, 2017, p. 8). The power of the persuasion depends on the expertise of the persuader (Bandura, 1986).

The fourth source of collective efficacy is affective states. Goddard et al. (2004) wrote that “affective states may influence how organizations interpret and react to the myriad challenges they face” (p. 6). A group’s reaction to stress and challenge is a reflection of their affective status. Groups who can tolerate pressure and crisis without severe consequences tend to be more efficacious and learn how to adapt (Eells, 2011); by contrast, groups who struggle with pressure and crisis exhibit dysfunction.

Causal attributions. Humans evaluate numerous causes when considering factors that contribute to success or failure. These perceived attributions can be internal or external (Donohoo, 2017). Success or failure determined by teacher causal appraisals can be attributed to external or internal factors. Donohoo (2017) explained that causal appraisals of student success and failure can be attributed to external factors including influences from home, the curriculum, and the school. In addition to these, influences from the student (effort, ability, prior achievement, attitude) are also considered external factors. Internal attributions are the teacher’s appraisal of his or her ability and effort (Donohoo, 2017, p. 10).

In a 2015 study on causal attributions of low-achieving students, teachers did not ascribe “instructional quality” as a cause for their students’ low achievement (Jager &

Denessen, 2015). Teacher perceptions of other causes of the low achievement included ability, effort, and interest of the student. This study analyzed teacher perceptions of the student, not teacher perceptions of the causal attributes of the teacher. The study found that individual teachers were not likely to attribute student failure to factors under their control; however, this finding is in line with research about personal efficacy beliefs and teacher confidence in their own abilities. Teachers wanting to preserve their self-image are not likely to attribute failure to themselves. This research points to the idea that low self-efficacy can influence student outcomes and the collective efficacy of the teaching group. “Attributions make a major contribution to the forming of expectancies that teachers hold for students’ future academic success” (Georgiou, Christou, Stavrinides, & Panaoura, 2002, p. 584).

Collective efficacy is influenced by what a group believes about the attributions of their success or failure, i.e., to what can we attribute our success and/or failure? Eells (2011) wrote that when a group feels that success is attainable through their collective efforts, performance improves; but when an organization lacks efficacy, it also lacks success. Bandura’s (1993) research indicated that “causal attributions affect motivation, performance and affective reactions” (p. 128). Georgiou et al. (2002) also noted that when a teacher believes they have control over student learning, they work to make sure the student does learn. This relates to the most influential source of collective efficacy of mastery experience. When teachers and teams experience success and can attribute the success to causes within their control, collective efficacy increases (Donohoo, 2017). In a research report on teacher efficacy, Protheroe (2008) wrote,

Teachers in a school characterized by a can-do, together we can make a difference attitude, are typically more likely to accept challenging goals and be less likely to

give up easily. In contrast, teachers in a school characterized by a low level of collective efficacy are less likely to accept responsibility for students' low performance and point to student risk factors such as poverty and limited knowledge of English as causes. (p. 44)

School characteristics. Gruenert and Whitaker (2015) asserted that unity of purpose and collegial support are two significant elements of school culture. Both of these are directly related to collective efficacy. Teachers who work toward a common mission for the school have unity of purpose, and the degree to which teachers work together effectively is collegial support (Gruenert & Whitaker, 2015).

Characteristics of a purposeful community, explained in Goodwin, Cameron, and Hein (2015), also reflect characteristics of an efficacious school. The four characteristics of a purposeful community are a strong sense of purpose and expectations, shared commitment, using all available assets and building on strengths, and a prevailing sense of optimism and a can-do attitude (Goodwin et al., 2015, p. 77). The optimism and can-do attitude of a group of teachers who believe, as a group, they are capable of improving student achievement is described as collective efficacy (Goodwin et al., 2015).

Furthermore, Goodwin et al. wrote that efficacious schools are more likely to accept and embrace challenging goals, put forth more effort, and understand the benefit of persistence (p. 83). These three points also support the mastery experience and social persuasion sources of efficacy. Schools that embrace challenges benefit from mastery experience. When teachers can attribute success to their effort, it influences their belief in their capability to make a difference (Donohoo, 2017). An efficacious staff can be socially persuaded to sustain effort and be persistent in their pursuit of student achievement (Tschannen-Moran & Barr, 2004). In addition to these characteristics, Hall

and Hord (2015) pointed to the importance of trust among members of an organized group. Without trust, there will be little interaction, collegiality, or collaboration and, thus, no learning from each other (Hall & Hord, 2015, p. 226). Eberle's (2011) work also confirmed that student achievement can be attained within a setting that "embraces the notion of community support and positive choices" (p. 22).

Belief in the power of the team was also addressed in Patterson and Kelleher (2005). Patterson and Kelleher described the capacity of collective efficacy as more than the sum of perceived self-efficacy of individuals and a sustained level of group confidence. Furthermore, on the ideas of collegiality and collaboration, Glickman, Gordon, and Ross-Gordon (2014) wrote that "individuals experience a sense of synergy . . . because each person gains something from the others" (p. 35). This sense of synergy is directly related to social persuasion as a source of collective efficacy. The synergy of the group persuades the members to believe in their effectiveness as a team.

Teacher Beliefs

Goddard and Skrla (2006) noted that there is something more to perceived collective efficacy than the social demographics and context. They noted that researchers should continue to study efficacy beliefs to understand the unique contributions to organizational performance. In Wong's (2016) review of belief systems, it stated that beliefs are important influences on the conceptualization of tasks and a teacher's beliefs influence the decisions they make. Beliefs about teaching and learning are formed through personal experiences in the classroom (Wong, 2016). Experiences, both successful and unsuccessful, contribute to our behavior and belief system about student learning (Talbot, 2014). Efficacy beliefs are part of that belief system as mastery experience is a source of collective efficacy development. How teachers interpret and

process the interactions with colleagues can build their belief system about student learning, problem-solving, and instructional effectiveness (Castillo et al., 2016). Agency beliefs discussed in Malmberg and Hagger (2009) can also be considered at a collective level. Malmberg and Hagger described how instructional agency beliefs (the structure of the teaching-learning environment to be conducive to learning) can be influenced by efficacy experiences.

Beliefs and efficacy together are important factors to consider when evaluating student achievement. In a study about expectations and efficacy (Warren, 2002), teacher beliefs were identified as an important factor that affects the culture of the classroom and the school at large. Goddard et al. (2004) noted that even though teacher beliefs about collective capability vary among schools, there is a strong link between beliefs and student achievement. Tschannen-Moran and Barr (2004) identified schools as “interactive social systems in which teachers’ shared beliefs influence the social environment” (p. 197). Furthermore, the relationship of attitudes and behaviors that is so critical to educational outcomes is founded in teacher beliefs. Educator beliefs about the system within which they work and the students with whom they work can have profound effects on student achievement (Castillo et al., 2016).

Socioeconomic Status

The relationship between socioeconomic status and student achievement is well established in research literature (Donohoo, 2017; Gorsky, 2008, 2012; 2013; Jensen, 2009, 2013; Perry & McConney, 2010; Sirin, 2005, Van Ewijk & Slegers, 2010; VanTassel-Baska & Stambaugh, 2007). Perry and McConney (2010) reported that academic outcomes are more strongly associated with the mean school socioeconomic status than with individual student socioeconomic backgrounds. By using the mean

school socioeconomic status (provided by the participating district), this study contributes to the existing research by examining the significance of the association with the socioeconomic status, collective efficacy, and teacher beliefs of the schools in the participating district. In a study of high school mathematics, Hoy, Sweetland, and Smith (2002) found the variable of collective efficacy to be more important in explaining school achievement than socioeconomic status (p. 89). Ramos et al. (2014) also reported in their review of literature that socioeconomic factors influenced collective efficacy. When collective efficacy is elevated, “the negative effects of sociodemographic aspects are reduced” (Ramos et al., 2014, p. 181). In recent years, state and federal accountability systems have fueled much of the research about student achievement and socioeconomic status in an attempt to identify both causes and disparities in achievement (Rumberger, 2006).

Student Achievement

Goddard and Skrla (2006) found that past achievement was positively and significantly related to teacher collective efficacy. This relates to the efficacy factor of social persuasion. In this case, the powerful persuader is the past achievement of the students. How students achieved in the past has a powerful effect on the current efficacy beliefs of teachers and how they interact with their current students. Student achievement is fostered by teacher efficacy through teacher planning, responsibility, persistence, and effort (Hoy et al., 2002).

The research on collective efficacy and student achievement has begun to increase with mounting evidence in support of the positive relationship between collective efficacy and achievement (Barr, 2002; Donohoo, 2017; Eells, 2011; Goddard et al., 2004; Moolenaar, Slegers, & Daly, 2012; Pearce, 2007; Schumacher, 2009; Tschannen-Moran

& Barr, 2004). A prominent study by Goddard (2001) brought the idea of collective efficacy as a neglected construct in the study of student achievement to the forefront. Goddard used reading and mathematics achievement scores to conduct his 2001 study and concluded that “collective efficacy is strongly related to differences among schools in student performance” (p. 474). In a review of literature between 2000 and 2013, Ramos et al. (2014) reported that 39% of the articles were in the *collective efficacy and students’ performance* category (p. 181). Furthermore, 100% of these articles reported a positive correlation between collective efficacy and student performance.

In North Carolina, student performance has been well documented in schools of all levels (NCDPI, 2017d). School report card grades, proficiency rates, and school improvement plans are public record. To comply with legislative requirements in North Carolina, G.S. §115C-83.15 directs that school achievement, growth, and performance grades and scores be reported by the State Board of Education (NCDPI, 2017g). The Analysis and Reporting Section of the Accountability Services Division (NCDPI, 2017g) reports that North Carolina in partnership with SAS Institute (a North Carolina based analytics company), produces School-wide Accountability Growth measures using all of the EOG scores for a given year. EVAAS, produced by the SAS Institute, has been providing data for North Carolina since 2001; and statewide measures have been available since 2006 (SAS, 2016). Reporting for this measure has focused on the progress of the students over time rather than their achievement level (SAS, 2016). In EVAAS, the “value-added” measure is reported as growth. The 2016 Technical Manual defined growth as “current achievement/ current results compared to all prior achievement/prior results, with achievement being measured by a quality assessment such as the EOG tests.” (SAS, 2016, p. 1).

Poverty and Student Achievement

Historical evidence and analysis provides confirmation of the academic struggle as well as the social and emotional effects of poverty on our nation's students. Colella and Crowley (2016) determined that poverty has a catastrophic effect on the educational arena yet proposed the relief of poverty lies in education. In a 2011 review conducted by Lacour and Tissington, multiple studies by the U.S. Department of Education "indicated results that clearly demonstrated that student and school poverty adversely affected student achievement" (p. 522). The review further indicated that "students who lived in poverty scored significantly worse than other students" (Lacour & Tissington, 2011, p. 522) and concluded that the factors of income, source of income, and mother's education affected student achievement. The study did not include or compare the effects of school factors including the collective efficacy of the teachers or teacher beliefs about learning.

Despite years of initiatives and funding, poverty can still predict student achievement. Finding a way to break this cycle was addressed by Dell'Angelo (2016). Classroom teachers have no control over student economic situations; however, the study realized that the ways in which teachers think about obstacles to student learning proved to be strong indicators of student achievement regardless of poverty level.

Teachers are well aware that although all students can learn, some learn less well because of poorer health or less secure homes. Acknowledging the effects of socioeconomic disparities is a vital step to closing the achievement gap (Rothstein, 2008). Teachers who are well informed are better prepared to understand and support student achievement because they have a greater understanding of the reasons causing the disparity; however, Rothstein (2008) also stated that educators cannot be effective if they make excuses for poor student performance. Poverty is not an excuse, nor can it be

ignored.

Public opinion of poverty also has a strong effect on the perception of poverty and student achievement. Gorski (2008, 2012) indicated that teachers not only deal with the tangible effects of poverty but also must battle myths about poverty. Most common, “the culture of poverty, the idea that people in poverty share a consistent and observable *culture*” (Gorski, 2013, p. 26). The historical basis of this idea came from Lewis (1961), and the debate about poverty still continues today. Research in recent years (Gorski, 2008, 2012; Jensen, 2009, 2013) has determined that there is no *culture* of poverty. Instead, stereotypes about people of poverty including lack of motivation, lack of value for education, poor parenting skills, and laziness lead the public opinion with little evidence to justify the ideas.

Title I. Title I was established in 1965 (National Title I Association, n.d.) as a federal program to alleviate some of the stress of economic factors in schools that function within a context of poverty. At the onset of the legislation, President Lyndon B. Johnson believed that “full educational opportunity should be our first national goal” (U.S. Department of Education, n.d.a, p. 1).

Even though there have been multiple iterations of the original act, all have been centered on improving student achievement for disadvantaged students. Research has been conducted for many years on the impact of Title I funding and student achievement (Coleman, 1966; Contreras, 2011; Downey & Condron, 2016; Klaauw, 2008).

Amendments in 1968 and 1972 held the focus of access to a basic education while adding programs to increase the number of certified specialists and supportive activities in order to further close the achievement gap (National Title I Association, n.d.). In 1994, ESEA saw a major revision toward standards-based education with the Improving America’s

Schools Act (IASA; Jorgensen & Hoffmann, 2003). Math and reading standards were included to improve program accountability. The 2001 reauthorization of ESEA, known as No Child Left Behind (NCLB), set goals for closing the achievement gap and further increased the level of accountability for schools. In 2012, a major revision of NCLB resulted in more comprehensive standardized testing, Adequate Yearly Progress goals, and requirements for schools to take corrective action if goals were not met. In addition, school report cards were published to publicly report achievement data. The Every Student Succeeds Act (ESSA) of 2015 once again reauthorized the 50-year-old ESEA to ensure the success of all schools and students (U.S. Department of Education, n.d.a). The National Title I Association (n.d.) reported,

ESSA provides resources to schools to enable students to reach proficiency as determined by the assessment of state standards in reading and math. Such schools are situated in low-income communities which struggle to provide a high quality education to all children. (para. 2)

Title I funding in each state is designated by a state aid formula. State school finance formulas generally try to accommodate the capacity of local public districts to raise revenue and the amount of need in the district (Coley, 2013). Coley (2013) described an evaluation from 2012 in *Is School Funding Fair? A National Report Card*. The report evaluated school finance systems regarding their level of support (on average) for districts serving greater shares of children in poverty. Greater support for greater shares of children was considered progressive, and less support for greater shares was considered regressive (Coley, 2013). The report also organized states by the level of effort they put into funding their educational systems by measuring the share of state-level gross domestic product spent on elementary and secondary schools (Coley, 2013).

North Carolina's effort and progressivity were rated as "low effort and regressive." This information continues to frame the context of poverty for the participating district.

The context of poverty for this study is defined by the identification of Title I status in the participating district. The local educational agency (LEA; participating district) received Title I funding from the state by submitting a district plan to the state of North Carolina (NCDPI, 2017b). According to NCDPI (2017e), the Title I program provides financial assistance through the state agency to local agencies and public schools with high numbers or percentages of poor children to ensure that all children meet challenging state academic content and student academic achievement standards. (para. 1)

To qualify for state Title I funding for school-wide programs, schools must enroll at least 35% of students from poor families. The LEA can self-select (annually) which schools will receive school-wide program support. A school-wide program upgrades the instructional program for the whole school. The poverty rate is determined by the number of students who receive free and reduced lunch.

The context of poverty reaches even further than the percent of free and reduced rates to the actual funding allocation of PPA for each identified Title I school. Poverty bands, defined by the Title I, Part A Handbook (2017), provide differentiated PPAs when serving schools in rank order by poverty percentage. Ranking of schools or attendance area must be based on the greatest to lowest percentage of children from low-income families attending the school (Title I Handbook, 2017, p. 27). Table 2 shows how the participating district established the 2017-2018 poverty bands for PPA for the five Title I schools.

Table 2

Poverty Bands

Percentage of Poverty	Schools
100% - 60%	B, E
59.9% - 46%	F, H
45.9 %– 35%	G

Research Questions

The research questions guiding this study were

1. To what extent is there a significant association between collective efficacy and student achievement in math in Title I and Non-Title I schools?
2. To what extent is there a significant association between collective efficacy and student achievement in reading in Title I and Non-Title I schools?
3. To what extent is there a significant association between teacher beliefs and student achievement in math in Title I and Non-Title I schools?
4. To what extent is there a significant association between teacher beliefs and student achievement in reading in Title I and Non-Title I schools?
5. To what extent is there a significant association between socioeconomic status and student achievement in math in Title I and Non-Title I schools?
6. To what extent is there a significant association between socioeconomic status and student achievement in reading in Title I and Non-Title I schools?

Summary

Social Cognitive Theory is the theoretical foundation for this study, because it sets the stage for understanding how factors interact reciprocally to influence group effectiveness (Russell, 2002). Agency is an important part of the theoretical foundation, because it explains the capacity to act and effect change. When a group makes

intentional decisions to perpetuate change as a result of their collective efforts, collective efficacy increases.

A review of the literature has provided background information essential to understanding the constructs for this study as well as poverty and student achievement. Collective efficacy has begun to receive more attention in studies of student achievement, but there is still a gap in the research pertaining to collective efficacy in specific contexts. High stakes testing and accountability measures have prompted schools to investigate multiple ways to improve student achievement. Measures including collective efficacy and teacher beliefs are becoming more prominent than traditional measurements of program training, methods, and teacher skills.

Title I, according to Coley's (2013) report, "helps to shift funding toward high poverty settings but is insufficient to turn around regressive states" (p. 38); thus, relying solely on Title I funding in a "low effort, regressive" state will do little to improve student achievement. Districts, including the participating district for this study, must look to other factors that impact student achievement and work to support those that have the greatest effect.

The context of poverty from a Title I perspective was also described. The participating district has utilized the federal funding guidelines to identify poverty bands and PPA for five of the eight K-8 schools in the district. The poverty bands, determined by the percentage of free and reduced lunch enrollment, are important to this context of poverty because they frame the understanding of teacher efficacy and beliefs in Title I and Non-Title I schools.

In the next chapter, the design of the study is defined along with the description of the participants and the rationale for the study. The survey instruments are explained

along with the procedures for collecting data. Data analysis is explained, and the ethical and confidentiality measures are described.

Chapter 3: Methodology

Introduction

The purpose of this quantitative study was to examine the association of collective efficacy, teacher beliefs, and socioeconomic status with student achievement at Title I and Non-Title I schools. This chapter describes the methodology used for the research related to this purpose. The design of the study is introduced, followed by a description of the participants and a rationale for the population. The instruments and procedures utilized to gather data are then described. Finally, the chapter discusses the data analysis process and concludes with a summary.

Research Design

The purpose of this quantitative study was to examine the association of collective efficacy, teacher beliefs, and socioeconomic status with student achievement at Title I and Non-Title I schools. To accomplish the purpose of the study, a survey design was used. Creswell (2014) defined survey design as “a quantitative or numeric description of trends, attitudes or opinions of a population by studying a sample of that population” (p. 154).

Survey design was selected because the results from a sample population can be generalized in an effort to make inferences about some characteristic, attitude, or behavior (Creswell, 2014). By studying the representative sample of a group, the survey design helps to identify relationships that are common across the group, thus enabling generalizable statements about the study (Gable, 1994). Survey was the preferred type of data collection for this study because it is an economical and efficient way to collect data (Creswell, 2014). One survey (Collective Teacher Efficacy Scale, Tschannen-Moran & Barr, 2004) was administered for this study; all remaining data (teacher beliefs, reading

and math growth scores, and socioeconomic status) were available in the participating district. Google Forms (already in use in the participating district) was used to administer the survey because of convenience and ease of delivery to the K-8 teachers in the district. Permission to conduct the study and use district data was granted by the district superintendent (Appendix A).

Research Setting

This study took place in one rural school district in western North Carolina. The district serves approximately 4,500 students in prekindergarten thru twelfth grades. Of the nine schools in the district, eight of the schools are Grades K-8 (five schools have prekindergarten classes). The district has one high school with approximately 1,400 students.

Participants

The population for the study were the K-8 grade teachers at the eight schools in the participating district (the same population who received the teacher beliefs survey received the collective efficacy survey). The convenience sample was drawn from this population of current teachers in the eight schools of the participating district. The sample was a single stage sampling because the researcher had access to the names of the potential participants and could sample the teachers directly (Creswell, 2014). Participants were asked to identify their school for the purpose of Title I and Non-Title I identification. The participants were not asked to record their name, and the researcher maintained the confidentiality of the schools reported in this study. The reading and math growth scores represent the entire school. Furthermore, all of the certified teachers and teacher assistants at the school completed the beliefs survey administered by the participating district prior to this study. By including all of the certified teachers and

teacher assistants, the samples were drawn from the same population.

Table 3 identifies the Title I and Non-Title I schools in the participating district for the 2017-2018 school year as well as the ADM (Average Daily Membership), the number of students enrolled, and the number and percentage of students receiving free and reduced lunch. Five of the eight K-8 schools in the participating district are identified as Title I and receive funds to support a school-wide program. The context of poverty varies for each of the eight schools in the participating district. The data, however, indicate that six of the schools meet the 40% qualification. The participating district used site-based discretion to decide where the funding would be most appropriate to serve the largest number of students. School A did not receive the designation of Title I for the 2017-2018 school year even though the data show that 45.82% of the students receive free or reduced lunch rates. School G has the largest ADM of all the schools; and although the free and reduced percentage is 42.2%, that equates to 392 students. This is more students than the entire ADM of School A.

Table 3

Title I and Non-Title I

School	Status	ADM	Free and Reduced Students	Free and Reduced Percent
School A	Non-Title I	365	159	45.82
School B	Title I	170	106	62.35
School C	Non-Title I	569	191	34.66
School D	Non-Title I	351	78	22.22
School E	Title I	167	103	61.68
School F	Title I	303	140	49.12
School G	Title I	947	392	42.20
School H	Title I	414	225	56.82

Instruments

Four variables were considered in this study: student achievement, collective

efficacy, teacher beliefs, and socioeconomic status. Three of the variables (teacher beliefs, average growth scores [reading and math], and socioeconomic status) had existing data. The researcher received permission from the participating district to use the data for this study. The remaining data for collective efficacy were collected from the teachers via an electronic survey in the participating district.

Collective Efficacy Scale. The Collective Teacher Efficacy Scale used for this study (Appendix B) was developed by Dr. Megan Tschannen-Moran and Marilyn Barr in 2004. Permission was granted by Dr. Tschannen-Moran to use the scale and the directions for scoring (Appendix C). The Collective Teacher Efficacy Scale was developed as an adaption of the Teacher Sense of Efficacy Scale (TSES) developed by Tschannen-Moran and Woolfolk Hoy (2001). The TSES was based on Bandura's unpublished teacher self-efficacy scale (Tschannen-Moran & Barr, 2004). The scale, according to Blitz and Schulman (2016), "assesses faculty's belief about its collective capability (as opposed to individual efficacy) to influence student achievement, despite any obstacles that could make learning difficult" (p. D-6). The 12-item instrument includes two subscales. One subscale measures the collective perception of the school's capacity for instructional strategies, and the other measures collective perception of student discipline (Blitz & Schulman, 2016). Teachers were asked to rank each item on a 9-point Likert scale (1=nothing, 3=very little, 5=some degree, 7=quite a bit, and 9=a great deal). The overall Collective Teacher Efficacy score is computed by calculating a mean score of all 12 items (Tschannen-Moran, 2017; Tschannen-Moran & Barr, 2004). Survey items 1-6 determine the score for the instructional strategies subscale, items 7-12 determine the student discipline subscale. The total possible points for the overall scale was 108 points and 54 possible points for each subscale. The data were collected from

the population of teachers in the participating district for a 2-week period during the spring semester of the 2017-2018 school year for the participating district.

In a factor analysis, the 12 items loaded on one factor, with factor loadings ranging from .79 to .58, demonstrating adequate construct validity. When two factors were specified, the rotated factors divided along the predicted content, with factor loadings on the six items in the instructional strategies subscale ranging from .78 to .67 and the six items in the student subscale ranging from .78 to .64 (Tschannen-Moran & Barr, 2004).

The instrument was field tested in a study of 66 middle schools in the Commonwealth of Virginia, which found the scale to demonstrate a reliability of .97. The student discipline subscale had a reliability of .94, and the instructional strategies subscale had a reliability of .96 (Tschannen-Moran & Barr, 2004).

Teacher Beliefs Survey. Educator beliefs about student learning, problem-solving, and expectations for instructional effectiveness were measured using the North Carolina MTSS Beliefs Survey (Appendix D). The North Carolina MTSS is a multi-tiered framework that promotes school improvement through research-based academic and behavioral practices. MTSS employs a systems approach using data-driven problem-solving (NCDPI, 2017c). The beliefs survey was adapted from the Florida Response to Intervention (RtI) Beliefs Scale developed by the Florida Problem-Solving/RtI Project team (Castillo et al., 2016). According to the North Carolina MTSS Beliefs Survey (NCDPI, 2017f) documentation,

Like the Florida instrument, The North Carolina MTSS Beliefs Survey contains items designed to measure educator beliefs about student learning, problem solving and expectations for instructional effectiveness. The Florida instrument

was modified to update the language and to insure alignment with North Carolina's MTSS model. In order to insure this was fully representative and valid for use in North Carolina, an expert panel of North Carolina implementers reviewed and provided input on the instrument in July of 2015. (p. 1)

Respondents rated their level of agreement/disagreement on 17 items using a 5-point Likert scale: 1=Strongly Agree, 2=Disagree, 3=Neutral, 4=Agree, and 5=Strongly Agree. The Florida instrument was reviewed for content validity by an Educator Expert Validation Panel (EEVP) of educators from varying disciplines (Castillo et al., 2016). Feedback was provided on the representativeness of the beliefs covered by the instrument, clarity and quality of the individual items (Castillo et al., 2016). Construct Validity for the beliefs survey was established using exploratory common factor analysis (EFA), single-level confirmatory factor analysis (CFA), and multilevel confirmatory factor analysis (MCFA; Castillo et al., 2016). Three factors emerged from the analysis. Internal consistency reliability estimates (as measured by Cronbach's alpha) for each of the three factors (domains) at the school level were (a) Factor 1, academic ability and performance of students with disabilities, $\alpha=.78$; (b) Factor 2, data-based decision-making, $\alpha=.73$; and (c) Factor 3, functions of core and supplemental instruction, $\alpha=.60$. The North Carolina instrument "may suggest relationships of certain items to one another but, unlike the Florida instrument, items are not grouped into domains or factors at this time. Interpretation of responses is intended to take place on an item level basis" (NCDPI, 2017f, p. 1).

The participating district used the survey in all eight of the K-8 schools in the district as part of their MTSS implementation to help establish beliefs about key components within an MTSS. No identifying information, other than school, was

collected during the survey administration. The survey data were collected electronically using a Google Form during the fall semester of the 2017-2018 school year. The North Carolina MTSS Beliefs Survey was selected for this study because the North Carolina MTSS documentation stated, “educator beliefs about the system they work within and the students they work with can have profound effects on student achievement” (NCDPI, 2017f, p. 1). Communicating beliefs to another person or revealing beliefs may be difficult for some teachers (Wong, 2016); however, providing a survey about beliefs surrounding student learning, problem-solving, and instructional effectiveness will enable teachers to anonymously articulate their beliefs.

Socioeconomic status. The percentage of students receiving free and reduced lunch identified in the 2017-2018 Eligible Schools Summary Report for the participating district provided the socioeconomic status for this report. Section 1113(a)(2) of the Title I grant documentation for the participating district indicated that “reports for low-income families are collected from the district Child Nutrition Department and membership data is provided in the form of the Principal’s Monthly Report” (LEA Grant Details, 2017, p. 1). An LEA must rank all schools according to their percent poverty. The ranking is based on the percentage (not the number) of low-income children (Title I Handbook, 2017, p. 14). Section 1113(A) (3) of the Title I grant documentation for the participating district identified the method for determining funding for Title I and Low Income Rank Order. Rank order is determined by the population of free and reduced lunch recipients and school ADM. Poverty bands are used to allocate funds in an effort to provide funding in an ethical manner. Five of the schools in the district receive Title I funding.

Student achievement. The student achievement scores that were used for this study are the reading and math growth scores of each school in the participating district.

In North Carolina, EVAAS utilizes a Multivariate Response Model (MRM) to report growth scores (SAS, 2016). Growth is “the current achievement/ current results compared to all prior achievement/ prior results, with achievement being measured by a quality assessment such as the EOG” (SAS, 2016, p. 5). The MRM is used for tests given in consecutive grades like the North Carolina EOG reading and math scores in Grades 3-8. This study used the reading and math growth scores reported to schools, as calculated by SAS, and reported through the statewide EVAAS system. The growth scores have been calculated to represent all grades, 3-8. Table 4 provides the reading and math growth scores for the schools in the participating district.

Table 4

Reading and Math Growth Scores

School	Reading Growth Score	Math Growth Score
A	82.4	82.2
B	80.3	86.7
C	76.9	79.9
D	85.7	87.9
E	83.8	86.2
F	84.7	78.1
G	84.6	80.9
H	82.3	70.7

Growth scores are reported to schools in the fall following the spring administration of the EOG assessments. The reading and math growth scores were used for this study because they represent the collective achievement score of all the tested grades (NCDPI, 2017d). Although the student growth scores for this study were generated during the spring 2017 administration data, the scores impact the current collective efficacy of the teachers. The growth scores from the previous year assessments are not released until October.

Goddard and Skrla (2006) found that past achievement was positively and significantly related to teacher collective efficacy. For the 2017-2018 school year in the participating district in Grades 6-8, three of the 54 teachers (less than 1%) were new to the district. Grades 4 and 5 experienced the most turnover; seven of 36 teachers (approximately 20%) were new to these grade levels for the 2017-2018 school year (four of 19 in Grade 4 and three of 17 in Grade 5). Even with turnover in these grade levels, the majority of the test scores are connected to the current teachers. Furthermore, the timing of the release in the fall of the current academic year also impacts teacher efficacy.

Procedures

The survey design of this quantitative study gathered numeric descriptions from the sample. These sample results were used to generalize about the population (Creswell, 2014). The platform for collecting the collective efficacy survey was Google Forms. The data delivery of responses to the researcher occurred as the teachers completed the survey in Google Forms. The researcher submitted a written request to the superintendent of the participating district prior to the data collection for the collective efficacy survey. Phase one of the survey was an email with the link to the survey. Controls were set to allow for only one response per user. The email and link were sent to teachers in the eight K-8 schools at the beginning of the survey administration window. The data collection window was a 2-week period. Phase two of the survey was a reminder email for the teachers in the K-8 schools. The third and final phase took place at the end of the second week. A reminder email and the link were again sent to all teachers in the eight K-8 schools. Results of this survey study along with data from the beliefs survey and the overall growth scores were analyzed to answer these research questions.

1. To what extent is there a significant association between collective efficacy and student achievement in math in Title I and Non-Title I schools?
2. To what extent is there a significant association between collective efficacy and student achievement in reading in Title I and Non-Title I schools?
3. To what extent is there a significant association between teacher beliefs and student achievement in math in Title I and Non-Title I schools?
4. To what extent is there a significant association between teacher beliefs and student achievement in reading in Title I and Non-Title I schools?
5. To what extent is there a significant association between socioeconomic status and student achievement in math in Title I and Non-Title I schools?
6. To what extent is there a significant association between socioeconomic status and student achievement in reading in Title I and Non-Title I schools?

The teacher beliefs survey results and the school achievement data are available in the district. The researcher received permission from the district to use the results in this study.

Ethical considerations. Data related to the collective efficacy survey was anonymously collected using an electronic collection method. The name of the school was collected only for the purpose of identifying Title I or Non-Title I status. The researcher kept data provided by the school district confidential by securing the data in a locked file cabinet. Throughout the study, a single letter was used to identify each school; the identification letter was known only to the researcher.

Data Analysis

The statistical software, SAS OnDemand for Academics, version 9.4 and IBM SPSS, Statistical Package for the Social Sciences, version 25 were used to conduct the

statistical analysis for this research. Multiple linear regression analysis and Pearson correlation statistics were used to analyze the data. The multiple linear regression model was selected because there is one dependent variable and multiple independent variables; however, two multiple linear regression models were created to emphasize the two parts of the dependent variable (reading growth score and math growth score) and multiple independent variables. By using this method, it can be determined if the independent variables are good predictors of the dependent variable. Table 5 demonstrates the models that were used for each dependent variable.

Table 5

Multiple Regression Models

Dependent Variable	Model
Reading	$y_{read} = \beta_{0r} + \beta_{1r}x_1 + \beta_{2r}x_2 + \beta_{3r}x_3 + \beta_{4r}x_4 + \varepsilon_r$
Math	$y_{math} = \beta_{0m} + \beta_{1m}x_1 + \beta_{2m}x_2 + \beta_{3m}x_3 + \beta_{4m}x_4 + \varepsilon_m$

For each model,

x_1 = indicator variable for the Title I/Non-Title I status (1=Title I; 0=Non-Title I)

x_2 = teacher beliefs

x_3 = socioeconomic status

x_4 = collective efficacy

y_{read} = reading growth score

y_{math} = math growth score

ε_r = Error of the Model 1

ε_m = Error of the Model 2

β_{0r} , β_{1r} , β_{2r} , β_{3r} , and β_{4r} are the unknown regression coefficients to be estimated for model 1 (reading).

β_{0m} , β_{1m} , β_{2m} , β_{3m} , and β_{4m} are the unknown regression coefficients to be estimated for model 2 (math).

Data from the multiple linear regression analysis were used to determine measures of effect size of the dependent variables. The p value for each coefficient was set at .05. Descriptive statistics including the means, standard deviation, and the range of scores are also provided for the survey measures (Creswell, 2014).

In addition to the multiple linear regression summary, the coefficient of determination and scatterplots with the regression line are included for each dependent and independent variable in the research questions. The coefficient of determination is a measure of effect size used in multiple linear regression (Urdan, 2010). Correlation coefficients and simple scatterplots are also included. This provided an additional avenue for data visualization to understand the association between the variables.

Limitations

This study was conducted in one school district in the state of North Carolina of which the researcher is an employee. Eight K-8 schools (five Title I and three Non-Title I) were used for data collection. This limited the generalizability of the study to larger districts.

Survey participants were not asked to identify job title, gender, grade level, or years of experience due to the very small populations at some of the schools in the participating district. This maintained the anonymity of the participants but limited the use of the data for more specific research questions related to these attributes.

The growth scores used to represent reading and math student achievement are based on the results of the spring 2017 EOG tests for the participating district; however, these scores were not released until October 2017. Access to these data was a limitation

of the study.

Delimitations

A delimitation of the study was the decision of the researcher to use the 2016-2017 average growth score data for the reading and math student achievement measure.

A second delimitation was establishing the context of poverty for the study. The researcher introduced one dependent variable (student achievement) and three independent variables (collective efficacy, teacher beliefs, and socioeconomic status) within a context of poverty in the conceptual framework. Title I schools experience a context (or setting) with higher levels of poverty indicating a lower socioeconomic status with a higher percentage of free and reduced-lunch students; Non-Title I schools experience lower levels of poverty indicating a higher socioeconomic status with a lower percentage of free and reduced-lunch students. The context of poverty, determined by the percentage of free and reduced-lunch students, varies for each school and was intentionally considered.

Summary

This chapter provided an overview of the research design for this study. Survey design was used for this quantitative study. Two survey instruments along with existing data were used to generate the data to answer the set of research questions for this study. A collective efficacy survey was administered to the eight K-8 schools in the participating district. Data from the teacher beliefs survey and the average growth scores were used along with socioeconomic status data. Multiple linear regression models were created to emphasize the two parts of the dependent variable (reading growth score and math growth score) and multiple independent variables. This method was used to determine if the independent variables (collective efficacy, teacher beliefs, and

socioeconomic status) are good predictors of the dependent variable (student achievement).

Chapter 4 provides an analysis of the data to examine the association between collective efficacy, teacher beliefs, and socioeconomic status with student achievement at Title I and Non-Title I schools. Survey results from two surveys are presented along with student achievement data and socioeconomic status data. The statistical analysis is reviewed to answer the research questions presented in this chapter.

Chapter 4: Results

Introduction

The purpose of this quantitative study was to examine the association between collective efficacy, teacher beliefs, and socioeconomic status with student achievement at Title I and Non-Title I schools. To accomplish this purpose, this study investigated these variables in the Title I and Non-Title I schools of one district. Survey results from two surveys along with student achievement data and socioeconomic status data were used in this study. Descriptive statistics, multiple linear regression analysis, and the coefficient of determination were used to answer the research questions. Chapter 4 provides an analysis of the data collected during this study.

Results

The collective efficacy survey was used to measure the “collective self-perception that teachers in a given school make an educational difference to their students over and above the educational impact of their homes and communities” (Tschannen-Moran & Barr, 2004, p. 190). The Collective Teacher Efficacy Scale was developed by Tschannen-Moran and Barr (2004). The 12-item survey (Appendix B) questioned participants about instructional strategies and student discipline using a 9-item Likert scale: 1=None at All, 3=Very Little, 5=Some Degree, 7=Quite A Bit, and 9=A Great Deal. The overall score was computed by taking a mean of all 12 items. The mean of items 1-6 determined the subscale score for collective efficacy in instructional strategies; the mean of items 7-12 determined the subscale score for collective efficacy in student discipline. The scores shown in Table 6 reflect the response scale mean and the average points from the survey. The total possible points for the overall scale was 108 points and 54 possible points for each subscale. These were collected during the spring 2018

semester of the participating district. Certified teachers at each of the K-8 schools were given a 2-week time frame to respond to the survey. Google Forms was used to collect data from each of the eight K-8 schools. Data regarding job title, grade level, and years of experience were not collected due to the small faculty size of the individual participating schools. Of the 300 surveys distributed, 148 were returned and used in the data analysis.

Table 6

Collective Efficacy Survey Results

School	Overall Scale Mean	Overall Average Points	Instructional Strategies Subscale Mean	Instructional Strategies Average Points	Student Discipline Subscale Mean	Student Discipline Average Points
A	7.8	94.0	8.0	48.4	7.6	45.6
B	8.1	97.7	8.3	49.7	8.0	48.0
C	8.2	98.0	8.4	50.2	7.9	47.8
D	8.2	98.2	8.3	50.1	8.0	48.1
E	8.2	98.0	8.2	49.1	8.1	48.9
F	7.8	94.0	8.1	48.7	7.6	45.3
G	7.6	91.3	7.9	47.1	7.4	44.2
H	8.0	96.4	8.2	49.1	7.9	47.3

Note. n=148.

Teacher beliefs were measured using a 17-item survey. Participants rated their level of agreement/disagreement using a 5-point Likert scale: 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, and 5=Strongly Agree. Scores are presented in Table 7. The survey is used in the participating district to measure educator beliefs about student learning, problem-solving, and expectations for instructional effectiveness as part of the North Carolina MTSS framework. The North Carolina MTSS is a multi-tiered framework that promotes school improvement through research-based academic and behavioral practices (NCDPI, 2017c).

Table 7

Teacher Beliefs Survey Results

School	Overall Scale Mean	Overall Average Points
A	4.0	68.1
B	3.6	61.9
C	3.8	64.2
D	3.7	62.9
E	3.8	64.7
F	3.9	66.6
G	3.6	62.0
H	3.8	64.1

Note. n=250.

The teacher beliefs survey was gathered from the same population as the collective efficacy survey (300 surveys were distributed for each instrument) but yielded a larger sample (n=250, 83% response rate) than the collective efficacy survey (n=148, 49% response rate). The teacher beliefs survey was collected in the fall of 2017; the collective efficacy survey was collected during the spring of 2018. Socioeconomic status values (the percentage of free and reduced students for 2017-2018 school year) were provided by the participating district. Table 8 summarizes the descriptive statistics for the three independent variables reported from the multiple linear regression analysis. The table presents the data using average points for the teacher beliefs and collective efficacy surveys. Socioeconomic status represents an average percent of free and reduced-lunch students.

Table 8

Descriptive Statistics of Independent Variables

	Average	Standard Deviation	Range	Minimum	Maximum
Teacher Beliefs	64.2	2.3	6.2	61.8	68.1
Socioeconomic Status	44.7	13.4	40.1	22.2	62.3
Collective Efficacy	95.7	2.6	6.9	91.3	98.2

A multiple linear regression analysis was conducted to examine the predictors of reading achievement. Each independent variable was tested for a linear relationship. Teacher beliefs did not show a significant relationship with the reading achievement ($p=0.13$) and therefore was not included in the model. Two predictors were statistically significant and were included in the model: socioeconomic status and collective efficacy. Together, the remaining predictors (socioeconomic status and collective efficacy) accounted for 99% of the variance in reading achievement. Both variables were significant predictors ($p<.05$) of reading achievement: socioeconomic status ($p=0.0042$) and collective efficacy ($p=0.0049$).

A multiple linear regression analysis could not be conducted for math achievement, because the predictors did not produce a linear relationship. The model presented was not significant and reported p values were well above the .05 level: teacher beliefs ($p=0.62$), socioeconomic status ($p=0.77$), and collective efficacy ($p=0.69$). Linear regression lines did not produce reliable predictions for the variables.

Data from the multiple linear regression analysis produced a coefficient of determination (Green & Salkind, 2008). The coefficient of determination is a measure of effect size used in multiple linear regression (Urdan, 2010, p. 154). The effect size values along with p values for each model are reported in Table 9. Urdan (2010) suggested that effect sizes smaller than .20 are small, those between .25 and .75 are moderate, and those over .80 are large; however, when used together, “tests of statistical significance and measures of effect size can provide important information regarding the reliability and importance of statistical results” (Urdan, 2010, p. 71).

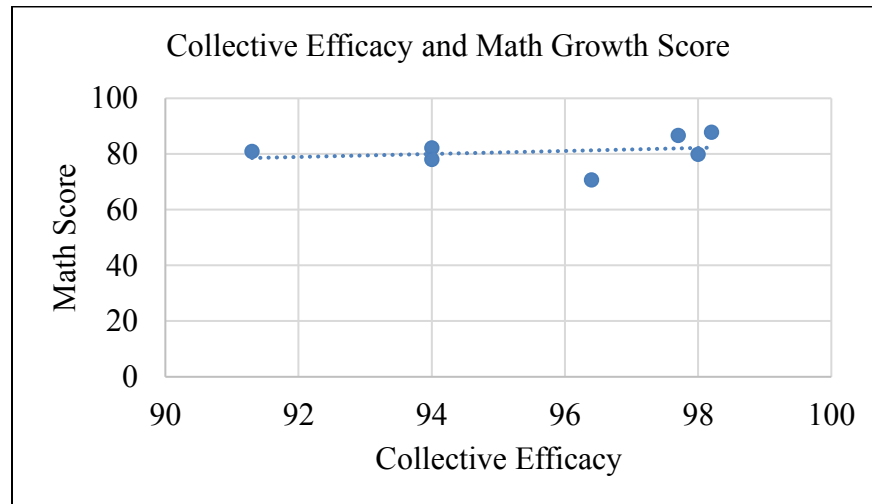
Table 9

Effect Size and p Value

Independent Variable	Dependent Variable	Effect Size	p Value
Collective Efficacy	Reading	0.2161	0.0057
Collective Efficacy	Math	0.0608	0.69
Teacher Beliefs	Reading	0.0012	0.13
Teacher Beliefs	Math	0.0831	0.62
Socioeconomic Status	Reading	0.0455	0.0042
Socioeconomic Status	Math	0.1497	0.77

Research Question 1

To what extent is there a significant association between collective efficacy and student achievement in math in Title I and Non-Title I schools? The effect size value was 0.0608 with a p value of 0.60 ($p > .05$); neither indicates a significant association. The linear relationship of the variables is shown in Figure 2.

*Figure 2.* Collective Efficacy by Math Score.

In addition to the multiple linear regression analysis, a Pearson's product-moment correlation was run to assess the relationship between collective efficacy overall and math achievement, collective efficacy in instructional strategies and math achievement,

and collective efficacy in student discipline and math achievement. Table 10 shows the correlation values.

Table 10

Correlation Coefficients for Collective Efficacy and Math Achievement

	r	p Value
Collective Efficacy Overall	.329	.426
Instructional Strategies subscale	.247	.556
Student Discipline Subscale	.356	.387

Note. N=8.

Laerd Statistics's (2017) guide to interpreting the correlation coefficient value indicated that $0.1 < |r| < 0.3$ is a small association, $0.3 < |r| < 0.5$ is a moderate association, and $|r| > 0.5$ is a strong association. Collective efficacy overall and math achievement scores in the participating district represent a moderate association as do the student discipline subscale and math achievement; however, neither has a statistically significant p value ($p > .05$). The instructional strategies subscale indicates a small association with a p value larger than .05. These data indicate there is not a significant association between these variables.

Research Question 2

To what extent is there a significant association between collective efficacy and student achievement in reading in Title I and Non-Title I schools? The effect size value in the multiple linear regression analysis was 0.2161 with a p value of 0.0057 ($p < .05$). The effect size indicates a small effect, and the p value is statistically significant; however, even though the p value is statistically significant, the effect size is considered small and suggests that there is not a practical significance between collective efficacy and reading scores (Urdan, 2010). Figure 3 shows the linear relationship of the variables.

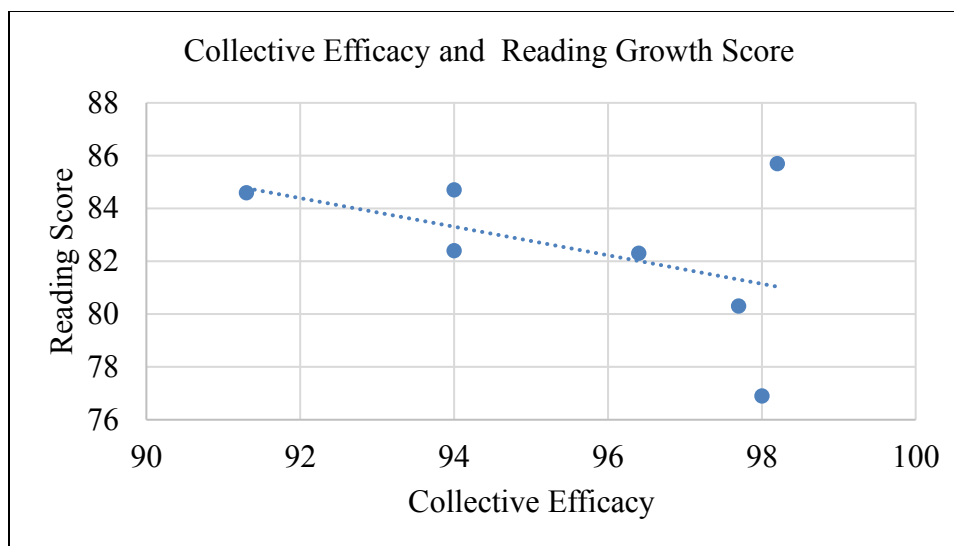


Figure 3. Collective Efficacy by Reading Score.

A Pearson's product-moment correlation was also run to assess the relationship between collective efficacy overall and reading achievement, collective efficacy in instructional strategies and reading achievement, and collective efficacy in student discipline and reading achievement. Table 11 shows the correlation values from the Pearson product-moment correlation.

Table 11

Correlation Coefficients for Collective Efficacy and Reading Achievement

	r	p Value
Collective Efficacy Overall	-.380	.353
Instructional Strategies Subscale	-.455	.257
Student Discipline Subscale	-.306	.387

Note. N=8.

Laerd Statistics's (2017) guide to interpreting the correlation coefficient value indicated that $0.3 < |r| < 0.5$ is a moderate association. Collective efficacy overall and reading achievement scores in the participating district show a negative, moderate association as do both subscales; however, neither of the scales indicates a statistically

significant p value ($p > .05$). These data indicate that there is not a significant association between these two variables.

Research Question 3

To what extent is there a significant association between teacher beliefs and student achievement in math in Title I and Non-Title I schools? The effect size value was 0.0831 with a p value of 0.62 ($p > .05$). The effect size is very small and does not indicate any significance, and the p value is larger than .05 and is not statistically significant. Figure 4 shows the linear relationship of the variables.

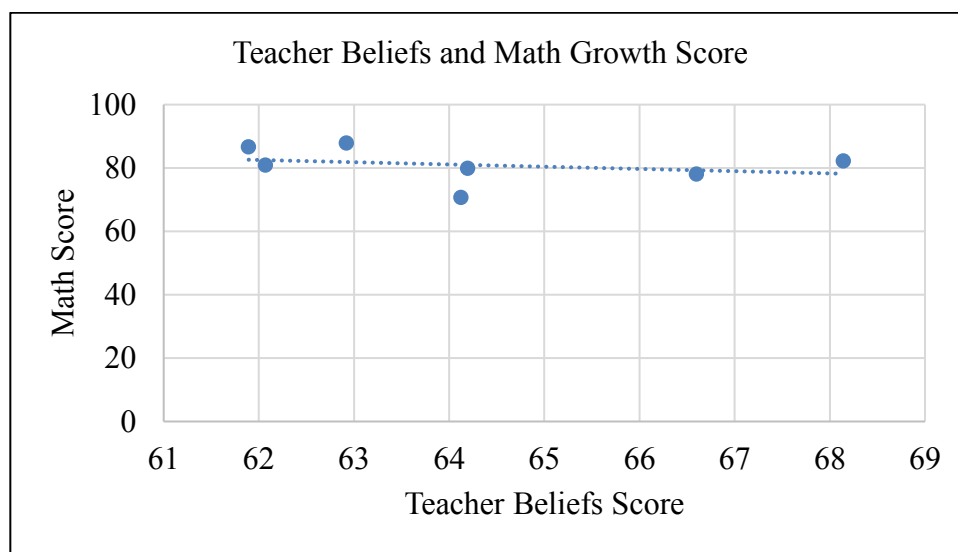


Figure 4. Teacher Beliefs by Math Score.

Research Question 4

To what extent is there a significant association between teacher beliefs and student achievement in reading in Title I and Non-Title I schools? The effect size value was 0.0012 with a p value of 0.13 ($p > .05$). The effect size was very small and not at all significant, indicating little to no effect on scores. The p value is greater than .05 and is not statistically significant. Figure 5 provides the linear relationship of the

variables.

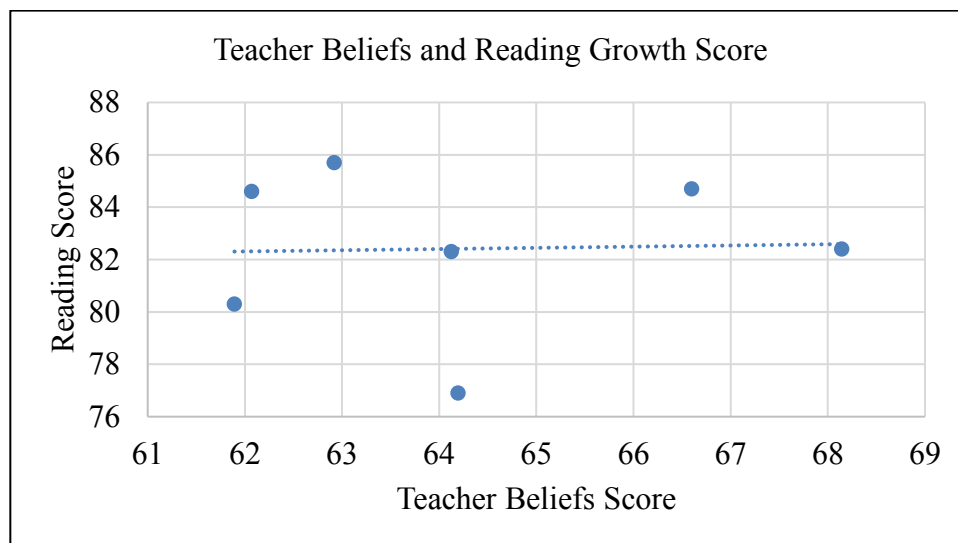


Figure 5. Teacher Beliefs by Reading Score.

The beliefs survey was adapted from the Florida Beliefs on RtI Scale developed by the Florida Problem-Solving/RtI Project team (Castillo et al., 2016). The North Carolina instrument “may suggest relationships of certain items to one another but, unlike the Florida instrument, items are not grouped into domains or factors at this time. Interpretation of responses is intended to take place on an item level basis” (NCDPI, 2017f). Due to the absence of factors for the North Carolina beliefs survey, further analysis by factors on this measure was not possible.

A Pearson’s product moment correlation assessed the relationship between teacher beliefs and math achievement. The overall teacher beliefs mean score and the math achievement score were paired for the test. Results were $r = -.246$, $p = .557$. These data do not indicate a significant relationship.

An additional Pearson’s product-moment correlation was run to assess the relationship between teacher beliefs and reading achievement. The overall teacher beliefs

mean score and the reading growth score for each school were paired for this test.

Results were $r=.048$, $p=.910$; therefore, these data do not indicate a significant relationship.

Research Question 5

To what extent is there a significant association between socioeconomic status and student achievement in math in Title I and Non-Title I schools? The effect size value was 0.1497 with a p value of 0.77 ($p>.05$). The effect size is very small and does not indicate a practical significance. The p value is well above the .05 level and is not statistically significant. Figure 6 shows the linear relationship of the variables.

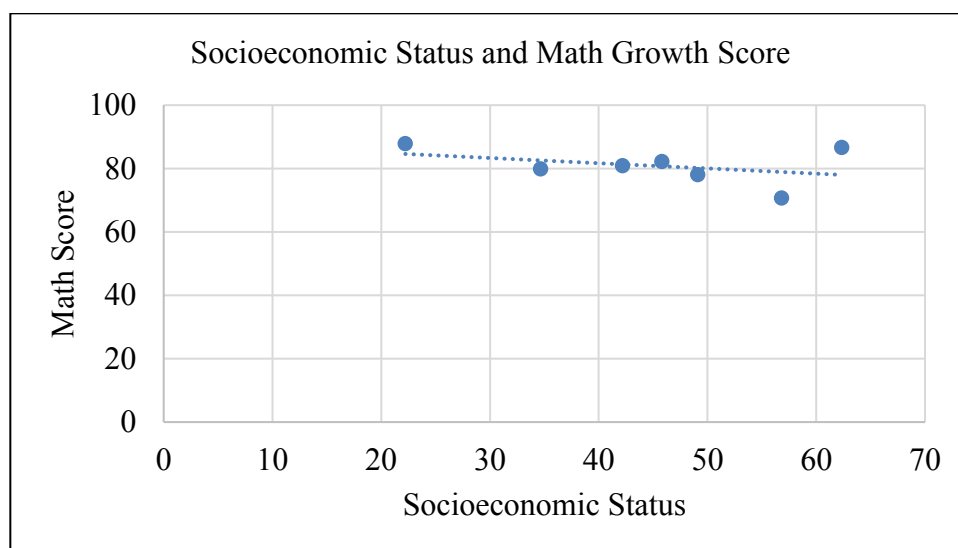


Figure 6. Socioeconomic Status by Math Score.

A Pearson's product-moment correlation was also run to assess the relationship between socioeconomic status and math achievement $r=-.179$, $p=.671$. Laerd Statistics's (2017) guide to interpreting the correlation coefficient value indicated that $0.1 < |r| < 0.3$ is a small association. The p value is higher than .05; therefore, these data do not indicate a significant relationship. Socioeconomic status and math achievement scores in the

participating district show a negative relationship. This measure of socioeconomic status is inversely related to actual socioeconomic status (low socioeconomic status means a low number of students receiving free and reduced lunch; Barr, 2002).

Research Question 6

To what extent is there a significant association between socioeconomic status and student achievement in reading in Title I and Non-Title I schools? The effect size value was 0.0455 with a p value of 0.0042 ($p < .05$). The effect size is very small and does not indicate significance. The p value of 0.0042 is statistically significant; however, even though the p value is statistically significant, the effect size is considered very small and suggests that there is not a practical significance between socioeconomic status and reading scores. Figure 7 shows the linear relationship of the variables.

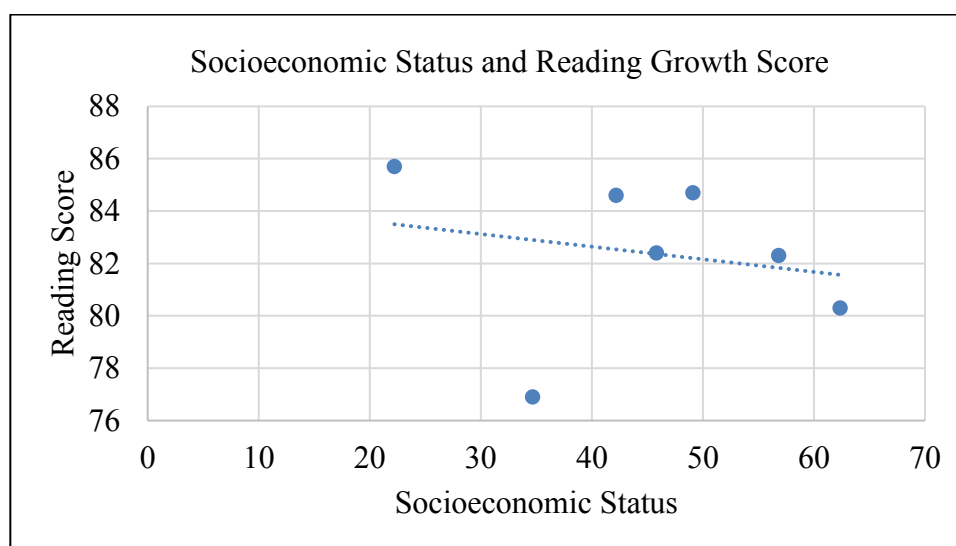


Figure 7. Socioeconomic Status by Reading Score.

A Pearson's product-moment correlation was also run to assess the relationship between socioeconomic status and reading achievement $r = -.123$, $p = .771$. Laerd Statistics's (2017) guide to interpreting the correlation coefficient value indicated that 0.1

$< |r| < 0.3$ is a small association. The p value is much higher than .05; therefore, these data do not indicate a significant relationship. Socioeconomic status and reading achievement scores in the participating district show a negative relationship. This measure of socioeconomic status is inversely related to actual socioeconomic status (low socioeconomic status means a low number of students receiving free and reduced lunch; Barr, 2002).

Summary

Multiple linear regression and Pearson's product moment correlation were used to assess the relationship between collective efficacy, teacher beliefs, and socioeconomic status with student achievement in Title I and Non-Title I schools. In this study, student achievement in reading and math were not significantly associated with collective efficacy, teacher beliefs, or socioeconomic status.

The multiple linear regression model for reading produced usable models for Title I and Non-Title I schools (Appendix E); however, the model for math was not reliable. The coefficient of determination for collective efficacy in the reading model produced a slightly significant effect size with a statistically significant p value (0.0057); however, the value is very small and does not indicate that collective efficacy is a practically significant indicator of student achievement. Teacher beliefs were not found to have a significant association of either reading or math achievement in this study. Socioeconomic status and reading indicated a statistically significant p value (.0042), but the effect size was too small to determine practical significance.

Correlation values for collective efficacy overall and both the instructional strategies subscale and the student discipline subscale produced moderate associations. The pairing for socioeconomic status and student achievement did not produce significant

associations.

Descriptive statistics including the overall scale mean score for the collective efficacy survey and each subscale mean along with the overall average points and subscale points were reported. The overall scale mean score for the teacher beliefs survey was reported as well as the overall average points for each school.

Chapter 5 provides a discussion of the results, theoretical and practical implications, and recommendations for future research.

Chapter 5: Discussion

Introduction

The purpose of this quantitative study was to examine the association between collective efficacy, teacher beliefs, and socioeconomic status with reading and math student achievement in the Title I and Non-Title I schools of one school district. Data were collected from the eight K-8 schools in the participating district. Parrett and Budge (2012) wrote that

for children from a diverse spectrum to learn at high levels, they need to be taught by people in schools who believe they can learn, who approach teaching with the idea that students will learn if taught well, and who take seriously an ongoing effort to improve their practice. (p. xi)

This study examined factors that influence student achievement in a district with a majority of Title I schools. Collective efficacy and teacher beliefs were used to gather data about what teachers believe regarding certain aspects of student learning. The efficacy survey in this study provided data about instructional strategies and student discipline. The beliefs survey provided data on teacher beliefs about student learning, problem-solving, and instructional effectiveness. The EVAAS growth scores indicated reading and math achievement for the participating district. Socioeconomic status was determined by the number of students receiving free and reduced lunch and was collected from district reports.

This chapter uses the data from Chapter 4 to draw conclusions and make connections between the variables and provide recommendations for future research. Data from Chapter 4 are used to answer the research questions for this study. This study sought to answer these research questions.

1. To what extent is there a significant association between collective efficacy and student achievement in math in Title I and Non-Title I schools?
2. To what extent is there a significant association between collective efficacy and student achievement in reading in Title I and Non-Title I schools?
3. To what extent is there a significant association between teacher beliefs and student achievement in math in Title I and Non-Title I schools?
4. To what extent is there a significant association between teacher beliefs and student achievement in reading in Title I and Non-Title I schools?
5. To what extent is there a significant association between socioeconomic status and student achievement in math in Title I and Non-Title I schools?
6. To what extent is there a significant association between socioeconomic status and student achievement in reading in Title I and Non-Title I schools?

Data Collection

The participating district granted permission to the researcher to use existing reading and math achievement scores, survey data on teacher beliefs, and socioeconomic status data. Permission was also granted to collect data about collective efficacy. The Collective Teacher Efficacy Scale (Appendix B) developed by Tschannen-Moran and Barr (2004) was used for this purpose. This survey was given during the spring semester of the 2017-2018 school year.

The participating district gathered the teacher belief data used in the study. These data were from the North Carolina MTSS Beliefs Survey (Appendix D). The beliefs survey was administered during the fall semester of the 2017-2018 school year. The North Carolina instrument “may suggest relationships of certain items to one another but . . . items are not grouped into domains or factors at this time. Interpretation of responses

is intended to take place on an item level basis” (NCDPI, 2017f, p. 1). Individual questions were reviewed to support the research questions for this survey.

Socioeconomic status, identified as the percentage of free and reduced lunch, was gathered from the 2017-2018 Eligible Schools Summary Report for the participating district. Reading and math growth scores reported by SAS (2016) through the statewide EVAAS were used to represent student achievement.

This study used multiple linear regression analysis to report the coefficient of determination as an effect size for each of the variables along with the p values for Title I and Non-Title I schools. Comprehension of the effect size helps the reader to have a better understanding of the magnitude of the differences, whereas reporting p value alone only reports statistical significance (Aarts et al., 2014; Sullivan & Feinn, 2012). Urdan (2010) supported this format for reporting because “when used together, tests of statistical significance and measure of effect size can provide important information regarding the reliability and importance of statistical results” (p. 71). Urdan also added that practical significance is an important consideration. Practical significance is “a judgment about whether a statistic is relevant” (Urdan, 2010, p. 77).

Discussion of Results

In this study, Table 9 contains the effect size value for the multiple linear regression analysis and the p value, also determined from the multiple linear regression analysis. When paired with reading, collective efficacy demonstrated a measurable small effect size and a statistically significant p value. Combined, it could indicate that increased collective efficacy may be associated with higher reading scores; however, the small sample size did not provide a reliable graphic to determine if more of the data points fell on the regression line. No other variables indicated a measurable effect size to

combine with a significant p value. Even though 148 teachers throughout the district completed the collective efficacy survey, the data were analyzed at the school level. This reduced the sample size to eight schools, thus affecting the interpretation of the data for statistical significance.

The coefficient of determination graphs were also used to show the linear relationship of the variables. The coefficient of determination is a measure of how close the data are to the fitted regression line. It is used to tell “how much of the variance in one variable can be explained by the variance in a second variable but does not necessarily indicate a causal relationship between the two variables” (Urdan, 2010, p. 88). Two predictors were statistically significant and were included in the model: socioeconomic status and collective efficacy. Together, socioeconomic status and collective efficacy accounted for 99% of the variance in reading achievement. Both variables were significant predictors ($p < .05$) of reading achievement: socioeconomic status ($p=0.0042$) and collective efficacy ($p=0.0049$).

Other studies similar to this study (Eells, 2011; Goddard et al., 2004, Tschannen-Moran & Barr, 2004) reported that larger sample sizes were used to find more statistically significant results. The participating district has eight K-8 schools. One of the data points indicated outlier data in the statistical model for the multiple linear regression model. When tested for linear significance, the data from one school did not meet the assumption for linear data and were not included in the model. According to Laerd Statistics (2017), a linear relationship should exist between the dependent and independent variables for the data point to be included. One set of data did not meet this assumption; thus, the sample size for the model was reduced to $N=7$. The small sample size reduced the statistical significance of the associations between variables.

The inferential statistics gathered from this sample were not sufficient to make generalizations about the population from which the sample was drawn; however, descriptive statistics for the collective efficacy survey and the teacher beliefs survey provide additional information to consider regarding the association between collective efficacy, teacher beliefs, socioeconomic status, and student achievement.

The average points for the collective efficacy survey was 95.7. The survey had a potential 108 points. The overall mean score for collective efficacy is considered a high score and indicated that the teachers in the participating district have an overall high sense of efficacy. Each subscale had a potential of 54 points. The average points score of 48.8 for the instructional strategies subscale was higher than the average score of 46.4 for the student discipline subscale. The average points score for the instructional strategies subscale for every school (Title I and Non-Title I) was higher than the student discipline scale as was the subscale mean for the Likert scale. Teachers reported having higher efficacy for student instruction than for student discipline. Goddard et al. (2004) and Donohoo (2017) reported that a source of efficacy is affective states. “Affective states may influence how organizations interpret and react to the myriad challenges they face” (Goddard et al., 2004, p. 6). The results indicate that student discipline may be slightly more of a challenge than instructional strategies due to the lower efficacy scores on the survey. In addition to this data, two questions on the teacher beliefs survey were directly related to behavior. Table 12 shows the results of these questions for each school.

Table 12

Teacher Beliefs Questions 4 and 9

	A	B	C	D	E	F	G	H
4. Universal instruction in behavioral expectations and social skills is the responsibility of the public schools.	3.5	4.1	3.8	3.3	3.8	3.1	3.6	4.4
9. The majority of students with behavioral problems can achieve grade level benchmarks in reading and math.	3.8	3.8	3.5	3.3	3.7	3.6	3.7	3.8

Note. Bold denotes Title I school.

Participants rated their level of agreement/disagreement using a 5-point Likert scale: 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, and 5=Strongly Agree. Question 4 asked teachers to rate their belief about instruction for behavioral expectations. Question 9 asked teachers to rate their belief about students with behavioral problems. Question 4 produced mean scores that indicate neutral to agree. Question 9 produced mean scores that indicate mostly neutral beliefs (neither agree or disagree). The lower efficacy score on the student discipline subscale is consistent with the lack of strong beliefs related to behavior.

The growth scores reported in this study also indicated that of the top three schools for reading and math growth, two are Title I which indicates that achievement is influenced by something other than Title I status.

Table 13 presents a data summary for each school, A- H. The table includes the socioeconomic status along with the collective efficacy scores, the teacher belief scores, and the student achievement scores for reading and math. The mean score for the survey scales and the average points are presented in the table to give a thorough understanding and representation of the response data.

Table 13

Socioeconomic Status and Data Summary

	A	B	C	D	E	F	G	H
SES	45.82	62.35	34.66	22.22	61.68	49.12	42.20	56.82
CE, Overall Scale Mean	7.8	8.1	8.2	8.2	8.2	7.8	7.6	8.0
CE, Overall Average Points	94.0	97.7	98.0	98.2	98.0	94.0	91.3	96.4
CE, IS Subscale Mean	8.0	8.3	8.4	8.3	8.2	8.1	7.9	8.2
CE, IS Subscale Average Points	48.4	49.7	50.2	50.1	49.1	48.7	47.1	49.1
CE, SD Subscale Mean	7.6	8.0	7.9	8.0	8.1	7.6	7.4	7.9
CE, SD Subscale Average Points	45.6	48.0	47.8	48.1	48.9	45.3	44.2	47.3
TB, Overall Scale Mean	4.0	3.6	3.8	3.7	3.8	3.9	3.6	3.8
TB Average Points	68.1	61.9	64.2	62.9	64.7	6.6	62.0	64.1
Reading	82.4	80.3	76.9	85.7	83.8	84.7	84.6	82.3
Math	82.2	86.7	79.9	87.9	86.2	78.1	80.9	70.7

Note. Bold letter denotes Title I. SES=Socioeconomic Status; CE=Collective Efficacy, IS=Instructional Strategies, SD=Student Discipline, TB=Teacher Beliefs.

It can be observed from this summary that the highest overall efficacy score (School D, Non-Title I) has the lowest socioeconomic status (low status is a low number of free and reduced-lunch students). School D also has the highest reading growth score and the highest math growth score. It can also be observed that School G, which is a Title I school, has the lowest overall efficacy score but has the third highest reading achievement score.

Observations of the teacher belief scores indicate that a Non-Title I school

(School A) has the highest teacher belief score and a Title I school (School B) has the lowest mean score for teacher beliefs.

After the study was complete, the researcher concluded that the design of the methodology for the study could not produce statistically significant data for Title I and Non-Title I schools. Survey results produced a large number of responses (collective efficacy survey, 148 responses and teacher beliefs, 250 responses), but the design of the study examined data at the school level which lowered the sample to eight schools (there are eight K-8 schools in the participating district); however, the descriptive statistics presented in Table 13 will be helpful and useful to the participating district. Donohoo (2017) and Goddard et al. (2004) informed us that vicarious experience is the second most powerful source of collective efficacy. Vicarious experiences and modeling affect efficacy by providing knowledge and the opportunity to provide a comparison. Sharing these data with the district will help school groups see others who have faced similar circumstances (Title I or Non-Title I) and performed well and, in turn, generate positive expectations for themselves (Donohoo, 2017). Schools wanting improved educational gains may experience improved collective efficacy by observing other successful educational programs (Goddard et al., 2004). Borrowing from other organizations is a form of vicarious learning that can provide encouragement to try something new (Goddard et al., 2004). These data will help schools partner with other schools within the district.

Theoretical Implications

Barr (2002) concluded that “schools are social and psychological settings where collective teacher efficacy is constructed” (p. 70). Bandura’s (1986) explanation of social cognitive theory described human functioning as a result of multiple influences from

personal factors, environmental influences, and behavior continually interacting (Glanz, n.d.). Social cognitive theory describes the human experience as one of action, forethought, and choice (Eells, 2011). Although not statistically significant in this study, the interaction of teachers and environment has been proven to influence student achievement, efficacy, and beliefs (Barr, 2002; Donohoo, 2017; Goddard et al., 2004). The four major influences of efficacy (mastery experience, vicarious experiences, social persuasion, and affective states) are all factors that influence efficacy. Efficacy does have an effect on student achievement, and each of these factors is influential (Donohoo, 2017; Goddard et al., 2004). How these are influenced by a particular context (Title I or Non-Title I) remains statistically inconclusive from this study. The descriptive statistics indicate high mean scores for the overall collective efficacy survey. The instructional strategies efficacy scale was higher for every school than the student discipline subscale. This may indicate that the teachers at the schools in the participating district will accept challenges related to instruction more readily because they believe they can accomplish a task. Protheroe (2008) wrote that teachers are more likely to accept challenging goals if they believe they can achieve it. Goddard et al. (2004) wrote that “affective states may influence how organizations interpret and react to the myriad challenges they face” (p. 6). A group’s reaction to stress and challenge is a reflection of their affective status. Groups who can tolerate pressure and crisis without severe consequences tend to be more efficacious and learn how to adapt (Eells, 2011).

Practical Implications

Information from this study can be used to help the schools in the participating district. Scores were not found to be statistically significant as a result of a small sample size and are therefore not generalizable; however, for the participating district, the

descriptive data gained from the collective efficacy survey and the teacher beliefs survey will be beneficial in guiding support for school culture and establishing baselines for both variables. Gruenert and Whitaker (2015) asserted that unity of purpose and collegial support are two significant elements of school culture. Both of these are directly related to collective efficacy. Teachers who work toward a common mission for the school have unity of purpose, and the degree to which teachers work together effectively is collegial support (Gruenert & Whitaker, 2015). Gruenert and Whitaker noted that “a collaborative school culture provides the ideal setting for student learning” (p. 80). The first six questions on the collective efficacy survey are related to instructional strategies. Each question asks how much can teachers do or how much can your school do (Tschannen-Moran & Barr, 2004)? These questions are directly related to the collaboration effort of teachers asking what can the group do as a whole, working together to improve student learning?

Table 13 shows that regardless of the status of the school, all schools in the participating district produced high collective efficacy scores. This is the first survey that the district has completed regarding collective efficacy. Collins (2005) made an important point about defining great. Collins wrote,

What matters is not finding the perfect indicator, but settling upon a consistent and intelligent method of assessing your output results, and then tracking your trajectory with rigor. What do you mean by great performance? Have you established a baseline? Are you improving? If not, why not? (p. 8)

To improve collective efficacy, which has been proven to be an important factor to improve student achievement, the participating district will be able to set a baseline with these results for collective efficacy overall and for instructional strategies and student

discipline. The student discipline subscale was lower than the instructional strategies for every school in the participating district. Based on the information gathered from this study, the results indicate an opportunity for support in each of the schools.

The socioeconomic status of the school is not a variable that can be changed by the school, but how the school responds to students of poverty can be greatly affected. Acknowledging the effects of socioeconomic disparities is a vital step to closing the achievement gap (Rothstein, 2008). Teachers who are well informed are better prepared to understand and support student achievement because they have a greater understanding of the reasons causing the disparity. Being well informed includes establishing baselines for collective efficacy and teacher beliefs as shown in this study.

As established factors that influence student achievement (Bandura, 1993; Goddard et al., 2004; Hattie, 2015; Tschannen-Moran & Barr, 2004), collective efficacy and teacher beliefs are influential in school culture and climate. Establishing the baseline for efficacy can help schools in the participating district focus on professional development and developing school improvement goals. Increasing opportunities for collaboration, participation in professional learning communities (PLCs), and learning how to use student data (DuFour, DuFour, Eaker, Many, & Mattos, 2016) will support the effort to strengthen efficacy and teacher beliefs about learning. In a study that investigated the relationships between a PLC, faculty trust in colleagues, teacher collective efficacy, and their commitment to students, it was found that teacher efficacy can be positively affected by participation in a PLC (Lee, Zhang, & Yin, 2011). The study further reported that teacher efficacies could be enhanced in a school environment where teachers collaborate to find ways to address the learning, motivation, and behavioral problems of their students (Tschannen-Moran, Hoy, & Hoy, 1998). This

information regarding the positive influence of PLCs on student achievement indicates another opportunity to support collective efficacy and student achievement in the participating district.

The roles of teachers have changed with the high stakes testing and accountability over the past several years. In a study completed by Valli and Buese (2007), it was determined that policy changes surrounding initiatives has an impact on teachers. The study found that the summative effect of too many policy demands often resulted in teacher discouragement, role ambiguity, and superficial responses to administrative goals. By measuring collective efficacy and teacher beliefs on a regular basis, the schools in this district can navigate the landscape of change by providing targeted support for teachers.

Recommendations for Future Research

The relationship between efficacy and student achievement has been well established in previous research (Donohoo, 2017; Eells, 2011; Goddard et al., 2004; Tschannen-Moran & Barr, 2004). This study sought to gather quantitative data to provide additional evidence that was statistically significant related to Title I and Non-Title I schools. The design of the methodology proved to be a limitation of the study by limiting the analysis to school-level data only. Future studies should include more schools in the sample. By doing this, the association of the variables may be more statistically significant. In addition to the quantitative data, future studies could include a qualitative component to the study to gather feedback from focus groups regarding efficacy at Title I and Non-Title I settings.

Small individual schools in the participating district prevented the collection of data related to the grade level, years of experience, and gender. Future research could include these to obtain more data about participant variables. More data points could also

be gained by including Grades 9-12 in the study.

Another possible area of research could be to include standardized achievement test scores for reading and mathematics. Growth scores were used in this study because they are a collective score that represents the entire school. Specific grade-level achievement tests could be aligned with grade-level efficacy and teacher belief data to obtain targeted data across a district. In addition to this, the correlation data could be enhanced by directly correlating efficacy scores with achievement scores and growth scores. This would increase the ability to generalize the efficacy data.

The use of the North Carolina Teacher Beliefs Survey did not allow the researcher to analyze the results of the survey by subscales. The beliefs survey was adapted from the Florida RtI Beliefs Scale developed by the Florida Problem-Solving/RtI Project team (Castillo et al., 2016). The North Carolina instrument “may suggest relationships of certain items to one another but, unlike the Florida instrument, items are not grouped into domains or factors at this time. Interpretation of responses is intended to take place on an item level basis” (NCDPI, 2017f, p. 1). Due to the absence of factors for the North Carolina beliefs survey, further analysis by factors on this measure was not possible. Future research using the original Florida instrument would allow the researcher to use the subscales of the survey. Factors for the Florida instrument to be considered for future research are academic ability and performance of students with disabilities, data-based decision-making, and functions of core and supplemental instruction.

One final consideration for future research are studies that relate culture and climate of high-poverty schools to collective efficacy and teacher beliefs. Without additional research in these areas, the research on collective efficacy will remain incomplete. Sass, Hannaway, Xu, Giglio, and Feng (2012) reported that while student,

parental, and neighborhood factors undoubtedly contribute to performance differences in low- and high-poverty schools, the most important schooling factor affecting student achievement is teachers. As stated earlier in the study, teachers are fully aware of the influence of poverty and the public opinion about students in poverty (Gorski, 2008; Rothstein, 2008). More research on factors other than standardized tests will continue to support teachers who serve students of poverty in Title I schools.

Summary

The purpose of this study was to examine the association of collective efficacy, teacher beliefs, and socioeconomic status with reading and math student achievement in the Title I and Non-Title I schools of one school district. Results from this study did not reveal a significant association; however, the descriptive statistics were able to provide a baseline of data for the participating district. Theoretical and practical implications were reviewed, and the study concluded with recommendations for future research.

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Appendix A

Permission Letter from Superintendent of Participating District

Betsy B. Furr

December 6, 2017

Superintendent
Schools

Dear [REDACTED]

I am writing to request permission to conduct a brief survey in the K-8 schools in the [REDACTED] School district and to use existing data for research analysis. I am completing a dissertation at Gardner-Webb University for the degree of Doctor of Education.

The study will examine student achievement by comparing the constructs of collective efficacy, teacher beliefs and socio-economic status in Title I and Non Title I schools. Data related to the collective efficacy survey will be anonymously collected from certified teachers in the K-8 schools using an electronic collection method. The survey is 12 questions and will take approximately 5 minutes to complete. All teachers will receive a note of appreciation [REDACTED] in their school mailbox. Existing data consists of the free/ reduced lunch percentage for each school, the MTSS Beliefs Survey results and the 2016-2017 reading and math growth scores. The district will be referred to as the "participating district" throughout the study. All collected data and existing data provided by the school district will remain confidential at all times. Once the study is complete, I am happy to share the results with you and the district leadership.

If these arrangements meet with your approval, please sign this letter where indicated below. Thank you for your consideration.

Sincerely,

[REDACTED]
Betsy B. Furr
Curriculum Specialist
[REDACTED] Schools

PERMISSION GRANTED FOR THE ABOVE REQUEST.

[REDACTED]
[REDACTED] Superintendent
[REDACTED] Schools

Appendix B

Collective Teacher Efficacy Scale

1. How much can teachers in your school do to produce meaningful student learning?	①	②	③	④	⑤	⑥	⑦	⑧	⑨
2. How much can your school do to get students to believe they can do well in schoolwork?	①	②	③	④	⑤	⑥	⑦	⑧	⑨
3. To what extent can teachers in your school make expectations clear about appropriate student behavior?	①	②	③	④	⑤	⑥	⑦	⑧	⑨
4. To what extent can school personnel in your school establish rules and procedures that facilitate learning?	①	②	③	④	⑤	⑥	⑦	⑧	⑨
5. How much can teachers in your school do to help students master complex content?	①	②	③	④	⑤	⑥	⑦	⑧	⑨
6. How much can teachers in your school do to promote deep understanding of academic concepts?	①	②	③	④	⑤	⑥	⑦	⑧	⑨
7. How well can teachers in your school respond to defiant students?	①	②	③	④	⑤	⑥	⑦	⑧	⑨
8. How much can school personnel in your school do to control disruptive behavior?	①	②	③	④	⑤	⑥	⑦	⑧	⑨
9. How much can teachers in your school do to help students think critically?	①	②	③	④	⑤	⑥	⑦	⑧	⑨
10. How well can adults in your school get students to follow school rules?	①	②	③	④	⑤	⑥	⑦	⑧	⑨
11. How much can your school do to foster student creativity?	①	②	③	④	⑤	⑥	⑦	⑧	⑨
12. How much can your school do to help students feel safe while they are at school?	①	②	③	④	⑤	⑥	⑦	⑧	⑨

1=nothing, 3=very little, 5=some degree, 7=quite a bit, 9=a great deal

Appendix C

Permission Letter to Use Collective Teacher Efficacy Scale



William & Mary School of Education

MEGAN TSCHANNEN-MORAN, PHD
PROFESSOR OF EDUCATIONAL LEADERSHIP

December 18, 2017

Betsy,

You have my permission to use the Collective Teacher Beliefs Scale in your research. The best citation to use is:

Tschannen-Moran, M., & Barr, M. (2004). Fostering Student Learning: The Relationship of Collective Teacher Efficacy and Student Achievement. *Leadership and Policy in Schools*, 3(3), 189-209.

You can find a copy of this measure and scoring directions on my web site at <http://wmpeople.wm.edu/site/page/mxtsch>. I will also attach directions you can follow to access my password protected web site, where you can find the supporting references for these measures as well as other articles I have written on this and related topics.

All the best,

Megan Tschannen-Moran
The College of William and Mary
School of Education

Appendix D

North Carolina Multi-Tiered System of Support Beliefs Survey

Rate each item in the following way: 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5 = Strongly Agree	
1	I believe that all subgroups (i.e., racial, ethnic, economic and program area) can reach proficiency with the current standards.
2	Tier One or Core Instruction (classroom instruction provided to all students) should be effective enough to result in at least 80 % of students achieving benchmarks in Reading with Tier One alone.
3	Tier One or Core Instruction (classroom instruction provided to all students) should be effective enough to result in at least 80 % of students achieving benchmarks in Math with Tier One alone.
4	Universal instruction in behavioral expectations and social skills is the responsibility of the public schools.
5	The primary function of Tier Two or supplemental instruction/intervention is to ensure students achieve grade level benchmarks.
6	The primary function of Tier Three or intensive instruction/intervention is to ensure students are growing toward achieving grade level benchmarks.
7	The majority of students with Specific Learning Disabilities can achieve grade-level benchmarks in Reading.
8	The majority of students with Specific Learning Disabilities can achieve grade-level benchmarks in Math.
9	The majority of students with behavioral problems can achieve grade-level benchmarks in Reading and Math.
10	Additional staff support would enable regular education teachers to implement more differentiated instruction to meet the needs of all students.
11	Prevention and early intervention results in fewer referrals to Special Education.
12	Some students currently identified as having a Specific Learning Disability do not have a true disability but rather did not receive instruction and intervention of adequate intensity to close the gap in their skill levels.
13	Additional time and resources should be allocated first to students not reaching benchmarks.
14	Graphing student data makes it easier for educators to make decisions about student performance and needed interventions.
15	A student's family should be involved in problem-solving.
16	When students do not respond to instruction and/or intervention, the following should be examined: a) the intervention was implemented with fidelity, b) the intervention was delivered with sufficient intensity, and c) a different intervention is needed.
17	When students do not respond to instruction and/or intervention, teams should insure that the problem was thoroughly analyzed through diagnostic assessments/processes to find the root cause of the skill gap.

Appendix E
Regression Models for Reading

The model for the reading (dependent variable) for Title I schools:

$$\hat{y}_{read} = -41.162 - 0.773x_3 + 1.737x_4$$

The model for the reading (dependent variable) for Non-Title I schools:

$$\hat{y}_{read} = 451.041 - 0.773x_3 - 3.545x_4$$