

PRINCIPALS)LEADERSHIP BELIEFS: ARE PERSONAL AND ENVIRONMENTAL
INFLUENCES RELATED TO SELF-EFFICACY?

Gary D. Nye, B.S.Ed., M.Ed.

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APPROVED:

Judith Adkison, Major Professor

Ruth Silva, Minor Professor

Jimmy Byrd, Committee Member

Richard Fossey, Program Coordinator

Carol Wickstrom, Interim Chair of the Department
of Teacher Education and Administration

Jerry Thomas, Dean of the College of Education

Sandra L. Terrell, Dean of the Robert B. Toulouse
School of Graduate Studies

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The purpose of this study was to determine if there was a relationship between principal self-efficacy and personal characteristics, school conditions, and professional preparation among a selected group of Texas, public school principals. The survey instrument included the Principal Self-Efficacy Scale (PSES) developed by Tschannen-Moran & Garies in 2004, and other items. The survey instrument was electronically distributed to a random sample of 965 Texas, public school principals. From that population, 289 principals completed the survey for a response rate of 30%. Statistical Package for the Social Sciences (SPSS) was used for the analyses which included descriptive statistics, correlations, and analysis of variance. Additionally, factor analysis and reliability were calculated for the PSES.

The factor structure and reliability found in this study closely mirrored the results of earlier investigations, providing further support for the reliability and validity of the PSES. Out of 12 variables examined in relation to principal self-efficacy, a statistically significant relationship was found for gender, years of teaching experience, level, SES, parental involvement, and student discipline. However, all six of the statistically significant variables had a small effect size indicating limited practical significance. The results of this study support the need for continued research of principal self-efficacy beliefs. Principal self-efficacy research may help explain the relationships between effective principals and effective schools.

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CHAPTER I

INTRODUCTION

Over the past two decades, numerous reports have been issued providing recommendations on how to improve America's schools (Nicholson, Harris-John, & Schimmel, 2005). When the topic of improving schools is discussed, most arrows eventually point to the school principal. Leithwood and Reihl (2003) state that if you "scratch the surface of an excellent school...you are likely to find an excellent principal" (p. 5). Likewise, Barth (1986) reports that a growing body of literature suggests, "behind every successful school is a successful principal" (p. 156). Drake and Roe (2002) call the principal "the passport to success" (p. 3).

Despite these high expectations and the many difficulties and challenges of the position, there are principals who are determined to lead their campus to meet and exceed all state and national standards (Duke, 2004). On the other hand, there are other principals who point to factors outside of their control, such as student and campus demographics, as the primary determinant of student achievement (Paglis & Green, 2002). An emerging line of research that may help explain these differences is the concept of principal self-efficacy. A principal's self-efficacy beliefs are of interest because they are connected to the goals the principal sets for the campus, effort that is put forth, persistence in the face of adversity, and the overall motivation of the principal. Therefore, if a greater understanding of the principal's self-efficacy can be obtained, this insight may ultimately lead to a more thorough understanding of factors that lead to effective principals and eventually effective schools (Tschannen-Moran & Gareis, in press). In order to provide a greater understanding of the construct of self-efficacy, a brief review of Bandura's (1986) social cognitive theory will be given, followed by an overview of self-efficacy, and then move more specifically to principal self-efficacy.

Overviews

Social Cognitive Theory

The concept of self-efficacy stems from Albert Bandura's (1986) social cognitive theory. According to this theory, people are thought to be self-organizing, proactive, self-reflecting, and self-regulating, not just reactive organisms shaped by environmental forces. Bandura argued that peoples' beliefs are the primary determinate of their behavior and motivation.

A part of Bandura's (1986) social cognitive theory is the principle of reciprocal determinism, in which human functioning is described as a product of dynamic interplay of personal, behavioral, and environmental influences. Personal factors will inform beliefs, and beliefs in turn, will influence personal factors. Individuals are considered both producers and products of their environment (Bandura, 1986). Bandura's social cognitive theory and the concept of reciprocal determinism set forth the framework for the concept of self-efficacy.

Self-Efficacy

Self-efficacy is defined as the "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p.3). These beliefs are important because they are predictive of human behavior (Pajares, 1997). Bandura (1997) described how beliefs influence the courses of action people choose for themselves, how much effort they expend, how long they persevere in the face of adversity, and their level of accomplishment. Self-efficacy refers to a person's beliefs about his/her abilities and not merely the individual's actual skill set. The manner in which an individual chooses to use his skills is largely determined by the influence of efficacy beliefs on an individual's thought/cognitive process.

Bandura (1997) suggests that there are four sources of self-efficacy beliefs: mastery

experience, vicarious experience, verbal persuasion, and physiological arousal. *Mastery experiences* are those experiences in which an individual has participated and has thought to be successful. *Vicarious experiences* are developed from watching others perform a task. *Verbal persuasion* is information gathered from other individuals that express a capability of the person being addressed. And *physiological arousal* is eliciting of an affective reaction to an experience, whether it be mastery, vicarious, or verbal. The following section provides a review of the concept of self-efficacy operationalized within the context of the school principal.

Principal Self-Efficacy

A principal's self-efficacy is a judgment of his or her capabilities to structure a particular course of action that will lead towards the attainment of the campus goals (Tschannen-Moran & Gareis, 2004). Bandura (1994) found that highly efficacious individuals tend to be more willing to create and implement a change initiative, and have a more positive outlook on the outcome of the plan. Tschannen-Moran & Garies, 2004 argued that the principal's sense of efficacy plays a critical role in meeting the expectations and demands of the position. However, capturing the construct of principal self-efficacy has been an elusive task for researchers.

The majority of the instruments used to measure principal efficacy have been used only on single studies and they have not proved to be reliable and valid. As a result, no clear patterns in the research have been established. Tschannen-Moran & Gareis (2004) developed an instrument based upon the professional standards articulated by the Interstate School Leaders Licensure Consortium (ISLLC). From these standards three factors emerged; standards related to management aspects of the job, standards related to instructional leadership aspects of the job, and a third factor that was labeled moral leadership. While the results from this instrument have been reliable and valid, this instrument has only been used in two studies; therefore, no clear

patterns have been established.

Researchers have attempted to identify factors that influence the self-efficacy of principals but, as a whole, have generated mostly mixed results. There has been extensive research on self-efficacy however, the role of the principal has not enjoyed the same amount of attention from researchers leaving much to be learned about self-efficacy in relation to the principal.

Purpose of the Study

The purpose of the study is to add to the critical knowledge base dealing with the relationship between the principal's self-efficacy and its influencing factors. The research on principal efficacy to date has been limited and has mostly produced mixed results. Additionally, the measures of principals' efficacy beliefs have not all been reliable and valid. While Tschannen-Moran & Gareis (2004) have created a reasonably reliable and valid instrument, they make the point that further testing of the instrument is needed to verify that the factor structure remains stable across other populations.

Research Questions

The research questions that will guide this study are:

1. Do differences exist in principals' sense of self-efficacy in instructional leadership, management, and moral leadership based upon the demographic factors of gender, years of teaching experience, years of experience as a principal, and highest degree earned among a randomly selected group of Texas public school principals?
2. Do differences exist in principals' sense of self-efficacy in instructional leadership, management, and moral leadership based upon the school context factors of level, setting,

socioeconomic status, student discipline, and parental involvement among a randomly selected group of Texas public school principals?

3. Do differences exist in principals' sense of self-efficacy in instructional leadership, management, and moral leadership based upon the principal preparation program factors of years since obtaining certification, quality of professors' instruction, and the quality of experiences among a randomly selected group of Texas public school principals?

Significance of the Study

This study will contribute to the existing knowledge base of principal self-efficacy. There has been limited research on the construct of principal self-efficacy (Smith, Guarino, Strom, & Adams, 2006). Principal self-efficacy is a promising but largely unexplored construct for understanding principal motivation and behavior (Tschannen-Moran & Gareis, 2004). By conducting this research, a greater understanding of the factors that tend to be linked to a strong sense of self-efficacy will be gained. Secondly, the Principal Self Efficacy Scale (PSES) created by Tschannen-Moran (2004) will be factor analyzed to determine if the factor structure holds stable across other populations. At the completion of this research, there will have been four investigations using the PSES. Before the PSES, no survey instruments had been utilized in more than one study. The use of a consistent, reliable, and valid instrument may aid researchers in identifying patterns within the construct of principal self-efficacy.

The concept of principal self-efficacy also could have implications for principal preparation programs. Should the research identify factors that are related to high or low principal efficacy, this should warrant further investigation into the content of principal preparation programs. Principal self-efficacy could be useful to human resource administrators in their search and/or placement of school principals who will be efficacious to lead in school

improvement efforts. Practicing principals will be able to benefit from the study by using this information as a tool for their own self-reflection and professional growth. Additionally, school districts could use the study in relation to their principals' professional development programs. The districts could identify areas in which their principals have a high efficacy and areas in which their principals have a low efficacy, and from there develop a plan to build on the strengths and develop the weaknesses.

Limitations of the Study

The study may be limited by the following factors:

1. The results may suffer from the effects of common-source bias, since both dependent and independent variables are from a single survey and set of respondents.
2. Several of the questions ask the respondent to make a rating based upon their perception of that variable (e.g., perceived parental involvement; quality of instructors' instructional practices). This may or may not represent the actual parent involvement or the actual quality of the instructors' instructional practices rather it is their perception.
3. Data collection was limited to public school principals in Texas.

Delimitations

The data collected from the 965 Texas public school principals should be a representative sample of the state. The principals sampled were from various settings and levels from across the state of Texas, and generally speaking Texas could be considered to be a representative sample of the United States. Texas has rural, urban, and suburban settings that all have various ranges of socio-economic status. Texas has been a reform state for over twenty years, whereas, other states may be relatively new to the reform movement.

Definition of Terms

- Construct: A construct is a theory or concept.
- Instructional leadership efficacy: The ability to “...create a positive learning environment in your school; facilitate student learning in your school; generate a shared vision for your school” (Tschannen-Moran & Gareis, 2004, p. 579).
 - Management efficacy: The ability to “...handle the paperwork required of the job; prioritize among competing demands of the job; shape the operational policies and procedures that are necessary to manage your school” (Tschannen-Moran & Gareis, 2004, p. 579).
 - Moral leadership efficacy: The ability to “...promote ethical behavior among school personnel; promote school spirit among a large majority of the student population; promote a positive image of your school with the media” (Tschannen-Moran & Gareis, 2004, p. 580).
- Principal: In this study the principal is the administrator in charge of a public school.
- Principal Sense of Efficacy Scale (PSES): This is a measurement tool designed by Tschannen-Moran & Gareis (2004) to encapsulate the strength of efficacy for principals in the areas of management, instructional leadership, and moral leadership.
 - Reciprocal determinism: This is the concept that suggests that learning is the result of a dynamic interplay of personal, behavioral, and environmental influences. How people interpret the results of their own behavior informs and alters their environment and the personal factors they possess which, in turn, inform and alter subsequent behavior (Pajares, 2002).
 - School size: For this study social size refers to the total number of students enrolled in a school building.
 - School configuration: For this study school configuration refers to the grade level designations assigned to a particular school building such as K-5, 6-8, or 9-12.

- Self-efficacy: Self-efficacy is defined as “...people’s beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives” (Bandura, 1994, p. 1).
- Socio-economic status: For this study socio-economic status describes the economic level of a school building. In this study it is operationalized as the percentage of students who qualify for free or reduced lunches.
- Statistical Package for the Social Sciences (SPSS): This is a software package used for conducting statistical analysis.

Organization of the Dissertation

The dissertation is organized into five chapters. Chapter I includes an introduction, background, purpose of the study, research questions, significance, limitations, and a definition of terms. Chapter II is a review of current relevant literature. Chapter III details the research methodology and procedures used to complete this study. Chapter IV provides the presentation and analysis of data and Chapter V details the conclusions as well as recommendations for future study.

CHAPTER II

REVIEW OF LITERATURE

This chapter begins with an overview of the theoretical construct of self- efficacy. Following this overview, the construct will be discussed in terms of leadership and principal self- efficacy with the emphasis being on principal self- efficacy. Principal self- efficacy will first be discussed in terms of how this construct has been previously measured by researchers. The chapter will conclude with a detailed discussion of the available research on principal self- efficacy.

Self-Efficacy Overview

The concept of self- efficacy stems from Albert Bandura's (1986) social cognitive theory. Bandura (1986) advanced the view that humans are able to exercise a measure of control over their thoughts, feelings, and actions. People are thought to be self- organizing, proactive, self- reflecting, and self- regulating, not just reactive organisms shaped by environmental forces. Bandura argued that peoples' beliefs are the primary determinant to human behavior and motivation.

According to Bandura's (1986) social cognitive theory, an individual's belief structure is the mediator between knowledge and action, and, through the process of self- reflection, people are able to evaluate their own thoughts and actions. The manner in which individuals interpret the results of their own actions will alter and inform their future thoughts and actions. Human functioning is a product of a dynamic interplay of personal, behavioral, and environmental influences. Individuals are considered producers as well as products of their environment. This lays the framework for the concept of *reciprocal determinism*, the view that (a) personal factors in the form of cognition, affect, and biological events, (b) behavior, and (c) environmental

influences create interactions that result in a *triadic reciprocity*. For example, how people interpret the results of their own behavior informs and alters their environment and the personal factors they possess which, in turn, inform and alter subsequent behavior (Bandura, 1986).

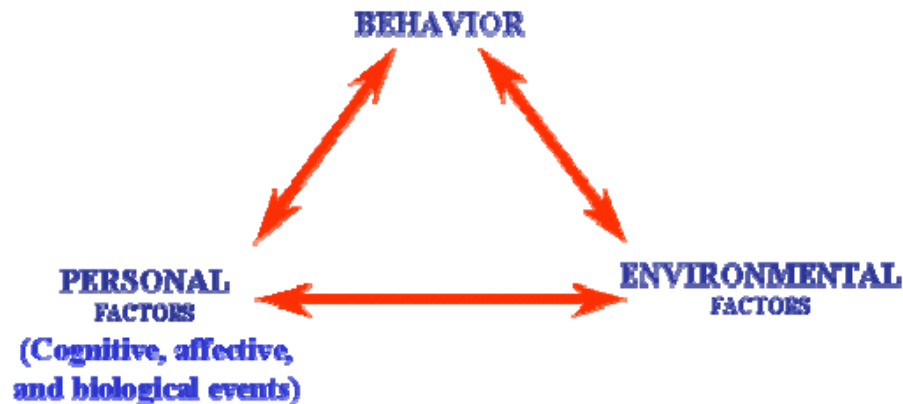


Figure 1. Bandura's model of reciprocal determinism (Bandura, 1986).

Leonard (2002) had the following to say about a person's interaction with their environment:

Individuals with high self-efficacy greatly influence, and are greatly influenced by their environment. They feel that they are influencing the environment and being positively shaped by it. Individuals with low self-efficacy feel that the environment is determining their behavior negatively, while they have little effect on any changes occurring in the environment. (p. 161)

Bandura's social cognitive theory and the concept of reciprocal determinism sets forth the framework for the concept of self-efficacy.

Self-efficacy is thus defined as the "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p.3). Bandura (1997) describes how beliefs influence the courses of action people choose for themselves, how much effort they expend, how long they persevere in the face of adversity, and their level of accomplishment. Similarly, Pajares (1997) views these beliefs are important because they are predictive of human behavior.

Self-efficacy refers to a person's beliefs about his/her abilities rather than the individual's actual skill set. When given a task, two people with exactly the same skills may reach different outcomes as a result of their personal self-efficacy beliefs:

Skills can be easily over-ruled by self-doubts, so that even highly talented individuals make poor use of their capabilities. By the same token, a resilient sense of efficacy enables individuals to do extraordinary things by productive use of their skills in the face of over-whelming obstacles. (Bandura, 1997 p. 37)

The manner in which an individual chooses to use his skills is largely determined by the effects of efficacy beliefs on an individual's thought/cognitive process.

Effects of Self-Efficacy Beliefs on Thought/Cognitive Processes

Many things may influence task performance, but the individual's cognitive process before, during, and after the event are a critical element. Bandura (1997) explained that self-efficacy strongly influences an individual's thought process, and, consequently, individual performance. More specifically he stated, "Efficacy beliefs affect thought patterns that can enhance or undermine performance" (p.116). Individuals with a high sense of self-efficacy for a specific task view these tasks as challenges that are likely to lead to a successful outcome. Conversely, when an individual focuses on personal short-comings, performance will likely follow this belief. As a result, beliefs can influence and impact outcomes. The cognitive process plays a role in predicting outcomes of various courses of action. As stated by Bandura (1997), cognitive processes and perceived self-efficacy "affect each other bi-directionally" (p.117).

It is helpful to identify elements that can increase the efficiency of the thought patterns (cognitive functioning) of the individual. One of these elements is the belief of whether *ability* is an *acquirable skill* or an *inherent aptitude*. When ability is viewed as an acquirable skill, there is a greater sense of control and influence over that particular skill, and a person facing a task is more likely to persevere through difficulties and view tough times as just a part of the learning

process. This is in comparison to the “you either have it or you don’t” line of thinking, a cognitive process that leads people to choose lower standards for themselves, because they feel they may have some sort of limitation that will prevent them from successfully completing the task. According to Bandura (1997), “People often forsake realizable challenges because they believe they require extraordinary aptitude. People see the extraordinary feats of others but not the unwavering commitment and countless hours of perseverant effort that produced them” (p.119).

Another cognitive belief that is important is the extent to which one believes he/she is able to exert control over his/her environment. A person who believes that individual efforts have little or no effect on their environment will do little to elicit any change even if he/she is capable of attaining the desired change. In contrast, a person who believes he/she can influence the environment will set high expectations and will persevere when difficulties arise (Bandura, 1997). In addition to thought processes, self- efficacy beliefs affect the goals an individual sets for himself.

Effects of Self-Efficacy Beliefs on Goal Setting

Bandura (1997) found that a person’s belief structure is the best predictor of the actions he/she will take throughout his lifetime. Without the belief that a person’s actions will produce the desired results, there will be little point to begin action. Beliefs of personal capabilities affect the goals people select and their commitment to them. The more capable that people judge themselves to be, the more challenging goals they set for themselves. In short, a person’s belief structure is tied very directly to the actions a person takes in life (Bandura, 1986).

As an example of this research, Zimmerman, Bandura, and Martinez-Pons (1992) examined the impact of self-efficacy on the academic goals that elementary students set for

themselves. Efficacy beliefs as well as students' grade goals and the goal aspirations that their parents had for them were measured at the beginning of the school year. The research concluded that there was a positive relationship between student self-efficacy and personal goal setting that accounted for 31% of the variance in final grades.

Effects of Self-Efficacy Beliefs on Effort and Perseverance

Bandura (1977) hypothesized that efficacy beliefs influence level of effort, persistence, and choice of activities. Individuals with a high sense of efficacy for accomplishing an educational task will participate more readily, work harder, and persist longer when they encounter difficulties than those who doubt their capabilities. An example of this persistence is demonstrated in an experiment in which a group of elementary students were given an unsolvable task (Zimmerman and Ringle, 1981). To affect the students' beliefs about the task, the researchers divided the students into two groups. One group observed other students who pretended to complete the task successfully. The other group observed students who modeled that the task was unsolvable. When the group of students who observed the optimistic model began their task, they continued to be more self-efficacious as demonstrated by their effort and persistence during problem solving as compared to the students who viewed the pessimistic model. Collins (1982) conducted an experiment showing the effects of efficacy beliefs on an individual's persistence. He first identified students as having a high or low self-efficacy towards mathematics, and then he placed each student within one of three levels based upon their actual mathematics ability. At all three levels of ability, the students who had a high self-efficacy score persisted longer and achieved a higher performance than the children of equal ability with a lower efficacy score. Collins summarized that the students' mathematics self-efficacy belief was a better predictor of mathematics achievement than actual ability in mathematics.

After reviewing research on efficacy beliefs and individual effort and persistence, Zimmerman concluded, “the overall findings of cross-sectional, longitudinal, and experimental studies are quite consistent in showing that beliefs in personal efficacy enhance effort and persistence in academic activities” (1995, p. 207). Given the impact of efficacy beliefs on the thought/cognitive process, goal setting, and effort and perseverance of an individual, it becomes important to understand the sources of self-efficacy beliefs. The following section discusses how these beliefs are acquired.

Sources of Self-efficacy

Bandura (1997) addressed the acquisition of self-efficacy, identifying four main sources of the individual’s belief system. The belief system is developed by experiences obtained by actually practicing or performing a task (enactive mastery), watching others (vicarious experience), receiving encouragement and/or feedback from others (verbal persuasion), and learning how to control psychological and emotional states so that they support, not jeopardize, an activity.

Enactive mastery is defined as the “experience overcoming obstacles through perseverant effort” (Bandura, 1997, p. 80). Enactive mastery is the most powerful of all the ways in which to improve self-efficacy. Accomplishing trivial and meaningless tasks rarely increases efficacy. While complex tasks can seem insurmountable and can lead to avoidance, nothing affects self-efficacy as strongly as actually completing a complex job and being successful at it (Bandura, 1986). This has important implications in the educational setting. For example, Schunk and Swartz (1991) taught a group of gifted fourth grade students a five step writing strategy. All of the students were then encouraged to utilize the writing process for their assignment, however one group of students were given feedback on their strategy applications whereas the other group

did not receive feedback. Only the group of students who monitored their strategy application and received feedback on the application use increased their perceived writing efficacy and writing achievement. The students with a high self-efficacy for the writing process also demonstrated a higher writing achievement. Additionally, the students with an enhanced sense of self-efficacy continued to use the writing strategies effectively in a follow-up assessment. Another source of self-efficacy beliefs is through vicarious experiences.

Vicarious experience is defined as learning “mediated through modeled attainments” (Bandura, 1997, p.86). Individuals may base their own understanding of a task based upon the success or failure of the person they observe (Bandura, 1982). This is especially important in the educational context where many academic concepts are first modeled (Zimmerman, 1989). For example, Schunk (1981) conducted a study with low-achieving students who observed an adult demonstrating a mathematic operation. After the demonstration this group of students verbalized the main cognitive strategies that they observed from the adult. A second group of students received instruction that involved step-by-step explanation of the same mathematical operations, but did not have an adult model the process. The students who observed and then verbalized the process acquired a higher sense of efficacy than the second group of students who only had a step-by-step explanation.

The power of modeling can be even more influential if the individual perceives himself to be similar in some way to the model. Attributes such as age, gender, ethnicity, education, and socioeconomic level tend to have strong influence over the power of modeling, even if these factors are not directly tied to the activity being modeled. However, this can be a negative factor if an individual places too much emphasis on any of these factors, especially if there are lingering doubts about their own ability (Bandura, 1997). Social comparison has a strong

influence on how people appraise their efficacy. For students, surpassing classmates can raise self-efficacy beliefs, whereas being outperformed lowers self-efficacy beliefs. Self-efficacy appraisal can vary based upon the talents of those used as a comparison. For example, students who observed a model perceived to be of equal or lesser ability fail at a task subsequently reported a lower self-efficacy towards that task themselves (Bandura & Jourden, 1991).

Self-efficacy can also be influenced by the psychological and emotional states of the individual. Because anxiety has both a cognitive and physiological component (Morris & Liebert, 1970), it can influence or diminish intellectual performance. When given a challenging task, the task will often evoke a psychological or emotional change within the person. This change may be interpreted as anxiety or maybe excitement. The person's interpretation of his/her psychological state is as important if not more so than the emotions themselves. People who demonstrate feelings of anxiety towards certain tasks tend to shy away from those tasks. The arousal of psychological states can be positive as well as leading to levels of arousal that can be energizing (Bandura, 1997). In the educational setting, learning is enhanced when it correlates with the mood of the individual. Negative moods are often associated with past failure or experiences that were unpleasant in nature. The opposite is also true for positive moods. Therefore, a person's mood affects the manner in which a person interprets and evaluates situations in life (Kavanagh and Bower, 1985).

Verbal persuasion is one of the final sources of self-efficacy. Through persuasive suggestion, people are led to believe they can successfully achieve a given task. Paglis & Green (2002) postulated that feedback in the form of encouragement and coaching from a supervisor may convince people that they are capable of doing more than they thought possible. This is

probably the most utilized source, yet least effective. Bandura (1994) noted that efficacy beliefs gained through verbal persuasion are “weak and short-lived” (p. 82).

In using verbal persuasion to increase an individual’s self-efficacy beliefs it is important to express faith in the person’s ability to accomplish the task. This will be especially effective if the person already believes this to be true (Petrovich, 2004). Statements of encouragement must be realistic and tend to be even more effective if they are specific to the nature of the task. Messages that are overly exaggerated or are too general in nature can actually undermine the confidence of the person (Bandura, 1997).

The impact of verbal persuasion is affected by characteristics of the receiver and the deliverer of a message. For example, people are more likely to trust advice given from a person who has skill in that area. Verbal persuasion is generally more effective when it is perceived that the person giving the advice has a higher skill level than the person receiving (Bandura, 1997).

Finally, it is important to point out that verbal persuasion can be useful in encouraging a person to believe in his/her ability, but eventually the person must believe in their self as a result of what they have done; “Mere pronouncements of capacity to shape the course of one’s life, without providing efficacy-affirming experiences along the way, become empty homilies” (Bandura, 1997, p.106).

In summary, the construct of self-efficacy was developed out of social cognitive theory. Bandura’s and other researchers show that self-efficacy beliefs influence the courses of action people choose for themselves, how much effort they expend, how long they persevere in the face of adversity, and their level of accomplishment. Given the significance of self-efficacy beliefs, researchers have begun to investigate how this important concept can impact the role of leaders and more specifically the school principal.

Leadership and Principal Self-Efficacy

Social cognitive theory, self-efficacy, and related concepts have been discussed in order to lay the theoretical framework for the study of leadership and principal self-efficacy. The following discussion will address leadership and principal self-efficacy with a majority of the emphasis on principal self-efficacy. The discussion on principal self-efficacy will be followed by a discussion of how principal efficacy has been measured in the research. The research conducted on principal self-efficacy will then be discussed in depth followed by a discussion of the domains of principal self-efficacy, factors related to principal self-efficacy, and an overall summary of the issues presented.

Leadership Self-Efficacy

Researcher's have examined the link between self-efficacy as a leader/manager, antecedents that shape these beliefs, and outcomes associated with self-efficacy beliefs. Paglis and Green (2002) conducted a study that attempted to link leadership self-efficacy (LSE) to a person's judgment relative to direction-setting, gaining commitment from followers, and working with others to overcome obstacles. Data came from surveys distributed to managers ($n = 150$) and their subordinates ($n = 415$) in a real estate and an industrial chemicals firm. The central hypothesis was that high LSE managers would engage in more leadership attempts, compared to those with low LSE. The term "leadership attempts" refers to the number of times the leader will directly engage with his/her subordinates in attempt to bring about a desired change in their behavior and/or thought process. The findings from Paglis and Green study largely support this view, as LSE/direction setting ($r = .21$) and LSE/gaining commitment ($r = .20$) were significantly correlated to leadership attempts. Also, several positive relationships were found between LSE and measured antecedents, including self-esteem ($r = .39$), subordinates

ability ($r = .46$), and job autonomy ($r = .58$). Although the construct of self-efficacy has been studied and is relevant to leadership positions outside of education, the focus of this literature review is related to education and specifically the principal.

Principal Self-Efficacy

The preponderance of research evidence in the field of education supports the conclusion that the principal is the most crucial individual determinant of whether a school is high performing or low performing (Jackson & Davis, 2000). For example, a task force designed to study school leadership reported to the National Conference of State Legislatures (2002) its conclusions that strong leadership in schools is essential for school reform to be effective and sustained. According to Valentine, Clark, Hackmann, & Petzko (2002), the principal's knowledge, insight, commitment, and leadership will significantly impact the manner in which the school faces challenges and achieves desired results. Although school improvement and reform can occur through various forums, the eventual success of any school initiative depends on the motivation and capacities of the school leadership (Leithwood, Louis, Anderson, & Wahlstrom, 2004).

It has been further argued that the principal's sense of self-efficacy plays a critical role in meeting the expectations and demands of the position (Tschannen-Moran and Garies, 2004). However, when it comes to understanding principal motivation and behavior, principal efficacy is a promising, but largely unexplored avenue. A literature review was conducted using the Educational Resource Information Center (ERIC) which contains more than 1,243,000 records and links to more than 224,000 full-text documents, Dissertation Abstracts, EBSCOhost, Education Research Complete, as well as a Google search for the topic. The key words used in the search include: "Principal Self-Efficacy", "Principal Efficacy", "School Leadership and Self-

Efficacy”, “Measuring Principal Self-Efficacy”, and “Studies Related to Principal Efficacy”. The review found nine reports of research on principal self-efficacy. The research thus far has not produced a body of consistent information about the construct. The following section first addresses how studies measuring principal self-efficacy have been measured then examines the research on principal self-efficacy.

Measuring Principal Self-Efficacy

Researchers have had a difficult time creating an instrument that can capture the concept of principal self-efficacy. Nearly all of the instruments seem to have problems in some form or fashion. As a result of problematic and inconsistent measurement tools, the highly important concept of principal efficacy has suffered in its ability to draw meaningful conclusions.

In the midst of the confusion on how to measure self-efficacy in general, Bandura (2001) offered some recommendations for the development of self-efficacy scales: Due to the context specific nature of self-efficacy, measures must be adapted that address the particular domains of functioning. The level and the strength of efficacy beliefs should be examined. Level refers to the varying degree of difficulty that each task presents. Strength of efficacy beliefs should be measured on a point on a continuum rather than an “all or none” format. Bandura’s recommendations provided a structure for the construction of self-efficacy measures. The measures that have been used to examine principal self-efficacy are examined below.

Hillman (1986) was the first to measure principal self-efficacy beliefs. The measure used individual responses to scenarios related to the principalship to determine a principal self-efficacy score. Principals’ were asked to respond to 16 scenarios and determine the probable cause for the outcome. For each scenario, the principal was given four response choices: the first choice attributing the scenario to the “natural ability” of the principal; the second to effort; the

third to the difficulty of the task; and the fourth to luck. This measure resembled two instruments that were used to measure teachers' sense of self-efficacy that were in use about the same time (Guskey, 1981; Rose and Medway, 1981), but none of the instruments gained much acceptance due to a cumbersome format and conceptual inconsistencies. The rigid format for the selection of responses made the analysis process difficult. In addition, this measure more closely aligned with attribution theory than with social cognitive theory (Tschannen-Moran and Woolfolk Hoy, 2001). Attribution theory relates to individuals judgments of the causes of their successes or failures and may determine their expectancies for future performance (Weiner, 1985). Even though some researchers (e.g., Schunk, 1981; Schunk and Cox, 1986) have shown that attributional feedback can influence perceptions of efficacy, attribution theory is a different construct than self-efficacy. In essence, self-efficacy judgments differ from attribution theory because they are task- and context-specific and focus exclusively on ones' perceptions of capability (Zimmerman & Cleary, 2006).

Imants and De Bradbender (1996) developed a principal efficacy measure designed to measure perceived self-efficacy and teacher efficacy in pupil and school-orientated tasks. In this measure the principal, as well as, the teachers were asked to respond to a variety of items half of which were centered around student orientated tasks and the other half centered around school orientated tasks. The responses were recorded on Likert scale. The literature gave no mention of specifically how the student and school orientated tasks were selected for the study, however as might be suspected, teachers generally responded favorably to pupil orientated tasks, whereas, principals responded more favorably to school orientated tasks. The validity of this measure was not demonstrated in the research.

Dimmock and Hattie (1996) developed an instrument to measure principal self-efficacy. In their effort to create a principal self-efficacy instrument, vignettes of situations a principal might encounter at school were created. Initially, this instrument was generated in Australia, but was adapted to better suit situations a principal might face in the context of American schools. The vignettes of situations were categorized into six areas of principal responsibility: school development planning; teaching, learning and curriculum; managing staff; budgeting; managing parents; and managing the environment. The responses to the vignettes were scored on a ten point Likert scale ranging from “totally not confident” to “totally confident”.

Tschannen-Moran & Gareis (2004) conducted a study with 104 high school principals and assistant principals from schools throughout Ohio. The Dimmock & Hattie (1996) instrument was analyzed using a principal axis factor analysis factoring with Varimax rotation. The commonalities were low ranging from .21 to .44, and of the nine items only four reached the minimally acceptable level of .40. The Cronbach’s alpha reliability for the nine-item instrument was .77, but the item-total correlations were low, ranging from .34 to .61.

The instrument did measure the *level* and *strength* of various task specific situations as recommended by Bandura (2001), and the reliability coefficient is higher than .70 which meets Stevens (2002) recommendations for a minimally acceptable level. However, due to low commonalities and the low item-total correlations the usefulness of the Dimmock & Hattie (1996) instrument can not be clearly established.

Goddard, Hoy, and Woolfolk Hoy (2000) created a teacher self-efficacy scale, and this instrument was adapted to measure principal self-efficacy. The 22 item scale assessed the principal’s analysis of the tasks centered around common responsibilities of the position. Sample items include: I have the skills needed to be an effective principal; I can motivate difficult

teachers to support the school; The quality of support in this district really facilitates my leadership. A six-point Likert scale ranging from 1 = strongly agree and 6 = strongly disagree was utilized to gather responses. Tschannen-Moran & Garies (2004) conducted a study of this instrument using a sample of 104 Ohio high school principals and 53 middle school principals in Virginia. This instrument was analyzed using a principal axis factor analysis factors with Varimax rotation. The communalities were low ranging from .21 to .65 with eight factors falling below .40. Seven factors emerged from the 22 item instrument, but the three strongest factors only accounted for 42 percent of the variance. Cronbach's alpha for reliability for the 22 items was .79 which meets Stevens (2002) recommendation of a minimally acceptable level.

As found in Dimmock and Hattie (1996), the low communalities are problematic for this instrument. Additionally, the basis for generating the items on the above mentioned scales were based upon the researchers perceptions of tasks a principal might encounter as opposed to national leadership standard in which all principals. Neither the validity nor the reliability of the instrument could be clearly established, as a result, this instrument will suffer from providing truly meaningful or useful results to the concept of principal self-efficacy. No published research has been produced from this instrument.

In the search for an appropriate measure to assess principal efficacy, Tschannen-Moran & Garies (2004) created a principal efficacy scale modeled on the Teacher Sense of Efficacy Scale (TSES) (Tschannen-Moran and Woolfolk Hoy, 2001). The 18 item scale addressed the principal's assessment both of their level of competence and the difficulty of the task. The instructions directed the participants to "Please respond to each of the questions by considering the combination of your current ability, resources, and opportunity to do each of the following in your present position." A nine point Likert scale ranging from 1 = none at all, 3 = very little, 5 =

some degree, 7 = quite a bit, and 9 = a great deal was utilized to gather responses. The items on the 18 point scale were based largely on the standards developed by the Interstate School Leaders Licensure Consortium (ISLLC).

Tschannen-Moran & Gareis (2004) conducted a study using a sample of 544 principals from public schools across Virginia. The instrument was analyzed using principal axis factor analysis factoring with Varimax rotation. Three factors emerged with all factor loadings ranging from .42 to .82. The three factors explained 59 percent of the variance. In addition, construct validity was tested to other known constructs (work alienation, $r = -.45$; trust in teachers, $r = .42$; trust in students and parents, $r = .47$).

This instrument seems to be a promising approach to measuring principal efficacy. All factor loadings were above .40 ranging to as high as .82, and the construct validity of the instrument was established. Due to the context specific nature of the questions, the PSES also most closely follows Bandura's recommendations (2001) on the development of self-efficacy scales.

Smith and Guarino (2005) created the Principal Self-Efficacy Survey (PSES). This instrument, measured on a 1 to 4 Likert Scale, is a fourteen-item inventory assessing principal self-efficacy in two domains (Instructional Leadership and Management Skills). The fourteen items were generated from recommendations from principals in the field and the research literature. The instrument was tested on 284 principals from 12 different states. Factor analysis revealed that two factors emerged (instructional leadership and management) with the factor loadings ranging from .44 to .77. The root Mean Square Error of Approximation (RMSEA), used to measure population discrepancy, achieved a value of .049 indicating a close fit between the sample coefficients and the estimated population coefficients. The correlation between the two

factors was .69, demonstrating discriminant validity. Cronbach's alpha was used to measure internal consistency and determined coefficients of .74 and .86 for Management and Instructional Leadership practices, respectively.

Smith and Guarino (2005) seemed to have developed a valid instrument. This instrument also follows Bandura's (2001) recommendations for scale development. As also demonstrated in Tschannen-Moran & Gareis (2004), the factor loadings were all above .40 and the Cronbach's alpha met the minimally acceptable level. A significant difference between the two instruments lies on how the questions were generated. Tschannen-Moran and Gareis (2004) based the questions largely on the ISLLC standards and input from a panel of experts from various leadership positions in the field. As mentioned previously, Smith and Guarino (2005) developed their items based on the knowledge of principals in the field and the research literature. No specifics were given in regards to the research literature used to develop the questions. Both instruments incorporated the important elements of instructional leadership and management, but the Tschannen-Moran & Garies (2004) instrument also incorporated the principals' self-efficacy beliefs to a third factor termed moral leadership. The studies generated from the previously mentioned instruments will be discussed in detail below.

Studies Related to Principal Self-Efficacy

The majority of the instruments used to measure principal efficacy have not been consistent nor have they been proven over time to be reliable and valid. As a result, much of the available research is based upon single studies from mixed instrumentation. Researchers have examined principal self-efficacy and school and personal characteristics and links between self-efficacy and leadership behaviors, efforts to change their schools, teaching effectiveness in the school, and student achievement. This research is examined in detail below.

DeMoulin (1992) used the Career Awareness Index (CAI) in attempt to measure principal self-efficacy in a sample of 212 principals through the mid-south and northeastern educational service regions. The CAI is a 100 question instrument divided into three parts. Part one evaluates performance attributes (day-to-day interests, short range concerns, or attention to detail). Part two is a character assessment. Part three, which is used as the basis for this study, measures the relationship of motivation, confidence and stress, and measures a perceived level of self-efficacy. The self-efficacy range goes from 0 to +30 (positive self-efficacy) and from 0 to -40 (negative self-efficacy). A higher number on the scale indicates a higher self-efficacy. The study gave no mention to how the reliability or validity of the instrument was determined.

DeMoulin (1992) used the Instrument Summary Assessment Program (ISAP), a computer scoring system specifically designed to analyze CAI instruments, to analyze the data. The mean self-efficacy scores of elementary, middle, and high school principals were computed and analyzed using a One-Way Analysis of Variance. The post hoc analysis revealed that elementary school principals had a higher efficacy than middle school principals.

The survey instrument also collected data on fourteen personal and school related variables. The fourteen variables were factor analyzed with orthogonal rotation. The factors were pre-determined to correspond with divisions within the CAI efficacy range (7 to 30 high efficacy; -4 to 6 moderate efficacy; -5 to -40 low efficacy). A factor matrix was designed to illustrate the relationship between the variables and perceived level of self-efficacy of the principals (DeMoulin, 1992).

High self-efficacy was reported for elementary principals who had minimal additional duty assignments and used few sick days. In contrast, low self-efficacy was associated with low salary, high student enrollment, high number of extra duty assignments, and a high number of

sick days used. For middle school principals, high education level, low number of additional duty assignments and few sick day used were positively associated with high efficacy, while low salary, high building populations, long travel times, high additional duties, and high number of sick days used were associated with low efficacy. Finally, for high school principals, education level, duty assignments, and sick days used were all associated with high efficacy. Low salary, high building populations, high number of additional duty assignments, and high number of sick days were all associated with low efficacy (DeMoulin, 1992).

High-efficacy principals across all three education levels reported that they had minimal extra duty assignments and used fewer sick days. Low-efficacy principals across all three levels reported that they had lower salaries, higher building populations, a high number of extra duty assignments, and used a high number of sick/personal days (DeMoulin, 1992).

A significant weakness of this study was that a reliable and valid principal efficacy instrument was not utilized. Instead, it used a small part of the Career Awareness Index (CAI) which was not specifically designed to measure principal self-efficacy. Without the use of a valid principal efficacy instrument it is difficult to determine if the results are appropriate, meaningful, and/or useful in understanding principal self-efficacy.

Lyons and Murphy (1994) surveyed 121 elementary, middle, and high school principals in a large metropolitan area in a western state. The survey based upon (Hillman, 1986) was designed to measure principal self-efficacy and the use of various power bases. The authors point out that the sixteen question instrument was comprised of eight subscales which were summed to create one self-efficacy score, however the specifics of the eight subscales were not mentioned. The demographic variables of age, gender, level, and the number of courses taken in the area of leadership were not found to be related to self-efficacy. Correlations were calculated using the

Pearson product-moment correlation formula to establish relationships between principal self-efficacy and power bases. Findings from the study concluded that efficacy was positively related to expert ($r = .49, p = .05$) and referent power ($r = .39, p = .05$) and negatively related to legitimate ($r = -.46, p = .05$), coercive ($r = -.45, p = .05$), and reward power ($r = -.42, p = .05$). More specifically, it was concluded that high self-efficacy was associated with internal use of power ($r = .49, p = .05$) when carrying out their instructional leadership role. External use of power was more likely to increase the longer the principal stays at one assignment.

Lyons and Murphy (1994) used an instrument (based on Hillman, 1986) designed to measure principal efficacy. However, as mentioned previously this measure more closely aligned to attribution theory than with social cognitive theory (Tschannen-Moran & Woolfork Hoy, 2001). No other study has used this instrument since Lyons and Murphy (1994). This study does use similar demographic variables (age, gender, level, years of experience as a principal, and number of leadership course taken) as was utilized by this researcher. However, when using the Pearson product-moment correlation none of these variables were found to be related to principal efficacy. Due to the fact that all of the research items of this instrument do not reflect principal efficacy, these results may not necessarily be useful for subsequent principal efficacy research.

Osterman and Sullivan (1996) took a step away from survey instruments and conducted a qualitative study by interviewing 12 newly appointed principals in the New York City public schools. The researcher analyzed the responses and determined the self-efficacy of the principals' based upon if they gave an optimistic or pessimistic response to the questions. Those categorized as high self-efficacy gave responses that were optimistic and positive, whereas, those categorized as low efficacy gave responses of pessimism, anxiety, and personal failure.

The study was designed to investigate the personal and organizational factors that support or restrict their effort to bring about school change. The authors concluded that external and internal factors interact to influence leadership behaviors. The most striking differences between the principals with high and low efficacy related to problem-solving processes. High-efficacy principals were found to be more flexible and adaptable, more likely to use collaboration in the change process, and more persistent in pursuing their goals (Osterman and Sullivan, 1996).

When comparing principals with high and low efficacy, personal efficacy was unrelated to socioeconomic status of the school or district, previous academic success, or the school size. The principals that reported the highest sense of efficacy also reported having had experience with a successful role model. High efficacy principals also reported they had a clear understanding and acceptance of district goals and expectations, and that they identified multiple sources of support within the school and district (Osterman & Sullivan, 1996).

Osterman & Sullivan (1996) conducted an in-depth analysis of these 12 principals in relation to their perspectives of factors that support or restrict their efforts to bring about school change. At the time of this literature review (2008), this was the only qualitative study of principal self-efficacy. This study provides further support to Bandura's (1997) theory that individuals with high self-efficacy are more persistent in pursuing their goals. However, due to the specific nature (twelve, urban, first year principals) of this study, there is a limited ability to generalize these results to the empirical study conducted by this researcher.

Lucas (2003) examined the development of leadership self-efficacy of 89 principals in a Midwestern state. *Turning Points 2000* provided the conceptual framework for the study. The publication of *Turning Points 2000: Educating Adolescents in the 21st Century* (Jackson & Davis, 2000) presented some key elements of middle school level reform. Some of the

recommendations from *Turning Points 2000* included: teaching a grounded curriculum, instructional methods, staffing middle level schools, organizing relationships, safety of school environment, and parent and community involvement. Other than making a reference to Bandura's (1997) comments on measuring self-efficacy and mentioning the importance of *Turning Points 2000*, the report did not specify how principal self-efficacy was measured or determined.

The following information was collected: school characteristics (levels, enrollment, percent of students receiving free or reduced lunches, number of teachers on the faculty), principal demographics (gender, age, ethnicity), principal education (year of graduation, major, minor, institutions for degrees), principal certification, principal's professional experience, and the principal's leadership self-efficacy. The data reported were correlations between different variables and recommendation areas of *Turning Points 2000*. Significant positive correlations were found between school enrollment ($r = .22, p < .05$), size of teaching faculty ($r = .24, p < .05$), percentage of students receiving free or reduced lunch ($r = .26, p < .05$) and principal leadership self-efficacy. Years experience as a principal, total years in education, and years in middle level showed no significant correlations, however a significant correlation was found between the principal's age ($r = .24, p < .05$) and leadership self-efficacy.

Again, the study did not use a reliable and valid research instrument. Lucas (2003) utilizes *Turning Points 2000* as the conceptual backbone of the study. According to Lucas (2003), *Turning Points 2000* has "much potential for both productive practice and research" (p. 5), however, this does not necessarily make a valid measure for principal efficacy. The study was of interest because similar variables were used (principal demographics, school demographics and principal education), and the Pearson product-moment correlation was used to determine if

relationships exist between the variables and leadership self-efficacy. The study had a relatively small sample size ($n = 89$), but the primary weakness was the way the researcher measured principal efficacy.

As a part of the development of their Principal Self-efficacy Scale (PSES), Tschannen-Moran and Garies (2004) conducted a study of 544 principals from public schools across Virginia. As mentioned previously, the instrument was subjected to factor analysis and construct validity tests. Correlations were calculated between principal sense of self-efficacy and demographic variables of gender, race, SES, years at the school, and years of administrative experience. Principals also responded to the question of whether they would become a principal if they had it to do all over again. White principals had a slightly higher ($r = 0.09, p < 0.05$) self-efficacy than black principals, there was a significant but small positive relationship ($r = 0.17, p < 0.01$) between self-efficacy score and principals' willingness to "do it all over again" Tschannen-Moran & Gareis (2004).

A key conclusion was that the instrument was determined to be a valid and reliable measure for the construct of principal efficacy. The authors cautioned that "future studies should include factor analysis to explore whether the factor structure found in this study is stable across studies in other populations" (p. 582).

Aderhold (2005) conducted a study, using the PSES created by Tschannen-Moran & Gareis (2004) that examined the relationship between elementary principals' self-efficacy and student achievement in reading as measured by standardized achievement tests administered during the 2003-2004 school year. Instructional leadership behaviors, and personal and school demographic characteristics were also measured. The survey was mailed to 241 public school elementary principals in South Dakota and 165 were returned. The information from the survey

yielded four scores for each principal respondent: efficacy for management, efficacy for instructional leadership, efficacy for moral leadership, and instructional leadership behavior. Twelve demographic characteristics were obtained from the survey and used in the data analysis. The study could find no significant relationships between principal self-efficacy and student reading achievement or personal demographic factors (gender, teaching experience, principal experience, degree). After determining the results of *t* tests, class size ($p = .020, p < .05$), school configuration ($p = .021, p < .05$), and school improvement status ($p = .007, p < .001$) were all found to be significantly related to principal efficacy.

The most significant finding of the study was the correlation between perceived leadership self-efficacy and perceived leadership behaviors ($r = .701, p < .01$). The six questions assessed the principal's leadership behaviors and were summed to create a single score. The leadership behaviors surveyed related to providing feedback to teachers about their teaching, lead discussions with teachers, meet with teachers to discuss student learning, engaging staff in collaborative decision making, and getting involved in curriculum and instruction (Aderhold, 2005).

Aderhold's (2005) study is an important reference point for the purposes of this study. For one, Aderhold (2005) used the Tschannen-Moran & Gareis (2004) Principal Self-efficacy Survey (PSES). This is the first principal efficacy study to benefit from the use of a previously established research instrument. However, a factor analysis of the instrument was not conducted as suggested by Tschannen-Moran & Gareis (2004). A limitation of the study was that the sample population consisted only of elementary school principals. The results may not be generalized to secondary principals, but could be to principal leadership in general.

Smith, Guarino, Strom, and Adams (2005) studied how principal-efficacy influences the effectiveness of teaching and learning in the school environment. The participants of the study were 284 principals from 12 states. The authors created the *Principal Self-Efficacy Survey* which assesses principal self-efficacy in two domains (Instructional Leadership and Management Skills). Four separate stepwise regression analyses were conducted to identify the most important variables in predicting the four criteria variables: (1) self-efficacy in instructional leadership, (2) self-efficacy in management, (3) reported time devoted to instructional leadership, and (4) reported time devoted to management. The predictor variables for the four analyses were: (1) gender, (2) number of years as an educator, (3) number of years principal at the current school, (4) number of years as a principal, (5) number of students at the school, and (6) percent of students on free/reduced lunch.

Stepwise regression analysis was used to analyze self-efficacy in instructional leadership ($R^2 = .145, p < .001$). The variables that were statistically significant were gender ($r = .286$), free/reduced lunch ($r = .195$), and the number of students ($r = .154$). Females reported a higher efficacy for instructional leadership than their male counterparts, principals with a high proportion of free/reduced lunch program reported higher efficacy than principals with a low proportion of free reduced lunch students, and principals working in larger schools reported a greater efficacy than those working in smaller schools. The only variable that was significant for self-efficacy in management ($R^2 = .196, p = .017$) was free/reduced lunch ($r = .320, p = .046$). Higher self-efficacy was reported from principals working with a higher proportion of free/reduced lunch (Smith, Guarino, Strom, & Adams, 2005).

A third stepwise regression was utilized to determine the time actually devoted to instructional leadership ($R^2 = .156, p < .001$). The variables of gender ($r = .261, p = .002$) and

free/reduced lunch ($r = .320, p < .001$) were found to be significant. Females reported spending more time on instructional leadership, and principals working with a high proportion of free/reduced lunch reported spending more time on instructional related issues. Finally, the time devoted to management ($R^2 = .051, p = .002$) reported only one variable, number of years as a principal ($r = -.274$), as significant. Principals with more experience reported spending less time with management related issues (Smith, Guarino, Strom, & Adams, 2005).

As stated earlier, Smith, et. al (2005) created and utilized a valid instrument to measure principal efficacy. Also of interest, is the similar factor structure of this instrument as compared to the instrument created by Tschannen-Moran and Gareis (2004). Self-efficacy for instructional leadership and self-efficacy for management were both factors in the two above mentioned survey instruments. The results from the analysis of the predictor variables used in this study will be of interest as a comparison to past and future studies.

Tschannen-Moran & Gareis (in press) conducted a study to identify relevant antecedents of principals' self-efficacy beliefs (PSE) among 558 principals in Virginia using the PSES created by Tschannen-Moran & Gareis (2004). Three personal demographic factors (gender, race, and years of administrative experience) were considered in the study. An independent sample t-test revealed that gender and years of experiences were unrelated to principal self-efficacy beliefs. Minority principals did have a higher mean self-efficacy score than that of their white counterparts ($t = -3.41, p < .01$). School contextual factors (setting, level, SES) were analyzed using ANOVA to determine if differences existed between groups. There were no significant differences found Tschannen-Moran & Gareis (In Press).

Next, bivariate correlations of the variables were studied. PSE was only slightly related to racial/ethnic status ($r = .14, p < .01$). PSE was related to the quality and utility of the principals'

preparation ($r = .33, p < .01$) and district-level support ($r = .34, p < .01$). The strongest correlation with PSE was building-level support ($r = .42, p < .01$). Next, regression analysis was used to investigate the influence of each of the variables. The entire set of variables explained 30% of the variance of the principals' self-efficacy beliefs. Years of experience did not make a significant contribution to PSE. Gender ($B = .10$) and race ($B = .13$) made small contributions. The principals' preparation program made a larger contribution ($B = .23$). District level support explained less of principal-*efficacy* ($B = .15$). Finally, the building-level support made the most impactful contribution to principals' self-*efficacy* ($B = .34$) (Tschannen-Moran & Gareis, In press).

This research was important for several reasons. First, this was the third study conducted using the PSES. Tschannen-Moran and Gareis (In Press) conducted a factor analysis of the instrument and the three factors of leadership self-*efficacy*, management self-*efficacy*, and moral self-*efficacy* once again emerged. Additionally, a wide range of variables were examined that could help explain the variance in principal *efficacy*. The findings provided insights to other potential avenues of research. For example, it was discovered that the principal's preparation program does contribute to principal *efficacy*, but the specific aspects of the principal's preparation program are still yet to be discovered. Additionally, Tschannen-Moran and Gareis (In Press) conducted a factor analysis of the instrument and the three factors of leadership self-*efficacy*, management self-*efficacy*, and moral self-*efficacy* once again emerged. Principal self-*efficacy* research has varied its use of instrumentation and methods, but one consistency throughout the literature has been the attempt to identify characteristics that relate to principal *efficacy*.

Summary of Characteristics Related to Principal Self-Efficacy

As mentioned earlier, one of the core components of the construct of self-efficacy is the principle of reciprocal determinism, in which human functioning is described as a product of dynamic interplay of personal, behavioral, and environmental influences. Personal factors will inform beliefs, and beliefs, in turn, will influence personal factors. Individuals are considered both producers and products of their environment (Bandura, 1986). School principals are no exception to this rule. The behaviours a principal exhibits is directly influenced by personal and environmental factors. Given the complex nature of the role of the principal it may seem logical that the relationships among the variables associated with principal efficacy will also be complex (Tschannen-Moran & Gareis, In press). Studies of principal efficacy have used this theoretical framework as the basis for examining personal and contextual variables of principals, but have often indicated mixed results as indicated below.

Principals personal characteristics. There is evidence to suggest that certain demographic factors weigh heavily on principal self-efficacy (DeMoulin, 1992), however the results have not been consistent throughout previous research on what factors are related to the variance in principal efficacy.

Gender is a variable of study that has often indicated mixed results. According to Smith, et. al (2005), females reported higher efficacy for instructional leadership than did males; however, other researchers (Lyons, 1994; Tschannen-Moran & Gareis, 2004; Aderhold, 2005; Tschannen-Moran & Gareis, In Press) found no relationship between principal efficacy and gender. No clear patterns have yet been established and, as a result, are of interest to further research.

One might infer, that years of experience as a teacher or as a principal would be related to principal self-efficacy due to the increase of experiences gained over time (Tschannen-Moran & Garies, In Press). However, current research does not show this to be true. When investigating the number of years of teaching and principal experience in relation to principal self-efficacy, most researchers (Aderhold, 2005; Tschannen-Moran & Gareis, 2004; Tschannen-Moran & Gareis, In Press) have not found statistically significant relationships. Contrary to what might be expected, Lyons (1994) found that principals with more experience actually reported lower self-efficacy. The effects of mastery experiences might not sustain themselves over time. Researchers (Smith, et. al, 2005 & Aderhold, 2005) have also investigated whether a relationship exists between principal efficacy and the level of education of the principal, and have not found any statistically significant results.

School contextual variables. Studies indicate that school context variables can influence principal efficacy (Osterman & Sullivan, 1996). Context variables such as campus level support and district level support have both been studied (Tschannen-Moran & Gareis, In press) and have both indicated positive relationships to principal-efficacy.

DeMoulin (1992) found that elementary school principals reported a higher self-efficacy than middle or high school principals. In contrast, other researchers (Lyons, 1994; Smith, et. al, 2006; and Tschannen-Moran & Garies, In Press) did not find a difference in efficacy scores when investigating school level. Aderhold (2005) suggested that the influences of school level should continue to be investigated in relation to principal self-efficacy.

Principals in differing settings are likely to have differing challenges, therefore, it would seem logical to infer that principal efficacy would differ based upon the urban, rural, or suburban setting. However, based on the limited amount of research on this topic there does not seem to be

a difference between principal self-efficacy and the setting of the school (Smith, et. al, 2005; Tschannen-Moran & Gareis, In Press).

Socioeconomic status of students is important given the high correlation to lower student achievement. For example, Bobbett (2001) reports that over 66% of the variance in school performance scores in Louisiana's state accountability can be explained by student socioeconomic status. Smith, et. al (2005) found that principals working with a higher proportion of free/reduced lunch reported significantly higher self-efficacy for instructional leadership. In contrast, Osterman and Sullivan (1996), Tschannen-Moran and Gareis (2004), and Tschannen-Moran and Gareis (In Press), reported that SES was not related to principal self-efficacy.

Other context variables such as parental involvement and students' behavior although important to the operation of a school (Hallinger and Murphy, 1986), have not been studied relative to principal-efficacy. However, relationships between teacher-efficacy and both parental involvement and student behaviors have been examined (see Hoover-Dempsey, Bassler, & Brissie, 1987; & Newman , Rutter, & Smith, 1986 respectively) and found to be significantly and positively related. As a result, the variables warrant consideration in principal efficacy studies.

Principal certification program. One study found that principal preparation apparently makes a difference in principal self-efficacy. In a recent review, Tschannen-Moran and Gareis, (In press) found the principals' perception of their preparation program to be an important factor related to a principals' self-efficacy. The authors state, "It is unclear whether these self-perceptions were the result of better practice resulting from better training or because of more capable potential leaders tended to select more rigorous preparation programs" (p. 27). It was also unclear how long it was since the principal completed his/her preparation program. Additionally, it was unknown why the respondents gave their professional preparation program a

favorable rating. Therefore, future study would be useful that measures the length of time since obtaining the principal certification, a ranking of the quality of experiences gained from the program, and a ranking of the quality of their professors' instructional approaches (Tschannen-Moran & Gareis, In Press).

Conclusion

Principal-efficacy studies have essentially been single studies without much overlap and almost all of mixed instrumentation. Much of the instrumentation used to measure principal-efficacy has suffered problems with reliability and validity once subjected to analysis (Tschannen-Moran & Gareis, 2004), and some of the earliest attempts to measure principal-efficacy were not even aligned with the construct of self-efficacy (see Hillman, 1986). Other principal-efficacy studies have used instruments that were not even initially designed to measure principal-efficacy (see Lucas, 2003; DeMoulin 1992). Tschannen-Moran and Gareis (2004) developed an instrument that has been determined to be reliable and valid, however this instrument has only been utilized in two studies since inception, therefore, no clear patterns have been established.

Researchers have attempted to identify factors that influence the self-efficacy of principals, but they have generated mostly mixed results. Again, this results from mixed and inconsistent principal efficacy measures. However, the reasonably reliable and valid measures (Tschannen-Moran & Gareis, 2004; Smith, et. al 2005) have not created consistent results either. For example, Smith, et. al (2005) reports that female principals have a higher self-efficacy than males, but Tschannen-Moran and Gareis (In Press) did not find this to be true. This difference can be due to many factors. For one, Tschannen-Moran and Gareis (In Press) used the whole scale (all three factors combined), whereas, Smith, et. al (2005) analyzed the factors of

instructional leadership and management separately. This demonstrates the need for additional research of principal efficacy that addresses the three leadership dimensions (Instructional Leadership, Management, and Moral Leadership). There has been extensive research on efficacy (a recent search in ERIC yielded over 3,500 entries). However, the role of the principal has not enjoyed the same amount of attention from researchers' therefore there is much to be learned about self-efficacy in relation to the principal. Tschannen-Moran and Gareis (2004) state,

The study of principals' self-efficacy beliefs is a promising new line of research. Both antecedents to a robust sense of efficacy, as well as well as the outcomes related to strong efficacy beliefs of school leaders are likely to be fruitful avenues of study. (p. 583)

Therefore, the purpose of this study was to determine if there was a relationship between principal self efficacy and personal characteristics, school conditions, and professional preparation programs among a selected group of Texas public school principals.

CHAPTER III

METHODOLOGY

The purpose of this chapter is to discuss the participants, variables, instrument, procedures, and data analysis utilized in this study. The purpose of the study was to determine if there was a relationship between principal self-efficacy and personal characteristics, school conditions, and professional preparation programs among a selected group of Texas, public school principals. The following research questions guided the study:

1. Do differences exist in principals' sense of self-efficacy in instructional leadership, management, and moral leadership based upon the demographic factors of gender, years of teaching experience, years of experience as a principal, and highest degree earned among a randomly selected group of Texas public school principals?

2. Do differences exist in principals' sense of self-efficacy in instructional leadership, management, and moral leadership based upon the school context factors of level, setting, socioeconomic status, student discipline, and parental involvement among a randomly selected group of Texas public school principals?

3. Do differences exist in principals' sense of self-efficacy in instructional leadership, management, and moral leadership based upon the principal preparation program factors of years since obtaining certification, quality of professors' instruction, and the quality of experiences among a randomly selected group of Texas public school principals?

Participants

A sample of 1,000 principals was randomly drawn from the population of 7,584 regular instruction principals in the state of Texas (in 2007-2008). However, only 965 received the instrument electronically. The population did not include principals of schools classified as

district alternative education programs (DAEP), alternative instruction, juvenile justice alternative education program (JJAEP), and budgeted schools. This group makes up an additional 1,625 principals in the state of Texas, but the focus of this study was only on regular instruction schools. Of the 965 sampled 289 principals completed and returned the survey instrument. The response rate was 30%. Randomization should assure that the sample is representative of principals in the state, and generally speaking Texas could be considered to be a representative sample of the United States due to the wide range of district sizes, settings, ethnic diversity, and economic diversity.

Variables Examined

The dependent variable in this study was principal sense of self-efficacy. Self-efficacy for this study includes three dimensions: self-efficacy for management, self-efficacy for instructional leadership, and self-efficacy for moral leadership. These variables have been studied as individual factors (Aderhold, 2005); however Tschannen-Moran & Gareis (In Press) combined them into one factor with the rationale that the three subscales are moderately correlated with one another ($r = .48 - .58$). The study reported here treated each of the leadership dimensions separately.

The independent variables included variables that related to the principals' personal characteristics, school characteristics, and the principals' preparation program. Data on all independent variables came from the principals' self-reported information.

Personal Characteristics

The four personal characteristics were gender, years of experience as a teacher, years of experience as a principal, and highest degree earned. Each of these variables were self reported.

Table 1 provides an overview of the sample. Of the 289 respondents, 57.5% were women and 42.5% were men. In the 2007-2008 school year there were 7,584 regular education principals (Texas Education Agency, 2007). From that population 57% were female and 43 % were male. The gender distribution of the data collected was representative of the total population.

The participants were asked to report their number of years of as a teacher. Once collected, each response was placed into one of four groups (1-5, 6-10, 11-15, or 16+) in order to create a relatively even distribution of the sample. Fourteen percent of the respondents had been classroom teachers for five years or less. The largest group (36%) of respondents had taught for 6-10 years.

The participants reported the number of years as a principal. Once collected, each response was placed into one of four groups (1-3, 4-7, 8-12, or 13+) in order to create a relatively even distribution of the sample. Nearly twenty-five percent of the participants were in their first three years as a principal, and an additional 30.4% were in years 4-7 of their principalship.

The participants had four options for response for highest degree earned (bachelors, masters, masters plus additional graduate hours, and doctorate). [No individuals reported holding only a bachelor's degree]. The highest level of education for most of the respondents was the master's degree plus additional graduate hours (64.6%). In the 2007-2008 school year, three percent of the principals statewide had the doctorate (Texas Education Agency, 2007); however, eight percent of the respondents to this survey reported having the doctorate. As a result, there is a higher distribution of doctoral degrees in this sample relative to the total state population (see Table 1).

Table 1

Principal Characteristics

	N	%
Gender		
Female	161	57.5
Male	119	42.5
Years of Teaching Experience		
1-5	40	14.3
6-10	101	36.1
11-15	77	27.5
16 +	62	22.1
Years of Principal Experience		
1-3	68	24.3
4-7	85	30.4
8-12	69	24.6
13 +	58	20.7
Highest Degree Earned		
Masters	68	24.3
Masters + Additional Hours	181	64.6
Doctorate	23	8.2

School Characteristics

The five variables related to participants' school characteristics were level, setting, socio-economic status (SES), perceived parental involvement, and perceived student discipline. School level (elementary, K-5; middle, 6-8; high, 9-12; K-12, or other), school setting (rural, urban, or suburban), and SES were self reports of school data; whereas, parental involvement and student discipline were self reports of the principals perception of the school condition.

Table 2 shows the frequency and percent of each of the school characteristics included in the study. Nearly half of the schools were elementary schools, while another 23.2% and 21.1% were middle schools and high schools respectively. In the 2007-2008 school year there were 7,584 regular education principals (Texas Education Agency, 2007). From that population of principals 53% served elementary schools, 24% middle schools, 20% high schools, and 3%

served the K-12 schools. The school level distribution of this study was representative of the total population. The school setting options were a rural, urban, or suburban. A majority of the respondents (43.6%) were from rural schools followed by 35% suburban and 21.4 % urban settings.

The participants self reported the percentage of students classified as economically disadvantaged for the campus in which they serve. The socioeconomic status of a school is defined in terms of participation in the federal free or reduced lunch program. In order to create a relatively even distribution of responses, the data for the schools' SES was placed into three groups low (1-33%), medium (34-66%) and high (67-100%). The group that represented medium SES comprised 47.9% of the sample.

Two questions addressed the principals' self perceptions of a school condition. The participants were asked to rate (on a one to five Likert Scale) the extent of parent involvement on their campuses when involvement was defined as parents' willingness to communicate with teachers about their child's academic progress and providing a home environment conducive to learning. A majority of the participants reported that the parents were "somewhat" involved (a rating of 3), and only 16.8% of the respondents reported that the parents were "very involved" (rating of 5).

Additionally, the principals were asked to rate (on a one to five Likert Scale) how much time they spend with student discipline issues. A majority of the participants (56.1%) reported that they spend "some" (rating of 3) time on student discipline related issues, and 6.1% of the principals report that they spend "a lot" (rating of 5) of time on student discipline related issues.

Table 2

School Characteristics

	N	%
Level of School		
Elementary	137	48.9
Middle	65	23.2
High	59	21.1
K-12	8	2.9
Other	11	3.9
School Setting		
Rural	122	43.6
Urban	60	21.4
Suburban	98	35
Percent of Low SES Students in School		
1-33 (low)	61	21.8
34-66 (medium)	134	47.9
67-100 (high)	84	30.3
Time Spent on Student Discipline		
1 (none)	10	3.5
2	61	21.8
3 (some)	157	56.1
4	35	12.5
5 (a lot)	17	6.1
Parental Involvement		
1 (not involved)	8	2.9
2	59	21.2
3 (somewhat involved)	121	43.3
4	44	15.8
5 (very involved)	47	16.8

Principal Preparation Program

The three variables related to the principal preparation program were number of years since obtaining the certificate, perceived quality of professors' instructional practices, and perceived quality of experiences obtained from the program. These variables will be discussed below.

The number of years since obtaining certification was a self report. The data was placed into four groups (1-5, 6-10, 11-15, or 16+) in order to create a relatively even distribution of

responses. Over half of the principals report receiving their certification in the last ten years.

The final two variables were a self report of the quality of their professors’ instructional practices and a rating of the quality of experiences obtained from the preparation program. The participants entered their response on a one to five Likert scale. Just under half of the respondents (43.2%) gave their instructors a high rating of four in relation to instructional practices. The ratings of quality of experiences obtained from the principal preparation program very closely mirrored the ratings of their instructors’ instructional practices (see Table 3).

Table 3

Principal Preparation Program

	N	%
Years Since Principal Certification		
1-5	74	26.4
6-10	88	31.4
11-15	60	21.4
16 +	58	20.8
Perceived Quality of Professors’ Instruction		
1 (lowest)	5	1.8
2	7	2.5
3	82	29.3
4	121	43.2
5 (highest)	65	23.2
Perceived Quality of Experiences		
1 (lowest)	4	1.4
2	11	3.9
3	88	31.4
4	115	41.1
5 (highest)	59	21.1

Instrumentation

The Principal Sense of Efficacy Scale (Appendix A) developed by Tschannen-Moran and Gareis (2004) was the instrument used to measure principals’ sense of efficacy. Permission to use the Principal Sense of Efficacy Scale (PSES) was granted by the author (Appendix B). The

PSES is an 18-item measure that assesses principals' self-perceptions of the capability to perform three facets of school leadership (Tschannen-Moran & Gareis, 2004). The development of this instrument closely followed Bandura's Teacher Self-Efficacy Scale and followed the specifications discussed in his monograph on the construction of self-efficacy scales (Bandura, 2001). The PSES was constructed as an adaptation of the Teacher Sense of Efficacy Scale created by Tschannen-Moran and Woolfolk Hoy (2001) which was modeled from Bandura's (2001) teacher-efficacy scale. The development of the instrument was based upon established standards for school leaders as discussed below.

In November 1996, the Interstate School Leaders Licensure Consortium (ISLLC), a program of the Council of Chief State School officers, adopted a model of standards for school leaders. The standards were based upon research on productive educational leadership, and by the collective wisdom of personnel from 24 state agencies and representatives from various professional associations. The standards present a common core of knowledge, dispositions and performances that will help link leadership more forcefully to productive schools and enhanced educational outcomes.

Tschannen-Moran & Gareis (2004) developed a principal efficacy instrument based upon the professional standards articulated by the ISLLC. Of the 50 items generated to investigate various aspects of principals' work, three subscales or factors emerged when subjected to principal axis factor analysis. The first factor related to self-efficacy to management aspects of the job (e.g. handle the paperwork and time demands required of the job; prioritize among competing demands of the job; shape the operational policies and procedures that are necessary to manage a school). The second factor centered on self-efficacy to handle the instructional aspects of the principalship (e.g. create a positive learning environment in your school; facilitate

student learning; raise student achievement on standardized tests; manage change; motivate teachers; generate enthusiasm for a shared vision). The third factor was labeled self-efficacy for moral leadership (e.g. promote acceptable behavior among students; promote spirit among a large majority of the student population; promote ethical behavior among school personnel; promote the prevailing values of the community; promote a positive image of your school with the media).

Determining the Number of Factors to Retain

Despite the fact that Tschannen-Moran & Gareis (2004) conducted a principal component analysis on the survey instrument, this researcher conducted a principal component analysis followed by a varimax orthogonal rotation to determine the structure of the data. The Principal Sense of Efficacy Scale has been determined to be a “reasonably valid and reliable measure” (Tschannen-Moran & Gareis, 2004, p. 584); however, the instrument is relatively new to the field of research for principal efficacy, therefore additional analysis was conducted.

Determining the correct number of factors to extract from an exploratory factor analysis has been studied; many procedures such as parallel analysis, minimum average partial correlation, Kaiser’s rule of retaining factors with Eigen values greater than one ($EV > 1$), and Cattell’s scree plot have been compared to aid the substantive researcher’s efforts in judging the number of factors to retain. The most commonly employed methods for determining the number of factors in applied research are the $EV > 1$ rule (Kaiser, 1960) and Cattell’s (1966) visual scree test or screen plot (Henson & Roberts, 2006). The $EV > 1$ rule and the scree plot are readily available in the point-and-click environment within SPSS and SAS, which is a plausible explanation for the widespread use of these techniques. Despite their widespread use, the techniques are not without critics. Zwick and Velicer (1986) and Velicer, Eaton, and Fava (2000)

reported that the use of Kaiser’s rule is problematic, as it often leads to an overestimation of the number of components or factors underlying the data. Therefore, these authors recommended using PA and MAP in conjunction with the screen plot to determine the correct number of factors to retain. The PA and MAP were used based on the recommendations of Zwick and Velicer (1986) and Velicer, Eaton, and Fava (2000), and the analysis showed that three factors or components should be retained. The three retained factors or components and their pattern/structure coefficients are displayed in Table 4 below.

Table 4

Principal Component Analysis of Survey Instrument

	Component		
	1	2	3
Q5 – mgt.	.817		
Q4 – mgt.	.807		
Q6 – mgt.	.767		
Q11- mgt.	.712		
Q9 – mgt.	.619		
Q3 – mgt.	.512		
Q10 – inst.		.816	
Q8 – inst.		.793	
Q2 – inst.		.675	
Q7 – inst.		.666	.418
Q17 – inst.		.522	.504
Q15 – moral		.555	.554
Q13 – moral			.773
Q14 – inst.			.672
Q12 – moral			.670
Q16 – moral			.667
Q18 –moral			.556

Extraction Method: Principal Component Analysis
 Rotation Method: Varimax with Kaiser Normalization

Cumulatively, the 3 retained components accounted for 57.19% of the variance among the 18 variables examined. Table 5 displays the results from the analysis. The results support the

findings of Tschannen-Moran and Gareis (2004) in which the three retained components accounted for 59.64% of the variance.

Table 5

Comparison of Total Variance Explained among Three Retained Components

Component	Initial Eigen value – Current Study			Initial Eigen value – 2004 Study		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.22	40.110	40.110	7.4	41.12	41.12
2	1.82	10.144	50.254	1.9	10.42	51.54
3	1.25	6.943	57.197	1.4	8.1	59.64

Extraction Method: Principal Component Analysis.

Reliability

To determine reliability of the PSES Cronbach's alpha was calculated for each of the retained factors. Cronbach's alpha measures how well a set of items (or variables) measures a single one-dimensional latent construct. When data have a multidimensional structure, Cronbach's alpha will usually be low. Technically speaking, Cronbach's alpha is not a statistical test, it is a coefficient of reliability (or consistency). Note that a reliability coefficient of .70 or higher is considered "acceptable" in most social science research situations (Stevens, 2002). The results displayed in Table 6 indicate that the retained factors were indeed reliable with Cronbach's alpha coefficients ranging from .80 to .91. Note the close match between the results of this current study to the results of Tschannen-Moran and Gareis (2004) analysis.

Table 6

Cronbachs Alpha for the Principals Sense of Self-Efficacy Scale (PSES)

Instrument	Efficacy Stands		
	Management	Instructional	Moral
PSES – (2004)	.789	.832	.785
PSES – Current Study	.847	.863	.799

Self-Efficacy Scores

The efficacy scores will be shown as factor scores. Principals rated their perceptions to the PSES items on a scale of 1 – 9. The descriptors ranged from 1 = “None at All” to 9 = “A Great Deal.” The means and standard deviations for these scores will be reported as factor scores. Conducting a factor analysis of the PSES items has several advantages.

First of all, an advantage to using factor analysis is that a large number of variables can be reduced into a single factor score. A factor score is a numerical value that indicates a person’s relative spacing on a latent factor. The primary purpose for combining the variables is to simplify the interpretation of the observed variables. For example, the survey instrument created by Tschannen-Moran and Gareis (2004) comprises 18 items that when subjected to factor analysis can be combined into just three factors (management, moral leadership, and instructional leadership). This reduction of data is possible because the questions are related as demonstrated by the principal component analysis. Additionally, factor analysis can be used to obtain a more parsimonious set of composite scores or factor scores that can be used in subsequent analysis. This parsimonious set of factor scores distinguish between variance related to common factors and the variance due to measurement error for each of the efficacy dimensions. As a result, the subsequent data analysis will be using the true factors from the instrument rather than just a mean score. Another benefit to the factor score is that the original distribution of scores is transformed with an identical shape but with a mean of zero and a standard deviation of one. This will be of benefit when comparing scores among different groups (Thompson, 2004).

The most common method for obtaining factor scores is called the regression model. In determining the score, the first step is to take the measured variables, in this case the 18 questionnaire items for the three dimensions of self-efficacy, and convert the raw scores into z

scores with means of zero and standard deviations of 1.0. A score with a minus sign indicates that the score is below the mean. This transforms the data into scores on an equal interval scale which can be of benefit for comparing scores among different groups. The *z score* is computed by subtracting the mean from the raw score and dividing the result by the standard deviation.

Once this is computed the following algorithm is applied:

$$F_{N \times F} = Z_{N \times V} R_{V \times V}^{-1} P_{V \times F}$$

This equations represent the z score ($Z_{n \times v}$) multiplied by inverted correlation matrix ($R_{v \times v}^{-1}$) multiplied by the unrotated pattern coefficient ($P_{v \times f}$). This factor score is computed by SPSS (Thompson, 2004).

For this study, the factors scores for each of the three efficacy dimensions were calculated. When interpreting the factor scores, it should be noted that the mean score for the group is represented as zero with a standard deviation of one. The respondents have a factor score for each of the three components of efficacy. For example, a respondent may have a factor score of -1.04 for management, -0.014 for moral leadership, and 0.33 for instructional leadership. In this example, the principal has a relatively low efficacy for the management component just over one standard deviation below the mean. The moral efficacy of the principal is just slightly below of the group mean. The principal reports the highest efficacy, one third of a standard deviation above the mean, for instructional leadership.

Procedure

The questionnaire was entered into the Survey Monkey web site, which is an online software program that assists the user in survey design. The program also produces simple reports such as frequencies. Once the survey was created, it was distributed to the selected principals using their e-mail accounts taken from the Texas Education Agency (TEA) website.

Name, school, and e-mail address associated with all principals within the state of Texas were identified from the TEA website. Once at this site, the researcher downloaded a report of all principals in the state of Texas for the 2007-2008 school year. The group was filtered to report only the regular instruction principals. This population of 7,584 regular instruction principals was downloaded into SPSS, and a random sample of 1,200 principals was created from that group. Even though the population sample was only 1,000 principals, the researcher created an extra group ($n = 200$) that was already created and randomly distributed should some of the e-mail addresses not be accurate and undeliverable. Once this group was established, the researcher sent out the initial e-mails to the 1,000 principals. Because many schools use spam filters, the researcher created forty e-mail groups with each group containing twenty-five principal e-mail addresses. The initial e-mail stated the purpose of the study, requested the principal's involvement, stated that all participation is voluntary, and included the direct link to the survey instrument should the principal choose to participate. As anticipated, one hundred and fifteen e-mails instantly came back as undeliverable; therefore, an additional 115 e-mails were sent from the pool of 200 extra principal addresses. As a result, 1,000 e-mails were initially sent successfully.

Two weeks later, another message was sent thanking those who had already completed the survey and reminding those who have not yet had time to complete the survey to do so. About two and a half weeks into the survey another thirty five e-mails came back as undeliverable. As a result, the sample was reduced to 965 principals who actually received the correspondence to participate in the study. One week after the second e-mail, a final message was sent thanking everyone for their involvement and encouraging all others to respond. From

the population of 965 principals who received an invitation to participate, 289 principals chose to respond for a response rate of 30 percent.

Data Analysis

Initially, descriptive characteristics including sample characteristics, means, and standard deviations were calculated, subsequently bivariate correlations were conducted for each research question to determine relationships between the independent variables and the dependent variables of principal-efficacy (instructional, management, and moral). Correlation is one of the most utilized procedures to analyze data in the behavioral sciences, and the Pearson product-moment correlation coefficient is the most widely used correlation coefficient. The correlation coefficient, or Pearson r , is a number (between -1.0 and +1.0) that indicates the degree of relationship between the two variables, whether that relationship is positive or negative, and helps determine how well that line represents the data set coefficient. Since gender is a nominal variable with two classification levels, the point-biserial correlation coefficient was utilized (Hinkle, Wiersma, & Jurs, 2003) instead of the Pearson product-moment correlation. Cohen (1988) suggested using the following guidelines in using the Pearson r to determine the strength of the relationship between variables:

$r = .10$ to $.29$ or $r = -.10$ to $-.29$	small
$r = .30$ to $.49$ or $r = -.30$ to $-.49$	medium
$r = .50$ to 1.0 or $r = -.50$ to -1.0	large

For the statistically significant results, the strength of the correlation was measured through the effect size, which is calculated by squaring r . Cohen (1988) defined effect size as the “degree to which a phenomenon exists” (p. 9). The effect size shows the percent variance

explained of the dependent variable. Cohen (1988) presented the following classification system for effect size:

Small = $.25\sigma$

Medium = $.50\sigma$

Large = 1.00σ

Through the use of bivariate correlations, the researcher was able to describe the extent to which two variables were related. Subsequent analysis will be used to determine if population means are equal. For the variables that have just two groups, such as gender, an independent samples t test was conducted. This test was conducted to determine whether the pairs of sample means (male and female) differed by more than one would expect due to chance. For the variables that have more than two groups, such as school level, an analysis of variance (ANOVA) was conducted. The ANOVA allows the researcher to compare two or more means on the same construct to determine if at least one performs different than the others (Hinkle, Wiersma, & Jurs, 2003).

When the ANOVA produced a statistically significant result, the researcher identified specifically where those differences lie through a Post Hoc test, called the Tukey HSD. The Tukey HSD is designed to make all paired comparisons while maintaining the experiment wise error rate at the pre-established α level (.05) (Hinkle, Wiersma, & Jurs, 2003). For the statistically significant results, the strength of the correlation was measured through the effect size, which is calculated by dividing the sum of squares between by the sum of squares total. This will help explain the percent of variance explained of the dependent variable. All analyses were conducted using SPSS 16.0.

Summary

Chapter III started with a review of the research questions and a description of the participants in the study. The dependent and independent variables were presented and discussion took place on the variables were operationalized. The instrument utilized in this study was discussed including a description of the factor analysis, reliability, and factor scores. The chapter concluded with a description of the procedure and data analysis.

CHAPTER IV

ANALYSIS OF DATA

This chapter presents the results of the data analysis for each of the three research questions. Descriptive and inferential statistics are presented for each research question. Correlations were calculated for each of the variables to determine if the two variables were related. If the variables were found to be related, correlation also indicated the strength of the relationship and whether that relationship was positive or negative. Subsequent analyses were used to determine if population means were equal. For the variables that had just two categories, such as gender, an independent samples t test was conducted. This test was conducted to determine whether the pairs of sample means (male and female) differed by more than one would expect due to chance. For the variables that had more than two categories, such as school level, an analysis of variance (ANOVA) was conducted. The ANOVA allowed the researcher to compare two or more means simultaneously on the same construct to determine if at least one performed different than the others (Hinkle, Wiersma, & Jurs, 2003). If a difference was determined, the Tukey's post-hoc test identified specifically where those differences lie. When statistically significant results were produced, the effect size was calculated to help explain the percent of variance of the dependent variable. All analyses were conducted using SPSS 16.0.

Research Question 1

The first research question asked if differences exist in principals' sense of self-efficacy in instructional leadership, management, and moral leadership based upon the demographic factors of gender, years of teaching experience, years of experience as a principal, and highest degree earned among a randomly selected group of Texas public school principals. Analysis for each characteristic included Pearson product-moment correlation, point-biserial correlation,

where appropriate, t-test, where appropriate, and analysis of variance (ANOVA). This section describes the results of those analyses.

Gender

Table 7 shows the mean factor scores and standard deviations for men and women in the three self efficacy dimensions. Females had a higher mean factor score for instructional leadership self efficacy (M = .16936) and moral leadership (M = .03338) than males (M = -.22857 and M = -.04505 respectively). However, males reported a higher mean factor score (M = .01579) than females (M = -.01170) for management self efficacy. To determine if the data was statistically significant, the Pearson product-moment correlation and ANOVA were conducted.

Table 7

Mean and Standard Deviation Factor Scores for Self-Efficacy and Gender

	Gender	Mean	Std. Deviation
Management	Female	-.01170	.96779
	Male	.01579	1.0443
Moral	Female	.03338	.93853
	Male	-.04505	1.0994
Instruction	Female	.16936	.96077
	Male	-.22857	1.0066

Correlations were calculated using the point-biserial correlation formula to determine the relationship between principals' perceptions of management, moral leadership, and instructional leadership and gender. This correlation was utilized instead of the Pearson product moment correlation since gender is a nominal variable with a two way classification system. Table 8 shows there was a statistically significant correlation ($r = -.217$, $p < .01$) between gender and self efficacy in instructional leadership. Gender explained 4.7% ($p < .01$) of the variance in

instructional leadership efficacy. There were no statistically significant correlations between efficacy in management or moral efficacy at the $p < .01$ or $p < .05$ level.

Table 8

Correlation Coefficients for Efficacy Scores and Gender

		Management	Moral	Instructional
Gender	Pearson r	-.049	.021	-.217**

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

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

The results of the independent samples t test used to determine if there were statistically significant differences in factor scores in the three leadership components between men and women are reported in Table 9. There was a statistically significant difference in perceived instructional leadership efficacy between females and males, $t = 3.406$, $p = .001$. The mean score for instructional leadership for females was .1693 (SD = .9607), and the mean score for males was -.2285 (SD = 1.006) indicating that women perceive greater instructional leadership efficacy.

Table 9

Differences in Principals' Sense of Efficacy based on Gender

	Gender	N	Mean	SD	t value	p
Management	Female	161	-.01170	.96779	-.231	.818
	Male	119	.01579	1.0443		
Moral	Female	161	.03338	.93853	.659	.511
	Male	119	-.04505	1.0994		
Instruction	Female	161	.16936	.96077	3.406	.001*
	Male	119	-.22857	1.0066		

In summary, both the Pearson product-moment correlation and the independent samples t test showed statistically significant relationships between gender and principals' sense of

efficacy in instructional leadership. As shown by the higher factor score, female principals reported a higher self-efficacy in instructional leadership than men.

Years of Teaching Experience

Table 10 shows the mean self-efficacy factor scores and standard deviations for each leadership dimension in the four teaching experience categories. The key pattern that emerged was that the mean score for instructional leadership self-efficacy increased (M = -.2653, M = -.0336, M = -.0291, and M = .2004) as the years of experience increased. To determine if this difference was statistically significant the Pearson product-moment correlation and ANOVA were conducted.

Table 10

Mean and Standard Deviation Scores for Efficacy and Years of Teaching Experience

	Mean Management	SD	Mean Moral	SD	Mean Instructional	SD
Years of Teaching						
1-5	.1635	.9761	.0317	.9661	-.2653	1.028
6-10	.0315	.9803	.0141	.9850	-.0336	.9919
11-15	-.1176	1.023	-.1176	.9667	-.0291	1.056
16 +	-.0617	1.029	.0492	.9221	.2004	.9100

Correlations were calculated using the Pearson product-moment correlation formula to determine the relationship between principals’ perceptions of management, moral leadership, and instructional leadership and their number of years of teaching experience. Table 11 shows there was a small but statistically significant positive correlation ($r = .128, p < .05$) level between years of teaching experience and efficacy in instructional leadership. Years experience explained 1.63% of the variance in instructional leadership self-efficacy. There were no statistically

significant correlations between teaching experience and efficacy in management or moral leadership at the $p < .01$ or $p < .05$ level.

Table 11

Correlation Coefficients for Efficacy and Teaching Experience

		Management	Moral	Instructional
Years of Teaching	Pearson r	-.078	-.008	.128*

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

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

The one-way ANOVA was used to determine if differences in efficacy scores among groups classified by the number of years as a teacher were statistically significant. The results are summarized in Table 12. The analysis found no statistically significant difference in efficacy scores among groups defined by number of years as a teacher. The number of years as a teacher was not related to self-efficacy in any of the three leadership dimensions.

Table 12

ANOVA for Years of Teaching Experience

		Sum of Squares	df	Mean Square	F	Sig.
Management	Between Groups	2.438	3	.813	.810	.489
	Within Groups	276.888	276	1.003		
	Total	279.326	279			
Moral	Between Groups	1.237	3	.412	.403	.751
	Within Groups	282.479	276	1.023		
	Total	283.716	279			
Instruction	Between Groups	5.436	3	1.812	1.819	.144
	Within Groups	274.962	276	.996		
	Total	280.397	279			

In summary, the Pearson product-moment correlation showed a small, but statistically significant relationship between years of teaching experience and efficacy in instructional

leadership. The ANOVA showed no statistically significant relationships between the principals' sense of efficacy in management, moral leadership, or instructional leadership and the years of experience as a teacher. The difference in the result may be accounted for in the manner in which correlation and ANOVA are calculated. The Pearson product-moment correlation coefficient is the average cross-product of the standard scores of the two variables, whereas, the ANOVA tests the null hypothesis that all the population means are equal (Hinkle, Wiersma, & Jurs, 2003). Even though one analysis produced a statistically significant result and the other did not, the calculated effect size indicates that the result is of little practical significance.

Years of Experience as a Principal

Table 13 shows the mean factor scores and standard deviations for the four principal experience categories. The principals with 13 or more years of principal experience had the lowest mean score (M = -1458) for management self efficacy of the groups, whereas, principals with 13 or more years of experience had the highest mean score (M = .2435) for moral leadership of the three groups. To determine if these differences were statistically significant the Pearson product-moment correlation and ANOVA were conducted.

Tble 13

Mean and Standard Deviation Scores for Efficacy and Number of Years as a Principal

	Mean Management	S.D.	Mean Moral	S.D.	Mean Instructional	S.D.
Years as Principal						
1-3	-.0001	.8922	-.0396	.9603	-.0207	1.117
4-7	.0267	1.026	-.0491	.9423	-.0654	.9167
8-12	.0575	1.022	-.1676	.9789	.0533	1.077
13 +	-.1458	1.066	.2435	.9489	-.0293	.8206

Correlations were calculated using the Pearson product-moment correlation formula to

determine the relationship between principals' perceptions of management, moral leadership, and instructional leadership and their years of experience as a principal. Table 14 shows there were no statistically significant correlations between number of years as a principal and efficacy in management, moral leadership, or instructional leadership at the $p < .01$ or $p < .05$ level.

Table 14

Correlation Coefficients for Efficacy Scores and Years as a Principal

		Management	Moral	Instructional
Years as Principal	Pearson r	-.032	.062	.003

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

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

The one-way ANOVA determined if differences in efficacy scores among groups classified by years as a principal were statistically significant. The results are summarized in Table 15. The analysis found no statistically significant difference in efficacy scores among groups defined by years as a principal. The number of years as a principal was not related to self-efficacy in any of the three leadership dimensions.

Table 15

ANOVA for Years as a Principal

		Sum of Squares	df	Mean Square	F	Sig.
Management	Between Groups	2.360	4	.590	.586	.673
	Within Groups	276.966	275	1.007		
	Total	279.326	279			
Moral	Between Groups	6.588	4	1.647	1.634	.166
	Within Groups	277.129	275	1.008		
	Total	283.716	279			
Instruction	Between Groups	1.878	4	.470	.464	.762
	Within Groups	278.519	275	1.013		
	Total	280.397	279			

In summary, neither the Pearson product-moment correlation nor the ANOVA showed statistically significant relationships between the principals' sense of efficacy in management, moral leadership, or instructional leadership and the years of experience as a principal.

Level of Education

The descriptive statistics for highest degree earned is included in Table 16 and shows the mean factor scores and standard deviations for each leadership dimension for three categories of degree earned. The principals with a doctorate had a higher mean score for management self-efficacy ($M = .0741$) than principals who reported having earned their masters ($M = -.0217$) or their masters plus additional graduate hours ($M = -.0282$). To determine if the data was statistically significant the Pearson product-moment correlation and ANOVA were conducted.

Table 16

Mean and Standard Deviation Factor Scores for Efficacy and Highest Degree Earned

	Mean Management	S.D.	Mean Moral	S.D.	Mean Instructional	S.D.
Degree Earned						
Masters	-.0217	1.002	-.1114	1.062	.0820	1.028
Masters Plus	-.0282	1.017	.0146	.9467	-.0771	1.018
Doctorate	.0741	.8039	.0599	.9849	.0738	.8920

Correlations were calculated using the Pearson product-moment correlation formula to determine the relationship between principals' perceptions of management, moral leadership, and instructional leadership and their level of education. Table 17 shows there were no statistically significant correlations between level of education and self efficacy in management, moral leadership, or instructional leadership at the $p < .01$ or $p < .05$ level.

Table 17

Correlation Coefficients for Efficacy and Highest Degree Earned

		Management	Moral	Instructional
Highest Degree Earned	Pearson r	.016	.055	-.033

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

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

The one-way ANOVA determined if differences in efficacy scores among groups classified by level of education were statistically significant. The results are summarized in Table 18. The analysis found no statistically significant difference in efficacy scores among groups defined by level of education. Level of education was not related to self-efficacy in any of the three leadership dimensions.

Table 18

ANOVA for Highest Degree Earned

		Sum of Squares	df	Mean Square	F	Sig.
Management	Between Groups	.215	2	.107	.108	.898
	Within Groups	268.047	269	.996		
	Total	268.262	271			
Moral	Between Groups	.920	2	.460	.441	.644
	Within Groups	280.745	269	1.044		
	Total	281.666	271			
Instruction	Between Groups	1.496	2	.748	.731	.482
	Within Groups	275.246	269	1.023		
	Total	276.742	271			

In summary, neither the Pearson product-moment correlation nor the ANOVA showed statistically significant relationships between the principals' sense of efficacy in management, moral leadership, or instructional leadership and the highest degree earned.

Research Question 2

The second research question asked if differences exist in principals' sense of self-

efficacy in instructional leadership, management, and moral leadership based upon the school context factors of level, setting, socioeconomic status, student discipline, and parental involvement among a randomly selected group of Texas public school principals. Analysis for each characteristic included descriptive characteristics, the Pearson product-moment correlation, and analysis of variance (ANOVA). This section describes the results of those analyses.

Level

Table 19 shows the mean self-efficacy factor scores for each leadership dimension for the four categories of school levels. The mean instructional leadership self-efficacy score for elementary school principals (M = .7886) was higher than the mean scores for middle school (M = -.3243) or high school (M = -.3356) principals. Similarly elementary school principals reported a higher mean scores for moral leadership (M = .0300) than the middle school (M = .0019) or high school (M = -.0644) principals. To determine if the differences were statistically significant the Pearson product-moment correlation and ANOVA were conducted.

Table 19

Mean and Standard Deviation Factor Scores for Efficacy and School Level

Level	Mean Management	S.D.	Mean Moral	S.D.	Mean Instructional	S.D.
Elementary	-.0021	.9430	.0300	.9278	.2869	.7996
Middle	.1152	.9380	.0019	1.058	-.3243	1.138
High	-.1634	1.193	-.0644	.8937	-.3356	1.153
K-12	.2214	1.041	-.1866	1.175	.1416	.6249
Other	-.2257	.9242	-.2050	1.085	-.3083	.9067

Correlations were calculated using the Pearson product-moment correlation formula to determine the relationship between principals' perceptions of management, moral leadership, and instructional leadership and the level of the school. Table 20 shows there were statistically

significant correlations ($r = -.224, p = .01$) between level of school and instructional leadership efficacy. School level explained 5% ($p < .01$) of the variance in instructional leadership and the level of the school. There were no statistically significant correlations between level of school and efficacy in management and moral leadership and at the $p < .01$ or $p < .05$ level.

Table 20

Correlation Coefficients for Efficacy Scores and Level of School

Level of School	Pearson r	Management	Moral	Instructional
		-.045	-.059	-.224**

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

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

The one-way ANOVA determined if differences in efficacy scores among groups classified by level of school were statistically significant. The results are summarized in Table 21.

Table 21

ANOVA for School Level

		Sum of Squares	df	Mean Square	F	Sig.
Management	Between Groups	3.358	4	.839	.837	.503
	Within Groups	275.968	275	1.004		
	Total	279.326	279			
Moral	Between Groups	1.071	4	.268	.260	.903
	Within Groups	282.646	275	1.028		
	Total	283.716	279			
Instruction	Between Groups	25.917	4	6.479	7.002	.001
	Within Groups	254.481	275	.925		
	Total	280.397	279			

The analysis found statistically significant differences between the instructional leadership score and the school level, $F(4, 275) = 7.002, p = .001$. Tukey's HSD was used to determine the nature of the differences between the levels of the schools. The analysis revealed that elementary school

principals had a higher mean difference ($M = .2869$) than that of their middle school ($M = -.3243$) and high school ($M = -.3356$) counterparts indicating that elementary school principals had a higher instructional leadership efficacy than middle or high school principals. School level explained 10.18% ($p < .05$) of the variance in instructional leadership self-efficacy.

In summary, both the Pearson product-moment correlation and the ANOVA showed significant relationships between principals' sense of efficacy in instructional leadership and the school level. Tukey's post hoc analysis revealed that elementary school principals reported a higher sense of efficacy in instructional leadership than their middle school or high school counterparts. In this instance, the differences between the population means of elementary, middle, and high schools revealed a greater effect size than the Pearson product-moment correlation which calculates the average cross-product of the standard scores of the two variables.

Setting

Table 22 shows the mean factor scores and standard deviations for principals in urban, suburban, and rural districts. Urban principals reported a higher mean self-efficacy for instructional leadership ($M = .0528$) than the principals from rural ($M = -.0538$) or suburban ($M = -.0038$) settings. To determine if this data was statistically significant the Pearson product-moment correlation and ANOVA were conducted.

Table 22

Mean and Standard Deviation Factor Scores for School Setting

	Mean Management	S.D.	Mean Moral	S.D.	Mean Instructional	S.D.
Setting						
Rural	.0379	1.042	-.0740	.9729	-.0538	1.006
Urban	-.1473	1.110	.0224	1.107	.0528	.9189
Suburban	.0105	.8688	.0459	.8550	-.0038	1.052

Correlations were calculated using the Pearson product-moment correlation formula to determine the relationship between principals' perceptions of management, moral leadership, and instructional leadership and the school setting. Table 23 shows there were no statistically significant correlations between school setting and efficacy in management, moral leadership, or instructional leadership at the $p < .01$ or $p < .05$ level.

Table 23

Correlation Coefficients for Efficacy and School Setting

Setting	Pearson r	Management	Moral	Instructional
		-.016	.053	.024

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

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

The one-way ANOVA determined if differences in efficacy scores among groups classified by school setting were significant. The results are summarized in Table 24. The analysis found no statistically significant differences in efficacy scores among groups defined by school setting.

Table 24

ANOVA for School Setting

		Sum of Squares	df	Mean Square	F	Sig.
Management	Between Groups	1.455	2	.727	.725	.485
	Within Groups	277.871	277	1.003		
	Total	279.326	279			
Moral	Between Groups	.871	2	.435	.426	.653
	Within Groups	282.845	277	1.021		
	Total	283.716	279			
Instruction	Between Groups	.474	2	.237	.234	.791
	Within Groups	279.924	277	1.011		
	Total	280.397	279			

In summary, neither the Pearson product-moment correlation nor the ANOVA showed statistically significant relationships between the principals' sense of efficacy in management, moral leadership, or instructional leadership and the school setting.

Socioeconomic Status

The percentage of students in the free/reduced price lunch program was used as an indicator of school wide student socioeconomic status. Table 25 shows the mean scores and standard deviations for the three groups. Principals who served the highest percentage of economically disadvantaged students had a higher mean score (M = .2177) for instructional leadership self-efficacy than the principals who served the lowest percentage (M = -.0395) or the middle percentage (M = -.1467) of economically disadvantaged students. In contrast, principals who served the lowest percentage of economically disadvantaged students had a higher mean score (M = .1834) for moral leadership self efficacy than the principals who served the highest (M = -.1441) and medium (M = -.0191) percentage of economically disadvantaged students. To determine if the data was statistically significant the Pearson product-moment correlation and ANOVA were conducted.

Table 25

Mean and Standard Deviation Factor Scores for Efficacy and SES Groups

	Mean Management	S.D.	Mean Moral	S.D.	Mean Instructional	S.D.
% SES						
0-33	-.1452	.8913	.1834	.7833	-.0395	.9585
34-66	-.0181	.9180	-.0191	1.011	-.1467	1.021
67-100	.0985	1.185	-.1441	.9889	.2177	.9728

Correlations were calculated using the Pearson product-moment correlation formula to determine the relationship between principals' perceptions of management, moral leadership, and

instructional leadership and the schools' SES. Table 26 shows there were statistically significant correlations ($r = .117, p = .01$) between school SES and instructional leadership efficacy. SES explained 1.36% ($p < .01$) of the variance in instructional leadership self-efficacy. There were no statistically significant correlations between school SES and efficacy in management and moral leadership at the $p < .01$ or $p < .05$ level.

Table 26

Correlation Coefficients for Efficacy Scores and School SES

SES	Pearson Correlation	Management	Moral	Instructional
		.081	-.109	.117**

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

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

The one-way ANOVA determined if differences in efficacy scores among groups classified by school SES were significant. The results are summarized in Table 27.

Table 27

ANOVA for SES

		Sum of Squares	df	Mean Square	F	Sig.
Management	Between Groups	2.132	2	1.066	1.066	.346
	Within Groups	277.193	277	1.001		
	Total	279.326	279			
Moral	Between Groups	3.842	2	1.921	1.901	.151
	Within Groups	279.874	277	1.010		
	Total	283.716	279			
Instruction	Between Groups	6.914	2	3.457	3.501	.031
	Within Groups	273.483	277	.987		
	Total	280.397	279			

The analysis found statistically significant differences between the instructional leadership score and school SES, $F(2, 277) = 3.501, p = .031$. Tukey's HSD was used to determine the nature of

the differences between the levels of the school SES. The analysis revealed that principals' of schools with a high percentage of low-income students (67-100%) had a higher mean difference ($M = .2177$) than that of principals with a medium SES (34-66%) ($M = -.1467$). This indicates that principals in schools with the highest percentage of students from low income families reported a higher instructional leadership efficacy than the principals who serve a medium SES population. SES explained 2.47% ($p < .05$) of the variance in instructional leadership self-efficacy.

In summary, both the Pearson product-moment correlation and the ANOVA showed statistically significant relationships between principals' sense of efficacy in instructional leadership and the school SES. Tukey's post hoc analysis revealed that principals who served the highest percentage of economically disadvantaged students reported a statistically significantly higher sense of efficacy in instructional leadership than the principals of medium (34%-66%) SES schools.

Parent Involvement

Principals responded to a question about the amount of parent involvement on a five-point Likert scale. Table 28 shows the mean factor scores and standard deviations for each of five levels of parent involvement. Principals who perceived that the parents are not involved had a lower moral leadership self efficacy mean score ($M = -2.571$) than the groups who rated their parents as more involved. They also had a lower management mean. To determine if the difference was statistically significant the Pearson product-moment correlation and ANOVA were conducted.

Table 28

Mean and Standard Deviation Factor Scores for Efficacy and Parental Involvement

	Mean Management	S.D.	Mean Moral	S.D.	Mean Instruction	S.D.
Parent Involvement						
1 (not involved)	-.4261	1.717	-2.571	1.240	.04756	1.055
2	.0125	1.186	-.1832	.9138	-.01104	1.092
3 (somewhat)	-.0874	.9206	-.01377	1.021	-.04937	1.023
4	.1708	.9652	.04267	.8031	-.08450	1.023
5 (very involved)	.0523	.8270	.4087	.6764	.1188	.8220

Correlations were calculated using the Pearson product-moment correlation formula to determine the relationship between principals' perceptions of management, moral leadership, and instructional leadership and the perceived parental involvement. Table 29 shows there were statistically significant correlations ($r = .250, p = .01$) between parental involvement and moral leadership efficacy. Parent involvement explained 6.25% ($p < .01$) of the variance in moral leadership self-efficacy. There were no statistically significant correlations between parental involvement and efficacy in management and instructional leadership and at the $p < .01$ or $p < .05$ level.

Table 29

Correlation Coefficients for Efficacy and Parental Involvement

	Management	Moral	Instructional
Parental Involvement	Pearson r .066	.250**	.028

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

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

The one-way ANOVA determined if differences in efficacy scores among groups classified by parental involvement were significant. The results are summarized in Table 30. The analysis found statistically significant differences between the moral leadership score and parental involvement, $F(4, 274) = 6.281, p = .001$. Tukey's HSD was used to determine the

nature of the differences between the levels of parental involvement. The analysis revealed that principals' who gave parental involvement a ranking of 1 had the lower mean score ($M = -2.571$) than all other rankings. Additionally, the Tukey's HSD revealed a statistically significant difference between the rating of two ($M = -.1832$) and the rating of five ($M = .4087$) in relation to parental involvement. This indicates that principals who perceived low parental involvement also reported a low efficacy for moral leadership. Parent involvement explained 8.86% ($p < .05$) of the variance in moral leadership self-efficacy.

Table 30

ANOVA for Parental Involvement

		Sum of Squares	df	Mean Square	F	Sig.
Management	Between Groups	3.763	4	.941	.936	.444
	Within Groups	275.545	274	1.006		
	Total	279.309	278			
Moral	Between Groups	25.122	4	6.281	6.663	.001
	Within Groups	258.277	274	.943		
	Total	283.399	278			
Instruction	Between Groups	1.230	4	.307	.302	.876
	Within Groups	278.854	274	1.018		
	Total	280.084	278			

In summary, both the Pearson product-moment correlation and the ANOVA showed statistically significant relationships between principals' sense of efficacy in moral leadership and perceived parental involvement. Tukey's post hoc analysis revealed that principals who perceived a low amount of parental involvement also reported a low self efficacy for moral leadership.

Student Discipline

Principals responded to a question about the amount of time spent on student discipline

on a five-point Likert scale. Table 31 shows the mean self efficacy factor scores and standard deviations for the five levels of principal's time spent on student discipline. The principals who reported spending a lot of time on student discipline had a lower mean score for moral leadership self-efficacy ($M = -.8772$) than the principals who reported time spent on discipline as a 2, 3, or 4 ($M = .0905$, $M = .0758$, or $M = -.0957$ respectively). To determine if the data was statistically significant the Pearson product-moment correlation and ANOVA were conducted.

Table 31

Mean and Standard Deviation Factor Scores for Efficacy and Student Discipline

	Mean Management	S.D.	Mean Moral	S.D.	Mean Instructional	S.D.
Time Spent						
1 (none)	1.220	.4972	-.9558	.1295	-1.405	2.107
2	-.0292	1.000	.0905	.7893	-.0050	1.033
3 (some)	.0200	.9837	.0758	.9618	.0171	.9544
4	-.0984	.8540	-.0957	.9646	-.2194	.8238
5 (a lot)	-.1273	1.373	-.8772	1.265	.3345	1.281

Correlations were calculated using the Pearson product-moment correlation formula to determine the relationship between principals' perceptions of management, moral leadership, and instructional leadership and the time spent on student discipline. Table 32 shows there were statistically significant correlations ($r = -.147$, $p = .05$) between time spent on discipline and moral leadership efficacy. Student discipline explained 2.16% ($p < .05$) of the variance in moral leadership self-efficacy. There were no statistically significant correlations between time spent on discipline and efficacy in management and instructional leadership and at the $p < .01$ or $p < .05$ level.

Table 32

Correlation Coefficients for Efficacy and Student Discipline

		Management	Moral	Instructional
Student Discipline	Pearson <i>r</i>	-.082	-.147*	.055

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

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

The one-way ANOVA determined if differences in efficacy scores among groups classified by time spent on student discipline were statistically significant. The results are summarized in Table 33. The analysis found statistically significant differences between the moral leadership score and time spent on student discipline, $F(4, 275) = 4.536, p = .001$. Tukey's HSD was used to determine the nature of the differences between the levels of time spent on student discipline. The analysis revealed that principals' who gave time spent on discipline a rating of 5 (which is the highest on the 1 to 5 scale) had the lowest mean score ($M = -.8782$) of the rating 4 ($M = -.0957$), 3 ($M = .0758$), and 2 ($M = .0905$). This indicated that principals who reported spending more time on student discipline also reported a low efficacy for moral leadership. Student discipline explained 6.2% ($p < .05$) of the variance in moral leadership self-efficacy.

Additionally, the ANOVA analysis found statistically significant differences between instructional leadership score and time spent on student discipline, $F(4, 275) = 2.407, p = .050$. Tukey's HSD was used to determine the nature of the differences between the levels of time spent on student discipline. The analysis revealed that principals' who gave time spent on discipline a rating of 1 (which is the lowest on the 1 to 5 scale) had a lower mean score ($M = -1.405$) than the rating 5 ($M = .3345$). This indicated that if the principal reported spending no time on student discipline they also reported a lower efficacy on instructional leadership than

those who reported spending a great amount of time on student discipline. Student discipline explained 3.4% ($p < .05$) of the variance in instructional leadership self-efficacy.

Table 33

ANOVA for Student Discipline

		Sum of Squares	df	Mean Square	F	Sig.
Management	Between Groups	6.179	4	1.545	1.555	.187
	Within Groups	273.147	275	.993		
	Total	279.326	279			
Moral	Between Groups	17.559	4	4.390	4.536	.001
	Within Groups	266.157	275	.968		
	Total	283.716	279			
Instruction	Between Groups	9.487	4	2.372	2.407	.050
	Within Groups	270.911	275	.985		
	Total	280.397	279			

In summary, both the Pearson product-moment correlation and the ANOVA showed statistically significant relationships between principals' sense of efficacy in moral leadership and time spent on student discipline. Tukey's post hoc analysis revealed that principals who perceive spending "a lot" of time on student discipline also report a lower efficacy for moral leadership. The ANOVA also showed a statistically significant relationship between principals' sense of efficacy for instructional leadership and time spent on student discipline. Tukey's post hoc analysis revealed that principals who perceive spending no time on student discipline also reported a lower efficacy for instructional leadership as compared to the principals who reported spending "a lot" of time on student discipline.

Research Question 3

The third research question asked if differences exist in principals' sense of self-efficacy in instructional leadership, management, and moral leadership based upon the principal

preparation program factors of years since obtaining certification, quality of professors' instruction, and the quality of experiences among a randomly selected group of Texas public school principals. Analysis for each characteristic included descriptive characteristics, the Pearson product-moment correlation, and analysis of variance (ANOVA). This section describes the results of those analyses.

Years Since Certification

The descriptive data for the number of years since the principal obtained the principals certificate is included in Table 34. The principals who reported that they earned their principals certificate 16 or more years ago reported the highest instructional leadership self efficacy (M = .1120) than that of any other group. To determine if this result was statistically significant the Pearson product-moment correlation and ANOVA were conducted.

Table 34

Mean and Standard Deviation Factor Scores for Efficacy and Years Since Certification

	Mean Management	S.D.	Mean Moral	S.D.	Mean Instructional	S.D.
Years Since Certification						
1-5	-.0200	.8950	-.0424	.9448	-.0313	1.091
6-10	.1049	1.032	.0347	.8822	-.1225	.9772
11-15	-.0482	1.074	-.1700	1.101	.0462	1.127
16 +	-.1381	1.007	.1203	.9436	.1120	.7619

Correlations were calculated using the Pearson product-moment correlation formula to determine the relationship between principals' perceptions of management, moral leadership, and instructional leadership and the number of years since their principal certification. Table 35 shows there were no statistically significant correlations between number of years since principal certification and efficacy in management, moral leadership, or instructional leadership at the $p <$

.01 or $p < .05$ level.

Table 35

Correlation Coefficients for Efficacy Scores and Years Since Certification

		Management	Moral	Instructional
Years Since Certification	Pearson r	-.039	.035	.077

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

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

The one-way ANOVA determined if differences in efficacy scores among groups classified by years since principal certification were statistically significant. The results are summarized in Table 36. The analysis found no statistically significant difference in efficacy scores among groups defined by years since principal certification. The number of years since a principal obtained certification was not related to self-efficacy in any of the three leadership dimensions.

Table 36

ANOVA for Years Since Certification

		Sum of Squares	df	Mean Square	F	Sig.
Management	Between Groups	2.210	3	.737	.734	.533
	Within Groups	277.115	276	1.004		
	Total	279.326	279			
Moral	Between Groups	2.777	3	.926	.909	.437
	Within Groups	280.939	276	1.018		
	Total	283.716	279			
Instruction	Between Groups	2.200	3	.733	.727	.536
	Within Groups	278.198	276	1.008		
	Total	280.397	279			

In summary, neither the Pearson product-moment correlation nor the ANOVA showed statistically significant relationships between the principals' sense of efficacy in management,

moral leadership, or instructional leadership and the number of years since obtaining principal certification.

Perceived Quality of Instruction

Principals rated the quality of instruction in the principal preparation programs on a five-point Likert scale with 1 representing the lowest level. Table 37 shows the mean efficacy scores for each level. The principals who gave their professors the highest rating had a higher mean score for instructional leadership self-efficacy ($M = .1651$) than those who gave their professors the lowest rating ($M = -.3065$). To determine if these results were statistically significant the Pearson product-moment correlation and ANOVA were conducted.

Table 37

Mean and Standard Deviation Scores for Efficacy and Perceived Quality of Instruction

	Mean Management	S.D.	Mean Moral	S.D.	Mean Instructional	S.D.
Quality of Instruction						
1 (lowest)	.0167	1.076	.0163	.6079	-.3065	1.111
2	-.2703	1.200	.2206	.8993	.5199	.5592
3	-.1111	1.072	-.0672	.9597	-.0209	.9420
4	.1291	.9404	.0392	.9241	-.1236	1.007
5 (highest)	-.1209	.9862	-.0641	1.071	.1651	1.074

Correlations were calculated using the Pearson product-moment correlation formula to determine the relationship between principals' perceptions of management, moral leadership, and instructional leadership and the perceived quality of professors' instructional practices were statistically significant. Table 38 shows there were no statistically significant correlations between perceived quality of instruction and efficacy in management, moral leadership, or instructional leadership at the $p < .01$ or $p < .05$ level.

Table 38

Correlation Coefficients for Efficacy Scores and Instructional Practices

		Management	Moral	Instructional
Instructional Practices	Pearson r	.018	-.010	.037

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

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

The one-way ANOVA determined if differences in efficacy scores among groups classified by perceived quality of professors' instructional practices were statistically significant. The results are summarized in Table 39. The analysis found no statistically significant differences in efficacy scores among groups defined perceived quality of instructional practices. The perceived quality of professors' instructional practices was not related to self-efficacy in any of the three leadership dimensions.

Table 39

ANOVA for Perceived Quality of Instruction

		Sum of Squares	df	Mean Square	F	Sig.
Management	Between Groups	4.460	4	1.115	1.116	.349
	Within Groups	274.865	275	1.000		
	Total	279.326	279			
Moral	Between Groups	1.128	4	.282	.275	.894
	Within Groups	282.588	275	1.028		
	Total	283.716	279			
Instruction	Between Groups	5.965	4	1.491	1.494	.204
	Within Groups	274.433	275	.998		
	Total	280.397	279			

In summary, neither the Pearson product-moment correlation nor the ANOVA showed statistically significant relationships between the principals' sense of efficacy in management,

moral leadership, or instructional leadership and the perceived quality of professors' instructional practices.

Perceived Quality of Experiences

Principals responded to their perceived quality of experiences they obtained from their principal preparation program on a five-point Likert scale with 1 indicating the lowest level. Table 40 shows the mean efficacy factor scores and standard deviations for each level. The principals who gave the quality of experiences the highest rating also had a higher instructional leadership self efficacy score (M = .2171) than the principals who rated their quality of experiences the lowest (M = -.6070). To determine if the data was statistically significant the Pearson product-moment correlation and ANOVA were conducted.

Table 40

Mean and Standard Deviation Scores for Efficacy and Quality of Experiences

	Mean Management	S.D.	Mean Moral	S.D.	Mean Instructional	S.D.
Quality of Experiences						
1 (lowest)	-.4554	1.061	.5442	.6384	-.6070	1.031
2	-.0066	1.098	.2718	.7596	.2596	.6371
3	-.1185	1.033	-.9113	.9352	-.0449	1.050
4	.1937	1.008	.0047	.9489	-.1203	.9968
5 (highest)	-.1856	.8623	-.0088	1.083	.2171	.9658

Correlations were calculated using the Pearson product-moment correlation formula to determine if relationship between principals' perceptions of management, moral leadership, and instructional leadership and the perceived quality of experiences obtain from the principal preparation program were statistically significant. Table 41 shows there were no statistically significant correlations between quality of experiences and efficacy in management, moral leadership, or instructional leadership at the $p < .01$ or $p < .05$ level.

Table 41

Correlation Coefficients for Efficacy and Experiences from Program

	Management	Moral	Instructional
Experiences Pearson Correlation	.020	-.042	.071

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

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

The one-way ANOVA determined if differences in efficacy scores among groups classified by perceived quality of experiences from the principal preparation program were statistically significant. The results are summarized in Table 42. The analysis found no statistically significant differences in efficacy scores among groups defined perceived quality experiences. The perceived quality of experiences from the principal preparation program was not related to self-efficacy in any of the three leadership dimensions.

Table 42

ANOVA for Quality of Experiences

		Sum of Squares	df	Mean Square	F	Sig.
Management	Between Groups	8.415	4	2.104	2.139	.076
	Within Groups	267.494	272	.983		
	Total	275.909	276			
Moral	Between Groups	3.426	4	.857	.834	.505
	Within Groups	279.490	272	1.028		
	Total	282.916	276			
Instruction	Between Groups	6.765	4	1.691	1.699	.150
	Within Groups	270.717	272	.995		
	Total	277.482	276			

In summary, neither the Pearson product-moment correlation nor the ANOVA showed statistically significant relationships between the principals' sense of efficacy in management,

moral leadership, or instructional leadership and the perceived quality of experiences obtained from the principal preparation program.

Summary

This chapter presented the data and analyses addressing the question of whether differences in principals’ sense of efficacy in management, instructional leadership, and moral leadership existed when compared to personal characteristics, school characteristics, and principal preparation characteristics. Analysis for each characteristic included the Pearson product-moment correlation, t-test, where appropriate, and analysis of variance (ANOVA). The results of this analysis are summarized below.

Table 43

Summary of Statistically Significant Results from Research

	Management	Moral	Instructional	Effect Size
Gender	-	-	**	4.7%
Years of Teaching Experience	-	-	*	1.6%
Years as a Principal	-	-	-	-
Highest Degree Earned	-	-	-	-
School level	-	-	*	10.2%
Setting	-	-	-	-
School SES	-	-	*	2.5%
Parent Involvement	-	*	-	8.9%
Student Discipline	-	*	*	6.2% & 3.4%
Years Since Certification	-	-	-	-
Instructional Practices	-	-	-	-
Quality of Experiences	-	-	-	-

**Significant at the 0.01 level.

*Significant at the 0.05 level.

When the principals' sense of efficacy in management, instructional leadership, and moral leadership was compared to personal characteristics such as gender, years of teaching experience, years as a principal, and level of education, gender was the only variable found to be statistically significant. The results of the t-test indicated that females had a higher efficacy for instructional leadership than did their male counterparts.

When the principals' sense of efficacy in management, instructional leadership, and moral leadership was compared to school characteristics such as level, setting, SES, perceived parental involvement, and time spent on student discipline, several statistically significant results were found.

The Pearson product-moment correlation revealed a statistically significant relationship between school level and instructional leadership self-efficacy. Through ANOVA and subsequent Turkey's post hoc analysis, it was determined that elementary school principals had a higher efficacy for instructional leadership than did their middle school or high school counterparts. The SES of the school was also found to have a statistically significant relationship to instructional leadership efficacy when analyzed using the Pearson product-moment correlation. Through ANOVA and subsequent Turkey's post hoc analysis, it was determined that principals' who served schools with a high SES population indicated a higher efficacy for instructional leadership than did principals' who served schools with a medium SES population.

The results of the Pearson product-moment correlation indicated that parental involvement had a statistically significant relationship to moral leadership efficacy. Through ANOVA and subsequent Turkey's post hoc analysis, it was determined that principals' who rated their parent involvement the lowest also rated their efficacy for moral leadership lower than any other group. The final variable related to the school environment was the time the principals'

spend with student discipline related issues. The time spent on student discipline showed a statistically significant relationship to both moral leadership efficacy and instructional leadership efficacy when analyzed by the Pearson product-moment correlation. The ANOVA and the subsequent Turkey's post hoc analysis revealed that the principals who reported spending "a lot" of time on student discipline related issue also reported a lower efficacy for moral leadership as compared to the other groups. Additionally, principals who reported spending no time on student discipline issues also reported a lower efficacy for instructional leadership than did the principals who reported spending "a lot" of time on discipline issues.

When the principals' sense of efficacy in management, instructional leadership, and moral leadership was compared to principal preparation characteristics such as years since certification was obtained, the perceived quality of their professors' instructional practices, and the perceived quality of experiences obtained from the program, no statistically significant results were found. The principal preparation program was not related to efficacy in any of the three leadership dimensions.

CHAPTER V

FINDINGS, DISCUSSION, RECOMMENDATIONS, AND CONCLUSIONS

Improving the quality of public schools continues to be a national concern. Research indicates that the school principal has a critical role in maintaining and improving a school's effectiveness (Leithwood, Louis, Anderson, & Wahlstrom, 2004). Some principals take on the challenge of leading their school through the times of change with great conviction, whereas, other principals just hope to maintain the status quo (Duke, 2004). Principal efficacy is a promising construct to help explain the differences in motivation, goal setting, effort, and overall performance among principals.

This study was designed to contribute to the knowledge base of principal self-efficacy. The three research questions focused on relationships between the principals' personal characteristics, school characteristics, and their principal preparation programs and their self-efficacy in the instructional leadership, moral leadership, and management aspects of the job. To answer these questions, the researcher used descriptive information including sample characteristics, means, and standard deviations. Next, inferences were made based on the correlations between the principal's self-efficacy scores and personal characteristics, and results of t-test, where appropriate, and analysis of variance (ANOVA) were presented. When there were statistically significant results, the effect size was calculated in order to determine the practical significance. All analyses were conducted using SPSS 16.0. This chapter summarizes the findings, and initiates discussion, conclusions, and recommendations relevant to this study.

Summary of Findings

The first research question asked if differences exist between principals' sense of efficacy in instructional leadership, management, and moral leadership based on the principal's gender,

years of teaching experience, years of experience as a principal, and highest degree earned among a randomly selected group of Texas, public school principals. Of the four personal variables, only gender and years of teaching experience showed a statistically significant relationship with any of the principals' self-efficacy dimensions. Women had a statistically significantly higher mean self-efficacy score in instructional leadership than men. The relationship between gender and instructional leadership efficacy explained 3.7% of the variance. Years of teaching experience also had a statistically significant positive relationship with self-efficacy in instructional leadership, explaining 1.6% of variance. The effect size for both personal characteristics were small indicating that, while statistically significant, the relationships have little practical significance (Cohen, 1988).

The second research question asked if differences exist in principals' sense of efficacy in instructional leadership, management, and moral leadership based upon the school context factors of level, setting, socioeconomic status, student discipline, and parental involvement among a randomly selected group of Texas, public school principals. Four of the five school characteristic variables, showed statistically significant differences in principal self-efficacy scores. Elementary school principals had a statistically significant higher self-efficacy score in instructional leadership than middle school or high school principals. The relationship between school level and instructional leadership self-efficacy explained 10.2% of the variance. The principals who reported having the highest proportion of economically disadvantaged students also had the highest mean self-efficacy scores for instructional leadership. However, the percent of economically disadvantaged students in relation to instructional leadership self-efficacy only explained 2.5% of the variance. The level of parent involvement had a statistically significant positive relationship with moral leadership self-efficacy. Principals who reported a low level of

parent involvement had a statistically significant lower self-efficacy score for moral leadership self-efficacy. Level of parental involvement explained 8.9% of the variance. Finally, the amount of time spent on student discipline had a statistically significant relationship with both moral leadership self-efficacy and instructional leadership self-efficacy. For example, the principals who reported spending a lot of time on student discipline also reported a lower self-efficacy for moral leadership. Time spent on student discipline explained 6.2% of the total variance of moral leadership. Additionally, the principals who reported spending no time on student discipline related issues also reported a lower self-efficacy score for instructional leadership. Time spent on student discipline explained 3.4% of the total variance of instructional leadership self-efficacy.

The third research question asked if differences exist in principals' sense of efficacy in instructional leadership, management, and moral leadership based on years since obtaining certification, quality of professors' instruction, and the quality of experiences among a randomly selected group of Texas, public school principals. None of the three professional preparation program variables had a statistically significant relationship with self-efficacy in any leadership dimension.

In summary, out of 12 variables examined, a statistically significant relationship was found for six. Of the six variables showing a significant relationship with principal self-efficacy, all explained a relatively small percentage of the total variation for principal self-efficacy. There were relationships with self-efficacy in instructional leadership and moral leadership, but no relationships with self-efficacy in management leadership.

Discussion

The study of personal, school context, and preparation variables are directly relevant to the theoretical framework of self-efficacy. For example, one of the core components of the

construct of self-efficacy is the principle of reciprocal determinism, in which human functioning is described as a product of a dynamic interplay of personal, behavioral, and environmental influences. Consequently, personal factors will inform beliefs and beliefs, in turn, will influence personal factors. Individuals are considered both producers and products of their environment (Bandura, 1986). This principle can be applied to school principals whose behaviors are directly influenced by personal and environmental factors. Given the complex nature of the role of the principal, it may seem logical that the variables interacting with principal self-efficacy will also be complex (Tschannen-Moran & Gareis, In press).

Although there was no research question addressing instrumentation, this study provided confirmation of reliability and validity of the Principal Self-Efficacy Scale (PSES) (Tschannen-Moran & Gareis, 2004) and adds supporting evidence to previous research using the PSES. However, this study also had some unexpected results. These results will be discussed starting with the analysis of the PSES scale followed by a discussion of the research variables.

The Principal Self-Efficacy Scale (PSES)

The results of this study support the use of the Principal Self-Efficacy Scale (PSES) as a measure. Tschannen-Moran & Gareis (2004) created a principal self-efficacy scale (PSES) and determined it to be reasonably reliable and valid. Tschannen-Moran & Gareis used the PSES in two published research studies. Tschannen-Moran & Garies (2004) recommended that additional research be conducted to verify the stability of the factor structure of the PSES across a different population (Tschannen-Moran & Garies, 2004).

This research also provides evidence supporting the factor structure identified by Tschannen-Moran & Garies (2004). Additionally, this study analyzed the reliability of the instrument and confirmed the Tschannen-Moran and Garies (2004) results. Consequently, this

study adds to the evidence of the validity and reliability of the PSES. As demonstrated in the literature review, the study of principal self-efficacy has suffered as a result of inconsistent and weak instrumentation. This confirmation of the PSES suggests a promising future for its use in the study of the construct of principal self-efficacy.

This study also showed the value of using the individual subscales (Instructional Leadership, Management, Moral Leadership). From a theoretical standpoint, there is a rationale for using the individual subscales. Bandura (1997) argued that self-efficacy is construct specific, as compared to “self concept” which is more of a global/general view of self. Leading the instructional program, promoting ethical behaviors among the school, and managing the daily operation of the building all require differing skill sets. As a result a principal may have stronger self-efficacy beliefs in some leadership dimensions than others. However, the decision to use the full scale rather than the individual subscales may depend on the nature of the research. Tschannen-Moran & Gareis (In Press) found that the three factors were moderately correlated with one another ($r = .48 - .58$) and loaded together into one strong factor. They used the full scale in both of their principal self-efficacy studies (Tschannen-Moran & Gareis, 2004; Tschannen-Moran & Gareis, In press). The research reported here also found the three self-efficacy factors to be moderately correlated with one another ($r = .45 - .58$).

To help build upon previous research, this study used six of the same variables (gender, years as a principal, school level, setting, socio-economic status, and principal preparation) that Tschannen-Moran & Gareis (In Press) used with other principal populations. However, as will be discussed below, the results reported here, when the three dimensions were analyzed independently, differed from theirs in several cases. As a result, this researcher concluded that a principal’s self-efficacy is not consistent across the instructional, moral, and management

dimensions of the position, and as a result self-efficacy may be analyzed as three individual dimensions rather than one. When applicable, the differences between the Tschannen-Moran & Gareis, results using the score on the full scale and the results of this study using three scales will be noted below.

Personal Characteristics

Four variables related to the principals' personal characteristics were included in this study: gender, years of teaching experience, years as a principal, and highest degree earned. The results of this study both supported and failed to support earlier research.

Gender. The study of gender and principal self-efficacy beliefs has produced mixed results. The findings in this study indicate that women have a statistically significant higher mean self-efficacy score for instructional leadership than men supports Smith et. al (2005) who reported that women have a higher self-efficacy for instructional leadership than men. However, Smith, Guarino, Strom, and Adams (2005) did not report an effect size. Two other studies examined the relationship between gender and principal self-efficacy and found no statistically significant relationship. Tschannen-Moran & Gareis (In Press) did not find a statistically significance difference between gender and principal self-efficacy when using the full scale. Aderhold's (2005) study of elementary school principals did not find a difference between gender and self-efficacy. Given the mixed results in the research and the small effect size found in this study, gender does not appear to be an important factor in determining the self-efficacy beliefs of principals. The results from the data could also provide evidence for the need of qualitative research to uncover and probe the implicit issues underlying the numbers.

Years of teaching experience. The relationship between years of teaching experience and self-efficacy varied among the three leadership dimensions. The Pearson product-moment

correlation measuring the relationship between years of teaching experience and principal self-efficacy for instructional leadership showed a small, but statistically significant positive relationship. There are several explanations for this relationship.

When using Bandura's (1997) construct of self-efficacy as the theoretical frame, the principal with more teaching experience should have a higher efficacy for instructional leadership for the following reasons: as a teacher the individual had more opportunities for mastery experiences, in her/his own instruction; more feedback (verbal persuasion) on her/his instructional strengths and weaknesses; more opportunities for vicarious learning from peers through professional learning communities and classroom observations; and more opportunities to work through various psychological states such as feelings of anxiety towards different instructional strategies. This knowledge may transfer to self-efficacy beliefs in instructional leadership as a principal. However, the practical application of these results should be tempered due to the small effect size.

Principal experience. When the relationship between years of experience as a principal and self-efficacy was analyzed, the results were counterintuitive because the amount of principal experience was not related to any of the dimensions of principal efficacy. Initially, this seems to contradict Bandura's (1997) claim that mastery experiences are the best way to increase the self-efficacy of an individual. It would seem logical that a principal would obtain mastery experiences over time, and as a result self-efficacy would increase over time. The results of this study do not support that conclusion. To make sense of the data, one must delve a little further in Bandura's construct. Bandura (1997) does say that mastery experiences are the best way to increase self-efficacy, but also said that once self-efficacy beliefs become established, they are relatively stable over time, and that it takes a major event to change the beliefs. Other researchers

(Aderhold, 2005; Tschannen-Moran & Gareis, 2004; Tschannen-Moran & Gareis, In Press) have also found that principal self-efficacy does not increase with years of experience as a principal. In addition, Lyons (1994) found that principal efficacy beliefs actually decreased over time.

Highest degree earned. There was no statistically significant relationship between the amount of higher education of the principals and principal efficacy. The self-efficacy scores showed very small variation among the differing levels of education. The principals who had earned the doctorate did not report higher efficacy than the principals with a master's degree. This could indicate that a significant increase in knowledge of theory does not relate to better practice or, at least, to better beliefs about one's practice. Previous researchers (Smith, et. al, 2005; Aderhold, 2005) have also found the level of education to be unrelated to principal self-efficacy.

In summary, there is not a strong relationship between the personal characteristics examined in this study and self-efficacy beliefs. Gender and years of teaching experience had a small effect on instructional leadership self-efficacy in this study. However, the larger body of research has produced inconsistent results.

School Context

The variables related to the context of the school revealed several statistically significant results. Five school context variables were included in the study: school level, setting, socio-economic status, parent involvement, and student discipline.

School level. The level of the school was found to have a statistically significant relationship to the instructional self-efficacy of the principal. Elementary principals reported a higher self-efficacy for instructional leadership than middle school or high school principals. This may be partially explained by the differences in their teaching experiences. Most often,

elementary principals were once elementary teachers (Hallinger & Murphy, 1985), and secondary principals were once secondary teachers. Elementary teachers are often responsible for teaching reading, writing, arithmetic, and sometimes even science and social studies (Hallinger & Murphy, 1985). This lends itself to many different mastery experiences across the curriculum. In contrast, a secondary teacher often teaches one or two different subjects. This difference in teaching experiences may help explain the difference in instructional leadership self-efficacy. The elementary school principal has potentially taught every core subject in the school, and as a result has a high efficacy to lead the entire instructional process. A secondary principal who taught English may have a high self-efficacy for leading the English department, but not as much for the math and science departments. The differences in teaching experiences may account for some of the differences in instructional leadership self-efficacy beliefs between elementary and secondary principals.

DeMoulin (1992) also found that elementary school principals reported a higher self-efficacy than middle or high school principals. However, other researchers (Lyons & Murphy, 1994; Smith et al., 2005; and Tschannen-Moran & Garies, In Press) did not find a difference in efficacy scores when investigating school level. Due to the conflicting results, the effect of school level on principal efficacy has not been clearly established in the research.

Setting. The community setting of the school does not have a statistically significant relationship with any of the three dimensions of principal efficacy. The principals of rural, suburban, and urban schools are often perceived as having very different organizational challenges, but at least in terms of principal efficacy the data does not indicate any differences. Smith, et. al, (2005) and Tschannen-Moran & Gareis, (In Press) also found no relationship between school setting and principal self-efficacy.

School socio-economic status (SES). The relationship between school socio-economic status and the principal's self-efficacy beliefs was somewhat unexpected. According to the U.S. Department of Education (2004) there are achievement gaps between low SES students and those who are not economically disadvantaged. Students who attend schools with high poverty rates are more likely to drop out of school. Berliner and Biddle (1995) reported that students from low SES backgrounds often come to school hungry, are from neighborhoods riddled with crime and violence, and are from homes that are often void of the basic necessities. As a result, one might infer that principals serving in schools with a high percentage of economically disadvantaged students would report lower levels of self-efficacy. The results of this study indicate just the opposite for instructional leadership self-efficacy. Principals' in schools with the highest percentage of economically disadvantaged students reported the highest self-efficacy for instructional leadership; however, the small effect size indicated that this is of little practical significance.

Other research on SES and principal efficacy has not consistently found SES to be related to principal self-efficacy. Tschannen-Moran & Gareis (2004) and Tschannen-Moran & Gareis (In Press) did not find SES to be significantly related to principal efficacy when using the full self-efficacy scale. Additionally, Osterman and Sullivan (1996) in their qualitative study of twelve, urban, newly appointed principals did not find SES to be significant in relation to principal efficacy. However, Smith et al. (2005) found that high efficacy for instructional leadership was positively related to a high percentage of economically disadvantaged students. Even though the effect size is small, the finding from this research, as well as from Smith, et. al (2005), provides some positive news for the schools with a high proportion of free/reduced lunch students. This news is promising because principals with a high efficacy for instructional

leadership are likely to persevere longer in the face of adversity, engage in more instructional leadership behaviors, and set challenging academic goals for the campus (Tschannen-Moran & Gareis, In press). This is also promising because districts may be trying to put stronger instructional leaders in lower SES schools in order to meet state and federal accountability standard for all student groups.

Parental involvement. Parental involvement in the school was found to have a statistically significant positive relationship with the principals' moral leadership self-efficacy. Since this is the first principal self-efficacy study to include the parental involvement variable, there are no published research results on the relationship between parental involvement and principal self-efficacy so no patterns have been established. However, practitioners have long known and researchers have been able to demonstrate (Hallinger & Murphy, 1986) that parental involvement is an important element of an effective school. The research design of this study does not provide a way to determine if the principal had an active role in creating a higher level of parental involvement, or if the parental involvement was just a product of the parents' initiative. As stated by Bandura (1997), environmental factors and perceived self-efficacy "affect each other bi-directionally" (p.117).

Time spent on student discipline. The principal is charged to be the instructional leader of the school (Leithwood & Reihl, 2003), but often other issues such as student discipline can vie for the principals time and energy. This study found that time spent on student discipline does impact instructional leadership self-efficacy, but not in the way one might first think.

Principals who spent no time on student discipline reported a lower self-efficacy for instructional leadership; however, as indicated by the small effect size, there is little practical significance. Even though the practical significance is small, there is a lesson to be learned in this

for practicing principals. Principals who spend no time on campus discipline issues may become too far removed from the day to day instructional challenges that their ability to lead the instructional process is also diminished. This is the first study to investigate the relationship between student discipline and principal self-efficacy so no patterns have been established in the literature. The data may indicate that the majority of the principals are truly remaining focused on their instructional leadership responsibilities.

In addition to being the instructional leader of the campus, the principal is also responsible for providing moral leadership (e.g., promoting ethical behavior and school spirit) among the building population for the campus (Fullan, 2002). How does spending time on student discipline affect this endeavor? The data indicated that the principals who spent the most time on student discipline also reported the lowest self-efficacy for moral leadership; however, the small effect size indicates that student discipline accounts for only a small portion of the principals overall moral self-efficacy. This may indicate that even though some of the principals are spending time on discipline that this time may be well spent in terms over the overall learning environment.

In summary, school context proved to be a fruitful line of study in relation to principal self-efficacy beliefs. School level, socioeconomic status, and student discipline were all related to the instructional self-efficacy beliefs of principals, and parental involvement and student discipline were found to be related to moral leadership self-efficacy. Again, due to the relatively small effect sizes, these variables explain a small percentage of the total variance in principal self-efficacy, however the research continues to contribute to the literature on factors that influence principal self-efficacy beliefs.

Principal Preparation Program

Tschannen-Moran & Gareis (In Press) found the principal preparation program to be an important factor related to principal self-efficacy; however, this study did not indicate a statistically significant relationship between self-efficacy and any of the principal preparation variables. There was very little variation in any of the principal efficacy domains when considering the variables of years since certification, quality of the professors' instructional practices, and quality of experiences obtained from the program. While the results may be disappointing to universities, it was promising that so many of the principals feel they were well prepared by their program. Nearly 70% of the respondents ranked their professors instructional practices and the quality of their experiences in their preparation program as above average to excellent. With Texas state standards for administrative preparation, all preparation programs in the state are fairly consistent in content and requirements. Maybe there is not that great of a difference among the institutions in what they offer from their principal preparation program.

Additionally, the nature of the questions may not have been appropriate to elicit any differences. Tschannen-Moran & Garies (In press) asked the principals to assess the "quality and utility of their preparation program". They found that the preparation program played a significant role in principals' self-efficacy beliefs. The authors were unsure about the basis for the perceptions about the principal preparation program, but hypothesized that some "preparation programs may more effectively employ instructional approaches and provide better experiences" (p. 27) to increase self-efficacy beliefs. In order to investigate the principal preparation variable further, this study more specifically asked the principals to "rate the quality of your professors' instructional practices" and "rate your quality of experiences obtained from the program". As discussed earlier, no statistically significant results were found. Due to the fact that all states

require an aspiring principal to complete a certification program (Winter, Rinehart, & Munoz, 2001), further investigation is warranted to discover the relationship between the principal preparation program and the development of principal self-efficacy beliefs.

Recommendations

The construct of principal self-efficacy will continue to benefit from further research. Subsequent research will benefit from having an established principal self-efficacy instrument that has been determined reliable and has held its factor structure across multiple studies. Due to the limited principal self-efficacy research, replication studies would still be beneficial. In most cases, clear patterns have not been created across differing populations. Future research may want to measure the independent variables to both the full PSES scale and the three individual factors.

Factors that influence principal self-efficacy should be further studied. Nearly all studies have examined variables that influence principal self-efficacy. However, all of the studies have examined these variables in populations of practicing principals, and research up to this point has indicated that principal efficacy does not significantly change over time. As a result, research may be better served identifying precursors to principal self-efficacy. For example, the number of years of teaching revealed a small relationship to principal self-efficacy; however, this can not be the only factor at work. Some teachers have very dynamic teaching experiences through personal growth, differing responsibilities, and teacher leadership positions, whereas, other teachers seem to just have the same experience year after year. Some teachers get the opportunity to work with dynamic and highly effective principals, whereas, other teachers do not have this opportunity. Are these differing experiences the key to gaining an understanding of the formation of principal self-efficacy? Additionally, in order for a teacher to make the choice to go into

administration, he or she must have acquired some belief that he or she will be successful at that endeavor. Did these beliefs develop from experiences, mentors, role models, preparation programs, or something else? Did a teacher who excelled at classroom management result in a principal with high moral efficacy? Did a teacher who demonstrated strong instructional practices result in a principal with strong instructional leadership beliefs? In contrast, did a teacher who struggled completing paperwork become a principal with a low self-efficacy for management? If these influencing factors could be clearly delineated in research this could have powerful implications for the administrator selection process and principal preparation and training whether at the university or school district level.

This line of research could be further developed by conducting a longitudinal study that incorporates both the PSES and qualitative research. The PSES could be given at various points over a period of time and then followed up with an interview to probe in the possible events and/or experiences that may have influenced their self-efficacy. Many districts are attempting to “grow their own” administrators, meaning that future district leaders are identified from the pool of teachers within the district and then given the opportunity to participate in a district leadership development program. This could provide an opportunity to track and monitor the development of self-efficacy beliefs. Similarly, researchers could track the self-efficacy development of students that enter a principal preparation program. In this example, both the principal preparation factors and the school related factors could both be measured and compared over time.

A limiting factor of the study of principal self-efficacy is that principal self-efficacy scores results have not been linked to any measure of principals’ actual performance or effectiveness. Further research could attempt to link objective measures of principal or school

outcomes with principal self-efficacy. For example, the question could be asked, how predictive are principal self-efficacy beliefs of the actual leadership behaviors? The principal would fill out the PSES scale and those familiar with the day to day practices of the principal could complete a survey designed to assess the principals' leadership behaviors.

Another potential line of research could be to examine the relationship between principal self-efficacy beliefs and the self-efficacy beliefs of teachers in their schools. Do principals who report a higher self-efficacy for instructional leadership have teachers who report a higher self-efficacy for their own instruction? This is important because research has been able to establish that high teacher efficacy is positively related to higher student achievement (Ashton & Webb, 1986; Moore & Esselman, 1992; Ross, 1992). In addition to student achievement, teachers with a high sense of self-efficacy have a more positive attitude towards innovative teaching strategies (Guskey, 1988), are more persistent with students (Gibson & Dembo, 1984), more likely to encourage parent participation in school (Hoover-Dempsey, Bassler, & Brissie, 1987), exhibit lower stress (Greenwood, Olejnik, & Parkay, 1990) and have an overall higher commitment to the profession (Coladarci, 1992).

Conclusion

Research has not been able to identify strong relationships between principal self-efficacy and the variables that influence these principal beliefs. As in the case of this study, research has been able to identify factors that are of statistical significance such as gender, years of teaching experience, school level, socio-economic status of the study body, parent involvement, and student discipline, but the practical significance of these findings are limited as indicated by the small effect size. Due to the strong relationship between effective principals and effective schools, the role of the principal warrants further investigation, and a promising strand of

research that may help explain what actually creates an effective principal is the study of principal self-efficacy. The results from this study will add to the growing knowledge base on the relationship between principal self-efficacy and its influencing factors.

APPENDIX A
PRINCIPAL SENSE OF EFFICACY SCALE

Page 1

1. Introduction

Principals,

Thank you for taking the time to answer the questions to this short but important survey. This survey is a part of my doctoral research on the factors that relate to principal-efficacy. The survey was designed to collect maximum information in minimal time and should take no longer than 15 minutes to complete. The information will be compiled in an anonymous fashion so feel free to answer all questions honestly.

Again, thank you for your time.

Gary D. Nye

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University of North Texas Institutional Review Board Informed Consent Form:

Before agreeing to participate in this research study, it is important that you read and understand the following explanation of the purpose and benefits of the study and how it will be conducted.

Title of study:

Principals Leadership Beliefs: Are Personal and Environmental Influences Related to Principal Self-Efficacy?

Principal Investigator:

Gary Nye, a graduate student in the University of North Texas Department of Education Administration.

Purpose of the Study:

This study will measure principal-efficacy and factors that potentially relate to principal-efficacy.

Study Procedures:

Participants will be asked to respond to thirty-one questions, The average survey completion time should be less than 15 minutes.

Foreseeable Risks:

No foreseeable risks are involved in this study.

Benefits to the Study:

The results of this study may assist principal preparation programs, professional development programs, and will contribute to the knowledge base of the modern principal.

Procedures for Maintaining Confidentiality of Research Records:

There will be no personally identifiable information collected in this study. However, all responses will be kept confidential and that confidentiality will be maintained in any future publications or presentations regarding this study.

Research Participants' Rights:

By continuing on in the survey you are indicating that you have read all of the above and that you confirm all of the following:

- Gary Nye has explained the study to you and answered all of your questions. You have been told the possible benefits and the potential risks and/or discomforts of the study.
- You understand that you do not have to take part in this study, and your refusal to participate or your decision to withdraw will involve no penalty or loss of rights or benefits. The study personnel may choose to stop your participation at any time.
- You understand why the study is being conducted and how it will be performed.
- You understand your rights as a research participant and you voluntarily consent to participate in this study.
- You understand that you may print a copy of this screen to retain for your records.

Questions about the Study:

Gary D. Nye – Principal Investigator
Doctoral Student at the University of North Texas

Dr. Judith Adkison – Faculty Sponsor
Department of Educational Administration

IRB Statement:

This research project has been reviewed and approved by the UNT Institutional Review Board (940) 565-3940. Contact the UNT IRB with any questions regarding your rights as a research subject.

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Directions

Section I. The Principal Sense of Efficacy Scale

Directions:

Please respond to each of the questions by considering the combination of your current ability, resources, and opportunity to do each of the following in your present position. You may choose any of the nine possible responses, since each represents a degree on the continuum.

1 = none at all

3 = very little

5 = some degree

7 = quite a bit

9 = a great deal

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In your current role as principal to what extent can you...

promote ethical behavior among school personnel?

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

motivate teachers?

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

shape the operational policies and procedures that are necessary to manage your school?

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

handle the time demands of the job?

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

cope with the stress of the job?

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

maintain control of your own daily schedule?

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

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create a positive learning environment in your school?

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

raise student achievement on standardized tests?

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

prioritize among competing demands of the job?

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

facilitate student learning in your school?

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

handle the paperwork required of the job?

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

promote acceptable behavior among students?

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

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promote a positive image of your school with media?

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

manage change in your school?

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

promote school spirit among a large majority of the student population?

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

promote the prevailing values of the community in your school?

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

generate enthusiasm for a shared vision for the school?

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

handle effectively the discipline of students in your school?

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

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What is your gender?

Male Female

How many years were you a classroom teacher?

Years as a teacher =

How many total years have you served as a principal?

Years as principal =

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Which of the following best describes the level of your school?

1 = elementary; 2 = middle level; 3 = high school; 4 = K-12; 5 = other

1	2	3	4	5
---	---	---	---	---

Which of the following best describes your school's setting?

1 = rural; 2 = urban; 3 = suburban

1	2	3
---	---	---

What percentage of the students on your campus is classified as economically disadvantaged?

Percent =

When considering factors such as willingness to communicate with teachers about their child's academic progress and providing a home environment conducive to learning, how would you rate the involvement of parents for the campus in which you serve?

1 = not involved; 3 = somewhat involved; 5 = very involved

1	2	3	4	5
---	---	---	---	---

How much time do you spend with student discipline related issues?

1 = none; 3 = some; 5 = a great amount

1	2	3	4	5
---	---	---	---	---

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Which of the following best represents your highest level of education?

1 = bachelors; 2 = masters; 3 = masters + additional graduate hours; 4 = doctorate

1	2	3	4
---	---	---	---

How many years has it been since you obtained your principal certification?

Years =

Please answer the following two questions based upon your principal preparation program.

How would you rate the quality of your professors' instructional practices?

1 = lowest quality; 5 = highest quality

1	2	3	4	5
---	---	---	---	---

How would you rate the quality of experiences you obtained from the program?

1 = lowest quality; 5 = highest quality

1	2	3	4	5
---	---	---	---	---

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Thank You!

I appreciate your time and participation!

Thanks again!

Gary D. Nye

Special Thanks to Tschannen-Moran & Gareis (2004) for allowing the use of the Principal-Efficacy Scale.

Tschannen-Moran, Megan & Gareis, Christopher (2004). Principals' sense of efficacy: Assessing a promising construct. *Journal of Educational Administration*. 42, p. 573-585.

APPENDIX B
PERMISSION TO USE THE PSES

Gary,

You have my permission to use the Principal Sense of Efficacy Scale as it was developed.

If you are to modify it, you would need to perform validity and reliability analyses to test whether it is still functioning as expected. You can download a copy of the instrument from my web site, which you can access through the link below. I am pleased that you are interested in this topic. I will attach a new article that I have written with Dr. Gareis.

It is currently in press with the Journal of School Leadership.

All the best,

Megan Tschannen-Moran

College of William and Mary
The School of Education
PO Box 8795
Williamsburg, VA 23187-8795
Telephone: 757-221-2187
<http://mxtsch.people.wm.edu/>

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