THE RELATIONSHIP BETWEEN MINDFULNESS

AND SCHOOL LEADER STRESS

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ABSTRACT

In K-12 school districts, principals impact student learning, influence campus culture, and play a role in retaining highly qualified classroom teachers. Almost half of school principals resign or change positions by the third year in the role (School Leaders Network, 2014). The true experimental study included a total of 78 principals, representing 17 of the 20 educational regions in Texas. Participants randomly assigned to the treatment group were asked to use Mindfulness Coach smartphone application for a period of four weeks. To determine if mindfulness intervention impacted stress levels, participants from both the control group and treatment group completed a pre-survey and post-survey measuring stress levels and perceived levels of mindfulness. Findings revealed that principals with higher levels of perceived mindfulness had lower levels of stress. The relationship between mindfulness and principal stress should be researched further to determine if a statistical significance between mindfulness intervention and stress is achieved. This study is intended to provide support for principals, superintendents, and principal preparation programs to provide strategies for principals in the area of managing high levels of stress and reducing attrition rates among the profession.

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Chapter 1: Statement and Support of the Problem

In K-12 schools, principals are a contributing factor to the success of students, and therefore principal retention is critical. A school principal's instructional leadership contributes to twenty-five percent of a student's academic success, and it can cost a school district close to $75,000 to hire and train a new principal (Texas Association of School Boards, 2015; Elemen, 2016). Although important to school success, data indicates that any efforts of retaining principals have been ineffective. In 2010, the greatest retention rate of Texas principals was sixty-one percent for a three-year period, and the greatest five-year retention rate was thirty-three percent (Fuller & Young, 2010). In a survey during the 2010-2011 school year, over seventy-five percent of principals surveyed were either willing to stay in their current role for one to three more years, four to six more years, or were unsure how long they would remain in their current role, while only the remaining twenty-five percent stated their willingness to remain in their current position indefinitely (Burkhauser, Gates, Hamilton, & Ikemoto, 2012). A 2015-2016 study of school principals found eighty-two percent of principals remained in the same position at the same school the following year. However, only forty-three percent of these principals stated their desire to remain a school principal, while the remaining were either undecided if they would stay another year or were waiting on a more appealing opportunity so they could leave the position (Goldring, Taie, & O'rear, 2018). In 2013, one-third of the 500 principal participants in a survey had considered leaving the profession due to several reasons, including:

- The heavy workload and managerial tasks that prevented them from engaging in instructional leadership;
- Long work hours and tolls that challenged them physically and psychologically;

- State and local policies that prevented them from making important decisions;

- Isolation associated with the position (MetLife, 2013).

Task overload and isolated hours on the job leads to high-stress rates among principals. The stress exhibited by many school principals can be defined as chronic stress and left untreated can lead to physical and mental issues for an individual (Colbert, 2008; Boyland, 2011). Unfortunately, not only the individual principal suffers from chronic stress personally; those who exhibit chronic stress and receive no intervention can negatively impact the culture and success of the entire school (Boyland, 2011). Burkhauser, et al. (2012) found that environments in which principals are placed and the amount of teacher buy-in are determining factors in principal retention. With this information, district-level leaders should understand how to support principals in a way that prevents principals from experiencing stress at rates so severe they move to a new campus, school, or leave the profession altogether (Boyland, 2011). Use of mindfulness has been shown to be an effective intervention in improving stress levels of individuals, and therefore the practice may improve the retention rate of principals over time (Baer, 2003; Brown & Ryan, 2003).

Background and Context of the Problem

The expectations placed on principals in public education continuously expands as federal, state, and local mandates are implemented continually. School leaders, especially principals, have the primary responsibility of assuring students on their campus receive high-quality instruction that is aligned to state standards. Although instructional leadership is the principal's primary role, there are many other duties and responsibilities the principal must implement and monitor (Hallinger, 2005). Roles of the school principal include but are not limited to implementing all federal, state, and local policies with fidelity; creating and maintaining a safe and orderly environment for children, faculty, and staff; building and maintaining relationships

with all stakeholders; and addressing all concerns by parents, staff, and students (Leithwood, Begley, & Cousins, 1994). Although this is not an exhaustive list of tasks that must be performed on an ongoing basis by a campus principal, it highlights areas that consume a majority of a principal's time. With increased pressure from state and local leaders, unhappy parents, and disgruntled employees, it is apparent why many school principals today experience high levels of stress and leave the profession. According to Belt (2010), fifty percent of Texas principals left building-level leadership within their first five years. Burkhauser, et al. (2012) found that after a principal left a campus, student progress declined the following year. Since principals are responsible for twenty-five percent of a student's academic success, it is important for principals to learn coping methods to reduce stress levels before it is too late and they leave the profession altogether (Center for the Future of Teaching and Learning, 2011). District-level superintendents and university professors who prepare and hire principals must learn strategies to help campus-level leaders control their overall well-being before they leave the profession.

Purpose and Significance of the Study

The purpose of this study is to explain the relationship between guided meditation practice with a smartphone application and stress levels among K-12 school principals. Mindfulness, a form of meditation, can teach one to respond to situations with intention rather than worrying about what has happened or what may happen in the future (Weare, 2014). Technology has advantages over face-to-face mindfulness therapy Over 700 smartphone applications have been developed to assist users with mindfulness practice (Mani, Kavanagh, Hides, & Stoyanov, 2015). Smartphone applications provide autonomy to the user, reduce the time needed for travel to the site, and are more cost-effective than face-to-face mindfulness sessions (Economides, Martman, Bell, & Sanderson, 2018). Researchers from John Hopkins University discovered that

mindfulness meditation programs moderately improved anxiety, depression, and pain. However, there was little to no improvement in mood, attention, substance use, nutrition, sleep, or weight (Goyal et al., 2014). Recent studies have discovered benefits of mindfulness techniques for both teachers and students to assist in regulating stress and emotions, but studies related to mindfulness benefits for principals are limited (Klatt, Buckworth, & Malarkey, 2009; Bergen-Cico, Possemato, & Cheon, 2013). School principals who learn and embrace mindfulness techniques can serve as role models by building and maintaining social and emotional intelligence for their teachers and students (Olson & Brown, 2012).

As demands from federal, state, and local leaders are increased, as well as demands from parents and community members, stress levels of principals continue to rise. Without providing support for principals' mental well-being, it is likely the rate of leadership turnover will not be reduced. "If good leadership is at the heart of every good school, then a leader who is both mentally and physically unwell could have a potentially disastrous impact on the well-being of a school and those within it" (Phillips & Sen, 2011, p. 180). Consistent school leadership positively impacts student achievement (Center for the Future of Teaching and Learning, 2011).

For each new principal hired, it takes that particular campus three years to regain accelerated instruction in math and English language arts; and it takes a minimum of five years for a principal to implement a campus vision, improve instruction, and fully implement policies and procedures that have the greatest impact on school success (School Leaders Network, 2014). With student achievement as a top priority for all educators and school principals, schools should work diligently to maintain principals in campus leadership positions for an extended period. Principals who practice mindfulness techniques may improve their ability to cope with daily work and life stressors which can potentially influence the amount of time they are able to

remain in the same leadership position (Kabat-Zinn, 2003; Gold, Smith, Hopper, Herne, Tansey, & Hulland, 2010). Remaining in the same leadership position over time can positively impact school culture and student achievement at the campus level.

Theoretical Framework

This study focuses on stress levels of current principals and the use of mindfulness as a coping mechanism. According to Lazarus and Folkman (1984), Cognitive Appraisal Theory, also known as Stress, Appraisal, and Coping Theory, focuses on one's perception of their environment in the present moment and also how they cope with the situation in a two-part appraisal process (Lazarus & Folkman, 1984). Lazarus and Folkman define the primary appraisal process as a time in which an individual determines if the situation is threatening, challenging, harmful, or meaningless to the individual's well-being. Mindfulness, a form of meditation, requires one to be aware and accepting of the present moment (Kabat-Zinn, 2003). The practice of mindfulness allows one to accept situations appraised as threatening or challenging and approach these situations in a more positive manner, leading to an increase in self-efficacy (Lazarus & Folkman, 1984; Garland, Gaylord & Park, 2009).

Once the individual defines the current situation, secondary appraisal begins. It is during the secondary appraisal when one determines available resources for coping with situations perceived by the individual as threatening to his or her well-being. According to Lazarus & Folkman (1984), coping methods chosen by the individual change because it is dependent upon the individual's perception of the current situation. Emotion-focused coping allows the individual to control his or her emotions and response to the stressful situation through forms of meditation and prayer, whereas problem-focused coping focuses on solving the actual problem that is causing the stress. Mindfulness allows one to decenter from thoughts and emotions, thus

allowing the individual to choose an appropriate coping method rather than making quick judgment and decisions (Garland, et al., 2009). Choosing appropriate coping methods for situations defined as threatening, harmful, or challenging to the individual has a positive effect on one's well-being by allowing them to choose effective coping methods depending on the current situation (Garland, et al., 2009; Brown, Creswell, & Ryan, 2015).

Research Questions

1. What is the relationship between K-12 principals' perceived level of mindfulness and their perceived overall level of stress?

2. To what extent does the use of a mindfulness application reduce stress levels of K-12 principals?

3. To what extent do gender, race, age, years of experience, campus level, educational region, or school district size predict levels of stress categories (role-based, task-based, conflict-mediating, boundary spanning) among principals after mindfulness intervention?

Overview of Methodology

The researcher will utilize a quantitative experimental design method to conduct this study. The type of experimental design used is a between-group, true experimental design that will take place for a time period of four weeks. The study is considered a true experimental design because it will include the same pre-test and post-test for all participants, and participants will be randomly assigned to either the experimental group or control group. Two instruments will be used to answer the three research questions; the Freiburg Mindfulness Inventory (FMI) and Administrative Stress Index (ASI). The FMI consists of fourteen questions all measured on a Likert scale ranging from *rarely* to *almost always.* The ASI has thirty-five questions measured on a Likert scale ranging from *rarely or never bothers me* to *frequently bothers me.*

Definitions of Terms

Coping. In terms of stress management, coping is defined as the ability to change and adapt according to external or internal demands that are viewed as threatening or harmful to the individual (Lazarus & Folkman, 1984).

Demands-Abilities Fit. Person-Environment Fit Theory defines demands as requirements and expectations of employees in the workplace. One must have the abilities of time management and energy to meet workplace demands. When an individual's abilities match the demands of the environment, there is a fit (Kristof, 1996).

Needs-Supplies Fit. In Person-Environment Fit Theory, needs-supplies fit is dependent upon how well the supplies of the environment fit the needs of the individual. When an environment fulfills an individual's needs, wants, or preferences, there is a fit (Kristof, 1996).

Strain Hypothesis. According to this hypothesis, increasing demands in the workplace while decreasing one's control in his or her role will increase stress levels. The autonomy one has in the workplace will determine if job demands and stress levels of the individual increase or decrease (Karasek, 1979).

Emotion-Focused Coping. When faced with an event perceived as stressful outside of one's control, emotion-focused coping may be a successful coping strategy. Examples of emotion-focused coping include mindfulness, meditation, journaling, and prayer (Folkman & Lazarus, 1980; McLeod, 2009).

Problem-Focused Coping. This particular coping strategy is most effective when one has control over the event that is perceived as stressful. Problem-focused coping attempts to control the actual stressor rather than attempting to control the response to the stressor (Folkman & Lazarus, 1980; McLeod, 2009).

Occupational Stress. Stress that is derived from the workplace due to task overload on an individual and unreasonable amount of hours worked. Occupational stress may result in more frequent absenteeism of the employee, relocation of an employee to another institution, and development of health issues (Gillespie, Walsh, Winefield, Dua, and Stough, 2001).

Chronic Stress. Living in a state of full alert or expecting an emergency to occur at all times with no relief is what separates chronic stress from acute stress. Chronic stress can deplete one's health, both mentally and physically (Cora, 2010).

Head-teacher. In the early 1900s, a head teacher held the role of both a principal and a teacher. The head teacher was responsible for managing student records, adhering to maintenance, custodial, and furniture needs, attending to student discipline, all while spending a majority of their time instructing students in the classroom (Cuban, 1988)

Instructional leader. As the requirements of the principal changed, one became required to not only manage the building but also to lead instruction. An instructional leader is defined by the following:

- Creates shared goals with staff members;

- Provides information regarding curriculum and instruction;

- Evaluates each teacher's performance in the classroom routinely;

- Provides constructive feedback to teachers regarding instruction;

- Defines academic and behavioral expectations for teachers (Cuban, 1988)

Transformational leader. The role of transformational leader requires increased collaboration between the supervisor and their employees. A school principal who adheres to the role of a

transformational leader invites and accepts input from parents, teachers, and community members (Murphy, 1994). The goals of transformational leadership include:

- Creating and maintaining a school culture that is inclusive of all stakeholders;

- Planning effective professional development for teachers and instructional staff;

- Working collaboratively to solve problems (Leithwood & Poplin, 1992; Murphy, 1994; Leithwood & Jantzi, 2006).

Principles of equifinality. Applicable to any organization, principles of equifinality states that the same end goal can be achieved, even with altered starting conditions and in various ways (Feiring & Lewis, 1987). This principle implies there is more than one correct and successful way to accomplish a goal. Schools with larger numbers of economically disadvantaged students have higher principal turnover rates due to the stressful environment and lack of success they feel. However, according to this principle, these principals can achieve the same end goal as principals in other schools but may have to alter their paths to success.

Mindfulness. One of the ways in which this term is defined is "A state of allowing, relaxed, and receptive attention to oneself and one's surroundings in the present moment" (Brown, et al., 2015, p. 120) Mindfulness is meditation, and for the purpose of this study, mindfulness and mindfulness meditation will be used interchangeably (Bush & Goleman, 2013).

Mindlessness. Opposite of mindfulness, mindlessness is a culture defined by closed-mindedness, auto-pilot behaviors that are repeated daily, and blindly following rules and procedures whether effective or not (Hoy, 2003; Hoy, Gage, & Tarter, 2006).

Primary Appraisal. The primary, or first, appraisal of a situation allows an individual to assess how a situation is going to impact his or her well-being. The individual defines the situation mentally as threatening, challenging, harmful, or benign (Lazarus & Folkman, 1984).

Secondary Appraisal. During the secondary appraisal, an individual has already determined the impact of the situation and he or she is now focused on available resources to cope with the situation at hand (Lazarus & Folkman, 1984).

Well-being. Often used interchangeably with the term wellness, well-being includes the presence of positive emotions and moods, lack of negative emotions such as depression and anxiety, satisfaction with one's life, and positive functioning (Centers for Disease Control and Prevention, 2016).

Assumptions, Limitations, and Delimitations of the Study

Limitations. There are limitations within this particular study. One limitation is that only principals who submit a response to both surveys will be included in the study. This could potentially lead to smaller sample size, but the researcher will give potential participants one week to submit responses to the surveys to help maximize the sample size. Another limitation that may impact the generalizability of this study is that only principals in Texas will be included. Principals are able to drop out of the study at any given time, and names will be coded in a way that does not expose their information publicly. Another limitation in this study is that the level of mindfulness experience for participating principals will vary, so participants may not begin the study at the same level of mindfulness. Participants assigned to the experimental group must

have access to a smartphone with Android or iOS capability to participate. Also, since a public database provided by Texas Education Agency will be used as a way for the researcher to identify current principal names, districts in which they are employed, and email addresses across Texas, any error in this public information will pose a limit to this study.

Delimitations. The purpose of this study is to explain the relationship between guided meditation practice with a smartphone application and stress levels among K-12 school principals. A delimitation present in this study is the use of the FMI as a measure of mindfulness experience. The term mindfulness can be defined in many ways, but for the purpose of this study one's experience with mindfulness will be reported based solely on components present in the FMI. This study includes only Texas principals, but the study can easily be replicated for principals in other states since there is nothing specific to Texas' principal standards.

Assumptions. All participants in the study will respond honestly on pre and post ratings of the survey instruments. Principals in the experimental group will utilize the Mindfulness Coach app to engage in mindfulness meditation throughout the four-week study.

Summary and Order of Presentation

Presented in chapter one was an introduction to the realities principals face in schools across the nation today. This chapter has identified particular issues present among school leadership that aide principal turnover rates. Therefore, the justification for the research questions are provided, as well as limitations and delimitations the researcher may face throughout the study. Chapter two will provide an overview of the literature associated with principal roles, effects of stress, as well as mindfulness and its use in improving components of well-being, attention, and awareness. Chapter Three will provide detailed explanations of the research methods that will be used to conduct the four-week study. This chapter will provide information regarding pre and

post surveys, population and sample sizes, measurement instruments, and discussion of how data will be analyzed. Chapter Four will present the outcome of the study, how it relates to the research questions and hypothesis and interpret the findings of the study. Chapter Five will include discussion and provide suggestions for future research based on the particular findings.

Chapter 2: Review of Related Literature

Over the past century, the responsibilities of the school principal have continuously expanded in an attempt to meet mandates from local, state, and federal lawmakers. A lack of time to accomplish the many tasks, large amounts of paperwork, interruptions from duties, and achieving a balance between life and work were identified as the largest stressors by principals (Klocko & Wells, 2015). These stressors, along with an increase in hours worked, have resulted in stress, burnout, and principal attrition (Saros, 1988; Gmelch & Chan, 1995; Militello, Gajda, & Bowers, 2009; Boyland, 2011; Alvoid & Black, 2014; Superville, 2014). Attrition rates negatively impact student achievement and campus morale (Branch, Hanushek, & Rivkin, 2009). This study will use a true experimental design to determine if mindfulness practice improves stress rates of school principals, thus lowering attrition rates in the profession.

Mindfulness has been studied as an effective intervention to improve stress levels, depression, and anxiety in multiple settings (Kabat-Zinn, 2005, 2017). However, there is limited research regarding the impact of mindfulness interventions on the stress rates of K-12 principals. This study will determine the impact of mindfulness techniques on practicing principals' stress levels and their ability to cope with stressors. This literature review describes the expanding role and responsibilities of campus leaders, effects of stress, and a review of mindfulness practice and its correlation to improving stress among individuals.

Statement of the Problem

The elevated stress levels school principals endure due to managing the many requirements of the job is an issue across the United States. Throughout the history of the principal's role, responsibilities have continued to increase. Principals are responsible for creating and

maintaining a positive, safe climate for staff and students, building positive relationships with all staff, students, community members, and parents, and ensuring mandated policies are implemented with fidelity. It is also an expectation of the principal to serve as the leader of curriculum and instruction on their respective campuses, and this requires much of the principal's time and guidance. Although the classroom teacher is the most influential factor in a student's success, the leadership provided by the campus principal is the second most important factor influencing student achievement (Branch, et al., 2009; Superville, 2014).

High expectations placed on principals by leaders at the district, state, and federal levels ultimately result in increased workload and higher stress rates for principals. In the late 1920s, principals worked an average of forty-four hours per week, and this number has increased to sixty-one hours a week as of 2018 (Superville, 2018). The numerous hours and responsibilities placed on principals result in stress and burnout. Principal turnover takes a toll on district budgets and student learning. Twenty-five percent of principals in the United States leave their roles as campus leaders each year, and almost fifty percent of campus leaders leave by their third year (School Leaders Network, 2014). Improving the stress rates of principals could lead to lower attrition rates, thus positively influencing campus morale and student achievement (Marzano, Waters, & McNulty, 2005; Louis, Leithwood, Wahlstrom, & Anderson, 2010). Mindfulness meditation techniques have been proven across many settings to improve stress, as well as physical and mental well-being for both children and adults (Semple, Lee, Rosa, & Miller, 2010). This quantitative study will attempt to determine if mindfulness practices guided by a smartphone application can have a positive impact on the stress rates of campus principals.

Changing Role of the School Principal

   Head teacher to principal. The role of campus leadership was initiated during the late 1800s and early 1900s through the appointment of a *head teacher* who instructed children while managing clerical duties (Sharp & Walter, 2012). The primary role as the head teacher required one to manage student records, routinely monitor maintenance and furniture needs, manage student discipline, hire a custodian, and still devote a majority of their time to teaching students (Cuban, 1988). As America transitioned into the early and mid-1900s, there was an increase in student population. The student population growth required additional schools to be built, and the idea of graded schools was introduced (Cuban, 1988). Graded schools created a need for a full-time *principal* as opposed to a head teacher. During the transition from head teacher to principal, the primary focus of the principal consisted of overseeing the construction of school buildings, hiring staff for the buildings, and organizing large influxes of students (Sharp & Walter, 2012). The full-time principal was to oversee what was being taught in each classroom, and by the 1920s, principals were overseeing managerial tasks, curriculum, and instruction instead of teaching classes (Cuban, 1988).

   Manager. The role of the principal has evolved in many ways since the early 1900s. For example, during the 1960s and 1970s, federal programs such as bilingual and special education were at the forefront of education, and principals became responsible for managing these particular programs and the associated curriculum (Hallinger, 1992). Surveys, diaries, and self-reports from thousands of principals from 1911 to 1981 revealed that the time they devoted to curriculum, instruction, and program oversight was clearly secondary to that committed to managerial tasks. Principals quickly moved from one task to another, constantly responded to requests from others, spent time on the telephone and in meetings, and made time for all people

in the school community (Cuban, 1988). Additional surveys conducted during the 1970s discovered differing opinions regarding the responsibilities principals felt they should be expected to undertake. The School Principal Task Inventory (SPTI) of 1973 revealed principals' primary concern was leadership, which consisted of the following components: staff relationships, decisions about personnel, personal growth, and maintaining order (Gaynor, 1975). The second concern identified from the SPTI in 1973 was maintenance, including supervision of personnel, monitoring student and staff performance, and managing school budgets (Gaynor, 1975). However, a survey by the National Association of Secondary School Principals (NASSP) revealed that principals felt their primary role should have been as instructional leaders of their campus, although this was not the primary role at the time (National Association of Secondary School Principals, 1978). In the 1980s, the primary role of the principal shifted from building manager to *instructional* leader, and student instruction became a pressing issue for campus principals (Hallinger, 1992).

Instructional leader. Principals who created and shared goals with teachers provided oversight of curriculum and instruction, frequently evaluated teachers and provided feedback, and established academic and behavioral requirements of students and teachers were defined as *instructional leaders* (Cuban, 1988). The role as instructional leader required the principal to have a vast knowledge of curriculum and instruction and to be readily available to assist teachers in the classroom with instructional improvements (Center for the Future of Teaching and Learning, 2011). A principal's impact on student learning accounts for twenty-five percent compared to a teacher's impact on student learning of thirty-three percent (Louis, et al., 2010; Center for the Future of Teaching and Learning, 2011). However, few in-service opportunities effectively prepared principals for the vast knowledge of curriculum and instruction required to

effectively transition student learning, and few principals across the United States felt they were adequately prepared for the role of instructional leader (National Association of Secondary School Principals, 1978). Principals, often chosen due to their ability to effectively provide instruction to students, were not formally prepared to teach adults, which impeded upon the performance of principals as instructional leaders (Cuban, 1988). In addition to their role as instructional leaders, principals were still required to spend a majority of time on managerial issues (Hallinger, 1992). Therefore, the term instructional leader to define the campus principal was only a portion of the job description, even if it was meant to be the primary focus. For principals attempting to be instructional leaders, ideas and mandates from the school district's central office competed with the expectation of principals to assist teachers in doing their job well and meeting student needs (Cuban, 1988).

Connection to stress. As the role of the principal transitioned from building manager to instructional leader, responsibilities were added though none were removed, contributing to task overload. Gillespie, et al., (2001) identified task overload as a prime factor of stress in one's daily life due to an increase in job responsibilities. The increase in responsibilities for the university professors in this particular study made it difficult for staff to complete any one task proficiently. They were expected to work significant hours of unpaid overtime, resulting in increased stress for these individuals (Gillespie, et al., 2001). Occupational stress produced from increased workloads resulted in increased absenteeism, staff members locating new positions outside of the university, development of physical health issues such as migraines and neck pain, decline of relationships with friends and family, and lack of time for self-care (Gillespie et al., 2001). Similar to university employees, twenty-six percent of principals reported severe stress as a result of task-based duties (Gmelch & Chan, 1995; Boyland, 2011). In addition to maintaining

positive teacher morale and increasing student achievement, principals were still responsible for campus budgets, maintaining relationships with staff and community members, and addressing all issues and complaints that arose (Williamson & Campbell, 1987; Kelehear, 2005) In the transition from building managers to instructional leaders, mental and physical issues such as depression, anxiety, heart disorders, loss of enjoyment and fulfillment in the workplace, increased absenteeism, and diminished performance resulted in response to the additional roles assigned (Williamson & Campbell, 1987; Wells, 2013). The increasing tasks associated with the shift from principal as building managers to instructional leaders diminished their ability to perform at optimal proficiency. The responsibilities defining the role of a campus principal continue to expand, contributing to emotional exhaustion and burnout (Sarros, 1988).

Leadership Role

In the 1990s and 2000s, the role of principal began evolving into what is known today as *transformational leadership* (Balyer, 2014; Leithwood & Poplin, 1992). Leithwood, et al., (1994) identified seven characteristics of transformational leaders:

- Creating school vision and goals;

- Building a productive school culture;

- Motivating teachers to think innovatively;

- Providing individual support;

- Implementing and modeling best practices;

- Holding all to high expectations;

- Creating a collaborative culture

The role of the transformational leader is considerably more collaborative than the instructional leader. Increased involvement from teachers, parents, and community members in

decision-making processes, as well as increased pressures on the principal to market the school, defines the role of the transformational leader (Murphy, 1994). The argument for principals to transition from instructional leaders to transformational leaders is that teachers should be the instructional leaders, while principals should develop the instructional leadership within their teachers (Brandt, 1992).

   Transformational leader. Transformational leadership focuses on three goals: creating and maintaining a collaborative school culture with staff, planning effective professional development for teachers, and working together to solve problems (Leithwood & Poplin, 1992; Murphy, 1994; Leithwood & Jantzi, 2006). Transformational leaders develop a purposeful, shared vision and motivate teachers to identify and implement innovative ideas that result in student success. This particular characteristic of transformational leadership adds another level of stress for principals, but studies show when paired with positive inspiration from their leader, teachers are open to change and implementation of new methods (Seltzer, Numerof, & Bass, 1989). Transformational leaders build a supportive network of teacher leaders who help manage day-to-day tasks and assist in accomplishing the shared mission and vision of the campus (Andreyko, 2011). Serving as a transformational leader has shown to reduce burnout rates among principals and increase happiness among their employees due to the collaborative nature of the leadership role (Seltzer et al., 1989; Hildenbrand, Sacramento, & Binnewies, 2018). Although transformational leadership and principal burnout have shown a negative correlation across studies, a survey during the implementation period of transformational leadership revealed half of the districts surveyed still faced principal shortages for several reasons: compensation did not match the excessive job duties, high stress and time demands of the position, and high-stakes testing accountability (National Association of Secondary School Principals, 2017). Along with

all other responsibilities and pressures placed on campus principals, the initial implementation of federal accountability through No Child Left Behind (NCLB) in the 2000s placed additional pressures on principals and required their full attention.

Federal accountability. While transformational leaders ensure curriculum, instruction, and assessment align with the campus vision, federal accountability measures mandated under NCLB place increased pressure on principals to assure their campuses are high-achieving. Principals described accountability pressures from No Child Left Behind as a great cause of stress, and the mandates made them feel as if they had no autonomy in their leadership roles (West, 2010). In the 2000s, testing reports were made public, and principals' jobs became dependent on the success of students on state testing measures, further contributing to principal stress (Militello, et al., 2009). A survey of veteran principals in Indiana revealed seventy percent felt their roles were more stressful now than in the past, and one cause of this stress was the mandated Adequate Yearly Progress (AYP) under NCLB (Boyland, 2011). Along with accountability and high-stakes testing, instructional leadership has remained a primary focus of the principalship (Hallinger, 2005). However, rather than defining the instructional leader as someone with vast knowledge of curriculum and one who demonstrates hands-on lessons in the classroom, instructional leadership is more specifically defined as: creating clear campus goals, fostering continuous student improvement, monitoring student performance, providing continuous professional development for staff, and being visible to all (Hallinger, 2005).

Today, principals are required to simultaneously manage budget, space, and equipment of the school, lead personnel, build relationships with the community, address conflict, and manage student safety, all while maintaining quality of instruction and student learning as their highest priority (Center for the Future of Teaching and Learning, 2011). A principal's ability to create a

positive culture among the school allows all other components of leadership roles to flourish (Habegger, 2008). Although important, most of a principal's time is spent on budgeting, building management, and personnel, as opposed to education leadership and curriculum development (Center for the Future of Teaching and Learning, 2011). A majority of the time principals devote to instruction is in the form of informal classroom walk-through evaluations which have a negative correlation with an increase in student learning (Grissom, Loeb, & Master, 2013). Federal accountability requires principals to shift focus from authentic, effective instructional leadership practices at the campus level due to the time required to produce mandated federal and state reports and committee meetings they must attend and hold.

 Connection to stress. The increasing expectations placed on campus principals are overwhelming, and there is often a lack of time and financial resources readily available to assist principals in successfully achieving all requirements. Stress associated with the role of the principal is not new, but the pressures they face are ever-changing. Work-related stress among today's principals has resulted in health problems such as heart attacks, weight gain, influenza, and suicidal thoughts (West, 2010). The average principal works an average of sixty-one hours per week, which has increased five percent since 2008 (Superville, 2018). A study of elementary principals in South Dakota revealed their main causes of stress were federal and state accountability compliance measures, placing high expectations on themselves, and the vast number of tasks they were required to complete (Friedman, 1995; Halling, 2004; West, 2010). Similar to NCLB, the implementation of new accountability mandates under Every Student Succeeds Act (ESSA) will create additional stress for principals due to the uncertainty and lack of guidance on federal requirements (National Association of Secondary School Principals, 2017).

From past to present, principal roles have endured many changes in an attempt to continuously impact student performance. As the role of the principal has transitioned from a head teacher to transformational leader, principal responsibilities have not been removed, only added. Although student achievement should be the main focus for all principals, increased attention from the federal, state, and local level on accountability continues to cause excessive stress, resulting in a lack of qualified candidates willing to enter or remain in the role of campus principals.

Attrition Rates Among Campus Principals in the United States

Principal turnover. Attrition rates within the realm of K-12 principals are an issue due to the numerous tasks continually added to principal roles, and the vast responsibilities placed on these leaders cause many to feel as if the tasks are not manageable. Three and five-year principal turnover rates have steadily risen over the last two decades, and less than half of new principals last longer than three years in their positions (University Council for Educational Administration, 2008; Militello et al., 2009; Alvoid & Black, 2014). Data related to principal turnover varies across the literature. In findings from 2007-2008 and 2010-2011, it was identified the percentage of principals who left their roles neither increased or decreased (Battle & Gruber, 2010; R. Goldring, Taie, & Owens, 2014). However, the National Association of Secondary School Principals (2017) found that one in five principals who entered the profession in 2011-2012 left their position by 2012-2013. Attrition rates among school principals are especially concerning because they discourage current teachers from aspiring to enter school leadership roles (Alvoid & Black, 2014). Prevalent issues resulting in stressful environments for principals today is the lack of preparation programs to prepare them for their roles and not feeling supported by school

districts to adequately achieve the overwhelming demands of campus leadership (Militello et al., 2009; Alvoid & Black, 2014).

Lack of support. Principals often feel they are placed into the leadership role without continued support from the district or state-level leaders (School Leaders Network, 2014). Without a powerful, knowledgeable campus principal who can manage demands, prioritize time management and tasks, and delegate responsibilities, no school has ever achieved positive turnaround (Marzano, et al., 2005; Alvoid & Black, 2014). Although leadership preparation programs can cost a school district $20,000 to $42,000 per principal, this amount is considered cost-effective for the district (Darling-Hammond, Meyerson, LaPointe, & Orr, 2010). The estimated cost to train and hire a new principal is equivalent to $75,000, therefore losing a principal each year is inordinately costly for a school district (School Leaders Network, 2014). Between 2005 and 2010, schools in Kentucky made principal preparation programs a priority, and there was a seventy percent reduction in principal turnover (Mitgang & Gill, 2012).

Role isolation. The success of a campus relies primarily on the leader, thus creating an isolating position for principals. The isolation of the role as a campus principal has negative effects on principals' emotional well-being and negatively impacts relationships with teachers, parents, and students (Friedman, 1995). Multiple tasks accomplished by principals in isolation include preparation for each school year, teacher and staff evaluations, and planning of professional development (Center for the Future of Teaching and Learning, 2011). Often, there is no one available at the building level with which to seek feedback and guidance, thus causing increased physical and emotional stress on the individual principal (Bauer & Brazer, 2013; National Association of Elementary School Principals, 2013; Alvoid & Black, 2014). Social support, which can take different forms depending on a principal's perception, has been shown to

enhance the quality of one's work environment by impacting positive organizational and mental factors and reducing the impact of negative factors (Bauer & Brazer, 2013). Although each principal's role is similar, experiences vary depending on the climate of the school, local community, and personal characteristics of each principal. Principals should understand there are often multiple ways to achieve the same goal, which is known as the *principles of equifinality* (Alvoid & Black, 2014). Available resources and space vary by school, thus creating a varying degree of working conditions among school principals.

Distinct challenges. In schools with a large population of economically disadvantaged students, more effort is required of the campus principal to create an effective learning environment (Center for the Future of Teaching and Learning, 2011). Schools of high poverty are fifty percent less likely than schools with a lesser number of economically disadvantaged students to be led by the same campus leader for six years or more (Branch, et al., 2009). Further, schools with larger numbers of new teachers and low socioeconomic students face the negative consequences of frequent principal turnover (Béteille, Kalogrides, & Loeb, 2012). Principals often request to be moved to other campuses within a district or choose to enter a new district in order to lead a campus with higher-achieving students (Béteille et al., 2012). Approximately thirty percent of principals who lead schools with a vast number of low-achieving students leave each year due to work-related stress compared to only sixteen percent of principals on campuses with fewer low-achieving students (Béteille et al., 2012). Rates of principal attrition continue to rise due to resignations caused by burnout and stress, retirement, as well as a lack of qualified candidates for the role (Alvoid & Black, 2014).

Connection to stress. In 2011, seventy-five percent of principals reported the complexity of their jobs led to increased stress levels and decreased career satisfaction (MetLife, 2013). A

Massachusetts study indicated principals primarily leave due to three factors: stress, salary, and working hours (Militello et al., 2009). Increased rates of teacher turnover occur more frequently when new principals arrive, which often contributes to a negative impact on student learning outcomes (Béteille et al., 2012). Principal turnover rates have a negative effect on student learning, and student achievement in math and reading is affected during the first year on campus after principal turnover (Branch et al., 2009). Students in schools with consistent leadership had an additional two to seven-month advancements in learning above students in schools with less consistent leadership (Branch et al., 2009). Kearney, Kelsey, and Herrington (2013) found a strong positive correlation between principal longevity and student standardized test scores. It takes a campus leader five years to implement an effective vision, improve the instructional staff, and implement policies that have the greatest impact on student performance (Louis et al., 2010). By reducing instructional and managerial responsibilities, providing a network of support, and making principals feel empowered, the principal's role would likely become more manageable. The attrition rate of principals across the United States has a direct impact on student achievement and district resources. It is vital for school districts to focus on attracting and retaining school principals by providing the support they need and reducing the overall stress they face on a daily basis.

Recruiting and Retaining School Principals

As the concern of principal attrition continues to evolve, it is important to review strategies associated with principal retention and recruitment. In the early 2000s, states such as Texas and Georgia had many more certified principals than their respective number of schools, but locating qualified, willing principals was still difficult (Bottoms, O'Neill, Fry, & Hill, 2003). Many teachers enroll in administration programs only to receive master's level pay with no intention of

moving into a leadership role, while others are certified but are not qualified as effective leaders (Bottoms et al., 2003; Haar & Robicheau, 2007; Pijanowski & Peer, 2016). An effective leader can be defined as one who has the following attributes: leads with a sense of urgency, have a shared vision and mission, direct the instructional process, models ethical behavior, ensures equal learning opportunities for all, and advocates for students, staff, and community (National Board for Professional Teaching Standards, 2010). To recruit and retain effective leaders, there should be a focus on improving preparation programs across the nation and providing meaningful professional development. The Wallace Foundation (2016) identified five common themes among districts and universities in relation to principal preparation programs:

- Superintendents are dissatisfied with the quality of principal preparation programs at the university level;

- There needs to be an increase in partnerships between districts and universities to enhance aspiring principal's experiences;

- Principal preparation programs coursework does not always accurately reflect the actual role of a principal;

- It is the states' responsibility to improve principal preparation programs at the university level, but many are not doing so effectively;

- Policies and practices at the university level hinder change to programs

A focus on providing authentic experiences for aspiring principals can reduce stress levels by allowing them the opportunity to experience stressors of the job before accepting the role (Wallace Foundation, 2016).

Principal preparation programs. As the requirements of leading effective schools have evolved, university preparation programs have not adjusted program objectives adequately and

are preparing principals for schools they would have managed in the past (Levine, 2005; Hess & Kelly, 2007). In a 2009 survey regarding interest in receiving advanced training in a principal certification program to better prepare principals to lead schools to success, eighty-three percent of school leaders were interested, and sixty-nine percent of district-level leaders were interested (National Board for Professional Teaching Standards, 2010). Principal preparation programs lack instruction regarding the use of student data to guide improvement, accountability, and creating a partnership with parents (Hess & Kelly, 2007). Levine (2005) conducted a survey of principals in which eighty-nine percent of the respondents felt that the university preparation program they attended failed to prepare them for current realities of the school. University-level principal preparation programs have not been audited routinely to ensure their programs produce highly-skilled individuals ready to enter the stressful environment of the principalship (National Association of Secondary School Principals, 2017). Over a period of more than 2,000-course weeks studied, two percent addressed school accountability in relation to school improvement, and less than five percent of the courses focused on the use of data, technology, and research for school improvement (Hess & Kelly, 2007). To effectively prepare campus leaders to lead 21st-century schools, universities must recreate content that focuses on present-day challenges and the many requirements of a principal (Hess & Kelly, 2007).

Throughout the literature, there are many improvements to consider for redesigning principal preparation programs to produce quality leaders who are prepared for the task overload and demands of the position. Rather than accepting any individual who applies for a preparation program, universities should increase the rigor of the acceptance process. Upon entrance into a principal preparation program, universities review the prospective student's previous undergraduate and graduate institutions, his or her grade point averages, and also review college-

entrance exam scores. An additional component that may be useful in terms of determining a an individual's stress management levels is to administer a stress test upon entrance into a principal preparation program. Since the average principal's stress rate is 1.7 times higher than that of the general public, determining the future principal's stress management abilities prior to beginning the role would identify additional support he or she may need to be successful in the field (Mitgang & Gill, 2012; George W. Bush Institute & American Institutes for Research, 2016). University principal preparation programs should provide more opportunities for collaboration between university and school districts to provide aspiring principals the opportunity to experience practical hands-on learning, opportunities to make decisions, and to work with diverse students, parents, staff, and community members (Bottoms et al., 2003; Mitgang & Gill, 2012). Universities and school districts should collaborate to produce opportunities for high-quality mentoring and professional development individualized to meet the needs of the individual and district (Bottoms et al., 2003; Mitgang & Gill, 2012). The role of the principal mentor should be to assist the aspiring principal in resolving real-life issues, increase the self-confidence of the aspiring leader, and model effective leadership behaviors (Gagliardi, 2013).

As a result of inadequate principal preparation programs, alternative certification programs have been formed around the nation, including California School Leadership Academy (CSLA), Leadership Initiative for Transformation (LIFT), and Knowledge is Power Program (KIPP). Programs such as these embrace on-the-job training, focus on mentor-mentee relationships as opposed to traditional book learning and provide curriculum inclusive of necessary knowledge and skills of twenty-first-century leaders (Levine, 2005). Firsthand experience with board policy, parent and community relationships, and teacher professional development are some of the skills integrated into these alternative programs. These skills can help principals understand the reality

and demands of the role in a more authentic manner, but limited research has examined whether these practices mentally prepare campus leaders for the vast responsibilities they face.

There is also limited research focusing on mindfulness as a strategy for alleviating principal stress and reducing burnout (Klocko & Wells, 2015; Wells, 2015). Klocko and Wells (2015) hypothesized that the practice of mindfulness will reduce principal stress by allowing the principal to practice *mindful moments* by merely being present in the moment. Focused research on the relationship between principal stress and mindfulness, such as this study, may reveal a need for incorporating mindfulness techniques into principal preparation programs. Principals entering the profession with knowledge of mindfulness techniques may be able to respond more effectively to task overload than their peers who lack knowledge of mindfulness. Principal preparation programs are important to ensure principal success, but ongoing professional development is also vital for ensuring principals remain effective practitioners in their field.

Providing quality professional development. As leaders, principals are expected to be lifelong learners to stay abreast of current trends, current research, and effective practices. Leadership traits are characterized by the following major conditions: the leader's previous experience, the knowledge base the leader develops with experience, personal characteristics of the leader, and the leader's values and beliefs (Murphy, Elliott, Goldring, & Porter, 2006). As it is important for instruction to be individualized for students, it is just as important to ensure campus leaders receive individualized professional development that meets their needs and helps them flourish (Salazar, 2007; Goldring, Preston, & Huff, 2010; Mitgang & Gill, 2012). Attention is focused on recruiting and preparing principals, but the concern of professional development for principals is often forgotten, especially after their first two years in the role (Prothero, 2015). A report produced by the National Center for Education Statistics found that principals who did

not receive professional development the previous year were 1.4 times more likely to leave the profession (Goldring et al., 2014).

When determining quality professional development to support principals, the following should be considered: instruction that supports the current work in their role, practice and useful tools for leading change, a safe environment that encourages risk-taking, coaching support, and a network of principals for collaboration (Lawrence, Santiago, Zamora, Bertani, & Bocchino, 2008). Principals identified a high need for professional development focused on improving the performance of students, technology implementation, social media, managing time, and overall campus improvement (Superville, 2018). Due to the isolation and emotional exhaustion of the role, providing a network of other campus principals is important to provide leaders an opportunity to discuss new concepts, ideas, and reflect their efforts (Bauer & Brazer, 2013).

Although important for molding principals into effective leaders and helping to prepare them for the ever-changing role of campus leadership, many principals want professional development that is quick-paced and does not take time away from their many duties on campus (Salazar, 2007). Without professional development support that provides principals with the skills needed to promote school improvement, principals are likely to become disengaged and unmotivated when they are not successful, thus leading to stress and burnout (Institute for Educational Leadership, 2004). As identified throughout the literature, principal preparation programs and professional development are lacking in terms of meeting the changing demands of the principalship. Unfortunately, there is little information provided for principals in terms of managing stress-related factors that occur in their job (Wells & Klocko, 2018). Not only in educational settings, but across many organizations, stress is an overlooked factor for employee burnout.

A survey focused on employee disability payments revealed that employers did not know how to reduce disability payments. Although seventy-nine percent of the respondents stated that their job was the cause of stress, anxiety, depression, there is still a lack of emphasis placed on employee wellbeing in the workplace (Watson Wyatt Worldwide, 2003). Implementing a mental health measure for employees in the workplace will allow employers to encourage employees to get help and to provide early coping strategies (Watson Wyatt Worldwide, 2003). Without proper, effective preparation and continued support for future and practicing principals, stress levels and attrition rates will remain a concern as they attempt to manage all tasks associated with the position. In recent years, companies such as *Brilliant Education* and *Mindfulness First* have created mindfulness-based professional development for teachers. Although it is important to focus on teachers, providing principals with mindfulness practice is equally important but has not yet become a priority. Integrating mindfulness techniques into professional development and preparation programs for principals may provide principals with ongoing interventions to respond effectively to stressors in their work and personal life, thus lowering stress and attrition rates among them.

Theories of Workplace Stress

    Person-Environment Fit Theory. The person-environment fit theory is built on the foundation that a match between an individual and his or her workplace environment positively impacts mental and physical well-being, while an ill-suited environment creates mental and physical distress (Bogler & Nir, 2015). Numerous theorists have proposed theoretical constructs relating to the fit between a person and his or her workplace environment (Pervin, 1967; McGrath, 1976; French, Caplan, & Harrison, 1982; Dawis & Lofquist, 1984). Individuals enter the workforce with the expectation that a place of employment will meet his or her needs, and

such expectations continue to evolve over time (Basit & Arshad, 2015). An employee will perceive his or her workplace environment and experience with positive or negative emotions depending on the employee's perception of how well he or she *fits* (Basit & Arshad, 2015). The term *fit* in this theory is defined by two constructs: demands-abilities fit and needs-supplies fit (Harrison, 1978; Caplan, 1987).

Demands-abilities fit is defined by the match between an employee's knowledge and skills and the demands of the job (Caplan, 1987; Cable & DeRue, 2002). Occupational roles with high demands deplete physical and psychological energy, leaving employees unable to engage in their prescribed role (Kahn, 1990). *Needs-supplies fit* is defined by the match between the needs of the employee and rewards offered by the job (Caplan, 1987; Cable & DeRue, 2002). When employees have a positive perception of needs-supplies fit, meaning the rewards are congruent with their needs, they are more likely to feel valued and continue with the job (Kahn, 1990). In employment situations where the needs and skills of the individual do not match the supplies and demands of the position, the result is a negative person-environment fit creating workplace stress that could result in physical or psychological health issues if unchanged (Feitler & Tokar, 1986).

Conservation of Resources Theory. Conservation of Resources Theory (COR) was proposed by Stevan Hobfoll in the late 1980s and has been used in various studies related to occupational stress and burnout (Grandey & Cropanzano, 1999; Sun & Pan, 2008; Alarcon, Edwards, & Menke, 2011; Sorensen, McKim, & Velez, 2016; Benoliel & Barth, 2017). As the name implies, resources are a fundamental component of this theory. Hobfoll, Halbesleben, Neveu, and Westman (2018) categorize *resources* in the following way: material resources, personal resources, and energy resources. Criticism of this theory relates to the idea that resources are only categorized and not specifically defined in the literature (Halbesleben, Neveu, Paustian-

Underdah, & Westman, 2014). However, Hobfoll (1988; 1998) argued this categorization of resources was sufficient because the actual resources in each defined category were universal resources either needed for one to survive or necessary for goal attainment. Examples of resources considered valuable across a group or by an individual include health, well-being, family, and self-confidence (Hobfoll, et al., 2018). COR Theory is well-established in the literature concerning organizational stress, partly due to the focus on objective resources an individual possesses as opposed to an individual's subjective perception of a situation (Hobfoll, et al., 2018).

In studies of organizational behavior, resource loss has primarily been applied to understand stress, strain, and emotional exhaustion (Hobfoll, 1998; Halbesleben & Buckley, 2004; Hobfoll, 2011). According to COR Theory, stress occurs when one's critical resources are threatened with loss, when critical resources are actually lost, or when one is unable to gain critical resources (Hobfoll, et al., 2018). Much like Person-Environment Fit Theory, COR Theory defines the exchange between a person and his or her environment and the resources readily available to respond to environmental demands (Dewe, O'Driscoll, & Cooper, 2012). Continual loss of resources can negatively impact individuals (Hobfoll, 1998). In a workplace environment, a lack of resources will result in an individual not successfully meeting the demands of the job or not receiving an anticipated return on resources they invest into the organization (Sun & Pan, 2008). Individuals with larger resource pools are able to cope more efficiently with resource loss and have higher levels of well-being during stressful situations due to their increased ability to prevent loss of resources, cope with external or internal threats to resources, and regain lost resources (Hobfoll, 2011). Successfully adapting after the loss of resources reduces the stressful

effects of resource loss by providing a sense of confidence in one's ability to face stressful situations (Hobfoll, et al., 2018).

Job Demands-Control-Support Model. The relationship between workplace demands and employees' stress levels and well-being is the foundation for the Job Demands-Control (JDC) model (Karasek, 1979). JDC model focuses on the relationship between the demands placed on an individual in the workplace and the control that an individual has over the demands. The JDC model is based on two hypothetical beliefs known as the *strain hypothesis*: increasing job demands in the workplace, while decreasing control one has over his or her job, will result in higher stress levels, and job demands and stress levels will increase or decrease depending on the individual's autonomy in his or her role as an employee (Karasek, 1979; Karasek & Theorell, 1990). In today's workplace environment, demands are sometimes classified as physical, but due to technology and direct contact with customers, mental and emotional demands consume most of an employee's time (Jonge, Vegchel, Shimazu, Schaufeli, & Dormann, 2010).

High demands, such as lack of time to accomplish job duties and excessive workloads prevent employees from maintaining control of the work environment to adequately meet their needs (Gundu, 2012). Control, defined as a critical component in the JDC model, is defined as an employee's right to make decisions related to the job, as well as the employee's ability to utilize certain skills while at work (Karasek & Theorell, 1990). According to the model, a significant amount of job control reduces the effects of workplace stress and enhances employees' workplace productivity (Karasek, 1979; Karasek & Theorell, 1990). Researchers have studied how employees' levels of job demands and job control affect stress levels and well-being (Graham, 2010; Jonge, et al., 2010; Hutton, 2012; Marchand, Durand, Haines, & Harvey, 2015). Gallo, Bogart, Vranceanu, & Walt (2004) found that employees with less job control and more

job demand suffered from health issues such as elevated blood pressure and a higher resting heart rate. In an intervention created to focus on increasing worker control, individuals experienced less emotional exhaustion and feelings of burnout (Innstrand, Espnes, & Mykletun, 2004).
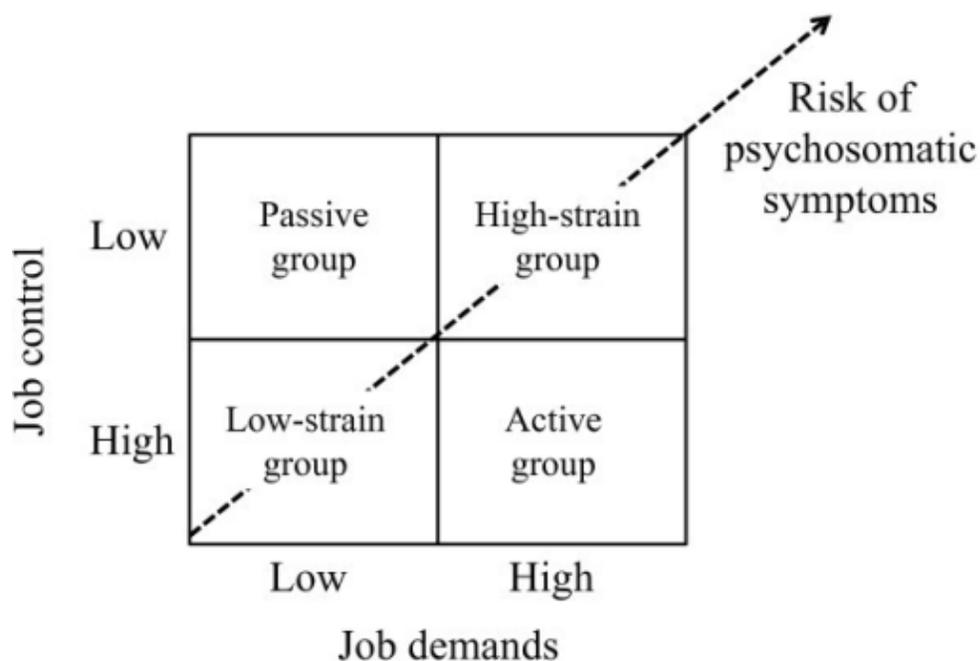
Figure 1. Job Demand-Control Model. Adapted from Work-Related Stress and Psychosomatic Medicine by M. Nakao, 2010, BioPsychoSocial Medicine.

Johnson and Hall (1988) expanded the JDC model to include support, which is known as the Job Demands-Control-Support (JDCS) model. This version of the model focuses on improving employee engagement and productivity by not only creating autonomy in the workplace for employees but by focusing on support as well (Karasek & Theorell, 1990). Similar to the JDC model, JDCS model is founded on the idea that workplace stress is influenced by the interaction between one's perception of work demands, one's perception of job control, as well as the level of support an employee receives (Devereux, Hastings, & Noone, 2009). Within the context of JDCS, support can be defined as help employees receive from supervisors and coworkers that reduce the impact of workplace demands (Karasek & Theorell, 1990). Treiber and Davis (2012) found that support from coworkers is actually more important to an employee than support from

a supervisor because the relationship is more intimate. Workplace support can lead to improved health, development of coping mechanisms, and autonomy among employees (Karasek & Theorell, 1990). Various studies have identified a positive relationship between the support provided in the workplace and an employee's perception of job demands and control (Almendra, 2010; Baba, Tourigny, Wang, Lituchy, & Monserrat, 2013; Boyle, 2018). Daniels, Beesley, Cheyne, and Wimalasiri (2008) argue that job control and job support reduce workplace stress and improve well-being because they provide the employee with the opportunity to cope more effectively with stressors, and such benefits accumulate over time.

Cognitive Appraisal Theory. Cognitive Appraisal Theory (CAT) is used as the foundation of this study in an attempt to identify the effectiveness of mindful meditation on reducing stress levels of K-12 principals. CAT is also referred to as the Transactional Theory of Stress, or Stress, Appraisal, and Coping Theory (Lazarus & Folkman, 1984). The perceived stress one faces is dependent upon his or her appraisal of their relationship with the environment at a particular moment (Lazarus, 1966; Harrison, 1978; Lazarus & Folkman, 1984). Categorically, this theory is considered transactional based on the idea that cognitive appraisal of a situation is defined as stressful depending on the individual and the resources, or lack thereof, they have available to handle the demands and how it impacts well-being (Lazarus, 1966; Lazarus & Folkman, 1984; Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986; Lazarus, 1993; Denson, Spanovick, & Miller, 2009).

Lazarus and Folkman (1984) define the appraisal process of stressful situations as a two-fold event: the process allows an individual to first determine how the situation impacts his or her well-being (*primary appraisal*) and then allows the individual to focus on available resources to cope with the stressful situation (*secondary appraisal*). During primary appraisal of a situation,

an individual must consider how the particular situation will impact them in relation to their own morals, values, beliefs, and goals. According to Lazarus and Folkman, the individual will interpret the stressful situation during primary appraisal in one of the following ways:

- The stressful situation will be interpreted as benign or positive, thus the situation is not perceived as threatening but actually may preserve or increase well-being;

- The situation will be defined by the individual as stressful, thus negatively impacting the well-being of the individual.

Lazarus and Folkman further state that situations are defined as stressful when they are perceived as threatening, challenging, or harmful to the individual's well-being. Consideration of personal harm or loss leads to situations being defined by the individual as threatening or harmful, while situations defined as challenges depending on the individual's anticipated outcome of the event (Lazarus & Folkman, 1984). How one appraises a situation is a determining factor in stress levels the individual experiences. In a study of mothers with autistic children, it was found that mothers who appraised their children's episodes as threatening had higher levels of stress. The mothers with lower stress levels appraised situations as benign or non-threatening (Fong, 1991). In a study of life stress in depressed youth, researchers found the young adults suffering from clinical depression experienced higher levels of stress and perceived their environment as more threatening than their non-depressed peers (Krackow & Rudolph, 2008). Once the individual cognitively defines how the present situation impacts their well-being, the individual must identify available resources to manage the perceived stress, known as secondary appraisal.

The secondary appraisal process allows the individual to identify cognitive and behavioral efforts to cope with the stressor in a particular moment (Lazarus, 1999). *Coping* is defined as

cognitive and behavioral adaptations one makes in response to external and internal demands that are considered stressful to the individual (Lazarus & Folkman, 1984). During secondary appraisals, an individual identifies resources for reducing effects of harmful events or ways to maximize positive effects of a potentially stressful event through coping responses (Devonport & Lane, 2006; Garland, et al., 2009). The ability to choose a proper coping method after the appraisal process influences one's ability to positively cope with the current situation (Folkman, et al., 1986). Since an individual's coping method is a choice made based on external and internal stimuli in the present moment, coping is not defined as an objective trait or personality style (Lazarus & Folkman, 1984). Folkman and Lazarus (1980) define two coping methods, *emotion-focused* and *problem-focused.* Emotion-focused coping involves an attempt to reduce the negative emotional response the individual is having during a stressful event. Examples of emotion-focused coping include meditation, mindfulness, prayer, and journaling (McLeod, 2009). Emotion-focused coping is most useful when the particular stressor is outside of the individual's control. This form of coping, when combined with expression and acceptance of one's emotions, has been proven to decrease depression, anger, and increase the satisfaction of life (Galor, 2012). Alternatively, problem-focused coping focuses on the actual issue that is causing the stress. This coping mechanism targets the cause of the stress rather than trying to control the emotional reaction to the stress. Problem-focused coping is most useful when the individual can control the source of the stress, such as exams and work-related stressors (McLeod, 2009). In a study of undergraduate students' responses to stressful academic experiences, problem-focused coping was found to be more effective in coping with controllable events, while emotion-focused coping was more successful when coping with events out of the individual's control (Marks, 1999). Folkman and Lazarus (1980) developed The Ways of Coping

(WOC) Scale as a method for measuring problem-focused coping and emotion-focused coping. The WOC Scale has been used throughout various studies in relation to coping with stress (Wang, et al., 2009; Vladetic, Janculjak, Soldo, Kralik, & Buljan, 2016).

Within the appraisal theory developed by Lazarus and Folkman (1984), the outcome of primary and secondary appraisals solely depends on the individual and his or her cognitive perception of the current relationship with the environment. Mindfulness is defined as awareness one creates by purposefully paying attention at the moment without judging the experience (Kabat-Zinn, 2003). The practice of mindfulness enables one to more effectively appraise the current stressor during the appraisal process because it encourages one to mentally shift from other thoughts, emotions, and feelings (Garland, et al., 2009). Mindfulness teaches one to be present in each moment, release distracting thoughts, and accept experiences in a nonjudgmental manner (Shapiro, Carlson, Astin, Freedman, 2006; Garland, Farb, Goldin, & Fredrickson, 2015). Reaction to stressors defined by the individual as threatening or challenging is often done without thought and leads to defensive behavior (Garland, et al., 2015). However, when stressful situations are perceived as controllable, positive reactions will develop a person's sense of positivity and foster self-efficacy (Lazarus & Folkman, 1984). The practice of mindfulness enables one to be more open to challenging and threatening events, thus reducing the number of situations one would have previously defined as threatening or challenging in the appraisal process (Breslin, Zack, & McCain, 2002). In a study of people who faced a threatening life crisis, forty-two percent reported positive reappraisal of the situation, while almost ninety percent claimed that dealing with the crisis increased positive meaning in their lives (Garland, et al., 2015).

Once an individual reaches a state of mindful consciousness, their reaction and how they cope with the current stressor may be redefined in a way that establishes emotional regulation, hope, and resilience (Garland et al., 2009). The fewer situations an individual perceives as stressful will result in reduced stress and improved well-being (Weinstein, Brown, & Ryan, 2009). In terms of secondary appraisals and coping, individuals who practice mindfulness have increased clarity of their emotions (Brown, et al., 2015). Various studies focus on the relationship between mindfulness and coping (Weinstein, et al., 2009; Gibbons & Morgan, 2015). Decentering from thoughts and emotions is the core of mindfulness, therefore this practice prevents automatic response to situations without thought and allows an individual the opportunity to select an appropriate coping method (Weinstein, et al., 2009; Garland, et al., 2009; Brown, et al., 2015; Garland, et al., 2015). Effectively coping with situations defined by the individual as challenging, threatening, or harmful will have a positive influence on one's well-being by allowing them to successfully address the situation. Finkelstein-Fox, Park, and Riley (2018) found that when used as a coping method, mindfulness reduced negative effects of high-stress appraisals on undergraduate students. Along with problem-focused coping, a study that analyzed results from a six-year mindfulness study with medical and psychology students focused on avoidance-focused coping (De Vibe, et al., 2018). *Avoidance-focused coping* is defined as ignoring or avoiding problems, and unlike problem-focused coping, it has been shown to increase negative health risks. In this particular study, participants receiving mindfulness interventions chose problem-focused coping rather than avoidance-focused and improved their overall well-being (de Vibe, et al., 2018).

Stress in the Workplace

America has been defined as one of the most *overworked* nations in the world (Miller, 2018). Although 134 countries limit the amount of time individuals spend working, the United States does not have such limits (Miller, 2018). In the United States, there are approximately 130,000,000 people who spend a minimum of thirty-five hours per week in the workplace (Statista, 2018). According to a study by the National Institute for Occupational Safety and Health (1999), almost half of employees described their job as extremely stressful, while a quarter of employees were burned out and stressed by their job. Job-related stress is induced by factors such as a lack of breaks during the work day, task overload, limited decision-making by the employee, little support from supervisors and co-workers, lack of job security, and unsafe working conditions (NIOSH, 1999). Unsurprisingly, workplace stress costs the United States an estimated $300 billion per year in absenteeism, employee turnover, reduced productivity, and increased medical expenses due to a higher number of workplace accidents (Maxon, 1999; Greenberg, 2004; Quast, 2011; Billing & Stevenson, 2013).

Occupational stress. *Organizational* or *occupational stress* has been defined as negative physical and psychological responses one experiences when requirements of the job do not match the skills, resources, or personal and professional needs of the worker (Rees, 1997; NIOSH, 2004). When comparing stress levels of individuals in the workplace, jobs with no set time limits result in increased stress in individuals as opposed to jobs with well-defined time limits and tasks (Thompson, 1985); this increased stress is known as *chronic stress.* Cora (2010), defined chronic stress as "prolonged, unrelieved exposure to a variety of stressors that may cause a person to operate in a physiological full alert or emergency mode at all times as if a catastrophe was about to occur at any moment" (p. 47). Unlike acute stress which is a single occurrence,

chronic stress is a continuous factor in one's life (Cora, 2010). Not only does chronic stress cause employees to experience burnout, miss work due to illness, and make careless mistakes due to lack of energy, it can have many other physical and psychological effects on an individual (Maxon, 1999; Stickle & Scott, 2016).

Cora (2010) identifies key components as determinants in an individual's health: nutritional levels and exercise, cognitive functioning, relationships, and level of spirituality defined by meditation and mindfulness, all of which can be impacted by chronic stress. Other physical effects of chronic stress on an individual include fatigue, headaches, disruption of sleeping patterns, dizziness, and digestive issues (Cora, 2010). Psychologically, one can experience fear, anger, guilt, depression, and helplessness as a result of chronic stress (Cora, 2010). Depression has been estimated to cost organizations in the United States $44,000,000,000 per year due to absenteeism from work, hospital bills, and premature death (Stewart, Ricci, Chee, Hahn, & Morganstein, 2003). Chronic stress is often a result of a workplace environment in which employees experience task overload (Stickle & Scott, 2016).

Unfortunately, tasks associated with the role of a school principal continue to expand rather than diminish. In K-12 schools, it is vital for superintendents to understand and take measures to prevent excessive workplace stress, as well as for principals to recognize how to cope with situations perceived as stressful (Gmelch, Kong, Swent, & Tung, 1982; Spangler, 2010). Marzano, Waters, and McNulty (2005) stated that a superintendent's impact on staff, students, and school improvement is made through the campus principal. Therefore, establishing positive relationships and serving as support to the campus leader is key to maintaining effective principals and leading school improvement (Marzano, et al., 2005).

Coping with job-related stress. Berg and Karisen (2013) identified three ways workplace stress can be reduced for employees: employees should receive continuous support from their supervisors, be taught how to manage stress through long-term stress management techniques, and taught how to develop relationships with others. Although stress is a part of everyday life for a school administrator, how one perceives a stressful situation depends on their appraisal (Lazarus & Folkman, 1984). Selye (1984) coined the terms *eustress* and *distress*. Much like the practice of mindfulness, eustress allows the individual to be present in the moment, attentive to the problem at hand, and able to respond to the situation in a positive manner (Selye, 1984). Distress, the opposite of eustress, is a negative response to a stressful situation and results in further frustration for the individual (Selye, 1984).

As described by Lazarus and Folkman (1984) in Cognitive Appraisal Theory, coping mechanisms chosen by an individual during a situation depend on whether the individual appraises the situation as challenging, threatening, or positive. Gmelch, et al., (1982) identified coping strategies utilized by administrators to reduce stress; based on these findings, more than fifty percent of administrators engaged in physical exercise as a stress relief activity; forty percent utilized mental control such as meditation and positive attitudes to reduce stress levels; and the remaining ten percent of administrators focused on the development of time management skills, conflict management, and relationship building to reduce stress levels (Gmelch, et al., 1982). In a workplace setting, the practice of mindfulness among employees has shown a positive impact on employees' stress in terms of physical and psychological well-being and productivity (Wilson, 2012; McGarrigle & Walsh, 2011). This study will contribute to the literature by determining the impact of mindfulness practice on employee stress levels through a

smartphone application. Mindfulness meditation apps allow users to reduce external distractions and provide autonomy to the user (Piacenza, 2013; Deady et al., 2018).

Mindfulness in Eastern and Western Societies

The use of the term *mindfulness* in Buddhist texts can be loosely defined as "paying attention to an object of meditation without a sense of disjunction" (Brown et al., 2015, p. 11). Within the Buddhist religion, mindfulness is perceived as a form of meditation and a step toward enlightenment, or finding the truth in life by paying attention to the mind and body (Brown, et al., 2015; Greenwalt & Nguyen, 2017). Attempting to accept what is actually occurring rather than analyzing what is occurring is a mindful strategy in Buddhism practice (Brown, et al., 2015). When engaged in mindful practice, the Buddhist monk pays attention to things that would usually be performed without conscious thinking, including the breath; body movements, such as walking; body positions, such as lying, sitting, or standing, eating, and drinking (Brown et al., 2015). In Eastern societies, Buddhists practice mindfulness for religious purposes, while mindfulness is predominantly used for therapeutic purposes in the West (Hyland, 2015). Due to his creation of the mindfulness-based interventions, Jon Kabat-Zinn is the researcher often considered to be responsible for mindfulness being used as a therapeutic practice in Western society (Hyland, 2015). Although various definitions exist, the most predominantly used definition of mindfulness in Western culture is "the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding experience moment by moment" (Kabat-Zinn, 2003, p. 145). Although there are differences in mindfulness practice and meaning, there are commonalities among the term in Western and Eastern society. The practice of paying attention, whether to one's self or others, is prevalent in all meanings of mindfulness (Brown, et al., 2015). Mindfulness, no matter what context it is in, focuses on the

body and mind and requires one to be attentive, aware, and accepting of the present moment

(Brown & Ryan, 2003; Rejeski, 2008; Hyland, 2015). Several instruments have been designed to

measure self-reported mindfulness, and although one definition of mindfulness does not

encompass the functions of mindfulness, they all measure acceptance and awareness in some

way (Park, Reilly-Spong, & Gross, 2013).

Attention and awareness. Buddhists believe *sukha,* or happiness, can be reached through

attention, emotions, and practice of mindfulness by teaching one to differentiate between what is

actually occurring and one's perception of what is occurring (Brown et al., 2015). Effective

mindful practice requires both attention and awareness. In terms of mindfulness, awareness is the

practice of being alert to all surroundings, and attention is focusing on conscious awareness on

particular objects (Brown & Ryan, 2003). Awareness and attention are at the center of all

mindfulness practice; therefore, levels of mindfulness can change considerably among

individuals due to such factors as inherited capabilities, discipline, and motivation to engage

(Brown & Ryan, 2003; Bishop et al., 2004). Mindful awareness is developed through training

techniques approached with an open heart, inquisitiveness, kindness, and acceptance of reality

(Grossman, 2015). Whereas an individual might be inclined to make quick judgments and

decisions, with practice, he or she might discover the ability to be fully present in the moment

through attention and awareness (Brown & Ryan, 2003; Elkman, Davidson, Ricard, & Wallace,

2005). In contrast, the positive effects of mindfulness are compromised when attention and

awareness of behavior are not involved in decision-making processes (Brown & Ryan, 2003).

Connection to stress. A continuous challenge of Buddhist mindfulness meditation practice is

not to eliminate destructive mental states, but rather to identify how these mental states were

developed, experienced, and influenced by the individual. With practice, one learns to let go of

all afflictive states (Elkman et al., 2005). Practicing mindful techniques and skills enhances one's ability to determine stressors in their lives and recognize their patterns of avoidance to these stressors, thus allowing them to focus on task completion and defeating procrastination (Bergen-Cico et al., 2013). In the skills developed by the practice of mindfulness, an individual is able to make accurate cognitive appraisals of how to interpret and respond because they are fully aware of the situation.

Interventions for Psychological Well-Being

Research performed throughout the past few decades has demonstrated that an increase in mindfulness reduces anxiety, depression, stress, and medical symptoms (Baer, 2003; Brown & Ryan, 2003; Bergen-Cico et al., 2013). The purpose of mindful interventions is to allow the individual to be present in day-to-day life and accepting all experiences in a nonjudgmental manner (Shapiro, et al., 2006). Individuals with increased levels of mindfulness exhibit compassion, acceptance, and empathy toward themselves and others, as well as have more effective interpersonal and communication skills (Bergen-Cico et al., 2013). Jon Kabat-Zinn emphasized mindfulness practice in clinical settings with the development of a program in 1979 in which he titled *Mindfulness-Based Stress Reduction* (Kabat-Zinn, 2005).

Stress reduction intervention. Mindfulness-Based Stress Reduction (MBSR), one of the most widely researched mindfulness programs, has fostered emotional well-being and improved psychological distress among thousands of both healthy patients and patients with psychological disorders (Mental Health Foundation of New Zealand, 2011; Bergen-Cico et al., 2013; Sharma & Rush, 2014). Kabat-Zinn (2003) argued that MBSR is unrelated to the Buddhist origins of mindfulness, and he instead insisted that mindfulness is universal. Mindfulness-Based Stress Reduction thrives to improve stress management among individuals through the development of

mindfulness skills via guided meditation exercises focused on metacognition and mind-body

awareness in an eight-week period with weekly sessions lasting approximately two and a half

hours (Dekeyser, Raes, Leijssen, Leysen, & Dewulf, 2008; Sharma & Rush, 2014).

In the United States, MBSR has been used to lower levels of stress among patients in a

variety of fields, including healthcare industries, schools, law schools, and prisons (Kabat-Zinn,

2003; Martín-Asuero & García-Banda, 2010). The meditation techniques provided through

Mindfulness-Based Stress Reduction Therapy focus on body scans, sitting meditation, and yoga

(Sharma & Rush, 2014). In MBSR, body scans enable the patient to pay mindful attention to

certain parts of the body and bodily sensations they may have from head to toe. The practice of

sitting meditation focuses on the rising and contracting of the abdomen as one breathes deep,

long breaths in a state of nonjudgmental awareness. Yoga is incorporated into MBSR to allow

the patient to hold poses, engage in bodily awareness, and develop strength, balance, and

flexibility (Sharma & Rush, 2014). MBSR therapy strives to positively affect one's relationship

with stressful, negative thoughts by decreasing emotional connectivity and reaction to these

particular thoughts (Martín-Asuero & García-Banda, 2010). Through MBSR therapy, one's

interior thoughts and feelings are altered, and there is an increased focus on one's awareness of

their life and surroundings. This new-found awareness allows the patient to cognitively appraise

external events in a more positive way (Klatt et al., 2009).

The purpose of MBSR is not to train individuals to reach a certain end goal, but instead teach

them how to fully participate in the experience without judgment (Kabat-Zinn, 2005).

Mindfulness skills learned through MBSR have been shown to reduce emotional distress and

enhance psychological well-being (Cohen-Katz et al., 2005; Klatt et al., 2009; Bergen-Cico et

al., 2013). Since its induction in 1996, the Center for Mindfulness in Medicine, Healthcare, and

Society has had over 2,000 clients complete the StressCare Program, developed on the foundation of Jon Kabat-Zinn's mindfulness interventions (StressCare, n.d.). Results from this particular program reveal an approximate forty-percent reduction in psychological distress, with a sustained reduction in most patients over a four-year period (StressCare, n.d.). In one particular study of college students, an eight-week MBSR course showed significant decreases in anxiety levels and increases in mindfulness and self-compassion, while another study of nurses showed significant reductions in perceived stress with increases in mindfulness (Klatt et al., 2009; Bergen-Cico et al., 2013; Dundas, Thorsheim, Hjeltnes, & Binder, 2016). In addition, studies which utilized MBSR interventions with groups of teachers found decreases in burnout, depression, and emotional stress, as well as an increase in self-compassion (Gold et al., 2010; Martín-Asuero & García-Banda, 2010; Flook, Goldberg, Pinger, Bonus, & Davidson, 2013).

Although there are many statistically significant studies showing improvements in stress, anxiety, and other psychological disorders as a result of Mindfulness-Based Stress therapy, MBSR is not convenient for all who could potentially benefit. Due to the two to three-hour weekly mindfulness sessions and the daily at-home mindful practice requirements, it is very time-consuming (Klatt et al., 2009). In response to the time constraints associated with MBSR, Klatt et al. (2009) developed Mindfulness-Based Stress Reduction - low dose, or MBSR- ld. This altered intervention program met with patients one hour per week and only required twenty minutes of daily mindfulness practice at home. Even with the lower dosage of MBSR therapy, there was an increase in mindfulness and sleep quality, as well as a decrease in stress levels of the forty-two university employees involved in the study, (Klatt et al., 2009). In further attempts to use mindfulness as a means of improving psychological stress factors, Mindfulness-Based Cognitive Therapy has been researched in this realm as well.

Cognitive therapy intervention. Based on the foundational functions of Mindfulness-Based Stress Reduction, Mindfulness-Based Cognitive Therapy, or MBCT, is an eight-week mindfulness-based intervention designed to enable individuals to experience increased awareness of personal bodily sensations, thoughts, and feelings associated with relapse in depression and anxiety (Kuyken et al., 2008; McManus, Surawy, Muse, Vazquez-Montes, & Williams, 2012). MBCT focuses on transitioning an individual's view of himself and the surrounding world, thus allowing the individual to accept unwanted experiences rather than responding immediately (Williams, 2008). It is not a goal of MBCT to alter the patients' fearful and negative thoughts, but rather to reduce the impact of these particular thoughts by transforming how the patient responds (McManus et al., 2012). The purpose of MBCT is to allow the individual to disengage from automatic negative cognitive appraisals, i.e. depression-related thoughts, and to develop mindfulness through awareness of present, moment-to-moment experiences in order to prevent relapse of depression and anxiety symptoms (Segal, Williams, & Teasdale, 2002; Williams, 2008; Idusohan-Moizer, Sawicka, Dendle, & Albany, 2015).

MBCT involves teaching patients specific breathing meditations and yoga poses to increase awareness of the present moment as well as awareness of changes in their mind and body (Idusohan-Moizer et al., 2015; McManus et al., 2012). Throughout the research, multiple studies address the impact of MBCT on chronic depression and anxiety. Kuyken et al. (2008) discovered that seventy-five percent of participants discontinued use of antidepressant medication after participation in an eight-week MBCT intervention course. Controlling depression is an important component of managing stress. In a study of fifty-two participants focused on emotional regulation, MBCT reduced emotional reactivity to stress and improved emotional regulation through mindfulness techniques (Britton, Shahar, Szepsenwol, & Jacobs, 2012). In a study of

males and females with intellectual disabilities, after ten weeks of MBCT, they showed increased self-compassion, compassion for others, fewer effects of depression, and lower anxiety levels (Idusohan-Moizer et al., 2015). Semple et al. (2010), introduced Mindfulness-Based Cognitive Therapy for children, MBCT-C, as a method to increase social-emotional resilience by increasing mindful attention. This particular study included boys and girls from ages nine to thirteen; as a result of the intervention, there were reduced behavioral and attention issues among the children (Semple et al., 2010).

Although the foundational practice of MBCT involves mindfulness practices, many studies focus on components of depression and anxiety, and very few studies focus on how the practice of mindfulness is influenced throughout therapy. For the studies mentioned in this review, there were opposing results in terms of increased mindfulness due to focus on different components of mindfulness. One study that focused on acceptance and openness as components of mindfulness found an increase in participants' levels of mindfulness from pre to post-test after MBCT interventions (Eisendrath et al., 2008). Rather than focusing on acceptance and openness as mindfulness measures, another study identified levels of acceptance and awareness from pre to post-test (Manicavasagar, Perich, & Parker, 2012). Unlike the previous study mentioned, this particular study did not find an increase in participant mindfulness from pre to post-test. As research regarding the impact of MBCT on psychological disorders continues to evolve, the studies that show improvement can potentially increase implementation and support of this mindful therapy in many settings.

Negative effects of mindfulness. Positive effects of mindfulness meditation interventions have been emphasized throughout this literature review, but it is important to discuss negative impacts meditation practice can have on an individual as well. Shapiro (1992) found that

participants experienced feelings of anxiety, reduced motivation, depression, and increased levels of stress during meditation practice, no matter the length of time the individual was involved in the practice. Results from a more recent 400-participant study focused on unwanted experiences of mindfulness practice. This particular study revealed that twenty-five percent of the participants reported unwanted experiences as a result of mindfulness practice. However, the participants did not feel they were severe enough to discontinue mindfulness practice. The negative feelings associated with mindfulness practice occurred during independent mindfulness sessions lasting longer than twenty minutes and caused symptoms such as anxiety and physical pain (Cebolla, Demarzo, Martins, Soler, & Garcia-Campayo, 2017). To reduce or eliminate negative effects of mindfulness practice, there are three key components to consider: intensity level of the practice, the mental state of the individual before the intervention, and the quality of the program and instructor (Oxford Mindfulness Centre, 2016).

Technological intervention. Technology is a driving force in today's world; it continues to advance as consumer needs change and become more complex. Smartphones, in particular, continue to become more intricate, providing users with access to the Internet , GPS, phone calls with live video, cameras, and access to thousands of applications, or apps. Smartphone users have access to millions of apps consisting of categories such as Business, Education, Health, Medical, Music, Navigation, Social Media, Photography, and Travel. Smartphone apps are created to provide users with access to almost instant information and user-specific technological needs. Krebs and Duncan (2015) found that over fifty percent of smartphone users had access to a health app on their phone, and sixty-five percent stated they used their health app daily. Mindfulness meditation apps allow users to reduce external distractions and provide autonomy to the user (Piacenza, 2013; Deady et al., 2018).

Although mindfulness interventions such as MBSR and MBCT have shown significant improvements in areas of stress, anxiety, and well-being, limiting factors for participants in face-to-face mindfulness interventions include time requirements, monetary obligations, and mandated on-site training (Economides, et al., 2018). Over seventy percent of patients under psychiatric outpatient care expressed a desire to utilize apps as a supplement to the care they received in the clinic (Carey, Haviland, Tai, Vanags, & Mansell, 2016). According to Economides et al. (2018), providing mindfulness interventions via digital mediums allow more people to be reached, consume less time, and provide a more cost-effective method for the user. Also, with the use of technological devices for mindfulness, the user is provided specific support for interventions to practice at home or where most comfortable (Economides et al., 2018). A search for the term *mindfulness* via Google Apps Marketplace and Apples iTunes Store yields over seven hundred apps available to smartphone users (Mani, et al., 2015). Mindfulness apps available through Google Apps Marketplace and iTunes vary in characteristics and methods of delivery; some provide users with guided mindfulness via text, audio only, or audio and video, while some mindfulness apps simply provide users with timers and daily reminders to breathe.

There are hundreds of apps focused on the goal of providing mindfulness interventions, but very few studies have focused on the impact of these apps in terms of improving mindfulness and mental and physical health (Weekly, Walker, Beck, Akers, & Weaver, 2010; Plaza, Demarzo, Herrera-Abarca, & Garcia-Acosta, 2013; Mani et al., 2015). In their review of mindfulness apps, Mani et al. (2015) focused on guided meditation apps that explained misconceptions and successfully communicated the philosophy of mindfulness, while apps that only provided timers, guided meditation tracks, or reminders were excluded. Of the seven hundred apps reviewed, only four percent of these apps met the specific criteria for the study,

based on the Mobile Application Rating Scale (Mani et al., 2015). The Mobile Application Rating Scale (MARS) was utilized to evaluate consumer engagement, functionality, visual appearance, and information provided by the apps (Mani et al., 2015). Using this scale, the top five mindfulness apps include Headspace, Smiling Mind, iMindfulness, Mindfulness Daily, and Buddhify 2 (Mani et al., 2015). It is important that mindfulness application users are aware and understand variety in functionality and delivery of the hundreds of smartphone applications available to them so they can select one that best meets individual needs.

In the past decade, Virtual Reality Exposure Therapy (VRET) has been used as a method of improving patients' anxiety and psychological disorders, such as PTSD (Gorini & Riva, 2008; Goncalves, Pedrozo, Coutinho, Figueria, & Ventura, 2012). Limited studies have utilized VRET or similar technological methods to impact patient stress and well-being, though the outcome of the few studies utilizing VRET has shown a positive impact on patients' anxiety levels. Like VRET research, studies that utilize smartphone applications as a means of guided meditation to improve one's stress and well-being are limited (Economides et al., 2018; van Emmerik, Berings, & Lancee, 2018). A meta-analysis of online mindfulness interventions showed improvement of users' high stress, anxiety, depression, and overall well-being (Spijkerman, Pots, & Bohlmeijer, 2016). Throughout the available research, a majority of studies examining the impact of mindfulness apps utilized Headspace to provide participants with auditory and visual guided meditation practices. Headspace encourages users to allot time each day for use and allows them to choose the most-beneficial session for their particular needs, ranging from thoughts of panic to help one fall asleep at night (Puddicombe, 2018). Economides et al. (2018) and Howells, Ivtzan, and Eiroa-Orosa (2016) conducted a study of mindfulness interventions utilizing the Headspace app that resulted in significant improvement in positivity and mood, as

well as reduced levels of depression, stress, and irritability. A group of breast cancer patients also participated in mindfulness sessions provided by the Headspace app, and after a nine-week period, a statistically significant increase in social, emotional, and physical well-being was found (Rosen, 2017). When used by corporate employees for an eight-week period, Headspace increased employees' well-being, reduced job-related stress, and decreased systolic blood pressure (Bostock & Steptoe, 2013). VZG Mindfulness Coach, an app that provides users with audio-only guided meditation sessions, was also used in a research study in which participants had moderate increases of mindfulness. This study also revealed an increase in mental, social, and environmental quality of life for participants that was sustained for three months post-intervention (van Emmerik et al., 2018).

Available research surrounding the benefits of mindfulness apps focus on very few of the smartphone apps available. As mindfulness practices continually increase in popularity among health sectors, corporate organizations, and educational entities, the use of smartphone apps for mindfulness meditation will provide effective interventions that are easily accessible to the general public. Mindfulness interventions, both face-to-face and those provided through a digital medium, are effective for increasing attention, awareness, and treating stress-related illnesses such as depression and anxiety. As principals are faced with many daunting issues, these interventions can train them to focus on all aspects of any situation and help them appraise and cope with situations perceived as stressful in a way that will reduce the overall effects of stress and will do so in an easily accessible environment with readily-available tools through the touch of a finger on their smartphone.

Mindful Leaders and Influence

Courageous, humble, compassionate, and nonjudgmental are words that might be used to describe mindful leaders due to their ability to address difficult issues for the betterment of their organization (Kernochan, McCormick, & White, 2007). A leader who embraces the practice of mindfulness intentionally pays attention to all events occurring around him or her (Seiling & Hinrichs, 2005). Leaders of various organizations, including healthcare, financial, and educational entities, face many daunting tasks and difficult decisions, contributing to high rates of stress. Engaging in mindfulness meditation provides many opportunities for leaders in any organization to decrease stress and anxiety and reduce rates of burnout.

Mindfulness meditation allows the leader to pay attention to the particular moment without criticism or judgment, therefore allowing such leaders and decision-makers opportunities to focus on all positive and negative aspects of an organization (Wells, 2015). When referring to organizations that embrace mindfulness, High-Reliability Organizations (HRO) avoid mistakes and failure due to their capability to react to any signs of danger, commitment to resiliency, and awareness of all existing operations obtained through the practice of mindfulness (Weick, Sutcliffe, & Obstfeld, 1999). HROs and other successful organizations practice and embrace the idea of collective mindfulness. The five characteristics defining collective mindfulness include intentional focus on failure, unwillingness to simplify explanations, a complete understanding of basic operations, resiliency at all times, and utilization of expertise (Langer & Moldoveanu, 2000; Fiol & O'Connor, 2003; Weick & Sutcliffe, 2007). Intent focus on failure prevents organizations from gaining a false sense of organizational confidence, and the leaders in these organizations know there is still room for improvement (Hoy et al., 2006). The emphasis on failure in HROs does not mean that celebrations of success do not occur, but these organizations

ensure they do not become complacent or vulnerable by focusing only on successful outcomes (Hoy, 2003).

Leaders who practice mindfulness can make more effective decisions for their organizations due to their efficiency in resisting outside pressures, instead of adhering to their original, more successful plan (Fiol & O'Connor, 2003). Corporations that have provided mindfulness training for their employees include General Mills, Ford Motor Company, eBay, Facebook, Aetna International, and Target (Hunter, 2013). Results from the General Mills Mindfulness Program showed eighty-nine percent of senior executives improved their listening skills, while eighty-three percent improved personal productivity. The productivity rates for the corporation increased by twenty-three percent after participation in the mindfulness program (Gelles, 2012). Another mindfulness study focused on leaders in the healthcare field included seventy medical doctors who participated in a mindfulness meditation training program, revealing that sixty percent of these doctors increased their listening and attention skills, and fifty percent became less judgmental and more self-aware (Krasner et al., 2009). Although research surrounding the effects of mindful leaders on organizations is limited, there is a positive correlation between mindfulness practice and leadership capabilities. However, Levinthal & Rerup (2006) warn that excess mindfulness can deter the use of automatic, established procedures that are effective. Leaders must understand when it is in their best interest to make automated decisions and when they should engage in mindful awareness and attention to the issue at hand. Being on autopilot as a leader can be resourceful because it allows one to reduce energy spent on everyday tasks, thus saving that energy for new situations that may occur (Yeganah & Good, 2016). However, making quick, non-reflective decisions as a leader can be problematic when leaders engage in routine thoughts that may hinder desired results (Yeganah & Good, 2016). Mindful leaders are

able to focus on the problem at hand and identify new, effective solutions rather than focusing on past ineffective practices (Peterson, 2015).

Employees. Mindfulness practice is important for leaders because it allows them to be completely present, accepts both positive and negative situations, dismisses past thoughts and actions, and increase listening skills and compassion for others and self (Wells, 2015). Employees of leaders who practice mindfulness benefit from their practice as well. Leaders who prioritize mindfulness techniques in the workplace motivate employees to practice mindfulness, resulting in increased employee performance and productivity, increased job satisfaction among employees, and development of a balance between life and work, thus resulting in decreased workplace stress (Vogus & Sutcliffe, 2012; Reb, Narayanan, & Chaturvedi, 2014). Conversely, leaders who fail to practice and cultivate mindfulness techniques can create a sense of *mindlessness*, or a culture defined by closed-mindedness, repeated behaviors, and blindly adhering to rules and procedures whether effective or not (Hoy, 2003; Hoy et al., 2006). In a state of mindlessness, one automatically makes assumptions and decisions based on previous experiences and knowledge instead of actively engaging in the present moment and current problem (Langer & Moldoveanu, 2000).

Developing relationships with employees is a priority for leaders in any organization. The practice of mindfulness can help leaders develop empathy and compassion for others, therefore improving employer-employee relationships. Leaders that do not practice mindfulness or make it a priority in their organization experience stress and burnout at higher rates because they do not have the skills to focus on the present or the ability to be nonjudgmental of their inner experiences, and everyone around them is negatively impacted. Further research reviewing the effects of leaders with high-stress rates and the impact on employees' performance and

environmental climate will assist in creating positive work environments for both leaders and employees.

Principals. The practice of mindfulness can influence leadership abilities and positively impact organizations across various fields. Since the implication of mindfulness practice is fairly new in educational settings, the research of school leaders and their practice of mindfulness is limited. However, it is known that campus leaders are plagued with constant negative, stressful situations. Practicing mindfulness allows principals to regain optimism, enhance self-trust, develop compassion and contentment, and encourage problem-solving (Wells, 2015). Similar to High-Reliability Organizations, schools that embrace mindful practices constantly identify areas of need, focus on learning and teaching, practice resiliency, solve issues before they become a crisis, and choose expertise over rank. The framework of High-Reliability Organizations should be viewed as a metaphor and way of being rather than a model (Hoy, 2003; Bellamy, Crawford, Marshall, & Coulter, 2005; Weick & Sutcliffe, 2007). Principals who take time to practice mindfulness experience mindful management and are able to consider different points of view, face challenges as an opportunity to improve, and are more likely to experience success for their school and themselves (Weick et al., 1999).

Teachers. Principals who devote time to mindfulness and are aware of what is occurring on the campus they lead are more likely to reflect on experiences with their staff. Devoting time for reflection on student data with teachers, listening to multiple solutions to problems rather than choosing a quick fix, and taking time to consider multiple points of view are all positive impacts associated with the mindful principal's ability to reflect and build a trusting, positive environment among teachers and staff (Kearney et al., 2013). In mindful schools, there is a commitment to remaining resilient, therefore, principals and teachers must maintain a strong,

trusting relationship to collaboratively identify current and future issues and work together to create a plan to overcome and limit the possibility of failure (Hoy et al., 2006). Mindful organizations and schools focus on identifying failure at its earliest stage, and leaders in these organizations create a culture of openness and trust that allows risk-taking and possibility of failure in order to foster a culture of growth, positive school climate, and student achievement (Hoy et al., 2006). The level of faculty trust for campus principals had a significant correlation with principal mindfulness, and the level of faculty trust for one another had a significant correlation with faculty mindfulness across the seventy-five middle school campuses studied (Hoy et al., 2006). Teachers who are encouraged to take part in mindfulness practice by their principals are more likely to reflect upon experiences, learn from their mistakes, and have open discussions regarding areas of weaknesses, therefore improving their quality of teaching and increasing student achievement (Flook et al., 2013). As mindful principals positively impact the practice of mindfulness among teachers, teachers have a direct, positive impact on their students.

Students. Over the last decade, there has been a transition in the principalship relating to students' well-being. In 2008, elementary principals did not identify any components of students' well-being as "extreme concern" (Superville, 2018). However, a 2018 survey revealed the top ten issues identified by elementary principals all involved students' well-being (Superville, 2018). Stress and anxiety, both factors that can influence well-being, have been shown to be reduced in children who practice mindfulness and meditation, while levels of children's self-esteem, self-awareness, social skills, and emotional stability have risen with the practice (Beauchemin, Hutchins, & Patterson, 2008; Biegel, Brown, Shapiro, & Schubert, 2009; Semple et al., 2010; Mendelson et al., 2010). Children, predominantly low-socioeconomic children who do not know how to effectively manage internal and external stressors often submit to *mind*

traps. Mind traps are defined as mental habits which increase components of internal stress, including negative self-talk, criticism of one's self, and low self-confidence (Brantley, 2007). Without the necessary tools to defeat self-destructing mind traps, children do not learn how to manage internal emotions and thoughts.

By cultivating attention and awareness to one's thoughts and feelings, mindfulness has been used as an intervention in schools to improve internal and external thoughts that impact behavior and allow a more positive school environment (Semple et al., 2010; Greenberg & Harris, 2012). Mindful principals not only have positive influences on teacher effectiveness but on student achievement as well. In a 2013 study of one hundred forty-nine Texas principals, there was a statistically significant positive correlation between mindfulness practice of principals and student achievement (Kearney et al., 2013). When teachers are mindful, there are positive benefits for their students' achievement. In a study of eighteen female teachers who participated in computerized attention and emotional regulation tasks, the improvement was shown in classroom-management skills (Flook et al., 2013). In a year-long study that incorporated Mindfulness-Based Stress Reduction techniques with three teachers and their students, teachers reported feeling less overwhelmed and able to meet the needs of their students (Napoli, Krech, & Holley, 2005). Jennings (2015) found that teachers with increased levels of mindfulness led classrooms that were more emotionally stable due to their increased ability to perspective-take and make proactive decisions regarding student discipline. Educating students with mindfulness techniques has resulted in reducing the impact of bullying in schools, assisting students with learning and attention disabilities such as Attention-Deficit Hyperactivity Disorder, or ADHD, increasing social skills, such as turn-taking, and assisting students who are under a high amount of stress (Leland, 2015). While the influence of mindfulness in education continues to evolve,

there is some evidence of a positive correlation between teachers who implement mindfulness strategies and students' overall stress levels and skills.

Defining mindfulness. Mindfulness is a buzzword in today's society and has been researched across health institutes, universities, corporate organizations, and K-12 educational settings. The earliest origin of mindfulness practice is generally traced back to Buddhist literature between the fourth and second centuries B.C.E, but some believe the practice can be traced back thousands of years prior (Miller, Fletcher, & Kabat-Zinn, 1995; Brown et al., 2015). Although some associate the term exclusively with Buddhist teachings, awareness and attention to one's self and thoughts are not limited to religious practices (Bishop, et al., 2004). In its authentic state, mindfulness allows one to provide full, uninterrupted attention to the present moment and to accept all internal and external experiences without posing judgment (Bishop, et al., 2004). As mindfulness practice continues to expand in Western society, operational meanings of mindfulness have developed. In the context of this research, mindfulness is defined as paying attention on purpose and without judgment (Kabat-Zinn, 2003).

Summary and Conclusions

Mindfulness-Based interventions, such as MBCT and MBSR, have shown improvements in individuals from many realms with stress-related disorders, such as clinical depression, anxiety, low self-esteem, and self-awareness. There are multiple definitions associated with the term mindfulness, both from Western and Eastern societies. Although mindfulness was first incorporated into Buddhism 2,500 years ago, it has made its way into Eastern society over the past several decades. Many studies have researched the impact of mindfulness on the well-being of clinicians, social workers, college students, educators, and students. However, the research concerning the impact of mindfulness interventions on leaders, particularly school principals, is

limited. Also, it is important to determine if mindfulness has a positive impact on organizations as a positive culture creates a thriving work environment. As principal attrition rates continue to rise, it is not only important to review the quality of principal preparation programs and professional development opportunities to help manage the multiple tasks of the job, but ways of improving principals' well-being should be a priority since high rates of stress is the main cause for leaving the profession. Schools with larger numbers of economically disadvantaged and minority students have higher rates of principal attrition, so it is particularly important to identify strategies to retain principals on these campuses. Overall, reviewing mindfulness, such as common definitions throughout history, various mindful interventions and the positive impact of mindfulness on one's thoughts is important for increasing social, emotional, and psychological well-being.

Chapter 3: Methodology

Educational researchers have focused on interventions to reduce stress levels of school teachers but few studies have focused on school administrators, particularly principals. The purpose of this research is to determine if one's perceived level of mindfulness impacts his or her perceived level of stress. Specifically, this study will determine the effectiveness of a mindfulness smartphone application on stress levels of current K-12 principals. Achieving a reduction in stress levels through the practice of mindfulness will ultimately assist in reducing the turnover rate of principals. Understanding if the practice of mindfulness is successful in relieving principal stress is the primary goal of this research.

In this chapter, the design of the research is explained and the methods used in this study will be defined. Data analyzed for the study included measuring each principal's perceived level of mindfulness and his or her perceived level of stress prior to and after the intervention. The intervention consisted of participants using a mindfulness smartphone application which is defined later in this chapter. The three research questions focused on in this study are discussed, and I explain why the use of Pearson correlation, paired-samples t test and bootstrap regression analysis were used to determine the impact of a mindfulness smartphone application on stress levels of participating principals. This chapter explains the population associated with the study, as well as the sample, and the process for recruitment of participants for this study.

In order to further define this study, I discuss sample size requirements and statistical methods chosen for each of the three research questions. Two instruments were used, and the validity and reliability of both is discussed in this chapter. Ethical procedures surrounding data collection and participant privacy were discussed in this chapter, as well as explanations of threats to internal and external validity.

Research Design and Rationale

The design of this study is a true experimental design because the study had a control group and treatment group in which voluntary participants were randomly assigned. Use of a mindfulness smartphone application was the intervention assigned to the experimental group, and the control group only participated by completing the pre and post surveys. A between-group design approach was used in the study because two groups were compared, the control group and experimental group, in terms of the use of a mindfulness smartphone application and perceived levels of stress among principals.

The research questions and hypotheses are below:

Q1: *What is the relationship between K-12 principals' perceived level of mindfulness and their perceived overall level of stress?*

H_{01}: K-12 principals with higher levels of perceived mindfulness experience do not have lower levels of stress.

H_{1a}: K-12 principals with higher levels of perceived mindfulness experience have lower levels of stress.

Q2: *To what extent does the use of a mindfulness application reduce stress levels of K-12 principals?*

$H_{02:}$ There is no correlation between K-12 principals who use a mindfulness application and their level(s) of stress.

$H_{2a:}$ There will be a negative correlation between K-12 principals who use a mindfulness application and their level(s) of stress.

Q3: *To what extent do gender, race, age, years of experience, campus level, educational region, or school district size predict levels of stress categories (role-based, task-based, conflict-mediating, boundary spanning) among principals after mindfulness intervention?*

H_{03}: Demographic characteristics of treatment group participants do not predict levels of stress categories as defined by the ASI.

H_{3a}: Demographic characteristics of treatment group participants do predict levels of stress categories as defined by the ASI.

The first research question was analyzed to determine if principals who had a higher level of perceived mindfulness had a lower level of perceived stress. This question was answered prior to mindfulness intervention to determine if there was a relationship among the variables prior to use of the smartphone application. Previous research in other disciplines have resulted in negative relationships between levels of stress and mindfulness, meaning the increase of mindfulness decreased stress (Cohen-Katz et al., 2005; Klatt et al., 2009; Gold et al., 2010; Bergen-Cico et al., 2013; Goldberg et al., 2013). Therefore, I expected to find the same relationship with the participants in this study. To determine this relationship and answer research question one, I had all participants complete the FMI and ASI at the beginning of the study to determine if a correlation exists prior to any intervention.

The second research question determined the impact a smartphone mindfulness application had on stress levels of practicing K-12 principals. Question two was analyzed to help understand if utilizing a mindfulness application impacted overall stress levels of principals. To determine this relationship, participants in the experimental group downloaded Mindfulness Coach to their smartphone devices. This application is described in more detail later in this chapter. Treatment group participants were instructed to use the application at any convenient time, and I emailed

these participants weekly as a reminder to practice mindfulness. After completing each session in the application, participants were instructed to select *log exercise* to save the minutes they completed in their practice logs. I provided a site with tutorial information to participants that gave directions for application usage. Pre and post-test survey data were analyzed from the FMI and ASI to determine if the smartphone application affected stress levels.

The third research question determined if participant demographic information predicted participant's categories of stress as defined by the ASI (task-based, role-based, conflict-mediating, and boundary spanning stress). Understanding how participants respond to stress categories based on demographic information (age, race, gender, campus level, educational region, U.I.L. classification, and years of experience) will assist in understanding principal stress levels and possible cause for turnover rates.

Statistical Methods

Power analysis. In a quantitative study, the significance level, the sample size used for the study and effect size are necessary to determine statistical power (Creswell, 2015). The significance level α of a quantitative study is defined as the probability that any results from the intervention presented in the study are due to chance (Creswell, 2015). For purposes of this study, α = .05. Therefore, the confidence level or the percentage that expresses how confident the researcher is of the result is equal to 95%. The population (N) equaled 7,320. This was the total number of principals at the time of this study across the state of Texas according to the Ask TED Texas Education Agency database. The sample size (*n*) necessary for this study was equivalent to 370, which equals 185 participants per group (Qualtrics, 2019). According to Lipsey (1990), with a significance level of .05, the power needed to reject the null hypothesis set at .80, and the effect

size (the expected difference between the control and experimental groups) equivalent to .5, the minimum sample size should equal 130, or 65 participants per group.

The study began with 224 participants (112 participants in each group), but unfortunately the attrition rate was high. Participants considered as part of the attrition rate were those who initially completed the pre-test survey but failed to submit the post-test survey. The length of time between surveys resulted in the study ending on or near the final day of instruction for many school administrators in Texas. The length of time between pre-test and post-test surveys, change of email address due to relocating to another district or occupation, or possible start of vacation time for principals all serve as factors that contribute to the large attrition rate. Based on sample size requirements, the *n* (53) did not provide enough statistical power in terms of quantitative data from the pre and post-test surveys.

Instrumentation and Operationalization of Constructs

Instrument 1: The FMI was used as a measure of perceived mindfulness among individual principals. The 30-item questionnaire was designed for use with people with or without previous knowledge of the Buddhist background of mindfulness (Walach, Buccheld, Buttenmuller, Kleinknecht, & Schidmt, 2006). Originally, the FMI consisted of 73 items related to meanings and descriptive items of mindfulness. A group of mindfulness experts studied each item in terms of accuracy, legibility, and specificity relating to mindfulness, and narrowed the number of items to 38 (Buccheld, Grossman, & Walach, 2001). The 38-item questionnaire was studied again by mindfulness experts actively participating in meditation retreats. After this review, the final form of FMI was complete with 30 Likert-scale type statements, ranging from 1 *(almost never)* to 4 *(almost always).* When considering the 30-item survey, some questions did not separate efficiently. Reducing the instrument to only items that showed significant differences resulted in

a 14-item questionnaire. Examples of statements on the survey include "I easily get lost in my thoughts and feelings," and "I feel connected to my experience in the here and now". Scoring FMI is performed by totaling all numbers to get one score. On the 14-item questionnaire used in this study, Likert scale options ranged from a score of 0 (never) to 5 (always). One item required reverse scoring to get an accurate measure of mindfulness (Buccheld, et al., 2001).

Items on the FMI related to paying attention in the present moment and openness to both pleasant and unpleasant experiences (Buccheld, et al., 2001). Buccheld, et al. (2001) constructed a four-factor analysis of the 30 items on the FMI and divided all questions among the following factors:

- Factor I: Present-moment disidentifying attention;

- Factor II: Nonjudgmental, non-evaluative attitude toward self and others;

- Factor III: Openness to negative mind states;

- Factor IV: Process-oriented, insightful understanding

However, due to the developmental nature of mindfulness, use of separate factor scores for data extraction is not recommended since it is not safe to assume that each factor will remain high for each individual over time (Walach, et al., 2006). Therefore, I only used the overall average score to measure mindfulness as recommended.

The validity and reliability of the FMI was established with test results of 115 participants actively participating in meditation retreats (Buccheld, et al., 2001). Of the 115 participants, 69% were women and 31% were men. Ages of participants ranged from 22 years old to 61, with 43 being the average age of participants. Overall, participants had an average of 5 years of meditation experience. Of the 115 participants, 100 completely filled out the survey before the meditation intervention and 93 scores were successfully calculated after the intervention.

Researchers hypothesized that mindfulness scores would increase at the end of the study.

Confirming their hypothesis, the pre-test resulted in an average mindfulness score of 100, while

the average score for the post-test was 115 (Buccheld, et al., 2001). Cronbach's alphas were high

for both administrations of FMI (.93 and .94). Data from this study support the reliability and

validity of FMI for measurement of mindfulness among individuals. The survey instrument as it

will be used in this study is located in Appendix A.

   Instrument 2: The Administrator Stress Index (ASI) developed by Gmelch, et al. (1982) is a

35-item questionnaire designed specifically for the measurement of perceived levels of on-the-

job stress of administrators. The ASI included 35 Likert-scale type items ranging from *rarely or*

never happens to me to *frequently bothers me.* The questionnaire is divided into four factors:

role-based stress, task-based stress, boundary-spanning stress, and conflict-mediating stress.

Role-based stress is composed of seven survey items designed to measure an administrator's

perception of the role they should play and how they should interact in the workplace. Task-

based stress consists of ten survey items and focuses on the day-to-day duties of administrators

as a cause of stress. Boundary-spanning stress focuses on community engagement and consists of

five items on the ASI. The last factor, conflict-mediation stress, refers to mediation performed by

administrators in the daily school conflicts and consists of three survey items (Gmelch, et al.,

1982). In terms of validity and reliability, the initial data for ASI was gathered from 1,855

members of the Confederation of Oregon School Administrators (Gmelch, et al., 1982). When

comparing validation and cross-validation samples, internal consistency is at .70 or higher, and

the largest amount of shared variance occurs between role-based stress and task-based stress at a

value of .38. It is a true statement that factors are somewhat independent of one another (Koch,

Tung, Gmelch, & Swent, 1982). Survey developers recommend the use of the survey with

practicing administrators, particularly in educational institutions. The ASI survey instrument as it was used in this study is located in Appendix B.

Treatment Adherence

In the initial survey asking for voluntary consent, participants who revealed they practiced mindfulness for more than one hour per week were disqualified to eliminate bias in experiment results. When performing analyses in SPSS, the option *exclude cases pairwise* was used to remove data of participants who did not complete both the pre and post surveys.

   Calculating the ASI score. Participants were given a Likert Scale option of 0 to 5 for each of the thirty-give questions for the ASI. The questions were designed for administrators, so all questions were mostly applicable to the participants. Participants had the option of choosing *not applicable* if the question did not apply to them in their professional role, and this was scored as 0. To determine the overall stress score, the answer to each question was recorded and used to determine the average overall score. To determine the mean for each of the stressor categories (task-based, role-based, boundary-spanning, and conflict-mediating), I defined the specific questions aligned with each stressor category in SPSS, and I calculated the average score of each category based on how the participant answered the questions on the Likert Scale. This specific information was used to determine if demographic data predicted different categories of stress that principals face. Comparing the average overall score and average categorical score from the pre-test to the post-test was used to determine if the mindfulness intervention impacted the stress levels of the participants.

Calculating the FMI score. The FMI is especially for individuals who may not be familiar with mindfulness. Based on the experiences one had during the previous seven days of survey completion, fourteen questions were asked of the individual. The questions were answered on a Likert Scale of 0 to 5. Zero is defined as *never*, and five is defined as *always*. One question in the survey required reverse scoring. After I completed reverse scoring for each individual, I determined the average score for each participant in SPSS. The average score allowed me to determine the participant's level of mindfulness.

Study Variables and Covariates

Dependent variable. The dependent variables in the study were defined as participant stress level, and categorical stress level(s) including role-based, task-based, boundary-spanning, and conflict mediating stressors. According to the ASI, these levels are divided into different categories that define administrator responsibilities. Questions measuring role-based stress were designed to measure an administrator's perception of the role they should play and how they should interact in the workplace. The category of task-based stress focused on the day-to-day duties of administrators. Another category, boundary-spanning stress focused on community engagement, and the last factor, conflict-mediation stress, referred to mediation performed by administrators in the daily school (Gmelch, et al., 1982). These categories related specifically to stressors associated with an administrator's role. Reducing these levels using a mindfulness application aides in determining if mindfulness is an effective intervention for principals to practice to reduce stress before they change positions or leave the profession altogether. These variables were measured prior to intervention for all participants from the control group and experimental group, and they were measured again by all participants after the intervention to determine if any changes occurred.

Independent variable. Perceived level of mindfulness served as the independent variable in this study. The use of a mindfulness smartphone application was used to determine if mindfulness impacted stress levels. Mindfulness programs have shown to reduce levels of stress, depression, and anxiety in multiple settings (Kabat-Zinn, 2005). The primary contribution of this research to the literature is determining if the practice of guided meditation through a mindfulness app is effective in reducing stress levels of K-12 principals. This variable was measured by determining the average scores from pre and post-survey results between the experimental group who used the application and the control group who did not.

Covariates. The covariates in this study include gender, age, race, region, years of experience, school district University Interscholastic League classification, and campus level of the school the principal oversees. Working with a random sample, there was no set age minimum or maximum for the principalship. The categories of age in this study include 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65 or older as defined by the United States Office of Personnel Management (OPM, 2019). Although there are similarities in their positions, elementary and secondary level principals have different experiences due to the age of the students and differing personalities of teachers on their respective campuses. All demographic data were used as covariates to determine if any specific participant information predicted levels of the four stress categories after mindfulness intervention occurred.

Table 1.

Variables of Study

Variable Type	Variable	Level of Measurement	Potential Response
Dependent	ASI	Continuous	0-6
Independent	FMI	Continuous	0-5
Covariates	Age	Categorical	Age Category
	Campus Level	Categorical	1=Primary
			2=Middle
			3=Secondary
	UIL	Continuous	1-6
	Gender	Categorical	1 = Male
			2 = Female
	Region	Continuous	1-20

Data Analysis Plan

This was a quantitative analysis of the impact of using guided meditation through a mindfulness app on principal stress levels.

Analysis plan for research question 1. Pearson correlation was used to determine if a linear relationship existed between the independent variable, perceived mindfulness, and the dependent variable, perceived stress. Pearson correlation was used to define the linear relationship between the two variables and determine if the independent variable predicts the dependent variable. This

research question was answered by administering the FMI and ASI to all participants prior to guided meditation interventions. The alternative hypothesis stated that K-12 principals with higher levels of perceived mindfulness have decreased levels of stress. Results from previous research indicate that the practice of mindfulness reduces stress, so I predicted the same would occur in this study (Baer, 2003; Kabat-Zinn, 2003; Brown & Ryan, 2003; Bergen-Cico, et. al., 2003).

Analysis plan for research question 2. A paired-samples *t*-test was used to determine if a relationship existed between practicing mindfulness via a mindfulness app (independent variable) and stress levels of K-12 principals (dependent variable). This statistical test was used to determine the significance of group differences based on stress level results from both the control group who did not receive the mindfulness intervention and the experimental group who used the mindfulness application. The dependent variable (stress levels) was measured as one continuous variable, and the independent variable (mindfulness practice) was measured as one discrete variable. The main purpose of this research question was to determine if the difference in stress levels of principals in the experimental group before and after the study was statistically significant in comparison to their peers who were part of the control group in the study.

Analysis plan for research question 3. The purpose of the third research question was to determine if covariates predicted categorical levels of stress among treatment group participants after four weeks of guided meditation. A model was created for each of the dependent variables (task-based stress, role-based stress, conflict-mediating stress, and boundary-spanning stress). Multiple independent predictor variables (race, age, gender, years of experience, campus level, ESC, and UIL) were used to determine if any individual variable statistically impacted any of the stress categories of participants in the treatment group after intervention. It was intended for

multiple regression analysis be used for this question, but due to the small sample size ($n = 19$) this method was not appropriate. Instead, a nonparametric bootstrap regression method was used with a sample size of 1,000. There are various suggestions throughout the literature surrounding sample size requirements in terms of multiple regression analysis. Stevens (1996) recommends fifteen participants per predictor variable. In this particular study design with seven predictor variables, the sample size of 1,000 is an adequate sample size. predictor variables used for this question.

Threats to Validity

    Internal validity. Internal validity is important in experimental studies because it helps to determine if and to what degree observed changes of an intervention can be credited to the study, or if changes are a direct result of alternative causes (Creswell, 2015). In this study, internal validity was used to determine if manipulating the independent variable (mindfulness app) resulted in changes to the dependent variable (stress levels). In order to credit the practice of mindfulness via a smartphone application in reducing stress levels of administrators during the four-week study, participants were asked if they utilized a smartphone application for guided meditation purposes. Anyone identified using a mindfulness application one hour or more per week was removed from the sample to reduce any threats to internal validity. Another threat to internal validity that was considered is attrition rates of participants. A four-week requirement was a commitment from participants. Although groups met criteria for a random sample, attrition rates occurred between both control and treatment groups that resulted in reduced statistical power.

    External validity. External validity is dependent on the population and representatives of the sample in terms of generalizability. The level of impact that mindfulness practice will reduce

stress levels depended upon experimental group participants' willingness to utilize the app and successfully complete mindfulness courses provided in the application. As mentioned previously, any respondents to the survey who already participate in mindfulness practice via a smartphone application regularly (one hour or more per week) were removed from the sample prior to random sampling. To assure this study met validity, a study sample of principals across the state of Texas from both primary and secondary levels and with any level of experience were included in the study sample.

Participants

Texas public schools are divided across the state into twenty regions. Using Survey Monkey, I sent an initial survey to all principals in Texas utilizing the AskTED database from Texas Education Agency. The initial survey provided principals with information about myself, the study, and provided a letter of consent. If interested in participation, principals completed the survey which asked for demographic information and determined if the principal used a mindfulness app for more than one hour per week. Of the 292 initially interested participants, 46 were disqualified because they utilized a mindfulness app for more than one hour per week, 4 participants were disqualified because they were not currently a principal in Texas, 4 participants partially completed the survey, and 14 did not want to participate in the study. The 224 qualifying participants were sorted by their educational region and then randomly placed into either the control group or treatment group using the randomize function in Microsoft Excel. An equal number of participants were placed into each group, totaling 112 participants in per group.

Implementation of the Study

Sampling and procedures. Using Survey Monkey, 112 participants received the pre-survey labeled for control group, and 112 participants received the pre-survey labeled for treatment

group participants. Both surveys contained the FMI and ASI surveys, with 49 questions in total. Participants were given two weeks to complete the pre-survey via Survey Monkey. After completion of the pre-survey for both groups, 43 participants remained in the control group and 35 participants in the treatment group. Participants were given two weeks to complete the initial survey, and Google Mail was used for communication with participants to remind them to complete the pre-test survey.

A website was created for treatment group participants with directions on how to use Mindfulness Coach smartphone application (discussed later in this section), and I offered additional assistance opportunities via email as well. Weekly reminders about use of the Mindfulness Coach app were sent to treatment group participants via Google Mail. At the end of the four week treatment period, a post survey was sent to all control group and all treatment group participants, and they were given two weeks to complete the post survey. Participants in the treatment group were also asked to export their practice logs from the Mindfulness Coach app to myself via email. The post survey resulted in completion from 33 of the 43 participants in the control group, and 19 of the 35 participants in the treatment group.

Procedures for data collection. Data were collected over a four-week period. Although mindfulness interventions are typically eight weeks, studies have shown that four-week interventions provide the same physiological effects (Klatt, et al., 2009; Demarzo, et al., 2017). Due to principals' full schedules, I believe four weeks helped encourage more participation by requiring less time commitment from participants. After randomly assigning each principal to either the control or experimental group, all participants completed the pre-test FMI and ASI instruments via Survey Monkey. I assisted participants in the use of the Mindfulness Coach App

before intervention began by sending a link to a step-by-step tutorial site made exclusively for the application and its use in this study.

Mindfulness Coach is an application developed by the Department of Veteran Affairs National Center for PTSD. Although developed by the VA and intended for use by veterans and current military members, the self-guided mindfulness course and teachings of mindfulness embedded in this app are appropriate for use by anyone who could benefit from practicing mindfulness. This application was free for download and therefore did not result in budgetary restraints for me in this study. At the beginning of the four-week period, I asked treatment group participants to complete the nineteen-question mindfulness quiz embedded in the application. Based on results from this quiz, the application prescribed specific mindfulness meditation practices. The application assigned users the mindfulness practice through levels, and each level had certain mindfulness practice exercises to complete before moving to the next level.

Along with the assigned levels of guided meditation, participants also had the option of choosing *Practice Now* in the application. This option allowed users to select various mindfulness sessions they wanted to practice immediately, and it allowed them to create a favorites list. Another option from the home screen that was included in the application was *Track Progress.* This allowed users the opportunity to create a goal for themselves, set and determine the frequency of the reminders, as well as provide access to practice logs that will track how long they have spent on a session during the entirety of their app use. I asked each participant turn on a mindfulness mastery reminder weekly. At the end of the study, participants were asked to export their usage logs and email to me. However, due to receiving only eight of the nineteen treatment group participants' logs at the end of the study, I was unable to receive

logs for participants. In addition, the issue of deleting the application from the cell phone before downloading and submitting logs was an issue for at least one participant.

After completion of a four-week time period to practice mindfulness meditation, the control group and experimental group received another electronic copy of the post-test FMI and ASI via Survey Monkey to gather results. From these results, I was able to use this data to identify if use of the mindfulness smartphone application affected levels of stress because of the treatment.

Ethical procedure information. I completed the appropriate certification from CITI training as indicated by the IRB requirements at Texas A&M University-Texarkana on February 6, 2019. Before contacting any prospective participants and prior to conducting research, I acquired approval from the board. After sending post-surveys to all participants, an amended letter was submitted to IRB for approval for purposes of additional recruitment. The letter of consent that was sent to all participants before they voluntarily participated in the study can be found in Appendix C, and the CITI Training certificate can be viewed in Appendix D.

Summary

This study utilized a quantitative approach to determine the impact of guided meditation through a smartphone application on stress levels of K-12 principals. The research purpose was to determine if mindfulness influenced overall stress scores of principals, if categories of administrator stress are affected differently because of mindfulness, and if factors such as age, region, campus level, and campus level had an impact on one's ability to reduce stress through guided meditation. This chapter is a detailed overview of the planned methodology for the experimental study. Among the three research questions, I will use the Pearson correlation, paired-samples t test, and a nonparametric bootstrap regression method to determine if the null hypothesis can be rejected for any of the three research questions.

Chapter 4: Research Results

The purpose of this quantitative study was to determine the relationship between mindfulness practice and Texas school principals' stress levels. Valid surveys were used to collect quantitative data for the continuous dependent variable, principal stress levels, and the continuous independent variable, perceived level of mindfulness (see Appendix A and Appendix B). Statistical analyses were conducted using an alpha level of .05.

The research questions used as a guide for this study are defined below:

- Q1: *What is the relationship between K-12 principals' perceived level of mindfulness and their perceived overall level of stress?*

- Q2: *To what extent does the use of a mindfulness application reduce stress levels of K-12 principals?*

- Q3: *To what extent do gender, race, age, years of experience, campus level, educational region, or school district size predict levels of stress categories (role-based, task-based, conflict-mediating, boundary spanning) among principals after mindfulness intervention?*

Research question one was answered using Pearson correlation, *r*, to determine if a linear correlation existed among K-12 principals' stress levels and perceived level of mindfulness prior to any intervention of the study. A paired-samples *t* test was conducted to determine differences in the dependent variable, stress levels, among the control group and treatment group by comparing means of pre and post-survey data. In the original research design, multiple regression analysis was planned to answer the third and final question to identify if any participant demographic characteristics predicted levels of stress categories of the ASI after mindfulness intervention. However, due to the post-treatment group only having 19 completed surveys, a nonparametric bootstrap regression was used because no regression assumptions for

normality could be met. This chapter will provide information related to findings of each research question in this study.

Data Collection, Preparation, and Analysis

In this study, data were collected by administering the same pre and post survey to all participants in the control group and treatment group. The independent variable, perceived mindfulness, was measured using the FMI (Walach, et al., 2006). The dependent variable, stress level of principals, was measured using the ASI (Gmelch, et al., 1982). The ASI defined four categories of stress: task-based, role-based, conflict-mediating, and boundary spanning. Of the 35-item questionnaire, 10 questions determined task-based stress, 7 questions determined role-based stress, 3 questions were used to define conflict-mediating stress, and 5 questions were used to define boundary-spanning stress. The post surveys were sent four weeks after pre surveys because that was the length of time participants in the treatment group were given to practice mindfulness via the Mindfulness Coach application.

Sample Profile. After contacting all current principals in Texas as defined by the AskTED Database from TEA by email, the qualified participants who consented to voluntarily participate in the study were randomized into control or treatment group using Microsoft Excel's RAND function. 112 participants were randomized in the control group, and 112 participants were randomized in the treatment group. Survey Monkey was used to design and send pre and post surveys. A unique identification code was assigned to each participant, and in SPSS the option *exclude cases pairwise* was used to so that participants with missing data were excluded from statistical tests.

Of the 78 participants, 69.2% were female, which is a representative sample in terms of actual male and female principals in Texas. In terms of race, study participants classified themselves as

Caucasian, African American, or Hispanic. A majority (64%) identified as Caucasian or white,

12.8% identified as African American, and 23.1% identified as Hispanic. This is a representative

sample of race in terms of the Texas principal population. Age categories, as defined by the

United States Office of Personnel Management (OPM, 2019), showed that most study

participants were between the ages 45 and 54 (44.9%). Participants were asked how many years

of experience as a campus administrator they had, and 42.3% of the sample size had less than

five years of experience. The educational region in Texas that was mostly represented in this

study is Region 8 (12.8%), and most participants were administrators in a 5A school district as

classified by University Interscholastic League (30.8%).

Descriptive statistics for study variables. Possible scores for the FMI and ASI ranged from

0 to 5 on a Likert scale. The mean overall score for FMI pre-test was 2.87 and post-test mean

was 3.08. The mean score for ASI pre-test was 2.63 and post-test was 2.46. The independent

variable, mindfulness, increased 8% from pre-test to post-test. The dependent variable, stress

levels, decreased from pre-test to post-test by 5%.

Sorting SPSS data by treatment and control group information, mean scores for independent

and dependent variables were calculated for pre-test FMI, post-test FMI, pre-test ASI, and post-

test ASI. The mean pre-test FMI was higher for control group participants (2.94) than treatment

group participants (2.79). The post-test FMI was also higher for control group (3.11) compared

to the mean for treatment group participants (3.04). Mean scores for FMI rose approximately 5%

from pre-test to post-test among control group participants while mean scores for treatment

group participants on FMI increased 7%. The mean scores for pre-test ASI was higher for

treatment group participants (2.66) than control group participants (2.60). Post-test ASI mean

scores show that treatment and control group participants averaged the same score (2.46).

Average ASI scores decreased by approximately 6% among the treatment group participants while they decreased by 4% among control group participants.

Table 2.

Means and Standard Deviations of Variables by Participant Demographic Data

Variable	Group	Pre FMI	Post FMI	Pre ASI	Post ASI
Mean (*SD*)		2.87(.67)	3.08(.66)	2.63(.56)	2.46(.55)
	Treatment	2.79(.73)	3.04(.67)	2.66(.55)	2.46(.59)
	Control	2.94(.62)	3.11(.67)	2.60(.57)	2.46(.53)

Instrumentation. Prior to use of the instruments in this research, studies were examined to assure testing validity and reliability were met for FMI and ASI (Koch, et al., 1982; Buccheld, et al., 2001). For validation and internal validity check specific to this study, Cronbach's alpha was determined for both instruments. Cronbach's alpha is considered acceptable at .70 and greater in most research (Cortina, 1993). Cronbach's alpha scores for perceived mindfulness prior to experimental intervention was .88 as measured by pre-test FMI, and it was .90 after intervention as measured by post-test FMI. When considering internal validity for ASI, Cronbach's alpha for the pre-test was .89, while the post-test was .91.

Assumptions of correlation. Prior to performing Pearson correlation, *t* tests, or regression analysis, data were analyzed in terms of normality and linearity. Linearity of data was assessed by visually examining data plots for pre-test ASI and FMI and post-test ASI and FMI. As indicated by these plots, data were normally distributed and followed a linear pattern. Skewness and Kurtosis values represent where the data lies on a graph and how peaked or flat it appears. For purposes of determining normality, z-values were obtained by dividing values of skewness and kurtosis by the standard error for pre-test FMI, pre-test ASI, post-test FMI, and post-test ASI.

All z-values were within the acceptable range of -1.96 to 1.96 (Pallant, 2016). Although data comes from a small sample size and provides lack of statistical power, review of data revealed that all assumptions for correlations were met, and the test of Pearson correlation was suitable for statistical analyses in this study.

Data Analysis and Results

   Research question one and hypothesis. *What is the relationship between K-12 principals' perceived level of mindfulness and their perceived overall level of stress?* The purpose of the first research question was to determine if a linear relationship existed among principals' stress levels and their perceived level of mindfulness prior to any intervention. All participants completed the FMI to measure perceived levels of mindfulness and the ASI to measure perceived stress levels. Both surveys were scored for each participant, and a higher average on FMI indicated a higher level of perceived mindfulness, while a higher average score on ASI indicated a higher level of perceived stress. All participants from treatment group and control group were included in this analysis ($n = 78$). A Pearson correlation, r, coefficient was calculated to determine if the null hypothesis could be rejected.

   $H_{01:}$ There will be no correlation between K-12 principals' levels of perceived mindfulness and levels of stress.

   H_{1a}: K-12 principals with higher levels of perceived mindfulness experience will have lower levels of stress.

   The correlation for perceived level of mindfulness and perceived level of stress among all principals in the study is equal to -.386, [(r(76) = -.386, p < .001]. Correlations with an absolute value between .30 to .49 are considered medium, and therefore a medium negative correlation is described by this test (Pallant, 2016). This result suggests that as stress levels increased,

perceived levels of mindfulness decreased. A significant negative linear relationship between the two variables was found ($p < .001$), and therefore data supported rejection of the null hypothesis.
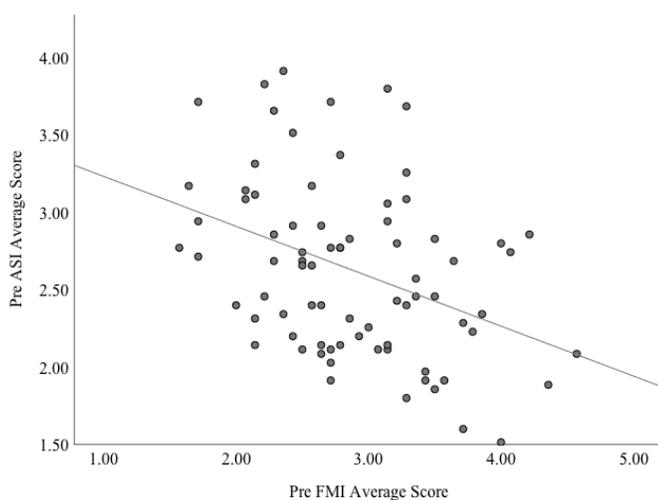
Figure 2. Negative Linear Correlation between Mindfulness and Stress Levels of K-12 Principals.

Research Question two and hypotheses. *To what extent does the use of a mindfulness application reduce stress levels of K-12 principals?* The purpose of the second research question was to determine if use of the mindfulness smartphone application reduced stress levels of the K-12 principals who participated in the treatment group.

$H_{02:}$ There will be no relationship between K-12 principals who use a mindfulness application and their level of stress.

$H_{2a:}$ There will be a negative correlation between K-12 principals who use a mindfulness application and their level(s) of stress.

A paired-samples *t* test was calculated to compare the mean stress level of principals pre-intervention to the mean stress level of principals post-intervention. The stress level mean before

the intervention of the treatment group participants was 2.7398 (*SD*=.58646), and the stress level

mean after intervention was 2.4571 (*SD*=.59002). No significant difference from pre-intervention

to post-intervention was found (*t*(18) = 1.969, p > .05). Among the control group, the mean level

of stress at the beginning of the study was 2.5481 (*SD*=.57350), and the mean level at the end of

the study was 2.4580 (*SD*=.53172). No significant difference from the beginning of the study to

the end was found (*t*(32)=1.841, p > .05), and the null hypothesis failed to be rejected.

Although no statistically significant difference was found between pre and post ASI for the

treatment and control groups in terms of levels of stress, the effect size for the groups showed

change. Effect size is defined Cohen in the following way (Cohen, 1988):

- .20 = small effect size;

- .50 = moderate effect size;

- .80 = large effect size

The effect size among stress level of treatment group participants is represented as *d*

= .480584, while the effect size among control group participants is smaller at *d* =0.162928.

The effect size of treatment group participants is a small effect size, while the effect size of

control group participants fell below small.

Table 3

Paired Samples Test – Pre ASI Average Score to Post ASI Average Score

Group	Mean	Sig.	*t*	df	Effect Size
Treatment	2.83	.065	1.969	18	.48
Control	.090	.075	1.841	32	.16

Research question three and hypotheses. *To what extent do gender, race, age, years of*

experience, campus level, educational region, or school district size predict levels of stress (role-

based, task-based, conflict-mediating, boundary spanning) among principals after mindfulness

intervention?

H$_{0a:}$ Demographic characteristics of treatment group participants do not predict levels of

stress categories as defined by the ASI.

H$_{3a:}$ Demographic characteristics of treatment group participants do predict levels of

stress categories as defined by the ASI.

To answer the third research question, I planned to use standard multiple regression to

determine if multiple independent variables (race, age, years of experience, campus level,

educational region, U.I.L. classification, and gender) predicted levels of stress as determined by

the ASI (task-based, role-based, conflict-mediating, and boundary-spanning stress). However,

this research question used only post-test ASI results for treatment group participants and the

final sample size was 19 (n = 19). Due to several predictor variables presented in the question

and a very small sample size, the method of nonparametric bootstrapping regression was used

because normality for the regression could not be assumed. In SPSS, simple bootstrap method

was used with 1,000 as the selected sample size. In the analysis, four models were created to

represent the impact of predictor variables on each of the stress components defined by the ASI

(task-based, role-based, conflict-mediating, and boundary spanning).

In each model, the predictor variables remain constant (race, age, years of experience, campus

level, educational region, and U.I.L. classification), but the criterion variable does not. The

Bootstrap for Coefficients table was examined for all four levels of stress: task-based stress, role-

based stress, conflict-mediating stress, and boundary-spanning stress. After examination of

coefficients in each model, there was no statistical significance between the predictor variables

and any of the four levels of stress. Therefore, the independent variables (gender, age, race, years of experience, ESC, UIL, and campus level) were not significant predictors of task-based stress, role-based stress, conflict-mediating stress, or boundary-spanning stress.

In studies with limited sample sizes, *R Square* is skewed when there are multiple predictor variables presented in the model. In this study, due to a small sample size, multiple predictor variables, and inherent bias in R-squared measures, the Adjusted *R Square* was found for each of the regression models.

- Task-Based Stress: -.128

- Role-Based Stress: -.147

- Conflict-Mediating Stress: .288

- Boundary-Spanning Stress: .119

Adjusted R^2 increased in the models three and four where conflict-mediating stress and boundary-spanning stress were used as criterion variables. None of the models were statistically significant, but the increase in *Adjusted R^2* indicates improvement in the regression model when conflict-mediating stressors and boundary-spanning stressors were included.

The null hypothesis for research question three failed to be rejected due to no statistically significant fit of any models presented in this research.

Summary

The purpose of this study was to determine if a linear relationship existed among principals' mindfulness levels and stress levels prior to any intervention, determine if practicing mindfulness with a smartphone application over a four week period reduced stress levels, and if demographic data predicted any of the four categories of stressors defined by the ASI after mindfulness

intervention occurred. In research question one, the Pearson *r* suggested a statistically significant

negative correlation between stress levels and perceived level of mindfulness, meaning principals

who began the study with higher levels of stress had lower levels of perceived mindfulness.

Research question two did not show any significant values in terms of the mindfulness app

intervention on levels of stress among treatment group participants. However, Cohen's *d*

identified a small effect size for the treatment group and below a small effect size for the control

group. The results do not indicate that the effect sizes between the two groups differ by at least

0.2 standard deviations, and thus the difference is minor. In research question three, the predictor

variables in the model did not show to have a statistically significant impact on any of the four

stress categories (task-based, role-based, conflict-mediating, and boundary-spanning) among

treatment group participants after the four-week mindfulness intervention period. It is important

to remember that a small sample size present in this study do not provide statistical power for

any data results analyzed throughout this chapter.

Chapter 5: Conclusion, Discussion, and Recommendations

There are many factors which contribute to stress for K-12 school leaders. Continuous change in campus-level leadership has a negative effect on teacher retention and student learning, and a leading cause of principal turnover is due to stress (Boyland, 2011; Beitelle, 2012). Research surrounding the impact of mindfulness on stress rates contributes to the understanding of effective interventions to reduce principal turnover rates. Within this study, data related to mindfulness levels of principals and how it correlates with stress levels is examined.

Summary of Study Findings

The purpose of this study was to determine if principals with higher levels of perceived mindfulness had lower levels of stress and if use of guided meditation via a smartphone application would further contribute to the reduction of stress levels among principals. Data from this study indicate that principals with higher levels of stress (as determined by the ASI) have lower levels of perceived mindfulness (measured by the FMI).

The first research question was asked to determine the relationship between K-12 principals' perceived level of mindfulness and their perceived level of stress. Data from both participant groups (n = 78) was used to answer the research question. After analyzing the data, a significant relationship between the independent variable, mindfulness, and the dependent variable, stress was found [($r(76) = -.386$, p < .001]. The results of this analysis indicated a moderate negative correlation between principal stress levels and perceived levels of mindfulness. The correlation suggested that principals with higher levels of mindfulness had lower levels of stress. Therefore, there was support for rejection of the null hypothesis.

The second research question was researched to determine what extent does the use of a mindfulness application reduce stress levels of K-12 principals? Using a paired-samples *t* test to

determine if practice of mindfulness had an impact on stress levels, mean scores from pre and post ASI for the treatment group were analyzed and compared to mean scores from pre and post ASI for the control group. There was no statistical significance found between principal stress and practice of mindfulness using a smartphone application in this study. However, Cohen's *d* was used to determine effect size between the pre and post ASI scores for the treatment group, as well as the pre and post scores for the control group. The effect size for the treatment group fell right below a moderate effect size ($d = .480584$), while the effect size for the control group fell below a small effect size ($d = 0.162928$). This study was conducted during the final month of the school year for many principals. Time limitations and additional duty requirements at the end of the school year were a limitation to participant completion of mindfulness practice. Requiring principals to independently practice mindfulness via a smartphone application was also a limit to this study. These factors contributed to the effect size among the control and treatment groups not being statistically significant.

The final research question was asked to determine the extent in which gender, race, age, years of experience, campus level, educational region, or school district size predicted levels of stress categories (role-based, task-based, conflict-mediating, boundary spanning) among principals after mindfulness intervention. Multiple regression analysis planned for this question to determine if predictor variables affected any of the components of stress as defined by the ASI (task-based stress, role-based stress, conflict-mediating stress, and boundary-spanning stress). However, due to the small sample size (n = 19) a nonparametric bootstrap regression for a sample size of 1,000 was used instead because normality could not be assumed for multiple regression. Among bootstrap coefficients in each of the four models, $p > .05$ for each predictor variable, and therefore there was no statistical significance found between predictor variables in

this study on any of the four stress categories as defined by the ASI. The null hypothesis failed to be rejected for this research question.

Discussion

Cognitive Appraisal Theory explains that an individual defines his or her present moment in a two-part appraisal process: primary appraisal and secondary appraisal (Lazarus & Folkman, 1984). During primary appraisal, the individual defines the current moment as positive, challenging, harmful, or threatening. Secondary appraisal allows the individual an opportunity to identify necessary resources that either increase positive effects of the situation or allow the individual to identify coping methods to reduce the potentially negative effects of the situation Emotion-focused coping allows the individual an attempt to reduce negative emotional responses during a situation that has been defined as stressful.

Emotion-focused coping skills, which include mindfulness and meditation techniques, have been proven to decrease depression and anger while increasing life satisfaction (Galor, 2012). The practice of mindfulness enables an individual to more effectively evaluate the current stressor he or she is facing because it encourages one to move away from other thoughts, emotions, and feelings (Garland, et al., 2009). Mindfulness also allows an individual to be more accepting of challenging and threatening events, thus reducing the number of situations appraised as stressful (Breslin, Zack, & McCain, 2002). Findings in this study resulted in a statistically significant negative correlation between overall stress levels and perceived levels of mindfulness. There was indication that principals who ranked higher on the FMI (mindfulness) had lower average stress levels as measured by the ASI. The change in effect size between pre-survey and post-survey ASI scores among participants in the treatment group is also an indication that stress levels are lowered as a result of mindfulness practice.

Recommendations for Future Research and Practice

Recommendations for future research. Recommendations from this study were based on knowledge acquired throughout the literature surrounding stress levels and practice of mindfulness, as well as the results of this study (Brown & Ryan, 2003; Kabat-Zinn, 2005; Wells, 2013). Utilizing the findings and recommendations of this study can contribute to reducing stress levels of principals and ultimately reducing principal turnover rates.

As stated previously, a limitation in this study is that the small sample size reduced the statistical power. The researcher recommends increasing the sample size by hosting learning sessions at national and state-level principal conferences to discuss principal turnover rates, impact of stress, and mindfulness interventions. Hosting sessions at conference(s) will allow the researcher to meet potential participants face-to-face and create a more authentic experience for the participants.

Allowing and encouraging participants to practice mindfulness in ways other than the smartphone application is also recommended, such as yoga, personal meditation, and journaling. To lessen attrition rates, the researcher recommends hosting a group and/or individual weekly webinar for all treatment group participants after intervention has begun to discuss their personal mindfulness practice for the week, how much time they devoted to mindfulness practice, and any improvements they have seen in their day-to-day lives. This will help them feel connected to others and make them aware of the impact of mindfulness practice. In terms of distributing surveys to participants, it is also recommended that demographic information be combined with the pre-survey so that participants are only submitting two surveys instead of three.

Another recommendation of this study is to conduct a case study that allows for a smaller group of participants and extends the study over a longer period of time to gather an in-depth

understanding of the benefits of mindfulness practice on the individual. In Cognitive Appraisal Theory, participants create a perception of the environment in which they are in during primary appraisal, and during secondary appraisal the person decides how to respond to the situation. A case study would also allow the researcher to determine not only if the overall stress level of participants is reduced, but to also discuss and identify how mindfulness impacts the individual's appraisal of certain situations.

If used in future research, these suggested recommendations will allow researchers to gain additional insight into understanding more specific ways in which mindfulness affects stress levels. Along with expanding the understanding of mindfulness impact on stress, making additional effort to gather more participants will increase the generalizability of the study results. Research conducted suggests that mindful leaders positively impact job satisfaction and productivity of employees (Kearney, et al., 2013; Jennings, 2015). Studying the effects of mindful school principals on teacher and student success would allow school leaders to understand the impact of this practice. This study did reveal a significant relationship between perceived mindfulness and stress, but additional studies will help researchers understand the most effective mindfulness techniques and determine if mindfulness practice does significantly impact stress levels of principals.

Recommendations for future practice. The purpose of this study was to allow the researcher to determine if mindfulness practice via a smartphone application was a successful intervention method for principal stress. Although there were limitations to the study, the results and recommendations provided could be useful to campus principals and superintendents. One recommendation would be for superintendents to encourage principals to spend some time during the day practicing guided meditation (breathing, awareness, and letting go of

distractions). Superintendents can allow principals to meditate, practice breathing techniques, journaling, or use smartphone applications such as Mindfulness Coach or Buddhify in his or her office during the school day when feeling stressed.

A recommendation for campus principals is to practice guided meditation during stressful times in their personal and professional lives. Smartphone applications such as Mindfulness Coach are readily available on a smartphone. The principal can monitor his or her level of mindfulness with a short quiz embedded in the application. Other methods of mindfulness for future studies include, for instance, if using a journaling method, participants can review journal entries during moments identified as stressful. Over time, the individual can review the journal entries and determine if the responses changed or became less frequent over time. There are many methods in which mindfulness is practiced, so removing the study requirement of a smartphone application will encourage more people to practice, thus resulting in less attrition rates and stronger sample sizes.

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