



**FOSTERING STUDENT ACHIEVEMENT: A STUDY OF THE  
RELATIONSHIP OF COLLECTIVE TEACHER EFFICACY AND  
STUDENT ACHIEVEMENT**

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The Faculty of the School of Education  
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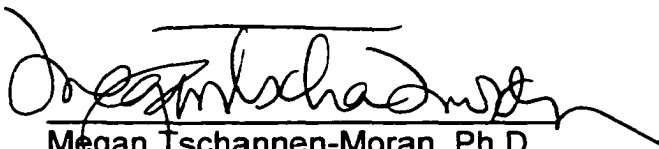
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**by  
Marilyn F. Barr  
April 18, 2002**

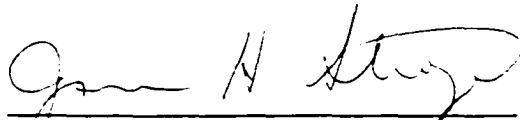
**FOSTERING STUDENT ACHIEVMENT: A STUDY OF THE RELATIONSHIP  
OF COLLECTIVE TEACHER EFFICACY AND STUDENT ACHIEVEMENT**

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Approved April 2002



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## DEDICATION

This dissertation is dedicated to those special people who provided the basis for my education and were there for me when I needed support and encouragement: my late husband who supported my desire for advanced studies; my late father, who taught me the value of hard work and a good education; my mother, who taught me how to develop faith and perseverance; my children who listened to their Mom as she talked about her research and worried if she could complete the dissertation; and my friends who said it is time to take a break and relax for awhile.

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**ABSTRACT**

The purpose of this research was to determine if there was a relationship between collective teacher efficacy and student achievement and if collective teacher efficacy made an independent contribution in explaining student achievement beyond socioeconomic status. The conceptual basis for this study was Bandura's theory of self-efficacy.

Relationships between collective teacher efficacy and student achievement on the Virginia grade 8 math, writing, and English Standards of Learning (SOL) tests were found to be significant. The relationship between collective teacher efficacy and student achievement on the grade 8 writing SOL test made an independent contribution when controlling for socioeconomic status. However, the relationship between collective teacher efficacy and student achievement on the grade 8 math and English test did not make an independent contribution when socioeconomic status was controlled. This study contributes to other research findings indicating a positive relationship between collective teacher efficacy and student achievement.

## CHAPTER 1

## Introduction

Accountability in education reached a heightened level of awareness in 1983 when the National Commission on Excellence in Education released *A Nation at Risk*. Then in 1986, the Carnegie Forum on Education and the Economy released *A Nation Prepared: Teachers for the 21<sup>st</sup> Century*. The general public became aware of inadequacies of the teaching staff and poor achievement levels of students in the United States compared to students in other industrialized nations. The differences were disturbing even though the population samples were not identical. This generated concern among community leaders and employers that students would be unqualified for demanding jobs of the global economy in the 21<sup>st</sup> century, leaving America with a shallow pool of job applicants for the labor market.

In response, educators and government leaders began a wave of school reform, higher standards, and innovative programs. The federal government initiated a reform movement called "America 2000" to increase student achievement (Wang, Haertel, & Walberg, 1993). President George Bush and the nation's governors at an educational Summit in Charlottesville, Virginia, agreed upon several education goals in 1989 (McLaughlin & Shepard, 1995). *America 2000: An Education Strategy Sourcebook* resulted from those national goals (U.S. Government, 1999). In 1994, the Goals 2000: Educate America Act was passed by Congress to provide resources for the development of methods of assessment (McLaughlin & Shepard, 1995). Goal 3 of the National Education

Goals is particularly important to the American public concerned with student achievement and transition to the work place.

By the year 2000, American students will leave grades four, eight, and twelve having demonstrated competency in challenging subject matter including English, mathematics, science, foreign languages, civics and government, economics, arts, history, and geography, and every school in America will ensure that all students learn to use their minds well, so they may be prepared for responsible citizenship, further learning, and productive employment in our Nation's modern economy. (National Education Goals Report, 1999, p.vi)

National teacher organizations in English, mathematics, and science revised their standards to align their curriculum objectives with national goals. The goal of increased accountability and higher standards is to increase student achievement to meet the increasing complexities in the global work place.

All 50 states have adopted some form of new standards, high stakes testing for students, and new accreditation standards in response to business, industry, government, and parent dissatisfaction with public schools. In 1995, Virginia adopted the Standards of Learning in English, mathematics, science, and history and social science for kindergarten through grade 12. The Standards of Learning (SOL) provide a basis for curriculum and instructional programs to improve the academic achievement of all students in the Commonwealth of Virginia. The Standards of Learning assessment program includes Standards of Learning (SOL) Tests administered at grades 3, 5, and 8 in reading, writing,

math, science, and social studies and end-of-course tests in English 11, algebra I, algebra II, geometry, biology, chemistry, earth science, world history to 1000 A.D., world history from 1000 A.D., and US History.

Stakeholders in public education view school safety, a positive learning environment, and student achievement as top priorities. Grades, report cards, and standardized tests have been an integral part of America's public education history (National PTA, 2001). The accountability goal is to increase achievement so that students can transition from school to work in a positive and productive manner and be competitive in the global workplace. In this age of accountability, policy makers and educators alike are asking what factors influence student achievement. They are asking why is one school able to achieve better outcomes than another with similar characteristics, as well as, by what means and processes does a good school develop into a better one?" (NSSE, 1998, p. 5).

Three major areas have been identified as characteristic of effective schools: (1) school-wide goals for student learning; (2) instructional effectiveness which includes quality curriculum and implementation, aligned instructional design, clearly defined assessment practices and instruments; and (3) principles of organizational effectiveness which include an educational agenda with a vision and goals, leadership for school improvement, community, and a culture of continuous improvement and learning (NSSE, 1998). Few studies describe the process that links school characteristics to student achievement.

One goal of an effective school is to improve student achievement. Educational researchers have been studying teacher sense of efficacy and its contribution to improved student achievement. Teacher sense of efficacy has been defined as “teachers’ belief or conviction that they can influence how well students learn, even those who may be difficult or unmotivated” (Gusky & Passaro, 1994, p. 4). Strong links between teacher efficacy beliefs, teacher behavior, and student achievement have been found (Ashton & Webb, 1986; Gibson & Dembo, 1984; Woolfolk & Hoy, 1990; Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998).

Few studies of school effectiveness have sought to understand the relationship of collective teacher efficacy as an emerging school characteristic to student achievement. Recently, researchers have found a positive relationship between collective teacher efficacy and differences in student achievement among schools (Bandura, 1997; Goddard, Hoy, & Woolfolk-Hoy, 2000). Increased levels of teacher sense of efficacy at the school level were correlated with the health and organizational climate of the school (Hoy & Woolfolk, 1993). Collective teacher efficacy is defined as “the perceptions of teachers in a school that the efforts of the faculty as a whole will have a positive effect on students” (Goddard, Hoy & Woolfolk-Hoy, 2000, p. 480). Collective teacher efficacy is seen as a group trait (Bandura, 1997) and is the result of teacher interactions, which yield more than the sum of individuals. Bandura (1993) found that teachers’ beliefs about their schools’ collective efficacy were equally predictive of school achievement as teachers’ self-efficacy.

Schools are interactive social systems in which teachers' shared beliefs influence the social environment of the school (Bandura, 1993; Hoy & Miskel, 1996). Interactive effects of school organizations make collective teacher efficacy an emergent group attribute. However, there is very little research about the impact of collective teacher efficacy on student achievement and school effectiveness. What do we know about collective teacher efficacy? Does collective teacher efficacy have a significant relationship to student achievement? How much impact does collective teacher efficacy have on student achievement? A better understanding of collective teacher efficacy and its relationship to student achievement may facilitate improved student outcomes.

#### Theoretical Rationale

Bandura's (1977) Social Cognitive Theory explains the control humans exercise over their lives through effectual actions, which are influenced by self-efficacy beliefs. Social cognitive theory specifies that teacher perceptions of self and group capability influence their actions. These actions are judged by the group norms established by collective efficacy beliefs (Goddard & Goddard, 2001). Social cognitive theory provides the basis for the theoretical analysis of the relationship of collective teacher efficacy and student achievement.

The interaction of teachers in a school is more than the sum of the individual teachers' efficacy. "Perceived collective efficacy is defined as a group's shared belief in its conjoint capabilities to organize and execute the courses of action required to produce given levels of attainment" (Bandura, 1997, p.477).

Collective teacher efficacy is a powerful influence on the social norms and the social influence of a school (Goddard & Goddard, 2001). Schools are organizations where teachers work together in an interactive social system (Bandura, 1993). The social organization of the school affects the instructional activities and structures teachers', administrators', and students' relationships. Bandura (1997) noted that "Peoples' sense of collective efficacy determines their well-being and what they accomplish as a group" (p. 448). Social cognitive theory indicates that teachers' perceptions of self and organization influence their actions. Teacher behaviors and actions are then evaluated in the context of group norms established by collective teacher efficacy beliefs. The result is collective teacher efficacy beliefs that influence teacher behaviors, which in turn influence student achievement (Goddard, Hoy, & Hoy, 2000).

Although socioeconomic status (SES) has an independent effect on student achievement, Bandura (1993) found that student achievement summed at the school level was significantly and positively related to collective teacher efficacy and collective teacher efficacy was more effective in improving student achievement than SES aggregated at the school level. Collective teacher efficacy was found to be positively associated with the differences in student achievement that happened between schools (Goddard, Hoy, & Hoy, 2000). While controlling for SES, Hoy, Sweetland, & Smith (2002) found a significant positive relationship between the collective teacher efficacy of the school and school achievement in mathematics.

Collective teacher efficacy is an emergent characteristic of schools experienced individually by teachers. Teachers with high efficacy might perform differently depending on the shared perceptions of collective teacher efficacy in the building. Teachers' efficacy may be increased or decreased depending on the collective teacher efficacy of a school (Hoy, Sweetland, & Smith, 2002). It is suggested that collective teacher efficacy may have a strong influence on student achievement because greater efficacy leads to greater effort and persistence resulting in better performance (Ashton & Webb, 1986; Allinder, 1994; Gusky, 1988; Stein & Webb, 1986).

#### Statement of the Problem

Educators have continually sought ways to improve student achievement. This study explored collective teacher efficacy and whether there was a relationship between collective teacher efficacy and student achievement independent of the SES of the school. The major purpose of this study was to examine the relationship of collective teacher efficacy as measured by the Collective Teacher Efficacy Belief Scale and academic achievement of middle school students as measured by the Virginia Standards of Learning Tests.

Research findings from this study may prove beneficial in improving student outcomes. Educators, administrators, and teachers are examining multiple possibilities to improve student performance to meet higher standards. As the deadline approaches for schools to be accredited and students to acquire verified credits for graduation in the Commonwealth of Virginia, educators are asking what else they can do to improve student performance? There is a sense

of urgency to answer this question before students must meet new graduation requirements to receive a diploma. Remediation efforts have not been successful for all students. The question becomes, "What is missing from the equation to improve student performance?" Research findings from this study provide insight into collective teacher efficacy and its impact on the motivation, resilience, and persistence of teachers to assist all students in improving academic performance. Another outcome of this study is information about collective teacher efficacy and student achievement that can be used in training both teachers and administrators.

#### Purpose of the Study

This research investigated collective teacher efficacy in middle schools and its relationship to student achievement. Results of the study are beneficial to administrative staff development focused on student achievement. Little research is available on the impact of collective teacher efficacy. This study analyzed data collected from teachers in middle schools in the Commonwealth of Virginia and student achievement data as measured by the SOLs.

Socioeconomic status (SES) is an important variable to consider when examining student outcomes because it is invariably a strong predictor of student success (Coleman, 1966). This research examined collective teacher efficacy as a variable that may be as strong as SES in predicting student achievement.

### Research Questions

1. What is the relationship between collective teacher efficacy and achievement of students taking the grade 8 mathematics test in the Commonwealth of Virginia as measured by SOL Tests?
2. What is the relationship between collective teacher efficacy and the achievement of 8<sup>th</sup> grade students in writing in middle schools in the Commonwealth of Virginia as measured by SOL Tests?
3. What is the relationship between collective teacher efficacy and the achievement of 8<sup>th</sup> grade students in English (reading/literature and research) in middle schools in the Commonwealth of Virginia as measured by SOL Tests?
4. Does collective teacher efficacy make an independent contribution to explaining the variance in student achievement on the grade 8 mathematics SOL test in the Commonwealth of Virginia when controlling for the SES of students in a middle school?
5. Does collective teacher efficacy make an independent contribution to explaining the variance in student achievement on the grade 8 writing SOL test in the Commonwealth of Virginia when controlling for the SES of students in a middle school?
6. Does collective teacher efficacy make an independent contribution to explaining the variance in student achievement on the grade 8 English (reading/literature and research) SOL test in the Commonwealth of Virginia when controlling for the SES of students in a middle school?

### Significance of Study

This research sought to study a characteristic that has emerged as a significant factor in school effectiveness, collective teacher efficacy. This study differs from other teacher efficacy studies in that it explored collective teacher efficacy using a new measure and the effects collective teacher efficacy on student achievement independent of the SES of the school. It used the Virginia SOL Tests to define student achievement. This study contributed to research on how schools contribute to students' outcomes.

Understanding the significance of the relationship between collective teacher efficacy and student achievement provides insights to improved student outcomes. This research data may provide a catalyst for changing teacher behaviors that encourages teachers to accept responsibility for student achievement and improve teachers' abilities to overcome temporary setbacks and failures. Teacher planning, responsibility, and persistence in challenging situations are behaviors that foster student achievement and reinforce teacher efficacy (Tshannen-Moran, Woolfolk Hoy, & Hoy, 1998). Identifying school characteristics associated with impacting student achievement is significant to the development of effective schools. The collective teacher efficacy influences teacher behaviors and affects the shared beliefs held by teachers in the school organization. The research indicates the influence of collective teacher efficacy influencing teacher behaviors and thus student achievement. Results of this research may be a catalyst for changing how we train teachers and administrators, develop an efficacious culture within a building, provide staff development, and evaluate behaviors of teachers and administrators that impact

and increase collective teacher efficacy. Data provides school administrators with a basis for raising the collective efficacy beliefs of their staff. Mastery experiences such as research projects and participatory staff development activities with follow up support during the school year may be powerful agents of change.

### Definition of Terms

For the purpose of this study, the following definitions of terms apply.

**Middle School:** schools with grade configurations of 5-8 or 6-8.

**Teacher Sense of Efficacy:** teacher efficacy refers to “teachers’ belief or conviction that they can influence how well students learn, even those who may be difficult or unmotivated” (Guskey & Passaro, 1994, p. 4).

**Collective Teacher Efficacy.** Collective teacher efficacy is “the perceptions of teachers in a school that the efforts of the faculty as a whole will have a positive effect on students,” (Goddard, Hoy, & Woolfolk Hoy, 2000, p. 480). For the purposes of this study Collective Teacher Efficacy is measured by the Collective Teacher Belief Scale, which measures the extent to which teachers believe teachers in their school can affect student achievement.

**Student Achievement.** Virginia Standards of Learning Tests. The SOL tests are criterion-referenced tests consisting of multiple-choice questions and a writing sample. For the purposes of this study we will be using the grade 8 mathematics, writing, and English (reading/literature and research) SOL tests.

**Socioeconomic status.** A school's socioeconomic status is defined as the percentage of students in a school on free or reduced lunch. SES is defined as

the percentage of a school's students qualifying for free or reduced price lunch (Bourk, 1998; Harwell, D'Amico, Stein, & Gatti, 2000).

#### Limitations of the Study

Generalization of this study is limited because of the convenience sample of the research. This study was conducted only in public middle schools in the state of Virginia. Inferences to private schools or public middle schools in other states will not be appropriate. This study also did not investigate the impact of other potentially relevant variables such as school size, student to teacher ratio, school environment, race of students, tenure of teaching staff, or tenure of building principal. Measurement of student achievement was limited to the Virginia SOL Tests given in grade 8 in spring of 2001. Collective Teacher Belief Surveys were administered in fall 2001 and winter 2002. Like school climate, collective perceptions of teacher efficacy are considered a relatively enduring trait of a school, and so this time differential is considered acceptable. Schools where there has been a change in the principals in the intervening months were excluded from the study.

#### Major Assumptions

This study was based on the following assumptions:

1. Student assessments (SOLs) used in the study will provide valid and reliable measures of student achievement in mathematics, writing, and English (reading/literature and research).
2. The collective teacher beliefs instrument used will provide valid and reliable measures of collective teacher efficacy.

3. All respondents will respond honestly to all items in each instrument.
4. This sample of public middle schools proves an adequate representation for statistical purposes.

## Chapter 2

### Literature Review

This literature review will present the characteristics and development of efficacy beliefs and their relationship to educational outcomes. It begins with a description of Social Cognitive Theory and processes of self-efficacy. The review will clarify the constructs of teacher sense of efficacy and development of self-efficacy and collective teacher efficacy beliefs. Finally, findings on the relationship of teacher sense of efficacy and collective teacher beliefs to student achievement are presented.

### Social Cognitive Theory

Bandura (1977, 1993, 1997) provided much of the theoretical foundation for self-efficacy research. He defined self-efficacy as “beliefs in one’s capabilities to organize and execute a course of action necessary to produce a given attainment” (Bandura, 1997, p. 3). Human functioning is embedded in social conditions. People’s actions, emotions, and motivation are based on perceptions rather than reality and factual evidence. The environment a person develops for living and working is created individually and collectively. Efficacy beliefs held by people impact how they feel, think, act, and motivate themselves (Bandura, 1993). Personal control is central in human lives. “Unless people believe they can produce desired effects by their actions, they have little incentive to act. Efficacy belief, therefore, is a major basis of action and people make decisions affecting their lives based on their personal efficacy beliefs” (Bandura, 1997).

People contribute to what happens to them, but people are not the sole determiner of what happens to them. There are personal influences over self-efficacy beliefs, through cognitive processes, affective states, motivation, and selection processes. Social cognitive theory says people work together to produce results they desire and social cognitive theory is the basis for self-efficacy and collective efficacy beliefs (Bandura, 1997). Self-efficacy theory provides some explanation of how people live their lives. Perceived self-efficacy is concerned with judgments of personal capabilities to exercise control over their own level of functioning and events that affect their lives. Perceived self-efficacy influences four major processes: cognitive, motivational, affective, and selection processes. The stronger the perceived self-efficacy, the higher the goals and challenges people set for themselves and the firmer their commitment to them (Bandura & Jourden, 1991).

Bandura (1986) reported that self-efficacy beliefs are the product of a complex process of self-talk made up of cognitive processes and a variety of efficacy information gathered actively, vicariously, and socially, and physiologically. People's beliefs in their efficacy have diverse effects on the course of action people choose, how long they persevere, how resilient they are and their thought patterns (Bandura, 1997). If people believe they have no power to produce results, they will not attempt to make things happen.

#### *Cognitive Processes of Self-Efficacy*

The cognitive process allows people to predict events, develop ways to control those events, and weigh a variety of factors in order to act. A strong

sense of self-efficacy is necessary to focus on the task or goal in a demanding situation with social implications (Bandura, 1993). Teachers and principals learn to implement instructional and motivational strategies for improving student performance. In a test of the relationship of self-efficacy and using one's skills and knowledge by Collins (1982), positive attitudes toward mathematics were better predicted by perceived self-efficacy than by actual ability.

People measure themselves in relation to the accomplishments of others. The people with whom comparisons are made influence their self-efficacy. Bandura and Jourden (1991) found that seeing oneself exceeded by others impaired personal efficacy and over time impaired performance. The opposite view, seeing oneself as mastering skills, improved personal efficacy and increased achievement.

In education, as feedback is provided to teachers or students, they gain important efficacy-relevant information. Performance feedback that reports achieved progress supports personal capabilities and feedback that reports shortcomings focuses on personal deficiencies (Jourden, 1991).

Learning environments that project ability as an acquirable skill builds a sense of efficacy that promotes student achievement. Some people view ability as an inherent capacity and see their performance displaying deficiencies. They prefer tasks that minimize errors. Others see ability as a function-learning goal, where people learn from mistakes and expand their competence and to meet challenges. Bandura (1993) explained, "Ability is not a fixed attribute residing in one's behavioral repertoire. Rather, it is a generative capability in which

cognitive, social, motivational, and behavioral skills must be organized and effectively orchestrated to serve numerous purposes” (p. 118).

There is a difference between knowing what to do and doing it under a crisis situation (Bandura, 1993). Bandura (1993) reported that those who have a firm belief in their efficacy, through creativity and endurance, develop ways to exercise control in their environments, however limiting they may be. Teachers with a strong sense of teacher efficacy believe they can improve student achievement. Perceived self-efficacy impacts performance by its effects on goal setting and analytic thinking. The interrelationship of goal setting enhances performance and achievement. Goals teachers set for themselves and their students may impact student performance.

#### *Motivational Processes of Self-Efficacy*

A person's self-efficacy plays a key role in human motivation. Self-efficacy beliefs determine the goals people set for themselves, how much effort is given to the goals, perseverance, and their resilience in the face of failures. Strong perseverance generally results in performance accomplishments (Bandura & Cervone, 1986). People set goals for themselves creating an unbalanced state and then set out to achieve their goals to create balance again. Once people have achieved their goals, those with a strong sense of efficacy set new high goals for themselves (Bandura, 1993).

People motivate themselves by thinking and planning ahead. Teachers do much the same when developing instructional strategies. People who have

high self-efficacy credit their own failures to lack of effort. People who are inefficacious attribute their failures to low ability (Alden, 1986).

Motivation is also governed by the expectation that behavior will produce certain outcomes. Locke and Latham (1990) found that challenging goals enhance and sustain motivation. People will seek satisfaction from achieving their goals and work diligently to overcome lower than expected outcomes so they do achieve their goals.

### *Affective Processes of Self-Efficacy*

An individual's self-efficacy affects all aspects of their lives including, physical, mental, and their level of skill development. "People's beliefs in their capabilities affect how much stress and depression they experience in threatening or difficult situations, as well as their level of motivation" (Bandura, 1993, p. 132). Achievement anxiety is seen in students who have a low sense of efficacy to handle academic challenges. Meece, Wigfield, and Eccles (1990) found that students' past academic failures and successes arouse anxiety, but it was students' beliefs in their capabilities to master academic content that predicted student performance. Anxiety may be reduced by building a strong sense of efficacy (Bandura, 1993). How do schools build student efficacy, teacher efficacy, and collective efficacy? Teachers may develop cognitive capabilities and teach self-regulative skills to manage academic tasks in order to foster positive thought patterns.

Teachers with a low sense of efficacy teaching disruptive and low-achieving students find their teaching stressful. The result is that these teachers

who lack a sense of instructional efficacy display weak commitment to teaching and spend less time on academic strategies. Chwalisz, et al. (1992) found that teachers with high-perceived efficacy could manage classroom and instructional stressors by resolving to solve the problems in the classroom. Teachers with low teacher efficacy develop a pattern of withdrawal to relieve their stress and their withdrawal contributes to teacher burnout.

### *Selection Processes of Self-Efficacy*

People select activities and situations where they can be successful. Their selection effects personal development. The social influences operating in a selected environment such as a school continue to promote competencies, values, and interests long after the choice was made and its initial effect (Bandura, 1993). These choices affect collective efficacy as well as self-efficacy. Activities and situations that are successful yield higher efficacy beliefs and unsuccessful activities and situations result in lower efficacy beliefs for teachers and schools.

### *The Outcome of Efficacy Beliefs*

There are diverse reactions to failure as a result of efficacy beliefs. Those with a high sense of personal efficacy approach difficult tasks and situations as a challenge. They see failure as resulting from insufficient effort, knowledge to be gained and skills that need to be learned. After quickly recovering from setbacks, they accept the challenge to control difficult situations. People with high self-efficacy have less stress, anxiety, and depression. People with a low sense of personal efficacy dwell on personal deficiencies and adverse outcomes and

suffer from stress and depression because they see their failure as a deficiency not an experience to learn from (Bandura, 1993).

Cognitive, motivational, affective and selection processes play a role in the course of intellectual development and influence how preexisting cognitive skills are used in the development of self-efficacy beliefs. In education, we see three ways in which efficacy beliefs contribute to student performance: students' beliefs in their ability to regulate their learning, teacher sense of efficacy to motivate and promote student learning, and collective teacher efficacy that their schools can achieve academic improvement and excellence (Bandura, 1993).

#### Clarifying the Construct of Teacher Sense of Efficacy

People's self-efficacy influences how they see themselves in the future and how they prepare themselves for the future (Bandura, 1993). Teachers and administrators who see their school and students as being successful will begin to take steps to improve student achievement. Staffs begin to set goals and visualize improved student achievement. Guskey and Passaro (1994, p. 4) defined teacher efficacy as "teachers' belief or conviction that they can influence how well students learn, even those who may be difficult or unmotivated." Berman, McLaughlin, Bass, Pauly, and Zellman (1977) defined teacher efficacy as "the extent to which the teacher believes he or she has the capacity to affect student performance" (p.137).

The notion of teacher efficacy first emerged when RAND researchers conceived the concept of teachers believing they could control the reinforcement of their actions in a study of the effectiveness of reading instruction with urban

students (Armor et al. 1976). Rotter's (1966) locus of control theory provided the theoretical basis for teachers' external and internal locus of control. Teachers who believed that student characteristics and environmental influences have more influence on students' learning had an external locus of control. Teachers who believed that they could improve the student achievement for at risk students had an internal locus of control. They based their ideas on the work of Rotter (1966). Teachers with high teacher efficacy believed that they could influence student achievement and motivation as a result of their internal locus of control. Teacher efficacy was determined by beliefs about the relationship between actions and outcomes. There were two initial components of teacher efficacy in the RAND studies: Item 1 "When it comes right down to it, a teacher really can't do much because a student's motivation and performance depends on his or her home environment." Item 2 "If I really try hard, I can get through to even the most difficult or unmotivated students" (Armor et al., 1976).

Teacher sense of efficacy results from teachers constructing beliefs about their capacity to perform. Personal Teaching Efficacy (PTE) is a teacher's belief regarding their confidence, ability, and training to improve student achievement. General Teaching Efficacy (GTE) deals with the teachers' efficacy beliefs to overcome factors external to the teacher such as the race, gender, economic status of students, and factors in the life of students that impacts performance in school.

Teacher beliefs that student characteristics exert more power on student learning than teachers have in the classroom were identified as general teaching

efficacy (GTE). Personal teaching efficacy (PTE) was the belief that teachers had confidence in their abilities to overcome student characteristics and environmental factors and control student outcomes. PTE is the belief teachers hold that they influence students' achievement and motivation thus reinforcing teachers' actions resulting in high levels of efficacy. The sum of PTE and GTE yielded teacher efficacy (TE). A sum that was supposed to disclose the level teachers believed that consequences of teaching, i.e. student achievement, were internally controlled by the teacher. Rand researchers (1976) found that TE had significant positive relationship to student achievement.

Since the original two RAND studies using the two-item measure of teacher efficacy, there has been an interesting interplay between the conceptualization of teacher efficacy and attempts to measure it. The following three efficacy measures are the first attempts to measure the construct of teacher efficacy based on Rotter's internal locus of control and reinforcement. These three efficacy measurement instruments provided the foundation for research linking teacher efficacy and student achievement and the concept of teacher efficacy.

Rose and Medway (1981) developed a measure called Teacher Locus of Control (TLC). Teachers were given student situations and teachers were to decide the responsibility for student success or failure by assigning responsibility to the teacher or by assigning responsibility outside the teacher. Rose and Medway (1981) found that TLC was a better predictor of teacher behavior than Rotter's scale. Guskey (1981) developed the Responsibility for Student

Achievement (RSA) scale. Scores on the scale indicated how much the teacher assumed responsibility for student achievement or student failure. In comparing the sum of the RAND items and the RSA, Guskey (1982, 1988) found significant positive correlations between teacher efficacy and responsibility for student success and student failure. Guskey (1984) later found a relationship between higher efficacy, positive attitudes about teaching, and high level of confidence in teaching ability. The Webb Efficacy Scale (WES) (Ashton et al., 1982) was designed to measure teacher efficacy while trying to reduce response biases, by balancing items on a scale of social desirability. Data revealed teachers who scored higher on the Webb scale had a more positive teaching style. TLC, RSA, and WES were all based on Rotter's theory of teacher beliefs based on internally or externally controlled reinforcement.

The second conceptual strand of efficacy emerged from Bandura's (1977) concept of self-efficacy. Efficacy is defined as "beliefs in one's capabilities to organize and execute a course of action necessary to produce a given attainment" (Bandura, 1997, p. 3). Three of the efficacy measures were developed from Bandura's social cognitive theory of self-efficacy the Ashton vignettes (Ashton, Buhr, & Crocker, 1984), the Teacher Efficacy Scale (Gibson & Dembo, 1984), and Bandura's teacher self-efficacy scale (undated).

Ashton, Buhr, and Crocker (1984) developed vignettes of situations teachers might encounter and asked them how they would perform in the situation on a scale from "extremely ineffective to "extremely effective." A second version asked teachers to make a comparison to others teachers, from

“much less effective than most teachers” to “much more effective than most teachers.” Benz, Bradley, Alderman, and Flowers (1992) found that preservice teachers and college faculty were more optimistic about their effectiveness than classroom teachers in situations involving student motivation and socialization.

At times theory has driven measurement, but in the case of Gibson and Dembo (1984) instrument it was the reverse. Gibson and Dembo (1984) developed a scale combining conceptual ideas of Bandura and the RAND items. Gibson and Dembo (1984) defined self-efficacy as the following: “Self-efficacy beliefs would be teachers’ evaluation of their abilities to bring about positive student change” (p. 570). Further research with Gibson and Dembo (1984) items found inconsistencies and some researchers used a shortened version based on factor analysis.

Despite the inconsistencies in the Gibson and Dembo (1984) instrument, researchers used the scale to examine relationship of teacher efficacy to student achievement and school environment. Research using teacher efficacy as measured by Gibson and Dembo scale has found teacher efficacy related to teachers’ classroom behaviors, innovative teaching, attitudes towards teaching, and student achievement (Tschannen-Moran, Woolfolk-Hoy, & Hoy, 1998).

Guskey and Passaro (1994) modified Gibson and Dembo’s (1984) Teacher Efficacy Scale to try and clarify the General Teacher Efficacy measurement by developing items of Personal Teaching Efficacy equally between internal and external orientation. Results were only moderately correlated suggesting again that internal and external dimensions are different

(Guskey & Passaro, 1994; Gibson & Dembo, 1984). This study showed that the two factors of the Gibson and Dembo instrument were mislabeled as GTE and PTE, and were in fact more in line with Rotter's internal and external factors. Guskey and Passaro's (1994) findings are consistent with the findings of Gibson and Dembo (1984) providing more evidence of two different dimensions.

Bandura (1997) developed a 30-item instrument, using a nine-point response scale. This measure consists of seven subscales: efficacy to influence decision making, efficacy to influence school resources, instructional efficacy, disciplinary efficacy, efficacy to enlist parental involvement, efficacy to enlist community involvement, and efficacy to create a positive school climate. Bandura's instrument provides the model for the instrument to be used in this study. In clarifying the difference between internal locus of control and perceived self-efficacy, Bandura (1997) noted perceived self-efficacy is one's belief about his/her capabilities to produce certain actions, while locus of control is defined as one's beliefs about whether their actions affect outcomes. Locus of control is about actions and outcomes, and self-efficacy is about the confidence an individual has to accomplish tasks.

History reveals a bumpy road in the development of the instrumentation to measure teacher efficacy. See Table 1 for chronology of efficacy studies. Difficulty in development of the assessment instrument and the conceptualization of teacher efficacy has hampered accurate measurement of teacher efficacy. As the concept of teacher efficacy evolves, instruments will also evolve to measure more accurately the construct of teacher efficacy. Presently, an integrated model

using the assessment of the teaching task and its context and assessing self-perceptions of teaching competence provides the basis for the Collective Teacher Efficacy Belief Scale used in this study (Tschannen-Moran, Woolfolk-Hoy, & Hoy, 1998). Teachers gather information about their efficacy through social persuasion, mastery experience, vicarious learning, and affective states, process the information, and analyze their teaching task and its context, and their strengths and weaknesses to determine their level of teacher efficacy (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998).

#### The Relationship of Teacher Efficacy to Important Educational Outcomes

Teachers' sense of efficacy has a variety of effects in the classroom. Teacher sense of efficacy is displayed in their behaviors and their attitudes and is evidenced in student outcomes. The level of teacher efficacy influences teachers' persistence, resiliency, and determination when they are faced with challenges and setbacks (Tschannen-Moran, Woolfolk-Hoy & Hoy, 1998).

#### *Teacher Behavior*

Teachers make a difference in student achievement (Wright, Horn, & Sanders, 1997). Use of clear and organized direct instruction, amount of time on task, and positive response to questions are all teacher behaviors that increased student achievement (Wang, Haertel, & Walberg, 1993). Teachers with a high sense of efficacy devote more classroom time to academic learning, provide assistance to students who have difficulty, and reward them for their achievements. Ashton and Webb (1986) found teachers with a high sense of efficacy less critical of students who make mistakes and work longer with

students who are slower learners. Teachers with a low sense of efficacy spend less time on academics, easily give up on students if the students do not learn quickly, and criticize them for their failures (Gibson & Dembo, 1984). Research has revealed that teacher efficacy influences teacher behaviors that may improve student outcomes such as continuing to work with students having difficulty getting the correct answer (Gibson & Dembo, 1984).

Data indicate that classroom environments are in part determined by teacher's self-efficacy. Teachers with strong efficacy beliefs create mastery instructional strategies for their students while those with weak self-efficacy beliefs create classroom environments that weaken students' efficacy and cognitive development (Bandura, 1993). Additionally, teachers with a strong sense of efficacy are open to changes and new ideas. They test new instructional methods to meet the learning needs of their students (Guskey, 1988).

Ashton and Webb (1986) in studying the relationship of teacher efficacy and student achievement identified the following characteristics of highly efficacious teachers: high expectations for students, positive interpersonal relationships, and effective instructional strategies. High efficacy teachers were also more likely to engage in activity based learning (Enochs, Scharmann, & Riggs, 1995), student centered learning (Czerniak & Schriver, 1994), and a humanistic approach to student management (Woolfolk & Hoy, 1990). Additionally, teachers who have low efficacy rely on extrinsic rewards and negative sanctions to motivate students.

Teacher efficacy was also related to teacher's behavior in the classroom such as goal setting, innovative instruction, and meeting the needs of their students (Berman, McLuaghlin, Bass, Pauly, & Zellman, 1977; Gusky, 1988; Stein & Wang, 1988). Teachers with a strong sense of efficacy also demonstrated high levels of planning and organization (Allinder, 1994).

#### *Teacher Attitudes*

Teachers' sense of personal efficacy affects their attitude toward education and their instructional practices (Woolfolk & Hoy, 1990). Teachers with a high sense of efficacy display more zeal and commitment for teaching (Gusky, 1984; Coladarci, 1992). High levels of teacher efficacy have been linked to greater enthusiasm for teaching (Allinder, 1994), greater commitment to teaching (Coladarci, 1992), and teachers more likely to make teaching a career (Burley, Villeme, & Brockmeier, 1991). Teacher efficacy has a positive correlation with trust (DaCosta & Riordan, 1996), openness to educational consultation (DeForest & Hughes, 1992), positive attitudes toward change in education (DeMesquita & Drake, 1994, Guskey, 1988), and teacher satisfaction (Lee, Dedrick, & Smith, 1991).

#### *Student Outcomes*

Ashton and Webb (1986) reported the cumulative impact of teachers' efficacy on students' achievement. Students having teachers with high efficacy for more than one year had higher achievement scores than students having teachers with low efficacy for more than one year. When students' entering ability was statistically controlled, teacher efficacy predicted student achievement

during the school year. The relationship of teacher attitudes and teacher behaviors are critical to educational outcomes. Schools are social organizations made up of teachers who as a group also impact the achievement of students in their building. The collective efficacy belief of schools is an organizational factor emerging as a potentially influential component of student achievement.

### Collective Teacher Efficacy

Collective teacher efficacy refers to the product of the interactive dynamics of the group members (Goddard, Hoy, & Hoy, 2000). Collective teacher efficacy is “the group’s shared belief in its conjoint capabilities to organize and execute courses of action required to produce given levels of attainments” (Bandura, 1997, p. 477). Teacher efficacy beliefs are based on perception and collective teacher efficacy beliefs are social perceptions (Goddard, Hoy, & Woolfolk Hoy, 2000). The perception, true or not, is reality in the mind of the faculty. The construct of collective teacher efficacy can be measured to indicate the faculty’s belief about their collective capability to influence student achievement.

Collective teacher efficacy refers to “the perceptions 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 & Goddard, 2001, p. 3). Collective teacher efficacy is a product of the interaction of its teachers, which is more than the sum of the individual self-efficacy of teachers. Collective teacher efficacy is a group attribute rather than the total sum of teachers’ self-efficacy (Bandura, 1997). The collective teacher efficacy of a school organization

influences how teachers instruct students, manage their classroom, and motivate students.

Collective teacher efficacy constitutes a powerful factor affecting different areas of the school organization such as climate, morale, and student achievement. The functioning of a school is based on the academic and social norms of the organization and the student population (Bandura, 1997).

Collective teacher efficacy is the property of the school and collective teacher efficacy may explain the differences between schools in student achievement (Bandura, 1993, 1997, Goddard, et al., 2001). Staffs with high collective teacher efficacy display persistence and resiliency when working with students having difficulty improving achievement.

Teachers work together in an interactive social system rather than in isolation (Bandura, 1993). Good and Brophy (1986) found that belief systems of faculty result in cultures that can be revitalizing or demoralizing to the school's social system. Schools are organizations with interdependencies that assist in cultivating a sense of collective teacher efficacy (Bandura, 1993). As part of the culture, once the collective efficacy of a school is established, it is a stable component that requires substantial effort to change.

A faculty's collective sense of efficacy that they can promote high levels of academic progress contributes significantly to their schools' level of academic achievement (Bandura, 1993). Student bodies with a large percentage of minorities and low-income students can influence the schools' academic performance by lowering faculties' collective efficacy. Staffs with a high level of

collective teacher efficacy firmly believe that students are teachable and can be motivated to achieve at high levels based on national tests of language and mathematical competences (Bandura, 1993).

Understanding the school's culture is imperative to understanding the collective efficacy. Schools similar to societies differ in their social practices. Schools that advance a collective atmosphere promote a sense of shared responsibility. Teachers' belief in the school's efficacy was equally predicative of school performance as was personal teacher efficacy (Bandura, 1993). Student outcomes will be higher when personal efficacy is harmonious with school efficacy beliefs. To improve student outcomes staff development must be in line with the values and attitudes of the organization (Bandura, 1997).

Historically, teachers have closed their doors and worked in isolation on what they thought was important. In this age of accountability and state standards, teachers no longer work in isolation nor do they have control over the curriculum. Teachers work collectively within the school organization, not independently. The success of the school lies in the collective teacher efficacy that the teachers in that building can improve student achievement. The principal of the school is challenged to equip his/her staff with the beliefs that their collective work will improve student achievement.

Collective teacher efficacy is a composite belief based on the collective analysis of the teaching task and the assessment of the faculty's teaching competence. These beliefs stem from effects of the mastery and vicarious

learning experiences, social pressure, and the emotional state or tone of the organization (Goddard, Hoy, & Woolfolk Hoy, 2000).

#### Sources of Self-efficacy and Collective Teacher Efficacy

Bandura (1997) hypothesized four sources of efficacy beliefs: mastery experience, vicarious experience, social persuasion, and affective states. These four sources are relevant at both the individual and collective level. Teacher efficacy is determined by the analysis of the teacher task and assessment of teaching competence (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998).

#### *Mastery Experience*

Mastery experience is acquired when individuals or organizations have been successful, which increases efficacy levels and provides teachers with confidence they have the ability to increase student achievement. The reverse is also true. If teachers or organizations do not have successful experiences then efficacy levels are lowered (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). Efficacy levels may not be increased if improved performance is perceived to be due to luck or other interventions, but if improved performance was credited to ability and effort efficacy is enhanced (Bandura, 1993). Just as individuals experience success and failure, so do organizations. Collective resiliency is acquired by persistence in overcoming difficulties such as improving the skills of students with reading difficulty, resulting in improved standardized test scores. This may mean trying several different reading programs and interventions in order to learn from their experiences (Huber, 1996).

### *Vicarious Experiences*

Vicarious experiences provide opportunities for individuals and organizations to learn from each other (Huber, 1996). Administrators will call colleagues to ask how they may have solved a particular problem. As teachers attend best practice conferences and gather information on effective practices, they also gather efficacy relevant information as they see other individuals and organizations being successful. Vicarious learning experiences have the most impact when teachers and schools see others similar to themselves as being successful. The amount of similarity the model has with the teacher or organization influences the level of impact the success or failure of their performance has on the efficacy beliefs of the observer.

### *Social Persuasion*

Teachers and organizations are also influenced by social persuasion. Just as interactions occur between teachers in buildings, interactions occur between organizations. Networking at workshops, seminars, and staff development activities provides opportunities to influence change. Social persuasion can support persistence, which can lead to the organization's solving problems to improve students' achievement (Goddard, Hoy, & Woolfolk Hoy, 2000). Social persuasion may be formal or informal conversation in the hall or a scheduled conference. The strength of social persuasion is dependent on the credibility and integrity of the persuader (Bandura, 1986).

### *Affective States*

Teachers have feelings of nervousness, anxiety, stress, and excitement that can influence the level of efficacy for individuals and organizations.

Organizations react to emotions similar to individuals. Highly efficacious organizations have the coping skills and affective skills to adapt and cope in dealing with difficult or emergency situations while continuing to function.

Organizations with low collective efficacy may not react in a professional and productive manner and result in decreased student performance.

### *Cognitive Processes.*

Mastery experiences, vicarious experiences, verbal persuasion, and affective experiences serve as information sources in the development of self-efficacy and collective efficacy. It is cognitive processing and interpretation of the information, however, that determines how teachers and organizations will use the information. What teachers consider important and what they remember is what will be used to develop their efficacy beliefs. People filter information through their biases and pre-existing beliefs (Bandura, 1997). Teachers will use the information to analyze the teaching task and assess their teaching competence to develop and refine their teaching efficacy (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998).

### *Efficacy Judgments*

There are two key elements in the making teacher efficacy judgments, the analysis of the teaching task and assessment of teaching competence.

Teachers assess the difficulty of the teaching task, the resources, and

constraints and then they assess their personal competencies (strengths and weaknesses) in light of that teaching task to determine their teaching efficacy (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). An individual, comparing his or her abilities to the teaching task and assessment of personal teaching competence determines teacher efficacy. Assessment of teaching competence is not done only by staff evaluations, but by teachers making inferences and judgments about the faculty's instructional strategies, classroom management, and previous training. When teachers consider the goal of the teaching task and perceptions of the competence of the teaching staff in relation to each other, perceptions of collective teacher efficacy are formed (Goddard, Hoy & Woolfolk Hoy, 2000).

#### Characteristics of Schools with High Collective Efficacy

In highly effective and highly efficacious schools, teachers believe their students can reach high academic goals and set challenging benchmarks for them, deliver mastery instruction, and reward their behavior (Bandura, 1997). Schools with higher collective teacher efficacy had higher individual teacher efficacy beliefs (Fuller & Izu, 1986). Highly efficacious schools accept responsibility for their students' academic outcomes, as do teachers with high self-efficacy. As long as all schools serving low-income student were thought to be failing, they had an excuse for low collective teacher efficacy. Teachers in schools with high collective efficacy make no excuses for low student achievement such as ability, low socioeconomic status, or family background.

In Walberg's (1984) research on the effects of instructional factors on students learning outcomes, out of 35 items SES ranked 24<sup>th</sup> in effecting student outcomes. Teacher efficacy and collective teacher efficacy were not factors included in this research. Hoy and Sabo (1998) used multiple regression analysis to determine the influence of SES in school climate research. Two thirds of the variance was explained by independent variables, which was greater than the single predictor of SES. Few studies have examined the influence of collective teacher efficacy and SES has on student outcomes.

Schools with high collective teacher efficacy provide instruction for students who are below grade level or who are not mastering the skills needed to be successful in school. The interventions are designed to accelerate learning to correct deficiencies. Students assigned to low academic tracks foster perceived inefficacy in teachers and lowers the collective teacher efficacy of the school (Raudenbush, Rowen, & Cheong, 1992).

Other components of highly efficacious schools include instructional activities that increase student efficacy and student achievement. Interactive instruction provides that opportunity for students to master and manage their learning (Bandura, (1997). Classroom behavior is carefully managed to promote student achievement. Teachers, as a result, spend less time on behavioral issues and more time on academic instructional issues.

School environments are governed by teachers' attitudes and behavior that result in student achievement. Perceived self-efficacy goes beyond environmental issues. It influences attitudes, affective, motivational, and

behavioral aspects of teacher functioning within the school, and affects the social system within the school. Teachers with a strong self-efficacy create a positive school climate (Gibson & Dembo, 1984). Teachers with a strong sense of efficacy spend the majority of their time on academic activities and convey to their students a high expectation (Bandura, 1997; Gibson & Dembo, 1984). Certain aspects of school climate were found to impact teacher efficacy, including teacher empowerment, lack of barriers to effective instruction, principal influence with superiors, and high expectations for students (Moore & Esselman, 1992).

Collective teacher efficacy will be significantly impacted by the collaboration of the staff as they develop their beliefs and social systems within the school (Bandura, 1997). Most school organizations require a high level of coordination to provide a rich school climate and high student achievement. Not only must teachers work independently, they must also manage the instructional, motivational, interpersonal aspects of the school organization. Their perceived collective efficacy influences how well the staff performs work (Little & Madigan, 1994).

Teachers' sense of efficacy in part influences the degree of parental participation in their child's educational career. Teachers with high self-efficacy and schools with high collective teacher efficacy provide support to parents and seek them out as partners in the student's education (Bandura, 1997, p. 246). Communication between home and school is established by highly efficacious schools (Brandt, 1989).

In schools with high collective teacher efficacy, principals are instructional leaders seeking creative ways to improve instruction. Coladarci (1992) found strong academic leadership by the principal increases teachers' instructional efficacy. Leadership is critical to the development and maintenance of effective schools. Principals with good leadership skills are able to get their staff to work together to overcome difficulties encountered in improving student achievement (Bandura, 1993). Principals who displayed strong leadership, listened to teachers, and promoted innovative teaching had schools with higher collective teacher efficacy (Newmann et al., 1989). Principals with strong leadership styles have the skills to empower their staff to develop a collaborative effort to overcome difficulties that may impair student achievement. Principals who create a positive climate in their schools contribute to teachers increasing their beliefs in their teaching efficacy (Hoy & Woolfolk, 1993).

#### Efficacy Beliefs and Student Achievement

While the link between individual teacher efficacy and student achievement and student achievement has been demonstrated in a number of studies (Ashton & Webb, 1986; Anderson, Green, & Loewen, 1988; Ross, 1992), there has been relatively little research establishing the link between collective teacher efficacy and student achievement. Collective teacher efficacy may account for the differences between schools in student achievement. Teachers' belief in the school's efficacy as a unit was equally predictive of school performance as was teachers' belief in their own efficacy (Bandura, 1993).

Schools are complex social organizations where collective efficacy exists as a characteristic of the organization.

Teacher efficacy has been shown to be an important factor associated with student achievement. Ashton and Webb (1986), Ross (1992), and Anderson, Greene, and Loewen (1988) found teachers' sense of efficacy a factor related to student achievement. Armor et al. (1976) in a study in Los Angeles schools data indicated the higher the efficacy of teachers in the reading programs the higher the reading achievement of their students.

Aggregated teacher efficacy is associated with higher rates of parent participation (Hoover-Dempsey, Bassler, & Brissie, 1987), lower rates of suspensions and dropouts (Esselman & Moore, 1992), and teacher innovation and school orderliness (Newman, Rutter & Smith, 1989). Teacher behaviors are significant factors influencing student achievement (Wright, Horn, & Sanders, 1997).

Teachers shared beliefs influence the social environment of school (Hoy & Miskel, 1996). Hoy and Woolfolk (1993) found a relationship between high teacher efficacy and the health of the organizational climate. "Staff's collective sense of efficacy that they can promote high levels of academic progress contributes significantly to their schools' level of academic achievement" (Bandura, 1997, p 250). After controlling for student body characteristics, teacher characteristics, and prior school level achievement, teaching staffs with high collective efficacy achieve at the highest percentile ranks on national normed tests of language and mathematics (Bandura, 1997).

### Collective Teacher Efficacy and Student Achievement

Collective teacher efficacy is an emerging group attribute. As a group property it may be more influential than individual efficacy. A few studies have begun to establish the relationship between collective teacher efficacy and student achievement. Bandura (1993) found that stronger collective teacher efficacy better predicts student achievement in the school. He also found that, similar to Hoy and Sabo's (1998) work, when collective teacher efficacy is taken into account the impact of student characteristics such as SES on achievement are reduced.

There is a reciprocal relationship between collective teacher efficacy and student achievement. The school environment can affect teachers' belief in their efficacy to improve student achievement and increased student achievement can increase efficacy. "The belief systems of the staff also create an organizational culture that can have vitalizing or demoralizing effects on the perceived efficacy of its members" (Bandura, 1997, p. 248). Negative reciprocal relationships will lower teacher efficacy, student efficacy, and result in lowered student achievement. However, the opposite, a positive reciprocal relationship between student characteristics and school climate will enhance collective teacher efficacy and student achievement.

Low teacher efficacy is impacted by student transitions and administrative leadership. As students transitioned from elementary to junior high school there was a decline in collective teacher efficacy as a result of teachers believing that students had difficulty with schools transitions (Midgley, Feldlaufer, & Eccles

1989). Students who are taught by teachers with a low sense of self-efficacy have lowered performance expectations. Students who are having difficulty with their academic skills will continue to struggle if they receive instruction from teachers who have low teacher efficacy (Bandura, 1997). The principal of the school has the responsibility to enhance the collective efficacy of the school to facilitate higher teacher efficacy and thus student achievement.

Goddard, Hoy, and Woolfolk-Hoy (2000) and Bandura (1993) found that collective teacher efficacy is related to student achievement and collective teacher efficacy had a greater effect on student achievement than socioeconomic status. Hierarchical linear modeling (HLM) was used in this study to avoid aggregation bias, estimated standard errors, and heterogeneity of regression problems (Goddard, Hoy, & Woolfolk-Hoy, 2000) Collective teacher efficacy was shown to be an important predictor of differences among schools in student achievement (Goddard, Hoy, & Woolfolk-Hoy, 2000).

A significant positive relationship between collective teacher efficacy of the school and school achievement in 12<sup>th</sup> grade mathematics was found in a study of high school students in Ohio (Hoy, Sweetland, & Smith, 2002). When socioeconomic status was controlled for there was a positive relationship between collective teacher efficacy and school achievement in 12<sup>th</sup> grade mathematics. The greater the collective efficacy of a school, the higher the degree of school achievement in 12<sup>th</sup> grade mathematics (Hoy, Sweetland, & Smith, 2002). Research has shown collective teacher efficacy was positively associated with difference between schools student-level achievement in reading and

mathematics (Goddard, Hoy & Woolfolk Hoy, 2000). See Table 1 for summary of efficacy studies.

We have examined the characteristics and development of teacher efficacy, reviewed the constructs of teacher efficacy, and investigated research that has studied the relationship of teacher efficacy and collective teacher efficacy to student achievement. History provided a basis to explore and research the impact of collective teacher efficacy on student achievement. Research is beginning to reveal the possibility of a link between collective teacher efficacy and student achievement. Thus, there is a need to study the relationship between collective teacher efficacy and student achievement and to understand how the collective efficacy beliefs of a school impact the learning environment. Little research has been done on collective teacher efficacy. Results of research that has been completed on the relationship between collective teacher efficacy and student achievement has demonstrated a significant relationship. This research reveals that it may be an important, perhaps a critical factor in school organizations and student achievement. Increased knowledge of collective teacher efficacy may help educators improve students' academic performance. Collective teacher efficacy is an important school construct that needs further research to explain student achievement.

Table 1

*Summary of Efficacy Studies*

Chronological Account of Efficacy Studies	Instrument Used to Measure Efficacy	Teacher Efficacy Research	Collective Teacher Efficacy Research	SES Controlled in the study
Armor et al. (1976)	RAND Items PTE and GTE	x		
Rose & Medway (1981)	Teacher Locus of Control	x		
Gusky (1981)	Responsibility for Student Achievement RSA	x		
Gibson & Dembo (1984)	Gibson & Dembo Scale	x		
Ashton, Buhr & Crocker (1984)	Ashton Vignettes	x		
Ashton & Webb (1986)	Webb Efficacy Scale WES	x		
Anderson & Green (1988)	Gibson & Dembo Scale	x		
Ross (1992)	Gibson & Dembo Scale	x		
Gusky & Passaro (1994)	Modified Gibson and Dembo	x		
Allinder (1994)	Gibson & Dembo Scale	x		
Bandura (1997)	Bandura CTE Scale		x	x
Goddard, Hoy & Woolfolk-Hoy (2000)	Collective Teacher Efficacy Scale Short Form		x	x
Gresham (2001)	Combined Measures	x		x
Goddard & Goddard (2001)	Collective Teacher Efficacy Scale Short Form	x	x	x
Hoy, Sweetland & Smith (2002)	Collective Teacher Efficacy Scale Short Form		x	x

### Chapter 3 Methodology

The major purpose of this quantitative study was to determine if there is a relationship between collective teacher efficacy and the achievement of middle school students in the Commonwealth of Virginia as measured by the Standards of Learning (SOL) Tests. It was predicted that there would be a positive relationship between collective teacher efficacy and student achievement. The research also examined if collective teacher efficacy made a contribution the student achievement independent of SES. This study analyzed data collected from 49 middle schools in Virginia. Results of the research helps principals identify those factors in their school that can facilitate increased student achievement. Results of this study provide possibilities for school improvement through collective teacher efficacy.

#### *Research Questions*

1. What is the relationship between collective teacher efficacy and achievement of students taking the grade 8 mathematics test in the Commonwealth of Virginia as measured by SOL Tests?
2. What is the relationship between collective teacher efficacy and the achievement of 8<sup>th</sup> grade students in writing in middle schools in the Commonwealth of Virginia as measured by SOL Tests?
3. What is the relationship between collective teacher efficacy and the achievement of 8<sup>th</sup> grade students in English (reading/literature and research) in middle schools in the Commonwealth of Virginia as measured by SOL Tests?

4. Does collective teacher efficacy make an independent contribution to explaining the variance in student achievement on the grade 8 mathematics SOL test in the Commonwealth of Virginia when controlling for the SES of students in a middle school?

5. Does collective teacher efficacy make an independent contribution to explaining the variance in student achievement on the grade 8 writing SOL test in the Commonwealth of Virginia when controlling for the SES of students in a middle school?

6. Does collective teacher efficacy make an independent contribution to explaining the variance in student achievement on the grade 8 English (reading/literature and research) SOL test in the Commonwealth of Virginia when controlling for the SES of students in a middle school?

### Data Collection

#### *Sample*

The convenience sample was comprised of teachers from 49 middle schools in rural, suburban, and urban areas in the Commonwealth of Virginia. Surveys were administered at regularly scheduled faculty meetings. The unit of analysis was the school, so data were aggregated at the school level because collective teacher efficacy is assumed to be a school property.

#### *Procedures*

Superintendents of identified schools in the sample were called to ask permission to collect data in the middle schools in their school districts. Follow-up letters explaining the study were sent to superintendents with a copy of the

research prospectus (See Appendix A). Once permission was granted to collect data in the middle schools, principals were called to request permission to collect data in their schools. When permission was granted, the researcher arranged a time to attend a faculty meeting to administer surveys. A letter of confirmation and a summary of the project were sent to principals. During the administration of the survey, the researcher explained the purpose of the study, assured confidentiality, and asked that teachers complete the survey as honestly as possible. Teachers did not have to answer any item they were not comfortable with. Questionnaires were anonymous and to maintain anonymity, there were no identifying marks on the surveys. No attempt was made to gather data from teachers absent from the meeting. Data was compiled at the school level and school-level data collected was kept confidential. Data beyond the scope of this study was collected, therefore approximately one third of the faculty received a survey to assess collective teacher efficacy (See Appendix B).

#### **Instrumentation**

This study sought to explain the relationship between collective teacher efficacy and student achievement while controlling for the SES of students in middle schools. The Collective Teacher Belief Scale measured collective teacher efficacy and Virginia SOL tests measured achievement.

#### ***Independent Variable***

Collective teacher efficacy is the independent variable in this study.

**Constitutive Definition:** “Collective teacher efficacy is a construct measuring teachers’ beliefs about the collective capability of a faculty (not individual) to influence student achievement” (Goddard, Hoy & Hoy, p. 486).

**Operational Definition:** The results of the Collective Teacher Belief Scale measured collective teacher efficacy.

*Collective Teacher Belief Scale.* The Collective Teacher Belief Scale asked about teachers’ perceptions of collective teacher efficacy. It contained two subscales: instructional strategies and student discipline. Teachers were asked to rate items on a nine-point Likert scale with anchors at 1, 3, 5, 7, and 9 ranging from “nothing” to “a great deal.” Teachers were asked about their perceptions of the collective rather than their own efficacy beliefs. The following are examples of each subscale:

**Student Discipline:**

- How much can school personnel in your school do to control disruptive behavior?
- To what extent can school personnel in your school establish rules and procedures that facilitate learning?

**Instructional Strategies:**

- How much can teachers in your school do to help students master complex content?
- How much can teachers in your school do to promote deep understanding of academic concepts?

*Development of the Instrument.* This 12-item Collective Teacher Belief scale was developed as an adaptation of the Ohio State Teacher Efficacy Scale (OSTES) measure presented in Tschannen-Moran & Woolfolk Hoy (2001) (See Appendix C). The OSTES was developed during a seminar at Ohio State on Student and Teacher Efficacy Beliefs and was based on Bandura's teacher efficacy scale. In a pilot study with 69 teachers from 69 schools, the 12-item Collective Teacher Belief scale demonstrated reliabilities of .9034. The instructional strategies subscale had a reliability of .8965, and the student discipline subscale had a reliability of .8837. In a factor analysis, the 12 items loaded on one factor, with factor loading that ranged from .79 to .58. When two factors were specified, the rotated factors divided along the predicted content, with factor loadings on the 6 items in the instructional strategies subscale ranging from .78 to .67 and the 6 items in the student discipline subscale ranging from .78 to .64 (See Appendix C).

In this study with forty-nine schools, the 12-item Collective Teacher Efficacy Belief Scale demonstrated reliabilities of .97. The instructional strategies subscale had a reliability of .96 and the student discipline subscale had a reliability of .94.

#### *Dependent Variable*

Student achievement in mathematics, writing, and reading/literature/research is the dependent variable in this study.

**Constitutive Definition:** The level of academic attainment of middle school students in math, writing, and reading/literature/research in the Commonwealth

of Virginia. SOL tests are high-stakes tests developed to measure student achievement and facilitate high standards in Virginia Public Schools. A school's performance on the SOL test is the major component in the accreditation of public schools in Virginia.

**Operational Definition:** The results of the SOL tests measured student achievement for the purpose of this study.

*Virginia Standards of Learning (SOLs).* The SOLs for math, writing, and reading/literature/research were chosen as the basis for measuring student achievement because it is administered simultaneously to all middle school students in Virginia. The SOL Tests consist of a state-developed, criterion-referenced tests designed to measure student mastery of the academic content and skill in Virginia's Standards of Learning in mathematics, writing, and reading/literature/research. The SOL Tests were developed in response to the call for higher standards and increased accountability in the public school system.

The Virginia Standards of Learning provide a basic state curriculum and the Standards of Learning tests were developed by a Content Review Committee consisting of Virginia educators, Virginia Department of Education, and the test contractor (Cave, 1999). The SOL test questions are multiple-choice. Students read a question, problem, or passage and then select an answer from among four choices. Students taking the writing portion write a short paper on the topic given to the student when the test begins (VDOE, 1998). SOL tests were field tested in spring and fall of 1997 and statewide administration began in spring of

1998. Students in grades 3,5, and 8 were administered tests in reading, writing, math, science, and social studies. High school students took end-of-course tests in English 11, algebra I, algebra II, geometry, biology, chemistry, earth science, world history to 1000 A.D., world history from 1000 A.D., and US History. Beginning with students graduating in the 2004, Virginia students will need to pass six end-of-course tests for a standard diploma and nine end-of-course tests for an advanced diploma.

In June 1998, passing scores for the SOL tests were established by eight Standard Setting Committees consisting of educators from throughout the state. The first results of the initial administration in 1998 of the SOL tests resulted in 2.2% of the 1800 schools in Virginia being fully accredited. The 2001 administration resulted in 40 percent of Virginia school being fully accredited.

The validity of the SOL test is confirmed through the Content Review Committee process and the review of statistical information from field test administrators. Test reliability statistics address the degree to which the results of a test are dependable and consistently measure particular knowledge. The SOL test developers use Kuder-Richardson Formula #20 as the statistical measure of test reliability for all SOL tests except English: Writing, where person separation reliability was used. SOL tests KR –20 values for Grade 8 SOL Tests were as follows: English (reading/Literature & research) .87, Mathematics .92, Writing .82. The reliability coefficients above .80 are sufficiently high to justify use of the tests scores as a source of evidence concerning the knowledge and

skills of individual students on the SOLs (VDOE, 1998). SOL scores were aggregated at the school level using mean scaled scores.

#### Data Analysis

Collective teacher efficacy and student achievement data were aggregated at the school level. In order to answer the research questions, descriptive and inferential analyses were conducted. The Statistical Package for the Social Sciences (SPSS) was used to analyze the data. Correlations were calculated with Pearson  $r$  as the statistical analysis used to determine the relationship between collective teacher efficacy and the three tests of student achievement. Multiple regression analysis was completed to determine the combined and independent effects of collective teacher efficacy and SES on student achievement.

#### Generalizability

Although this was not a random sample, it was a diverse sample. The results of this study may be generalized with caution to other public middle schools in the Commonwealth of Virginia with similar demographic characteristics. The study does not include private schools, and therefore, the results of this study may not be generalized to schools other than public middle schools in the Commonwealth of Virginia.

#### Ethical Safeguards

The Human Subjects Institutional Review Board at The College of William and Mary reviewed the research proposal and gave authorization to conduct research. Executive summaries of the research results were provided to schools

participating in the study for dissemination to the staff of the schools. Principals chose to have their schools participate in the study and teachers had the option not to participate. Principals received results of their schools in a confidential manner.

## CHAPTER 4

### Results of Findings

This study investigated the relationship of teachers' perceptions of collective teacher efficacy and academic achievement of schools' students, and the impact of the schools' socioeconomic status on collective teacher efficacy and student achievement. Descriptive data, correlational analysis, and multiple regression analyses for these variables are presented.

As discussed in the previous chapters, collective teacher efficacy is "the perceptions of teachers in a school that the efforts of the faculty as a whole will have a positive effect on students" (Goddard, Hoy & Woolfolk-Hoy, 2000, p. 480). Collective Teacher Efficacy was measured by the Collective Teacher Efficacy Belief Scale, which included 12 items. Two subscales, instruction and discipline, were contained in the Collective Teacher Efficacy Belief Scale. Six of the items measured instructional strategies, and six measured student discipline. Teachers responded to these items using a nine-point Likert scale.

Collective teacher efficacy scores were collected from surveys administered at regularly scheduled faculty meetings between November 2001 and March 2002. Participation in the study was voluntary. Gaining permission to collect data proved to be a challenge because some school districts were conducting their own research and current instructional demands on teachers and principals allow little time for additional activities. The sample was comprised of 712 teachers from 49 middle schools in rural, suburban, and urban areas in the Commonwealth of Virginia. Only middle schools with grade

configurations of 5-8 or 6-8 were used in this study. Schools where there had been a change in the principal between the administration of the spring 2001 SOL tests and the collection of data were not included in this study because it was presumed that such a change would have an impact on the collective teacher efficacy beliefs.

Student academic achievement was measured by the schools' mean scaled score on the grade 8 math, grade 8 writing, and grade 8 English (reading/literature and research) Virginia Standards of Learning tests. The Virginia Department of Education provided the schools' mean scaled scores. In addition, the effect of socioeconomic status and collective teacher efficacy on student achievement was examined.

A school's socioeconomic status was measured by the percentage of students receiving free or reduced price lunch in the school. This measure of socioeconomic status is inversely related to actual socioeconomic status. For example, high SES in this study resulted in a high proportion of students receiving free and reduced price lunch. This information was gathered through the Virginia Department of Education's website. The free and reduced priced lunch mean for the forty-nine schools in this study was .37 with a range of .01-.94. The free and reduced priced lunch mean for the two hundred and sixty-one schools not included in this study was .33 with a range of .01-.86.

Analyses used the Pearson  $r$  to determine the relationship between collective teacher efficacy and students' achievement and multiple regression to

determine the combined and independent effects of collective teacher efficacy and socioeconomic status on school's student achievement.

The mean for collective teacher efficacy was 7.07 with a Standard Deviation (SD) of .50 and range of 5.7 - 8.3. The mean for the instruction subscale of collective teacher efficacy was 7.03 with a SD of .48 and range of 5.6 - 8.3. The mean for the discipline subscale of collective teacher efficacy was 7.11 with a SD of .55 and range of 5.9 - 8.3. On the Student achievement measures, the mean for the grade 8 math SOL test was 423.76 with a SD of 28.12 and range of 366.9 - 494.3. The mean for the grade 8 writing SOL test was 420.13 with a SD of 16.83 and range of 388.4 - 456.2. The mean for the grade 8 English SOL test was 431.64 with a SD of 30.73 and range of 364.3 - 493.9. See Table 2

Table 2

*Summary of Means and Standard Deviations for Collective Teacher Efficacy and Student Achievement*

	Mean	Standard Deviation	N	Range
Collective Teacher Efficacy	7.0723	.5026	49	5.7 - 8.3
CTE Instruction	7.0312	.4813	49	5.6 - 8.3
CTE Discipline	7.1135	.5531	49	5.9 - 8.3

	Mean	Standard Deviation	N	Range
Math SOL	423.767	28.124	49	366.9 - 494.3
Writing SOL	420.1347	16.8337	49	388.4 - 456.2
English SOL	431.643	30.727	49	364.3 - 493.9

### Findings for Research Questions

#### *Research Question #1*

What is the relationship between collective teacher efficacy and achievement of students taking the grade 8 mathematics test in the Commonwealth of Virginia as measured by SOL Tests?

The correlation between teachers' perceptions of collective teacher efficacy and student achievement on the grade 8 mathematics SOL test was found to be significant ( $r = .43, p < .01$ ). The correlation between teachers' perceptions of collective teacher efficacy instruction subscale and student achievement on the grade 8 mathematics SOL test was found to be significant ( $r = .36, p < .05$ ). Collective teacher efficacy accounted for 18% of the variance in student achievement on the grade 8 math SOL test. Socioeconomic status was related to student achievement ( $r = -.81, p < .01$ ) on the grade 8 math SOL test. The correlation between teachers' perceptions of collective teacher efficacy

discipline subscale and student achievement on the grade 8 mathematics SOL test was found to be significant ( $r = .46, p < .01$ ). See Table 3.

### *Research Question #2*

What is the relationship between collective teacher efficacy and the achievement of 8<sup>th</sup> grade students in writing in middle schools in the Commonwealth of Virginia as measured by SOL Tests?

The correlation between teachers' perceptions of collective teacher efficacy and student achievement on the grade 8 writing SOL tests was found to be significant ( $r = .53, p < .01$ ). Collective teacher efficacy accounted for 28% of the variance in student achievement on the grade 8 writing SOL test.

Socioeconomic status was related to student achievement ( $r = -.80, p < .01$ ) on the grade 8 writing SOL test. The correlation between teachers' perceptions of collective teacher efficacy instruction subscale and student achievement on the grade 8 writing SOL test was found to be significant at the at the ( $r = .48, p < .01$ ). The correlation between teachers' perceptions of collective teacher efficacy discipline subscale and student achievement on the grade 8 writing SOL test was found to be significant ( $r = .53, p < .01$ ). See Table 3.

### *Research Question #3*

What is the relationship between collective teacher efficacy and the achievement of 8<sup>th</sup> grade students in English (reading/literature and research) in middle schools in the Commonwealth of Virginia as measured by SOL Tests?

The correlation between teachers' perceptions of collective teacher efficacy and student achievement on the grade 8 English (reading/literature and

research) SOL tests was found to be significant ( $r = .38, p < .01$ ). Collective teacher efficacy accounted for 14% of the variance in student achievement on the grade 8 English SOL test. Socioeconomic status was related to student achievement ( $r = -.86, p < .01$ ) on the grade 8 English SOL test. The correlation between teachers' perceptions of collective teacher efficacy instruction sub scale and student achievement on the grade 8 English SOL test was found to be significant ( $r = .34, p < .05$ ). The correlation between teachers' perceptions of collective teacher efficacy discipline sub scale and student achievement on the grade 8 English SOL test was found to be significant ( $r = .40, p < .01$ ). See Table 3.

Table 3

*Correlation Analysis of Collective Teacher Efficacy*

	2.	3.	4.	5.	6.	7.
1. Collective Teacher Efficacy	.97**	.98**	.43**	.53**	.38**	-.25
2. Collective Efficacy for Instruction	.	.89**	.36*	.48**	.34*	-.21
3. Collective Efficacy for Discipline		.	.46**	.53**	.40**	-.27
4. Math SOL			.	.88**	.94**	-.81**
5. Writing SOL					.92**	-.80**
6. English SOL						-.86**
7. SES (Percent of student on free and reduced price lunch)						

\*\* $p < .01$

\* $p < .05$

Collective teacher efficacy was not related to socioeconomic status ( $r = -.25$ ). The collective teacher efficacy subscales, instruction ( $r = -.21$ ) and discipline ( $r = -.27$ ) were not related to socioeconomic status. The intercorrelation between collective teacher efficacy and the subscale for instruction was quite high ( $r = .97$ ,

$p < .01$ ). The intercorrelation between collective teacher efficacy and the subscale for discipline was also very high ( $r = .98, p < .01$ ). The intercorrelation between collective teacher efficacy subscales: discipline and collective teacher efficacy instruction was similarly high ( $r = .89, p < .01$ ). The intercorrelation between the grade 8 math and grade 8 writing tests was significant ( $r = .88, p < .01$ ). The intercorrelation between the grade 8 math and grade 8 English tests was significant ( $r = .94, p < .01$ ). The intercorrelation between the grade 8 writing and grade 8 English tests was significant ( $r = .92, p < .01$ ). See Table 3.

#### *Research Question #4*

Does collective teacher efficacy make an independent contribution to explaining the variance in student achievement on the grade 8 mathematics SOL test in the Commonwealth of Virginia when controlling for the SES of students in a middle school?

The regression analysis revealed that SES was found to be significant predictor of students' achievement on the grade 8 math SOL test ( $B = -.77, p < .01$ ). The inverse relationship indicates that as the number of students on free or reduced price lunch increases, student achievement decreases on the grade 8 math SOL test. Collective teacher efficacy does not make a significant independent contribution to student achievement, when controlling for SES ( $B = .16$ ). Collective teacher efficacy and SES account for 68% of the variability ( $R^2 = .68$ ) in student achievement on the grade 8 math SOL test. See Table 4.

Table 4

*Regression Analysis of Math SOL, CTE, and SES*

Dependent Variable and Predictors	Beta	R <sup>2</sup>	Standard Error
Math SOL		.68	15.43
Collective Teacher Efficacy	.16	.25	
SES	-.77**	.59	

\*\*p&lt;.01

*Research Question #5*

Does collective teacher efficacy make an independent contribution to explaining the variance in student achievement on the grade 8 writing SOL test in the Commonwealth of Virginia when controlling for the SES of students in a middle school?

The regression analysis revealed that SES was found to be a significant predictor of students' achievement on the grade 8 writing SOL test ( $B = -.73$ ,  $p < .01$ ). The inverse relationship indicates that as the number of students on free or reduced price lunch increases, student achievement decreases on the grade 8 writing SOL test. Collective teacher efficacy does make a significant independent contribution to student achievement in writing when controlling for SES ( $B = .29$ ). Collective teacher efficacy and SES account for 72% of the variability ( $R^2 = .72$ ) in student achievement on the grade 8 writing SOL test. See Table 5.

Table 5

*Regression Analysis of Writing SOL, CTE, and SES*

Dependent Variable and Predictors	Beta	R <sup>2</sup>	Standard Error
Writing SOL		.72	8.72
Collective Teacher Efficacy	.29*	.08	
SES	-.73**	.53	

\*\*p&lt;.01

\*p&lt;.05

*Research Question #6*

Does collective teacher efficacy make an independent contribution to explaining the variance in student achievement on the grade 8 English (reading/literature and research) SOL test in the Commonwealth of Virginia when controlling for the SES of students in a middle school?

The regression analysis revealed that SES was found to be a significant predictor of students' achievement on the grade 8 English SOL test ( $B = -.84$ ,  $p < .01$ ). The inverse relationship indicates that as the number of students on free or reduced price lunch increases, student achievement decreases on the grade 8 English SOL test. Collective teacher efficacy does not make a significant independent contribution to student achievement in English when controlling for SES ( $B = .10$ ). Collective teacher efficacy and SES account for 75% of the variability ( $R^2 = .75$ ) in student achievement on the grade 8 English SOL test. See Table 6.

Table 6

*Regression Analysis of English SOL, CTE, and SES*

Dependent Variable and Predictors	Beta	R <sup>2</sup>	Standard Error
English SOL		.75	15.91
Collective Teacher Efficacy	.10	.01	
SES	-.84**	.70	

\*\*p&lt;.01

\*p&lt;.05

## Summary

Student achievement is higher in schools where teachers have a higher sense of collective teacher efficacy. The analyses of data clearly show that collective teacher efficacy constructs are positively related to student achievement. The extent to which teachers in a school believe student achievement can be influenced by effective teaching is positively related to instruction and discipline. The significant intercorrelational relationships found between the subscales suggest that schools with highly efficacious teachers believe they can make a difference with their discipline and instruction strategies. The intercorrelational relationships between the student achievement on the math, writing, and English SOL tests indicate that if a student does well on one of the tests the student will do well on the other tests as well.

The relationship between collective teacher efficacy and student achievement was significant independent of SES on the grade 8 writing test. However, the relationship between collective teacher efficacy and student achievement on the grade 8 math and English test were not significant when controlling for SES.

## CHAPTER 5

A summary of the research findings and a discussion of these results are presented, theoretical, and practical implications are discussed, and recommendations for future research are provided.

### Summary of Findings

This study investigated the possible relationship between collective teacher efficacy and student achievement and whether the contribution collective teacher efficacy makes to student achievement is independent of SES. To analyze the relationship between collective teacher efficacy, student achievement, and the impact of the students' socioeconomic status, data were gathered using the Collective Teacher Efficacy Belief Scale administered at regularly scheduled faculty meetings. The Collective Teacher Efficacy Belief Scale contained two sub-scales: instruction and discipline.

Mean scaled scores for the grade 8 math, writing, and English SOL tests used to measure student achievement were gathered from the Virginia Department of Education website. Free and reduced price lunch information also gathered from the Virginia Department of Education website was used to determine the socioeconomic status of the school. The mean of students receiving free and reduced price lunch in the forty-nine middle schools was .37 with a range of .01-.94. The mean of students receiving free and reduced price lunch for the 261 middle schools not participating in the study was .33 with a range of .01-.86.

Forty-nine middle schools and 712 teachers in rural, suburban, and urban areas participated in the study yielding an adequate sample for providing statistically valid results. Approximately, 25% were rural, 25% were urban, and 50% suburban providing a representative sample of school communities in the Commonwealth of Virginia. It should be noted that the Virginia Standards of Learning Tests used to measure student achievement are criterion-referenced tests and comparison of the results to other research studies using different measures of student achievement presents a challenge. Results would suggest a significant relationship between teachers' perceptions of collective teacher efficacy and student achievement.

The findings are summarized as follows:

1. A significant relationship ( $r = .43$ ,  $p < .01$ ) does exist between teachers' perception of schools' collective teacher efficacy and the schools' student achievement on the grade 8 math SOL test.
2. A significant relationship ( $r = .36$ ,  $p < .05$ ) does exist between teachers' perception of schools' collective teacher efficacy instruction subscale and schools' student achievement on the grade 8 math SOL test.
3. A significant relationship ( $r = .46$ ,  $p < .01$ ) does exist between teachers' perception of schools' collective teacher efficacy discipline subscale and schools' student achievement on the grade 8 math SOL test.
4. A significant relationship ( $r = .53$ ,  $p < .01$ ) does exist between teachers' perception of schools' collective teacher efficacy and schools' student achievement on the grade 8 writing SOL test.

5. A significant relationship ( $r = .48$ ,  $p < .01$ ) does exist between teachers' perception of schools' collective teacher efficacy instruction subscale and schools' student achievement on the grade 8 writing SOL test.
6. A significant relationship ( $r = .53$ ,  $p < .01$ ) does exist between teachers' perception of schools' collective teacher efficacy discipline subscale and schools' student achievement on the grade 8 writing SOL test.
7. A significant relationship ( $r = .38$ ,  $p < .01$ ) does exist between teachers' perception of schools' collective teacher efficacy and schools' student achievement on the grade 8 English SOL test.
8. A significant relationship ( $r = .34$ ,  $p < .05$ ) does exist between teachers' perception of schools' collective teacher efficacy instruction subscale and schools' student achievement on the grade 8 English SOL test.
9. A significant relationship ( $r = .40$ ,  $p < .01$ ) does exist between teachers' perception of schools' collective teacher efficacy discipline subscale and schools' student achievement on the grade 8 English SOL test.
10. A significant relationship existed between student achievement and the schools' percentage of students receiving free and reduced price lunch in a school. Lower SES resulted in lower scores on the grade 8 math and English SOL tests. The relationship between collective teacher efficacy and student achievement on the grade 8 math and English SOL tests was not independent of SES.
11. A significant relationship existed between student achievement and the schools' percentage of students receiving free and reduced price lunch in

a school. Lower SES resulted in lower scores on the grade 8 writing SOL test. The relationship between collective teacher efficacy and schools' student achievement on the grade 8 writing SOL was independent of SES.

12. Lower SES resulted in decreased student achievement on the grade 8 math, writing, and English SOL tests.
13. There was no relationship between collective teacher efficacy and socioeconomic status.

### Discussion of Findings

These findings indicate a significant positive linear relationship between teachers' perceptions of collective teacher efficacy and student achievement as measured by the grade 8 math ( $r = .43, p < .01$ ), writing ( $r = .53, p < .01$ ), and English ( $r = .38, p < .01$ ) SOL tests given in the Commonwealth of Virginia. The findings of this study are consistent with the results of other studies of the relationship between collective teacher efficacy and student achievement (Bandura, 1993; Goddard, Hoy, and Woolfolk-Hoy, 2000; Hoy, Sweetland, & Smith, 2002). Results of the intercorrelations of the subscales on the Collective Teacher Efficacy Scale indicate that high collective teacher efficacy consists of high efficacy regarding instruction and discipline.

It should also be noted that intercorrelations of student achievement on the grade 8 writing SOL tests with all other variables are significant at the  $p < .01$  level and the significant correlation between collective teacher efficacy and student achievement is independent of SES. There is a greater correlation between student achievement on the grade 8 writing SOL test and

collective teacher efficacy, than the correlations between collective teacher efficacy and student achievement on the grade 8 math and English SOL tests, independent of SES. There may be additional intervening variables other than collective teacher efficacy, such as socioeconomic status impacting student achievement. Data analysis revealed that the lower the socioeconomic status the lower the student achievement.

Results indicate, with the exception of grade 8 writing SOL test, student achievement on the grade 8 math and English SOLs tests were not independent of SES. The impact of SES as an intervening variable on student achievement is notable. As the SES for the school decreased, student achievement also decreased. This finding is consistent with other research in this area. Bourke (1998) found that elementary schools in an urban school district in South Carolina with high percentages of students receiving free or reduced price lunch had lower scores in reading than other schools with a lower percentage of students receiving free or reduced-priced lunch.

Besides socioeconomic status and collective teacher efficacy, there may be other intermediary variables such as student behavior, school leadership, staff development, teacher training programs, and school climate that may impact student achievement that were not investigated in this study. Other researchers have studied other intermediary variables that may impact both student achievement and efficacy beliefs such as parental involvement (Hoover-Dempsey, Bassler, & Brissie, 1987), teacher training (Ross, 1992),

and high expectations for students or academic press (Hoy, Sweetland, & Smith, 2002).

An additional intervening variable may be teacher experience with writing instructional. Beginning in 1989, the Commonwealth of Virginia had a state assessment program entitled the Literacy Passport Test (LPT). The writing assessment for the LPT and the SOL are very similar. Some teachers have had training in teaching students how to write and are more familiar with the writing test than either the math or the English SOL test. Findings of a moderate correlation between collective teacher efficacy and student achievement on the writing SOL may occur because some teachers have had training in teaching writing or students have more exposure to proven instructional strategies in writing.

Other inconsistencies may impact the outcome of the study such as inflated teacher perceptions about collective teacher efficacy, length of teaching experience, teacher training programs, and professional development. Teachers reporting highly efficacious beliefs may have developed proven instructional strategies and classroom management methods that work for them in coping with a situation or environment they believe they cannot change (Anderson, Greene, & Loewen, 1988).

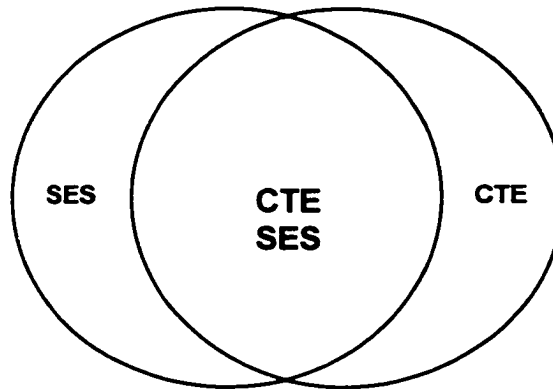
### Theoretical Implications

Results of this study provide additional evidence that teachers' perceptions about the capabilities of their faculties are related to student achievement. Bandura (1993) theorized that teachers' self-efficacy would impact

how they feel, think, act, and instruct students. These findings strengthen Bandura's theory, and may be used to study and examine the organizational behavior of schools. These findings are consistent with the proposition that collective teacher efficacy is a construct that supports student achievement (Goddard, Hoy, & Woolfolk-Hoy, 2000).

Results indicate that collective teacher efficacy makes a contribution to student achievement on the grade 8 writing SOL test independent of SES. However, analyses indicate the impact of socio economic status on student achievement. Socioeconomic status is an important variable when considering school achievement because it has been a strong indicator of student achievement (Coleman, 1966). Socioeconomic status and collective teacher efficacy accounted for 68% of the variance in student achievement on the grade 8 math SOL test, 72% of the variance in student achievement on the grade 8 writing SOL test, and 75% of the variance in student achievement on the grade 8 English SOL test. Socioeconomic status accounted for 65% of the variance in student achievement on the grade 8 math SOL test, 64% of the variance in student achievement on the grade 8 writing SOL test, and 74% of the variance in student achievement on the grade 8 English SOL test. Collective teacher efficacy accounted for 18% of the variance in student achievement on the grade 8 math SOL test, 28% of the variance in student achievement on the grade 8 writing SOL test, and 14% of the variance in student achievement on the grade 8 English SOL test. The overlap of the impact of socioeconomic status and collective teacher efficacy on student achievement may be seen in Figure 1.

Figure 1



Schools are social and psychological settings where collective teacher efficacy is constructed. Therefore mastery experiences, vicarious experiences, social persuasion, and affective states might be factors for schools to consider in improving collective teacher efficacy. A team of teachers who implement proven writing instructional strategies such as graphic organizers and teaching students to edit their work have mastery experiences when students' writing improves on assessment measures. Teachers have opportunities for vicarious learning experiences when teachers from one school visit another school where student achievement in writing is high. Teachers share writing activities and samples of student work and teachers are able to see what works in developing good writers and improving student outcomes. Social persuasion is a very powerful tool as teachers and principals network with high achieving schools to share strategies and discuss methods to improve writing scores. Schools may provide opportunities for staff and students to deal with stress of high stakes testing to increase efficacy.

Identification and understanding of the strength of the relationship between collective teacher efficacy and student achievement provides university teacher training programs, professional development programs, and administrative leaders with information that may assist in improving student achievement.

In Chapter 2, the relationship between collective teacher efficacy and student achievement was discussed. Goddard, Hoy, & Woolfolk-Hoy (2000) and Hoy, Sweetland, & Smith (2002) have documented that there is a relationship between teachers' perceptions of collective teacher efficacy and student achievement. This study also indicated a statistically significant relationship between teachers' perceptions of collective teacher efficacy beliefs and student achievement. However, when socioeconomic status was added to the equation collective teacher efficacy no longer made an independent contribution to explain the variance in student achievement on the grade 8 math, and English SOL tests.

#### Practical Implications

Results of this study yield insight into factors impacting student achievement. As suggested by Agne, Greenwood, and Miller (1994) research reveals that teacher beliefs can either help or hinder the learning process. Results are of practical significance because teachers and administrators find it is easier to change collective teacher efficacy in school than to influence the SES of the school (Hoy, Sweetland, & Smith 2002). Development of school norms that focus on high academic standards provide motivation to teachers and students. Because part of school improvement is determining how to create a

school environment conducive to improved student achievement (National Study of School Evaluation, 1997), then administrators may want to start with developing collective teacher efficacy as part of the norms and culture of the school. The relationship of collective teacher efficacy and student achievement may be reciprocal; collective teacher efficacy promotes higher student achievement however, higher student achievement may also promote increased collective teacher efficacy.

Bandura's sources of self-efficacy have practical applications for developing and increasing collective teacher efficacy and changing the culture of the school. Vicarious learning experiences include collaborating with other schools and attending conferences to see and learn about similar schools' successes in improving student achievement. Mastery experiences incorporate implementing proven instructional strategies. Verbal persuasion is an additional source of efficacy for teachers, who respect opinions of colleagues. Combined with models of successful instructional and positive experiences, verbal persuasion can have a positive influence on collective teacher efficacy beliefs (Bandura, 1997; Goddard, Hoy, & Woolfolk-Hoy, 2000).

Teachers who score high on the collective teacher efficacy scale may resist change because they believe they are improving student outcomes. Sometimes teachers think they are effective teachers, but their students do not receive good test scores. Teachers use instructional methods they are comfortable with but may not be proven methods to improve student performance. How are teachers encouraged to accept change toward effective

behaviors? Principals play a key role in developing the school culture (Hoy & Sabo, 1998). A strong positive school culture along with effective staff development would provide a foundation for the change process.

How accurate is the self-assessment of collective teacher efficacy? In the future, observations of and interviews with teachers in schools with high collective teacher efficacy would be a method of collecting data on efficacious teacher behaviors. Additional research could identify behaviors of teachers in schools with high collective teacher efficacy and high student outcomes. The result would be a concrete framework on behaviors of highly efficacious teachers.

Teacher training programs may review assignments and field experiences and provide opportunities for students to observe and work with master teachers in schools with high collective efficacy throughout their program to develop highly efficacious behaviors. Principals supervising first year teachers may find it beneficial to assign highly efficacious teachers as mentors to beginning teachers and provide teaching experiences that build their confidence.

The impact of SES is illustrated in this study. Schools, families, and communities need to work together to provide an optimal environment to help students overcome issues that impact negatively on academic achievement. Teacher, administrators, and all other school staff have opportunities to provide a learning environment that will be conducive to higher student achievement. Administrators could use these findings to improve and enhance collective teacher efficacy beliefs.

### Directions for Future Research

This research is one of only a very few studies on the impact of collective teacher efficacy and student achievement (Goddard, Hoy, & Woolfolk-Hoy, 2001; Hoy, Sweetland, & Smith, 2002). Additional studies are needed to clarify teachers' perceptions of collective teacher efficacy and to identify behaviors of highly efficacious schools that support a positive learning environment.

Also helpful would be further research investigating behaviors of teachers in schools with high collective teacher efficacy and accuracy of teacher perceptions reporting high collective teacher efficacy. Additional research should focus on behaviors of teachers in schools with high collective teacher efficacy, specifically relationships between teacher behaviors, collective teacher efficacy beliefs, and student achievement.

Subsequent research must take into consideration a potential gap between self-reporting method of collective teacher efficacy beliefs and actual teaching behaviors. Teachers may not accurately assess their own level of effectiveness in the classroom nor the capabilities of their colleagues in the school. Future collective teacher efficacy research may be strengthened by use of qualitative research such as observations, focus groups, and interviews of teachers and administrators. Research that would link student achievement to particular teachers would allow for direct relationships to efficacious teacher behaviors to be determined.

Continuation of collective teacher efficacy studies using the Collective Teacher Efficacy Belief Scale to provide validation, clarify the definition of collective teacher efficacy, and assessment of teachers' skills would strengthen the construct of collective teacher efficacy. The Collective Teacher Efficacy Belief Scale used in this study was developed based on Bandura's model for self-efficacy and is an adaptation of the Ohio State Teacher Efficacy Scale (Tschannen-Moran, Woolfolk-Hoy, & Hoy, 1998) to measure collective teacher efficacy.

Use of norm-referenced standardized tests to measure student achievement may provide a more consistent measurement and provide more useful data to study the impact of collective teacher efficacy on student achievement. Also research at elementary and high school levels would provide more insight into collective teacher efficacy and how it impacts on students in different grades and subjects.

Research examining the same variables as this study before and after professional development or teacher training programs could identify strategies to increase collective teacher efficacy. Schools with high levels of collective teacher efficacy should be studied in more detail to determine interactions and dynamics that promote high student achievement.

### Conclusions

These research findings are consistent with the research of Bandura (1993), Goddard, Hoy, and Woolfolk-Hoy (2001), and Hoy, Sweetland, & Smith (2002). The current research provides evidence that collective teacher efficacy

may impact student achievement. There were significant relationships between collective teacher efficacy and student achievement. Results of this study provide insight into factors impacting student achievement as measured by average mean scaled scores and schools' SES. However, only student achievement on the grade 8 writing SOL test was independent of SES. Student achievement on the grade 8 math and English test were not independent of SES. The use of more sophisticated statistical analyses may provide further insight to the relationships between collective teacher efficacy beliefs, student achievement, and SES. This particular study was limited to middle schools. Similar results may not be obtained in elementary schools or high schools.

Identification of and understanding the strength and relationship of collective teacher efficacy and student achievement provides principals, university certification programs, staff development programs, and school districts with information useful in developing teacher preparation programs and effective professional development, which may effect teacher and student performance and motivation. In this age of accountability and high standards, administrators may find that developing highly efficacious schools one contributing variable in increased student performance.

## Appendix A



The College Of  
**WILLIAM & MARY**

School of Education  
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Fax: (757) 221-2988

Megan Tschannen-Moran, Ph.D.  
Assistant Professor  
e-mail mxtsch@wm.edu  
(757) 221-2187

October 1, 2001

«Division\_Contact»  
«district\_Contact\_Title»  
«Division\_Contact\_Address»  
«Division\_Contact\_City»Virginia «Division\_Contact\_Zip»«Address»

Dear ,

I am writing to ask for your help. I am conducting a large study of middle schools in Virginia, along with several doctoral students at the College of William and Mary. The focus of this research is a set of variables that examines the quality of interpersonal relationships among the organizational players in schools. As schools face the challenge to adapt to changing expectations and conditions of schooling, it is our contention that the quality of these relationships will have a significant impact on a school's effectiveness. We will be examining the relationships between school climate, faculty trust, collective efficacy, organizational citizenship and teacher empowerment. Additionally, we will investigate the extent to which these variables are related to student achievement and overall school effectiveness. This study will make important theoretical advances in our knowledge of these constructs, as well as important contributions to our understanding of school effectiveness and equity.

Attached you will find a copy of the Research Prospectus for this study which includes a sample of one of the questionnaires. The study will be conducted between late October and the end of February of this school year. In exchange for participation, school principals will receive their individual school results in the form of a line graph, comparing their results with the total sample of schools using a scoring scale similar to the SAT or GRE (with a mean of 500 and a standard deviation of 100). These results can be used in the development of school improvement plans. A summary of the general results of the study will also be mailed to all participating schools next August.

Please take a moment to read the prospectus and determine your interest in participation in this research. A member of our research team will be contacting you in the near future to discuss your involvement. If you have any questions concerning the study, do not hesitate to contact me at (757) 221-2187.

Thank you for your time and consideration.

Sincerely,

Dr. Megan Tschannen-Moran  
Assistant Professor  
Educational Policy, Planning and Leadership

cc: «Personal\_Contact\_CC»

## Appendix B

**A STUDY OF SOCIAL PROCESSES IN SCHOOLS**

**Research Prospectus**

**Dr. Megan Tschannen-Moran**

**With**

**Jennifer Parish**

**Marilyn Barr and**

**Harriet Jaworowski**

**Thomas Beatty**

**The College of William and Mary**

**Patty Tresey**

**The Ohio State University**

## I. Problem Statement

As schools face the challenge to adapt to changing expectations and conditions of schooling, the quality of interpersonal relationships among the organizational players will have a significant impact on a school's effectiveness. The purpose of this research is to explore the relationships between school climate, faculty trust, collective efficacy, organizational citizenship and teacher empowerment. Additionally, we will investigate the extent to which these variables are related to student achievement and overall school effectiveness. This study makes important theoretical advances in the measurement of, and interrelationships among these constructs, as well as important contributions to our knowledge of school effectiveness and equity. This study is a follow-up and replication to a research project completed in 100 high schools in Ohio.

## II. Procedures

A. Design: This study is a quantitative investigation using three survey instruments that have been developed as a part of this project. In addition, principals will be asked to respond to a principal questionnaire. Data will be collected from a diverse sample of middle schools in Virginia representing urban, suburban, and rural divisions throughout the state

B. Data and Collection: Once approval has been received from building principals, we will request 15 minutes of time at a regularly scheduled faculty meeting or professional development date between October, 2001 and February, 2002 to administer the surveys to faculty. The researcher administering the surveys will explain the purpose of the study, assure confidentiality, and request that teachers complete the surveys in as candid a manner as possible. Faculty will be advised that they do not need to respond to any item that they are not comfortable answering. There are three alternating forms of the questionnaire. One-third of the teachers present will respond to each. Splitting the faculty into three groups ensures that the data collection will be done in 15 minutes. The responses to the questionnaires will be anonymous, no identifying marks will indicate which teachers have completed which questionnaires. Questions concerning demographic information about the school, such as number of students, racial and socioeconomic characteristics of the students (but not the school's name or address), will be included for the principal to complete along with a principal questionnaire. A sample of one of the questionnaires is attached.

C. Data Analysis: We are interested in the collective; the patterns, practices, and processes of interpersonal relationships within a school. Data on climate, trust, citizenship, efficacy, and achievement will thus be aggregated at the school level. Our interest is in the relationships between the constructs. Individual school scores will be calculated and shared confidentially only with the principals of participating schools for use in their school improvement efforts.

D. Time Schedule: We intend to begin data collection in October 2001. Faculty questionnaires will be administered in October through February 2002. Data analysis will begin in March. A general report of the results will be available in August.

### **III. Reporting and Dissemination.**

This research project will provide the foundation for several doctoral student dissertations in the School of Education at the College of William and Mary. The dissertations will focus on the relationships between the variables as well as how the variables relate to student achievement. Executive summaries of the general results will be provided to schools for dissemination to their professional staffs. The findings of these studies will also be presented at professional meetings and used to produce manuscripts for publication in scholarly journals.

### **IV. Personnel**

This study is being conducted by Dr. Megan Tschannen-Moran, assistant professor in the Educational Policy, Planning and Leadership Program in the School of Education, as well as doctoral students at the College of William and Mary, Jennifer Parish, Marilyn Barr, and Harriet Jaworowski. Dr. Tschannen-Moran can be reached at (757) 221-2187. The study will involve the faculty members and principals of over 90 middle schools in Virginia.

### **V. Implications and Benefits**

The problems schools face are difficult and complex. This is a large study with important implications as schools seek to adapt to changing sets of expectations in a diverse and rapidly changing world. This research concerns the quality of the social relationships in schools, and attempts to identify factors related to well-functioning schools. This study contributes to an understanding of the dynamics of school climate, trust, citizenship and efficacy in schools and the implications these have for student achievement. The norms calculated on the basis of this sample will enable other schools to use these instruments for their own self-assessment and improvement. It is hoped that greater understanding of the human dynamics in schools will lead to better training of future administrators and the cultivation of greater productivity in schools.

## Appendix C

## Social Processes in Schools Form AWM-01

**Directions:** Please indicate your level of agreement with each of the following statements about your school. Please use a No.2 pencil and fill in the bubbles completely.

**Directions:** Please indicate the extent to which you or the teachers in your school can manage each of the following situations.

How much can teachers in your school do?

- 55. How much can teachers in your school do to produce meaningful student learning?
- 56. How much can teachers in your school do to help students master complex content?
- 57. How much can teachers in your school do to help students think critically?
- 58. To what extent can school personnel in your school establish rules and procedures that facilitate learning?
- 59. How well can adults in your school get students to follow school rules?
- 60. How much can school personnel in your school do to control disruptive behavior?
- 61. How much can teachers in your school do to promote deep understanding of academic concepts?
- 62. How much can your school do to foster student creativity?
- 63. How much can your school do to get students to believe they can do well in school work?
- 64. To what extent can teachers in your school make expectations clear about appropriate student behavior?
- 65. How well can teachers in your school respond to defiant students?
- 66. How much can your school do to help students feel safe while they are at school?

67. What is your gender?    Male    Female

	Not at all	Very little	Some	Quite a bit	A Great Deal
55. How much can teachers in your school do to produce meaningful student learning?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
56. How much can teachers in your school do to help students master complex content?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
57. How much can teachers in your school do to help students think critically?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
58. To what extent can school personnel in your school establish rules and procedures that facilitate learning?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
59. How well can adults in your school get students to follow school rules?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
60. How much can school personnel in your school do to control disruptive behavior?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
61. How much can teachers in your school do to promote deep understanding of academic concepts?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
62. How much can your school do to foster student creativity?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
63. How much can your school do to get students to believe they can do well in school work?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
64. To what extent can teachers in your school make expectations clear about appropriate student behavior?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
65. How well can teachers in your school respond to defiant students?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
66. How much can your school do to help students feel safe while they are at school?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**For Office Use Only**

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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