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The Influence Of Elementary School Teacher And Principal Mindset On Educator Effectiveness

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THE INFLUENCE OF ELEMENTARY SCHOOL TEACHER AND PRINCIPAL MINDSET ON EDUCATOR EFFECTIVENESS

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ABSTRACT

Mindset, educator's effectiveness, leadership, and teacher performance are constructs that interact within the school environment to impact student success and achievement. A culture of mindset impacts teacher and principal effectiveness. These constructs have an interdependent relationship with one another. Building leaders' mindset influences their behavior, effectiveness, and beliefs. Leaders' effectiveness exemplifies their leadership style and dictates their decisions as well as serves as policy drivers. Teachers' mindsets have a profound impact on the learning performance goals and motivation of students. Finally, educators' performance impacts student achievement and success. The purpose of this study was to expand the research regarding mindset and teacher and principal effectiveness. This quantitative, descriptive study surveyed principals and teachers in Indiana K-12 public schools to determine the impact of their mindset on their effectiveness. The Theories of Intelligence Scale was utilized to determine the principals' and teachers' mindset. In addition, demographic questions such as gender, level of education, experience, and position type, were included in the survey. The results indicated there is no significant difference between principals and teachers regarding mindset levels. The results indicated that Mindset was significantly impacted by the years of teaching experience. In addition, significant differences between principals and teachers regarding effectiveness levels were found. Thus, a major conclusion is that the results indicated that Mindset has a significant positive effect on effectiveness. The study provided information that indicated that by implementing a healthy growth mindset in schools, teachers will be more applicable in their roles

as leaders and educators, which will then foster a productive mindset among students in the classrooms, resulting in more positive student academic outcomes and a longer achievement trajectory.

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CHAPTER 1

INTRODUCTION

Carl Rogers (1995) stated, “I believe that the testing of the student’s achievements in order to see if he meets some criterion held by the teacher is directly contrary to the implications of therapy for significant learning” (p. 290). The performance of students is not always judged on their capabilities, but their performance can be considered as a reflection of what the teachers were successful in giving them (Robinson et al., 2008; Stes et al., 2010). There are many aspects that influence students’ academic outcomes. Specifically, the role of the educator as a leader has a significant influence on students’ outcomes (Robinson et al., 2008). Therefore, teachers must be capable of teaching adequate and accurate knowledge to students (Bressoux et al., 2009). As Strong and Hindman (2006) asserted, “Teacher effectiveness is a set of experiences, traits, behaviors, and dispositions that are typically evident in effective teachers” (p. 10). For the principal, effectiveness is defined as highly visible through contact and interaction with teachers, students, and parents, thus promoting the concept of a learning community (as cited in Stronge et al., 2008, p. 5).

Also, “effective leaders help the school to become a professional learning community to support the performance of all key workers, including teachers and students” (Leithwood & Riehl, 2003, p. 4). Many researchers have investigated the correlation between leadership and student success. When leaders provide teachers with professional learning opportunities,

resources to support student development, and cutting-edge innovations, they are providing their teachers an obvious advantage. According to Fullan (2001), through such action, teachers can directly impact student performance.

Marzano et al. (2005) reported the effects on students' outcomes in their meta-analysis, which was grounded on principal leadership. Marzano and his colleagues identified 21 responsibilities that correlate to student success. These 21 responsibilities give new insight into the essence of school leadership. One of them is intellectual stimulation, which "ensures faculty and staff are aware of the most current theories and practices and makes the discussion of these a permanent aspect of the school's culture" (Marzano et al., 2005, p. 42). The principal can inform teachers about the mindset theory regarding effective schooling and practice it as a steady part of the school's culture.

In addition to teachers' actions and behaviors in the classroom, such as their decisions, leadership approaches, and mindsets, teacher-student relationships have an impact on student academic outcomes (Marzano & Marzano, 2003). Teaching students the growth mindset could result in positive change in classroom settings, like enhanced learning (Blackwell et al., 2007). Therefore, teachers must be well-motivated to transfer the knowledge they possess to their students (Skaalvik & Skaalvik, 2011). Psychological features play a significant role in the determination of the category of mindset possessed by teachers and students (Murphy & Dweck, 2016). Teachers or students who possess a fixed mindset tend to develop an impression that performance combined with a person's beliefs, intelligence, talents, and skills are innate and fixed (Dweck et al., 2014). This tells us that instead of improving and leading individuals forward, such students are going to start worrying about being judged (Dweck, 2006). Conversely, when the learning is concentrated on an individual's belief that skills are the direct

result of knowledge, continuous learning, and hard work, their skill level is more likely to change with time and effort. According to Murphy and Dweck (2016), “a growth mindset may free people from concerns about their image in the moment and motivate them to seek opportunities to enhance their skills and abilities over time” (p. 127). Therefore, the growth mindset is easily able to adapt to such change, while those who are performance-oriented are mostly observed to carry negative perceptions lacking adequate initiative for growth. It is in this context that teachers with a growth mindset are more likely to be extremely motivated. Therefore, they possess greater abilities to motivate their students to accept failure as new opportunities for learning (Schleicher, 2012; Taylor, 1997).

Statement of the Problem

According to Ingersoll (2001), “Contemporary educational theory holds that one of the pivotal causes of inadequate school performance is the inability of schools to adequately staff classrooms with qualified teachers” (p. 1). This problem is increasing every year due to low job satisfaction and teacher attrition (Skaalvik & Skaalvik, 2011). Weiss (2002) defined job satisfaction as “a positive or negative evaluative judgment one makes about one’s job or job situation” (p. 175). Consequently, teacher job satisfaction can be associated with teachers’ motivation to quit the teaching occupation altogether (Weiqi, 2014). Thus, dissatisfaction can become more significant and not only cause an increased teacher shortage but may also be related to decreased productivity and the ability to meet students’ needs (Zembylas & Papanastasiou, 2004).

One of the challenges confronted by professionals in the domain of education is the association between effective leadership and learner academic outcomes (Robinson et al., 2008). As in any organization, including an educational setting, strong leaders are necessary to attain

desired outcomes (Marzano et al., 2005). Leaders in any organization establish a foundation on which others build their behaviors and decision-making. As an example, principals, as leaders of a school, influence teacher job satisfaction and perceived stress levels (Evans & Johnson, 1990). In an academic setting, the effectiveness of a teacher or principal has an influence on student academic outcomes due to the effectiveness of leadership principles (Fullan, 2014). According to Leithwood and Seashore-Louis (2013), "Leadership affects student learning when it is targeted at working relationships, improving instruction and, indirectly, student achievement" (p. 234). While education and experience can influence the way educators instruct their students, it is just as important for educators to have the appropriate mindset when teaching children (Schleicher, 2012).

Though it is ubiquitously known that teachers and principals have an influence on learning outcomes, including student behaviors, it is often assumed that individuals' leadership abilities within an organization are fixed (Dweck, 2010a). This is because it is assumed that leadership is an innate ability that cannot be effectively cultivated or learned (Dweck, 2010b). According to Dweck (2006), "People with a fixed mindset do not admit and correct their deficiencies" (p. 109). Therefore, the leadership abilities of educators and principals are not emphasized as important in the way they should be. The problem of this study primarily emphasizes the influence of teacher motivation and mindset regarding job roles on their performance. It is therefore considered that in an elementary school setting, performance management of both the teachers and students is challenging.

Purpose of the Study

The purpose of this quantitative study is to investigate the extent that the elements of a culture of mindset impacts teacher and principal effectiveness in an Indiana elementary school. A

culture of mindset refers to the overall mindset within an organization, such as in a school, and how it is cultivated by the leaders within the organization (Murphy & Dweck, 2010). A healthy mindset encourages individuals to develop themselves and facilitate positive change not only for their own benefit but also for the benefit of those around them (Dweck et al., 2014). Moreover, teachers' mindsets have a profound impact on the learning performance goals and motivation of students (Gutshall, 2013). If a school has a culture of healthy mindset, the leaders in the organization, such as the principal, establish policies and frameworks through which a productive learning environment can be achieved. Based on this assertion, this study will examine the mindset elements of school culture in relation to teacher and principal effectiveness. Specifically, the research will identify whether the overall mindset in an Indiana elementary school creates an environment that benefits student outcomes reflected in teacher and principal effectiveness.

Research Questions

The following overall research questions were specifically formulated to guide this study. Each question corresponds to selected statistical tests to allow for inferential analysis. Null hypotheses were further developed to address study questions. Research questions in this study are:

RQ1: Does growth mindset on the part of teachers and principals predict a significant amount of variance in principal effectiveness?

RQ2: Is there a significant difference between principal and teacher growth mindset?

RQ3: Is there a significant difference between principal and teacher effectiveness?

RQ4: Is there a significant difference between years of teacher experience and growth mindset?

RQ5: Is there a significant difference between years of principal experience and growth mindset?

RQ6: Is there a significant difference between years of teacher experience and teacher effectiveness?

RQ7: Is there a significant difference between years of principal experience and principal effectiveness?

Significance of the Study

The primary aim of this study is to evaluate how mindset affects people and their personal and professional daily activities. In this study, it is assumed that a fixed mindset tends to discourage every individual from working for the attainment of their goals, whereas the growth mindset tends to encourage people to work harder even after facing obstacles along the way to accomplishing the desired objectives (Dweck, 2010b; Schleicher, 2012). Furthermore, a high feeling of self-beliefs of efficacy has a great influence on teachers' functioning. According to Bandura (1994), "the task of creating learning environments conductive to development of cognitive skills rests heavily on the talents and self-efficacy of teachers" (p. 11). Teachers who possess a growth or *malleable* mindset, which is related to a great feeling of efficacy regarding teaching competencies, can stimulate their students and reinforce their intellectual development. Equally, teachers who possess an entity or *fixed* mindset and a low sense of pedagogical efficacy would negatively affect students' performance.

It is intended that the results of the study will be used by principals to facilitate a healthy mindset and a growing sense of individual's intellectual efficacy, in the form of a culture of mindset, in elementary schools to increase effectiveness among educators and leaders in schools. Rattan et al. (2012) indicated that "research has shown that students' implicit theories

(fixed/growth) of ability affect their motivation, learning, and achievement outcomes" (p. 1). Therefore, by implementing a healthy growth mindset in schools, teachers will be more applicable in their roles as leaders and educators, which will then foster a productive mindset among students in the classrooms, resulting in more positive student academic outcomes and a longer achievement trajectory (Heggart, 2015).

Definition of Terms

To facilitate a greater grasp of the knowledge presented in this study, the following terms have been defined. The definitions of these terms are related directly to this study as applicable to this structure of the methodology.

Effectiveness, according to Sergiovanni (2001), is "achieving higher levels of pedagogical thoughtfulness, developing relationships characterized by caring and civility, and achieving increases in the quality of student performance on both conventional and alternative assessments" (p. 204).

Elementary school is defined as an educational institution beginning with early education and constituting no more than the first eight years of education, either in a public or private education setting (Learn.org, n.d.).

Factors influencing teachers' performance are various factors that tend to influence the performance of the teachers immensely, which commonly include their degree of job satisfaction, motivation, working conditions, environmental factors, teaching experience, education level, collaboration, and confidence (Reeves et al., 2017).

Fixed mindset is where individuals consider their intelligence, abilities, and talents as fixed attributes that cannot be changed regardless of any effort exerted by the individuals (Dweck, 2006, 2008a).

Growth mindset is where individuals understand that their abilities, talents, and intelligence can be changed through their own efforts (Dweck, 2006, 2008a).

Job satisfaction is defined as "a state of mind that encompasses all feelings determined by the extent to which the individuals perceive their job-related needs to be being met" (Evans, 2000, p. 12).

Leadership is "an influence relationship among leaders and followers who intend real changes and outcomes that reflect their shared purposes" (Daft, 2005, p. 5).

Mindset is how an individual interprets the world on the basis of their independent viewpoints and decides on the future proceedings (Dweck et al., 2014).

Primary education, "also called elementary education, is for children in kindergarten through sixth grade. Primary education provides students with a basic understanding of various subjects as well as the skills they will use throughout their lives" (What is primary education?, n.d.).

Principal is defined as the head of educators in a school who serves as the school's leader (Rousmaniere, 2013). The United States Congressional Senate Committee on Equal Educational Opportunity (1970) defined the principal as

> The school principal is the most important and influential individual in any school. He or she is the person responsible for all activities that occur in and around the school building. It is the principal's leadership that sets the tone of the school, the climate for teaching, the level of professionalism and morale of teachers, and the degree of concern for what students may or may not become. The principal is the main link between the community and the school, and the

> way he or she performs in this capacity largely determines the attitudes of parents and students about the school. (p. 56)

Principal *effectiveness* is explained by Marzano et al. (2005). They stated that effective principals

> support instructional activities and programs by modeling expected behaviors and consistently prioritizing instructional concerns day-to-day. They strive to become a learner among learners. Involvement in curriculum, instruction, and assessment are crucial to the idea of instructional leadership. (as cited in Stronge et al., 2008, p. 5)

In effective leadership, leaders are accountable to offer a well-defined vision, keep teachers informed about the values, beliefs, and manners of a community, acknowledge teachers' needs and stimulate the organization to cultivate professional growth (Stronge et al., 2008).

Principal leadership refers to the leadership form where emphasis is laid on the connection existing between the principals and the teachers for the purpose of testing their own potentials and thereby working on enhancing their quality of instructing and teaching the students, especially at the elementary level (Marks & Printy, 2003).

Principal's role is defined by Fullan (2014) as the ability "to lead the school's teachers in a process of learning to improve their teaching, while learning alongside them about what works and what does not" (p. 55).

Satisfactoriness as a function of job satisfaction "is determined by how well an individual's abilities correspond to the requirements of the work, and satisfaction is predicted by how well his needs correspond to the reinforcers available in the work environment" (Bledsoe & Haywood, 1981, p. 1).

School culture describes "the character of a school as it reflects deep patterns of values, beliefs, and traditions that have been formed over the years" (Gaziel, 1997, p. 311). In effect, the school culture answers the question of what distinguishes one school from the other in terms of what the school does, what it stands for, and what symbols it uses (Gaziel, 1997). Hongboontri and Keawkhong (2014) further clarified that school culture is a social phenomenon made up of several different social, organizational variables. It is these variables that distinguish one school from the other. School culture embodies the essentials of the vision and mission of the school. Deal and Peterson (2003) defined school culture as "consist[ing] of the stable, underlying social meanings that shape beliefs and behavior over time" (p. 3).

Self-efficacy is defined as "people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives, self-efficacy beliefs determine how people feel, think, motivate themselves and behave" (Bandura, 1994, p. 2).

Teacher effectiveness is defined as the capability of a teacher to provide an environment and disseminate information in such a method that results in positive student academic outcomes, such as having high expectations for all students, observing student progress formatively, and participating in the development of students' mindedness (Goe et al., 2008).

Teacher performance is defined as the outcome of a teacher's output of work as determined by such variables as competency, classroom observation, appraisal meetings, summative reports, and provision of additional support (Ontario Board of Education, 2010). Like any traditional organization, the teacher is an employee who is expected to be productive. Morgan et al. (2014) observed that teacher performance could be determined or defined by the

extent of teacher effectiveness as performance and effectiveness become reasonably stable with time.

Limitations

A limitation of this study is that, although it will investigate perspectives of the teaching process applied in schools in the United States of America (U.S.A.), it will focus on the State of Indiana. As a result, the education, experiences, and preparation of the educators in this study are reliant on the standards employed by the Indiana Board of Education and the statutes of the Indiana General Assembly. This study will examine the perceptions of the participants within the context of broader educational implications with the intention of applicability beyond the Indiana borders, recognizing that generalizing may be limited.

Another limitation to this study relates to the geographic limitations within the context of the study sample; since the study will focus on schools in Indiana, the demographic factors of the participants will be limited to the demographic factors for the schools from which participants are drawn. This may not be illustrative of demographics throughout the U.S.A. or beyond. In order to overcome this limitation, the study population will include potential urban, suburban, and urban participants from diverse regions in Indiana to increase the likelihood that the scope of the participants is more accurately representative of the demographics of the U.S.A. Another limitation of the study is that the assessment of principal and teacher mindsets and attitudes, in particular, in terms of performance, depends on honest responses. Job effectiveness ratings of both principals and teachers with regard to mindset and effectiveness are difficult for respondents to answer objectively. Their answers on the survey instrument may be hindered by respondent perception. Yet another limitation of this study is that the results may not be generalizable due to the small number of participants. Finally, as a doctoral student, my beliefs,

considerations, and feelings on efficient principal leadership and effective teaching may tend toward a certain level of research bias, which is a limiting factor.

Delimitations

The study focuses solely on the elementary school level in the State of Indiana in the U.S.A. The reason for choosing this developmental level is that in elementary school, students are greatly reliant on their teachers for knowledge and guidance compared to higher educational levels where student responsibility for learning is expected. Therefore, at this level, teacher effectiveness may be essential in predicting student performance.

Another delimitation is in the sample. The study is focused on teachers and principals because of their paramount role in the learning process of elementary school students. Other stakeholders, such as parents and the community, may affect students' performance. This study focuses on teachers and principals alone because it specifically addresses the issue of how teacher mindset can impact the students and how principal mindset enhance teacher performance. Additionally, teachers play a pivotal role in the understanding process of students at elementary schools. This study does not seek to diminish the impact of other stakeholders. However, the focus of the study is on teachers and principals because of their direct and significant impact on students' educational experiences.

Contextually, the study ignores the fact that the strategies employed for teaching processes in Indiana elementary schools may not generalize to other parts of the world, owing to regional and socio-cultural differences. Therefore, before implementation, the strategies need to be piloted as experiments in the schools and among teachers of other countries, especially in Saudi Arabia, in which I hope the study findings will contribute new knowledge.

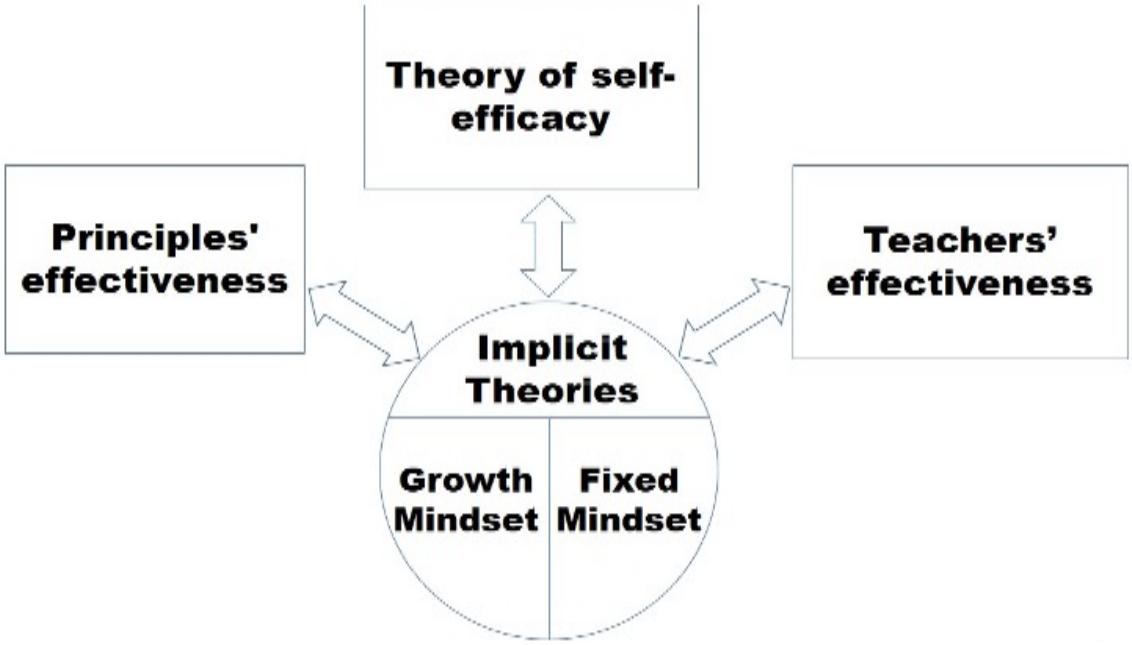
Along similar lines, this study focuses on elementary school teachers and principals in public elementary schools. While the results from the study may be generalized to other elementary schools, which are valuable, since the influence in education is at the state level, the results may not be applicable to other instructive levels, such as middle school, secondary school, or higher education. Instead, additional research would be necessary to examine the stated problem at a different educational level.

Organization of the Study

The study is configured into five chapters. In Chapter 1, I provide the statement of the problem, purpose of the study, research questions, definition of terms, significance of study, limitations, and delimitations. Chapter 2 consists of a review of the relevant literature, the theories of mindset and study findings, and is subdivided into teacher effectiveness, principal effectiveness, and mindsets. Moreover, in Chapter 2, I will examine experiential research linked to these theories. In addition, at the end of this chapter, I will go over how the concepts of self-efficacy, teachers' effectiveness, and principals' effectiveness are consistent with the theory of mindset. The aim of Chapter 2 is to give a theoretical and experiential basis for the present research. Figure 1 portrays the theories viewed from the literature.

Figure 1

Theories/Research Reviewed in Chapter Two: Review of the Literature.



Chapter 3 encompasses information, including the methodology utilized for the study containing a description of the sample, data sources, data collection procedures, and the method of analysis. Chapter 4 shows findings based on the quantitative analyses of the hypotheses produced by descriptive and inferential statistics. Chapter 5 is a summary of the findings, conclusions, implications, and recommendations for further research.

Chapter Summary

"It's important to recognize that a growth mindset is an overall paradigm for personal development rather than a pedagogical tool for measuring academic accomplishment" (Hochheiser, 2014, p. 1). Brock and Hundley (2016) reasoned in their work that student performance is influenced as a reflection of the mindset, motivation, and performance of the teachers because knowledge can be directly moved from teacher to student. When students realize that their intellectual capacity is not restricted—it is malleable and not a fixed trait—they

achieve success faster (McWilliam, 2017). Rheinberg et al. (2000b) clarified that teachers have a great influence on a student's mindset and can create environments. Therefore, motivation, job satisfaction, and forward-thinking can influence how teachers transfer knowledge to the students (Dweck, 2007a). This can be reflected in the students' performance. Grant and Dweck (2003) agreed that a student's mindset impacts their performance as well as how they respond to low performance. It follows that teachers with a growth mindset are highly motivated and better equipped to encourage positivity among the students that would lead to better learning outcomes and performance (Dweck et al., 2014). Since teacher motivation and mindset can influence the learning process and student performance, it is necessary to study how the mindset affects the motivation levels and subsequent performance of these teachers (Dweck et al., 2014; Grimm, 2010). Consequently, the primary drive of this study is to examine the components of culture mindset that may influence effectiveness and performance of teachers and principals in elementary schools.

CHAPTER 2

REVIEW OF LITERATURE

This chapter is designed to explore the pertinent theoretical frameworks of mindset, teacher effectiveness, and principal effectiveness, as well as the history of instrumentation in mindset, teacher effectiveness, and principal effectiveness. Chapter 2 is focused on describing the literature, applications, and study findings relative to the research questions for this dissertation study. Three key topics are explored: mindset theory, teacher effectiveness, and principal effectiveness.

Mindset

"Perhaps the most important single cause of a person's success or failure educationally has to do with the question of what he believes about himself" (Arthur Combs, as cited in Pájares, 1992, p. 307). Rokeach (1968) defined beliefs as "any simple proposition, conscious or unconscious, inferred from what a person says or does, capable of being preceded by the phrase, 'I believe that . . .'" (p. 113). Beliefs are formed by the person's experiences (Pájares, 1992) and affect a person's behavior (Bandura, 1986; Harvey, 1986). A belief is a substantial concept in grasping teachers' thinking processes, classroom performances, modification, and learning to teach as well to help develop their thinking and practices (Richardson, 2003). Also, Haney et al. (1996) indicated that teachers' beliefs are substantial signs of the behaviors that would be existent in the classroom. Pájares (1992) argued the idea that teachers' beliefs affect their

perceptions and influence teachers' behaviors in their classrooms. Dweck (2010b) stated, "Teachers with a growth mindset don't just mouth the belief that every student can learn; they are committed to finding a way to make that happen" (p. 28).

This robust impact of beliefs of a person's thoughts and behaviors challenges educators to reflect on their perceptions of learning and teaching. According to Pájares (1992),

> Beliefs about confidence to affect students' performance (teacher efficacy), about the nature of knowledge (epistemological beliefs), about causes of teachers' or students' performance (attributions, locus of control, motivation, writing apprehension, math anxiety), about perceptions of self and feelings of self-worth (self-concept, self-esteem), about confidence to perform specific tasks (self-efficacy). (p. 316)

Educator beliefs about implicit theories of intelligence are crucial in the learning-teaching process. These theories guide educators' attitudes and performances (García-Cepero & McCoach, 2009).

Robert Sternberg (2005), an influential intelligence theorist, defined successful intelligence as:

> 1) The ability to achieve one's goals in life, given one's sociocultural context; 2) by capitalizing on strengths and correcting or compensating for weaknesses; 3) in order to adapt to, shape, and select environments; and, 4) through a combination of analytical, creative, and practical abilities (p. 189).

According to Sternberg (1985), "Implicit theories are constructions by people (whether psychologists or laypersons) that reside in minds of these individuals" (p. 608). Murphy and Dweck (2016) defined mindsets or the implicit theory in terms of "the beliefs people have about

the nature of human characteristics" (p. 127).

Todor (2014) stated, "The implicit theory of intelligence postulates that an individual's main beliefs about the fixed or malleable nature of intelligence have the power to determine the ways they act in school settings and engage in learning" (p. 219). Many researchers have presented findings that demonstrate how *implicit theory* influences educators' implicit conception about the nature of ability. This is essential because these beliefs have important consequences on their attitudes, affect, attributions, and behaviors in school context (Blackwell et al., 2007; Dweck, 2000; Dweck & Leggett, 1988; Nussbaum & Dweck, 2008).

Research indicates that these beliefs concentrate on two main subjects, which are incremental and entity theories. Dweck (2006)is known for her work on mindset. Dweck (2006) explained,

> As one begins to understand the fixed and growth mindsets, you begin to understand how one things leads to another, how a belief that your qualities are carved in stone leads to a host of thoughts and actions, and how a belief that your qualities can be cultivated leads to a host of different thoughts and action, taking you down an entirely different road. (p. 10)

Merriam-Webster (n.d.) gives two definitions for *mindset*: "a mental attitude or inclination" and "a fixed state of mind." These define mindset as internal; however, they do not bring up the fact that the mindset drives external acts and can be altered (Blackwell et al., 2007). Goldstein et al. (2013) defined educator's mindset as "assumptions and expectations we have for ourselves and others that guide our teaching practices and our interactions with students, parents, and colleagues" (p. 74). This definition combines both internal and external features.

Mindset is the conscious and unconscious belief system that has a deep impact on every aspect of human life (Dweck, 2006). The simplest change in the conscious and unconscious belief system can have a profound impact on people (Popova, n.d.). A mindset is primarily a systematic thought process, and it is based on a distinct pattern of assumptions, processes, or methods owned by an individual or a group of people centered at one place or spread around the globe (Project Innovation, 2012). The concept of mindset is associated with individual comprehension of where ability comes from (Dweck, 2014). According to Dweck, as cited in Robins and Pals (2002), the "social-cognitive model of motivation, differences in the way individuals approach achievement situations are linked to the implicit theories they hold about their intellectual ability" (p. 1). A distinct pattern is established in such a manner within the person's mind or of the group that it inculcates a kind of psychological incentive to continue to adopt and accept the distinct pattern of assumptions and behaviors (Dweck, 2010a).

Dweck (1986) has conducted exhaustive research on mindset or the implicit theory of intelligence through decades of research on accomplishment and success. She explained the individual belief of intelligence and came up with two kinds of mindset and two contrasting beliefs of intelligence. These are called growth and fixed. She further emphasized the important roles of schools and teachers in implementing the right kind of mindset with students (Dweck, 2010a). Dweck (2015) wrote that "Students' mindsets—how they perceive their abilities—played a key role in their motivation and achievement, and we found that if we changed students' mindsets, we could boost their achievement" (p. 1). Moreover, she emphasized the positive change in mindset for teachers so they will be able to train their students accordingly. "Crucially, Dweck's (2015) research is applicable to all people, not just students. Fortunately, a number of educators and teachers have already begun to explore what this might look like for teachers"

(Heggart, 2015, para. 12). According to Dweck (2006), mindsets are powerful beliefs in which individuals have the power to change their minds.

Categories of Mindset

Dweck has conducted more than two decades of research on mindsets, and her contemporaries (Dweck, 1986; Dweck, 2000; Dweck & Leggett, 1988; Dweck et al., 1995b; Dweck & Master, 2008; Dweck & Molden, 2005) have produced fascinating conclusions that human beliefs (i.e., self-theories) form human lifestyle approaches, social and academic behavior, goal orientation, and functioning. According to Dweck (2012), implicit theory refers to two opposite core beliefs about intelligence. Malleable ability of personal attribute is either a fixed nonmalleable genetically inherited trait (i.e., entity theory) or a malleable changeable and expandable trait (i.e., incremental theory). To illustrate, mindset is based on two categories, which are fixed and growth (Dweck, 2006). Fixed denotes rigidity and inertia, whereas growth indicates adaptability (Dweck et al., 1995b). According to Dweck et al. (1995b),

> Entity theory of intelligence is the belief that intelligence is a fixed trait, a personal quality that cannot be changed. Individuals who subscribed to this theory believe that although people can learn new things, their underlying intelligence remains the same. In contrast, an incremental theory of intelligence conceives of intelligence as cultivatable, individuals may become more intelligent through their efforts. (p. 267)

Moreover, the development of mindset occurs through determination and grit. Duckworth et al. (2007) defined grit as "passion and persistence for long-term goals" (p. 1087). Grit is a substantial predictor of accomplishment (Duckworth & Quinn, 2009); thus, mindset that indicates growth becomes very important for the all-encompassing growth in life, especially if it

starts at an early age (Dweck, 2007b).

It is very important that children have a malleable mindset to become motivated and remain open to the new frontiers of life. “The most motivated and resilient students are the ones who believe that their abilities can be developed through their effort and learning” (Dweck, 2007b, p. 6). Mindset is something that is not easily changed, yet it can be changed through motivation and resilience, and this helps in the long run and becomes useful for children.

On the basis of the growth mindset assumption, it can be inferred that intelligence can be learned, so it becomes a part of mindset. “More and more research is revealing that important parts of intelligence can be developed and that the brain has greater potential for growth and change throughout life” (Dweck, 2007b, p. 6). Fixed mindset comes with a lot of rules and constraints and is usually marred by three factors. These factors include never accepting a mistake, never working hard, and not rectifying mistakes (Dweck & Leggett, 1988). On the contrary, people with a growth mindset accept challenges by working hard and overcoming drawbacks, which they readily accept.

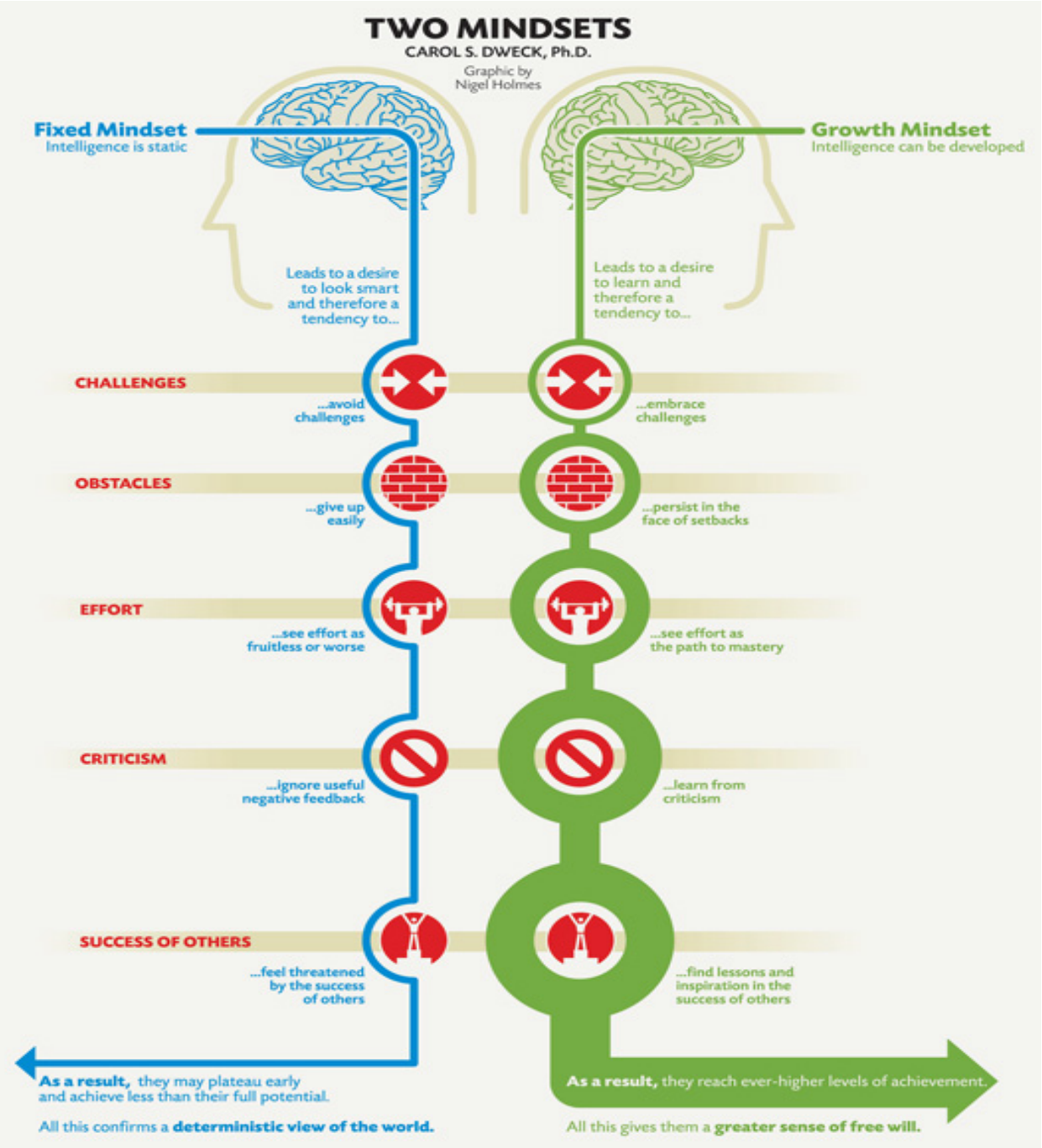
A detailed description of inputs and outputs of the two mindsets is found in the graphic depicted in Figure 2. Dweck (2006) identified the differences between the fixed mindset on the left side and growth mindset on the right. People who endorse a fixed mindset tend to avoid challenges and are very anxious about challenges to their abilities. They avoid criticism, despair easily, and interpret effort as unproductive. Moreover, people who reject criticism from others and feel threatened by the achievement of other people usually hold a fixed mindset. Rheinberg et al. (2000a) compared teachers’ mindsets from the start of the school year. He found that the teachers who endorsed a fixed mindset and believed that they had no impact on their students’ basic intellectual abilities had less student growth over the school year; their students who

enrolled as low performers also left as low performers at the end of the school year (as cited in Dweck, 2010a).

Conversely, those who hold a growth mindset have a tendency to learn, confront challenges, and persevere in the face of setbacks; also, “they learn from feedback and find lessons and inspiration in the success of others” (Dweck, 2006, p. 245). Thus, “people with a growth mindset view effort as the fuel that makes the engine run. Even more, effort is highly valued by people with growth mindsets because it indicates that they are stretching themselves and developing” (Murphy & Dweck, 2016, p. 128). Also, students do well in school tasks when they and their teachers believe that intellectual capabilities are not fixed, but can be grown (Dweck, 2010a). According to Dweck (2010a), “recent research has shown that students’ mindsets have a direct influence on their grades and that teaching students to have a growth mind-set raises their grades and achievement test scores significantly” (p. 26).

Figure 2.

Two Mindsets (Fixed vs. Growth)



Factors Affecting Students Mindset

Growth mindset is affected by various factors that facilitate its usefulness for individuals (Dweck, 2007b). Academic achievement, learning strategies, achievement goal orientation, motivation, and exam anxiety regulate the level of student's efforts throughout the learning process; meanwhile, praise and willpower to manage academic struggles are representative factors (Ablard, 2002; Aronson et al., 2002; Blackwell et al., 2007; Carr & Dweck, 2011; Dahl et al., 2005; Dweck, 1986; Dweck, 2000; Dweck & Leggett, 1988; Dweck & Molden, 2005; Dweck & Sorich, 1999; Henderson & Dweck, 1990; Mueller & Dweck, 1998). These factors become very useful for students to be successful. However, students should also be competent enough to have a mindset of high perseverance. In one such research experiment, Dweck and Leggett (1988) concluded,

> Children who perceived their ability to be high selected the challenging performance tasks that would allow them to obtain judgments of competence, whereas children who perceived their ability to be low selected easier tasks that would permit them to avoid judgments of incompetence. (p. 259)

Students who endorse the entity theory believe that intelligence is a stable trait, and students who endorse the incremental theory believe that intellect is a flexible, expandable trait. According to Dweck (2006), "Children with the fixed mindset want to make sure they succeed. Smart people should always succeed. But for children with the growth mindset, success is about stretching themselves. It is not about becoming smarter" (p. 17). Moreover, motivation is one of the factors that is affected by mindset. Dweck (2007b) clarified that for motivated children,

> The most motivated and resilient students are not the ones who think they have a lot of fixed or innate intelligence. Instead, the most motivated and resilient students are the

> ones who believe that their abilities can be developed through their effort and learning. (p. 6)

Many researchers in psychology show that beliefs about resilience of student's traits, for example, intelligence, have pronounced outcomes on motivation and academic achievement (O'Rourke et al., 2014).

Another factor is achievement goal orientation. Ames (1992) stated, "An achievement goal concerns the purposes of achievement behavior" (p. 261). Weiner defined an achievement goal as "an integrated pattern of beliefs, attributions, and affect that produces the intentions of behavior" (as cited in Ames, 1992, p. 261). Elliot and Dweck (2005) defined it in these words, "The achievement goals were characterized as networks or patterns of beliefs and feelings about success, effort, ability, errors, feedback, and standards of evolution" (p. 57). Elliot and Dweck (1988) argued,

> The achievement goals run off a different program with different commands, decision rules, and inference rules, and hence, with different cognitive, affective, and behavioral consequences. Each goal, in a sense, creates and organizes its own world—each evoking different thoughts and emotions and calling forth different behaviors. (p. 11)

In implicit theories, researchers have shown fascinating consequences for human motivation and behavior (Murphy & Dweck, 2010). According to Elliot and Dweck (1988), "Achievement behavior emphasizes learning and performance achievement goals as the critical determinants of achievement patterns" (p. 11). Moreover, a meta-analytic study exposed that mindsets have a significant influence on goal setting and, eventually, students' school achievement (Burnette et al., 2013).

The fixed mindset turns students toward performance goals in which they seek to get good judgments of their ability and competency (Blackwell et al., 2007). Conversely, growth mindset helps them strive to learn goals, in which they learn from their failure. Elliott and Dweck (1988) found the following:

> Learning goals, in which individuals seek to increase their competence, were predicted to promote challenge seeking and a mastery-oriented response to failure regardless of perceived ability. Performance goals, in which individuals seek to gain favorable judgments of their competence or avoid negative judgments, were predicted to produce challenge-avoidance and learned helplessness when perceived ability was low and to promote certain forms of risk-avoidance even when perceived ability was high. (p. 5)

There are different outcomes for different kinds of goals. There is a marked distinction between performance goals and learning goals. Dweck and Leggett (1988) elaborated on the importance of goals:

> Within a performance goal, individuals are concerned with measuring their ability. In contrast, learning goals create a concern with increasing one's ability and extending one's mastery. Outcomes would provide information for an optimal course and failure would simply mean that the current strategy may be insufficient to the task and may require upgrading or revision. (p. 260)

The concept of motivational orientation concentrates on teachers and their certain instructional techniques. During the 1970s in Germany, this program was established (Rheinberg, 1980). After that, Dweck and Leggett (1988) evolved the concept of motivational orientation. This concept had its root in findings concerning learned helplessness (Dweck, 1975).

However, the researchers found that the motivational orientation is a land of learners who are well known with regard to their hard work and efforts to accomplish the goals they have established. Various researchers (Elliot & Church, 1997; Elliot & Dweck, 1988; Stiensmeier-Pelster & Schlangen, 1996) believed that:

> Students consider ability to be something that can be developed, and success gives them feedback that they are on the right track. Even failure does not bother them because they believe that with additional learning, they can improve their abilities. In contrast, if students strive for performance goals then their aim is to demonstrate to others their own abilities and superiority (i.e., a social reference norm), presumably through using their own high ability. However, if they believe themselves to have low ability, they will want to avoid situations in which their learning outcomes are assessed and evaluated. Failures give them a great deal of trouble as they believe that abilities are stable over time and that additional learning will not lead to improvement. Unlike students with a learning goal orientation, failure leads to performance impairment. (as cited in Rheinberg et al., 2000a, p. 91)

Educators who endorse a learning goal orientation have a belief in the development of their ability. In contrast, educators who endorse a performance goal orientation do not have the belief that they can develop their abilities by learning. Praise is also an important factor along with goal and motivation as it sends varied messages. Subsequently, mindset depends upon the kind of praise. In the *Perils and Promise of Praise,* Dweck (2007b) explained, "Students adopt a fixed mindset after receiving intelligence praise and imbibe growth mindset when they are praised for their efforts" (p. 9). According to Dweck et al. (2014), "Praise can have dramatic effects on students' mindsets and resilience" (p. 6). Praising student ability (person praise) will

promote the fixed mindset. On the other hand, praising student effort or work (process praise) will promote the growth mindset (Mueller & Dweck, 1998; Zentall & Morris, 2010). Many studies carried out in the academic arena (Cimpian et al., 2007; Kamins & Dweck, 2000; Mueller & Dweck, 1998) indicated that "praising students' intelligence gives them a short burst of pride, followed by a long string of negative consequences" (as cited in Dweck, 2007a, p. 35). Additionally, this may serve to discourage them from accepting challenging responsibilities or lose self-confidence and motivation, especially when the task becomes harder. This causes a negative effect on their performance after facing a difficult problem. Giving students praise for process (i.e., effort or strategy) helps students to pursue greater challenges (Dweck, 2008; Mueller & Dweck, 1998).

Many researchers have demonstrated that feedback like praise has negative effects on student achievement. Moreover, they have shown that students who hold a fixed mindset are concerned about their ability. For instance, they do not want to try more difficult problems. They see their failure as an indication of insufficient ability. As a result, these students lack enjoyment in problem solving and persist less (Dweck et al., 2014).

According to Mueller and Dweck (1998):

> Six studies demonstrated that praise for intelligence had more negative consequences for students' achievement motivation than praise for effort. Fifth graders praised for intelligence were found to care more about performance goals relative to learning goals than children praised for effort. After failure, they also displayed less task persistence, less task enjoyment, more low ability attributions, and worse task performance than children praised for effort. Finally, children praised for intelligence described it as a fixed trait more than children praised for

> hard work, who believed it to be subject to improvement. These findings have important implications for how achievement is best encouraged, as well as for more theoretical issues, such as the potential cost of performance goals and the socialization of contingent self-worth. (p. 33)

On this basis, there are varied theories that have developed to focus on the positive and negative events that surround people. As an example, personal attributes, such as ability, are considered fixed in entity theory and malleable in incremental theory (Dweck et al., 1995a). Abd-El-Fattah and Al-Nabhani (2012) explained, "Endorsement of an entity theory means that attributes are perceived as relatively stable and unchangeable. Endorsement of an incremental theory means that attributes are viewed as malleable and open to influence and change" (p. 94). While analyzing this, one can infer that people grow through fluidity of perceptions and mindset and get rigid with a fixed outlook.

Mindset Across Different Areas

Mindset theory should not only be considered for subordinates in a typical office environment or students in a school environment, but it is also applicable across all levels. It is equally true for teachers, principals, management, marketing, politicians, and even for a crowd or group with a collective mindset. To Murphy and Dweck (2010), "Many environments—including academic, business, and other professional settings—can embrace, through shared norms or consensus, a fixed or malleable view of intelligence" (p. 284).

The political mindset is very much a reality today. "Although stabilizing factors play an important role in determining a person's political positions, most Americans also hold a mix of values and beliefs. Some are congruent with political conservatism and some with political liberalism" (Bryan et al., 2009, p. 890). Dweck (2007a) authored a manuscript in which she

stated that we are obsessed with simplifying and categorizing mindset. The human mind is never black and white. The mind also contains areas of grey. With this in mind, we cannot categorize every mindset with the parameters of growth or fixed. In fact, we have the mixed mindset as we have traits of both growth and fixed. “Watch for a fixed-mindset reaction when you face challenges. Do you feel envious and threatened, or do you feel eager to learn? Accept those thoughts and feelings and keep working with and through them” (Dweck, 2015, p. 22). As Dweck contended, it is applicable in many countries, and it is time for a change as today’s technologically competent generation is living in a global village where they can compare themselves with others through modern channels of communication. Today’s generation wants to do better in every walk of life, which is the inherent characteristic of growth mindset.

Mindset Behind Success and Failure or People’s Ability

There are varied differences between successful people and those who fail to realize their dreams or maximize their innate potential. No doubt, there are particular sets of habits that explain the difference, such as an increased appetite for risk, a need for networking, and a proclivity for overall smartness. However, despite these factors, the most important reason behind the difference between success and failure is a particular and profoundly powerful mindset (Dweck, 2006). According to Schunk and Pájares (2005), “Individuals’ perceptions of themselves and their capabilities are vital forces in their success or failure in achievement settings” (p. 85). Smart and hardworking educators fail just because they have fixed mindsets. According to Dweck (2006),

> When people believe in fixed traits, they are always in danger of being measured by a failure. It can define them in a permanent way. Smart or talented as they may be, this mindset seems to rob them of their coping resources. (p. 39)

On the other hand, an intelligent educator with a broader intellect, skills, outlook, and character excels because a growth mindset is present. Dweck (2006) wrote, “When people believe their basic qualities can be developed, failures may still hurt, but failures do not define them. And if abilities can be expanded if change and growth are possible then there are still many paths to success” (p. 39).

Educators with a growth mindset do not do different things. In fact, they do things differently. They view confidence, willpower, determination, and perseverance as qualities that can be developed through their actions (Rattan et al., 2012). There is no doubt that average educators have both fixed and growth mindsets in different facets of their lives. A person can have growth mindset for their career but fixed mindset for health. Dweck (2006) stated, “People can have different mindsets in different areas. We have found that whatever mindset people have in a particular area will guide them in that area” (p. 47). It is absolutely fine, yet they should continuously strive to hone skills to strive for acquiring a growth mindset. Mindsets are a critical part of a person’s personality, but they can change them by realizing the two different meanings of mindsets (Murphy & Dweck, 2010).

Self-Efficacy and Mindset

There is a notion of apparent self-efficacy which impacts and changes individual behavior. Self-efficacy influences the individual’s beliefs and self-confidence in their own aptitude to perform successfully particular tasks (Bandura 1986, 1997). Zimmerman (2000) stated, “Self-efficacy differs conceptually and psychometrically from related motivational constructs, such as outcome expectations, self-concept, or locus of control” (p. 82).

Bandura (1997) defined self-efficacy as “beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments” (p. 3). Self-efficacy is

significant in helping people overcome challenging conditions because it impacts goals, thoughts, perseverance, and stress responses. A self-efficacy stimulus impacts how educators feel, think, inspire themselves, and perform (Bandura, 1997; Pájares & Graham, 1999). Bandura (1986) defined self-efficacy as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (p. 391).

In school, self-efficacy beliefs greatly impact educators' cognitive reactions in such areas as behavior, being purposive, effectiveness, and motivation (Bandura, 1994). According to Bandura (1993):

> There are three different levels at which perceived self-efficacy operates as an important contributor to economic development. Students' beliefs in their efficacy to regulate their own learning and to master academic activities determine their aspirations, level of motivation, and academic accomplishments. Teachers' beliefs in their personal efficacy to motivate and promote learning affect the types of learning environments they create and the level of academic progress their students achieve. Faculties' beliefs in their collective instructional efficacy contribute significantly to their schools' level of academic achievement. (p. 117)

Moreover, creating productive learning environments, which will help develop cognitive skills, rely on the aptitudes and self-efficacy of the teachers. Teachers with an elevated feeling of efficacy concerning their instruction competencies can encourage their students then boost their cognitive growth. Teachers with a low feeling of pedagogical efficacy support protective orientations that depend on undesirable punishments (Bandura, 1994).

Substantial indication from empirical investigation has proven that perceived self-efficacy affects student learning and achievements (Bandura 1997; Chemers et al., 2001; Eastin

& LaRose, 2000; Pájares & Kranzler, 1995; Todor, 2014). Zimmerman (2000) stated, "Self-efficacy beliefs have been found to be sensitive to subtle changes in students' performance context, to interact with self-regulated learning processes, and to mediate students' academic achievement" (p. 82). According to Zimmerman (2000), students with a high sense of efficacy "participate more readily, work harder, persist longer, and have fewer adverse emotional reactions when they encounter difficulties than do those who doubt their capabilities" (p. 86). Students with a low sense of self-efficacy have unfavorable intellects and consider task demands as attacks on them, not as an opportunity for them, and consequently, they choose low goals for themselves (Bandura 1994; Yunus & Ali, 2009).

Self-efficacy and mindset are the two distinct characteristics that help human beings grow and excel in their lives, as they become excellent managers after developing these attributes (Wood & Bandura, 1989). According to social-cognitive theory, self-efficacy beliefs work inside a context of self-theories that define motivation and performance. According to Bandura (1986), "A key capability is self-reflection, through which people make sense of their experiences, explore their own cognitions and self-beliefs, engage in self-evaluation, and alter their thinking and behavior" (p. 21). Implicit theories of intelligence scales point out that pupils with low self-efficacy tend to consider intellect is inborn and fixed, and students with high self-efficacy follow mastery goals requiring challenge and obtaining new information; however, performance goals require perfect scores and outdoing others (Komarraju & Nadler, 2013).

Self-efficacy, as the confidence in one's aptitudes, has an impact on motivation and accomplishment of individuals (Bandura, 1986). According to Bandura (1997), "People's level of motivation, affective states, and actions are based more on what they believe than on what is objectively true" (p. 2). Furthermore, "A person's self-efficacy is a strong determinant of their

effort, persistence, strategizing, as well as their subsequent training and job performance" (Heslin & Klehe, 2006, p. 705). Humans with a high degree of self-efficacy continue to grow and learn throughout their lives and become excellent managers. Self-efficacy and mindset are two prognostic traits that management should take into consideration when seeking candidates for administrative positions (Wood & Bandura, 1989). Self-efficacy is a belief that contributes to mindset and differentiates one human being from another. There is evidence that, similar to mindset, self-efficacy can also be developed with the right kind of attitude and work ethic.

An individual's beliefs about their efficacy can be grown through four core foundations of impact: mastery knowledges, vicarious knowledges provided by social models, social persuasion, and physical and emotional conditions, for example, anxiety or stress (Bandura, 1994). One of the greatest effective habits to develop self-efficacy is through mastery experiences. According to Schunk and Pájares (2005):

> Individuals engage in tasks and activities, interpret the results of their actions, use interpretations to develop perceptions of their capability to engage in subsequent tasks or activities, and act in concert with the beliefs created. Outcomes interpreted as successful raise self-efficacy, whereas those interpreted as failures lower it, although an occasional failure after many successes will not have much effect. (p. 87)

Successes shape a strong belief in individual personal efficacy. A robust feeling of efficacy supports coping with difficulties through perseverance (Bandura, 1994). Humans must, consequently, have a sturdy sense of efficacy to maintain the assertive effort necessary to thrive (Schwarzer, 1992).

The Change Toward the Right Kind of Mindset

Marcus Aurelius (1997), 16th Emperor of the Roman Empire, stated, “Loss is nothing else but change, the universal nature delights in change” (p. 88). “Change must be constantly renewed and fortified. Otherwise, the world will soon return to its previous state” (Stenudd, 2015, p. 138). Many studies have shown interventions that promote change (Dweck, 2006; Dweck & Molden, 2005). In one study, Aronson et al. (2002) formed workshops that taught seventh graders a growth mindset. They showed that incremental theory succeeded in changing students’ appreciation toward their coursework, enjoyment in their coursework, and increased their scores in their coursework. They taught the students how the brain cultivates new connections each time they spend time and effort and learn. In another study by Blackwell et al. (2007), students in seventh grade participated in eight workshops. An intervention teaching method was utilized using incremental theory to students ($N = 48$) that stimulated affirmative modification in classroom enthusiasm, associated with an entity theory group ($N = 43$). Simultaneously, students in the entity group indicated a continued decline in scores; meanwhile, this decline did not occur for students in the incremental theory group. The Blackwell study recommended that these changes happened by enhancing students’ value of learning and development (Dweck & Molden, 2005).

According to Bennis (1999),

> The most dangerous leadership myth is that leaders are born—that there is a genetic factor to leadership. This myth asserts that people simply either have certain charismatic qualities or not. That’s nonsense; in fact, the opposite is true. Leaders are made rather than born. (p. 89)

An effective leader can influence mindset. “The leadership mindset is a critical component related to effectiveness and success as a leader” (Chase, 2010, p. 296). The leader of a team with their growth mindset can change a feeling of failure among team members. Dweck (2006) explained, “The growth mindset is based on the belief in change” (p. 212). People with a “fixed mindset” would consider leadership as a natural attribute; they believe that an individual is born a leader.

People with a *growth mindset* think that leadership is a trait that can be developed through effort and learning (Chase, 2010). The key element in mindset is that anything is possible if the leader has the right mindset (Dweck, 2006). “As growth minded leaders, they start with a belief in human potential and development, both their own and other people” (Dweck, 2006, p. 56). For example, Charles William Eliot was a symbol of successful educational leadership for more than 40 years (Rudolph, 1990). Eliot was an innovator in building capacity and opportunity. As an optimistic person, when he was not satisfied with things and would consistently pursue greater, more effective practices in his professional life (Perry, 1931). He was not afraid of difficult challenges; rather, he was motivated by them. He possessed leadership characteristics essential to his achievement as president of Harvard.

Related to leadership and the important characteristic of dealing with change, Machiavelli (1513) provided insight into leadership development:

> A prince ought to have no other aim or thought, nor select anything else for study, than war and its rules and discipline; for this is the sole art that belongs to him who rules, and it is of such force that it not only upholds those who are born princes, but it often enables men to rise from a private station to that rank. (p. 34)

That insight indicated to his effectiveness that resulted from his inherent perseverance in considering things through, involving change. According to Astin and Astin (2000):

> Leadership is a process that is ultimately concerned with fostering change. Leadership is concerned with change, we view the leader basically as a change agent, i.e., one who fosters change . . . it implies a process where there is movement, which also implies intentionality, in a sense that the implied change is not random . . . but is rather directed toward some future end or condition which is desired or valued. (p. 8)

The mindset of political and other mindsets of a country or region can be changed or transformed through a slow and reversible process, and this too can happen at a *grass roots* level. For instance, changes in the educational setting can certainly help make changes which way—in their initial talents and aptitudes, interests, or temperaments—everyone can change and grow through application and experience" (p. 7). Simply put, teacher and principal qualities can be cultivated through their efforts.

Teaching a growth mindset changes the discussion between students in the schoolroom, and this will be good to exhibit in student plans and teaching resources (Dweck, 2008a). In a fixed mindset institute, students frequently perceive the schoolroom as a spot where they are judged and tested, and it is understandable why they are frequently resistant to this. Nevertheless, in a growth mindset institute, students perceive the schoolroom as an area in which they can cultivate their brains. In Dweck's (2008a) growth-mindset *brainology* intervention, there were six parts where pupils learned about the brain and how they could develop its functionality. The majority of teachers report that students start chatting to each other concerning their studying approaches and their efforts to gain more knowledge. Therefore, "Another channel for promoting

a growth mindset could be depicting peers as interacting in terms of their desire to form neural connections and their motivation to make their brains smarter" (Dweck, 2008, p. 12).

The school is an example of such an entity where the future generation gets trained or educated to strive hard and get a foothold in society. Subsequently, a school becomes the best place to have a better mindset as anything new can be ingrained within young minds in comparison to an adult mind; however, the mindset of students can be properly molded through teachers and principals. Lou and Noels (2016) viewed this as "educators can develop useful tools for changing students' mindsets and helping them to improve their educational outcomes" (p. 24). This indicates that it is necessary for teachers and principals to possess a growth mindset already so they can transfer it to students. Dweck (2006) contended, "The great teachers believe in the growth of intellect and talent, and they are fascinated with the process of learning" (p. 194).

Sometimes it has been observed that in spite of the best education and training, student mindsets could not be altered. This occurs because teacher mindsets are not properly attuned to initiating change in student mindsets. "The notion of developing a growth mindset is as equally applicable to staff and teacher performance as it is to students" (Heggart, 2015, para.1). Teachers should be aware of every nuance of mindset as every action on behalf of teachers can cause long- as well as short-term repercussions on student behavior. According to Lee (1996), "The easiest way to change teacher behavior seems to be by making them more aware of the consequences of their implicit theories of intelligence (ITI) through workshops and retraining programs" (p. 10). Lee continued, "What teachers implicitly believe about intelligence and what they unconsciously or consciously do in their classrooms can play a key role in the education" (p. 11).

Teachers need to know not only the curriculum but also the new learning and growth methods. Conley (2017) wrote:

> Growth mindset changes how students connect to their learning and potential by helping them choose learning over labels … Teachers can change the framing of learning, the feedback given, and how it is delivered—coaching children to be their best selves. (p. 1)

It is usually hard for educators to believe that merely changing a belief will influence behavior, given the numerous things that affect a student's education (Richardson, 1996). Richardson explained, "Perhaps the greatest controversy in teacher change is what literature relates to the difficulty in changing beliefs and practices" (p. 110). Beliefs differ in strength and are resistant to change (Nespor, 1987); however, Kagan (1992) suggested that "in order to promote professional growth in teachers, it would be necessary first to raise their awareness of their own beliefs and then to challenge those beliefs while providing opportunities to examine and integrate new information into their systems" (as cited in Mansour, 2009, p. 37).

Believers can successfully change their beliefs exclusively when they are conscious of their beliefs and ready for modification (Pájares, 1996). Based on Pájares (1992), "Teachers' attitudes about education about schooling, teaching, learning, and students have generally been referred to as teachers' beliefs" (p. 316). Many researchers have indicated that teachers' performance and thoughts are affected by their beliefs about the essence of intelligence (Deemer, 2004; Dupeyrat & Marine, 2005). Today, teachers and educators have an understanding of the notion of developing the right kind of mindset within them so that they are able to instill this within their students.

Lynott and Wolfolk (1994) initiated links connecting the implicit theories of the teachers and the teachers' educational objectives. Furthermore, Lee (1996) found that teachers who

endorse an entity theory treat their students unfairly, which is the opposite of teachers who endorse an incremental theory. “One of the most important factors for successful education has been recognized as the teacher’s responsibility to treat their students *fairly* in the classroom” (Lee, 1996, p. 1). Entity teachers concentrate more on the capabilities of pupils, while incremental teachers look to strategies and efforts in learning. Additionally, entity teachers consider lack of success as problems to be coped with. Conversely, incremental teachers view disappointments as learning chances. Goldstein and Brooks (2007) expanded the notion that “effective educators … recognize that one of the greatest obstacles to learning is the fear of making mistakes and feeling embarrassed” (p. 28).

Schleicher (2012) furthered the idea, “Since the quality of teaching is at the heart of student learning outcomes” (p. 3). Schools should also provide ample opportunities for teachers to have new environments and new ideas. Besides options for new ideas, teachers should also be introspective and participate in students’ motivation. Many researchers have shown that when teachers educate students, a change to growth mindset has been found to increase student motivation and attainment (Dweck, 2006, 2010a; Heyman et al., 1992). Students who have discovered that they can grow their brains (when they learn hard things, they are going to make new, robust neural connections) display the greatest motivation to learn and get better grades and demonstrate better achievements (Dweck, 2014). There are varied ways and means available for teachers to accomplish the challenge of improved student learning and motivation. There is the concept of modeling where teachers demonstrate their growth mindset to the students they teach and consider themselves learners. It helps teachers to transfer their own growth mindset onto their students. The most important part is that there should be a mechanism of feedback so teachers can measure progress (Heggart, 2015). After the transference of growth mindset,

teachers should also keep a few things in mind, such as all students can learn and be successful in their unique ways. Moreover, the teachers should challenge students and reward them for accepting risks (Gerstein, 2015). Teachers have the potential to change student mindsets of intelligence. Students can understand the change when their good performances are satisfied or diligent works are stimulated by their teachers, particularly in younger students (Lee, 1996). Dweck (2006) explained:

> Mindset change is not about picking up a few pointers here and there, it is about seeing things in a new way. When people—couples, coaches, and athletes, managers and workers, parents and children, teachers and students—change to a growth mindset, they change from a judge-and-be-judged framework to a learn-and-help-learn framework. Their commitment is to growth, and growth takes plenty of time, effort, and mutual support. (p. 244)

Heyman et al. (1992) found that students with fixed mindsets reveal more vulnerability to teacher feedback than students with growth mindsets. Mindset is an attribute of the human psyche, which has been the recent focus of research interest (Dweck, 2006, 2007b, 2008a, 2010a, 2015). However, a vast majority of research has already been conducted to develop further this theory. The reason behind the importance of mindset theory is that it is very much adaptable to the modern world as it relates to the successes and failures in life (Dweck, 2006). Success is frequently measured in monetary terms by certain segments of the population. Mindset theory helps people to understand what may be troubling them so that they can make changes accordingly and strive ahead for a life full of success, happiness, and growth. Researchers have successfully demonstrated that beliefs play a significant role in how well people live a purposeful life.

Dweck (2008b) affirmed, “Beliefs are central to the way in which people package their experiences and carry them forward, and that beliefs should play a more central role in the study of personality” (p. 391). Student beliefs concerning the type of their intelligence can predominantly anticipate performance in educational cases through middle school (Dweck & Molden, 2005).

Teacher Effectiveness

Many researchers and policymakers propose that having effective teachers is the most important element impacting student outcomes (Aaronson et al., 2007; Goldhaber, 2007; Lockwood & McCaffrey, 2009; Rivkin et al., 2005; Rockoff, 2004; Sanders & Rivers, 1996; Sanders et al., 1997). Moreover, Goe (2007) attested in an investigation synthesis for the National Comprehensive Center for Teacher Quality that many policymakers and researchers have recommended that effectiveness should be a substantial element of assessing teacher quality. That effectiveness is usually measured by teachers’ input to their pupils’ learning (Goe, 2007). Further, According to Darling-Hammond and Rothman (2011):

> Teacher effectiveness has rapidly risen to the top of the education policy agenda. The U.S. Department of Education (ED) identified the issue as one of elements in its Race to the Top competition, and more than a dozen states, responding to Race to the Top incentives, adopted laws revamping teacher education and evaluation systems, hoping to ensure that teachers are effective in the classroom. (p. 1)

Lasley (2006) concluded, “having a highly qualified teacher in every classroom is essential to student academic achievement.” (p. 13).

Markley (2004) stated that an effective teacher is “one who demonstrates knowledge of the curriculum, provides instruction in a variety of approaches to varied students, and

measurably increases student achievement" (p. 9). Clark (1993) stated, "Obviously, the definition involves someone who can increase student knowledge, but it goes beyond this in defining an effective teacher" (p. 10). Collins (1990) and the Teacher Assessment Project at Stanford University initiated the five core propositions for an effective teacher. These core prepositions are:

> (1) Teachers are committed to students and their learning. (2) Teachers know their subject matter and how to teach those subjects to students. (3) Teachers are responsible for managing and monitoring student learning. (4) Teachers think systematically about their practice and learn from experience. (5) Teachers are members of learning communities. (Collins, 1990, p. 5)

In an attempt to improve student achievement, empirical researchers have concentrated on the improvement of extremely experienced teachers (Greenwald et al., 1996; Hedges et al., 1994). Many researchers and policymakers have considered evolving teacher quality as an effective method to increase pupil achievement (Darling-Hammond, 2000; Greenberg et al., 2004). According to Good (1979),

> There may be a minimal level of teacher ability' (verbal ability) and/or teaching skill (managerial ability) that is necessary for effective teaching. The relative effectiveness of teachers with minimal skills in a given year may depend upon subtle context variables or on circumstances in the personal lives of teachers that alter the amount of time that they can spend on instructional preparation. (p. 54)

In 1996, the National Commission on Teaching and America's Future issued a report that stated, "Teaching is the most important element of successful learning. Teaching quality will make the critical difference not only to the futures of individual children but to America's future

as well" (p. 12). Furthermore, Good and Brophy (1986) explained that there is a difference between teacher-level effects and school-level effects as follows:

> Studies of large samples of schools yield important profiles of more and less successful schools, but these are usually group averages that may or may not describe how a single effective teacher actually behaves in a particular effective school. Persons who use research to guide practice sometimes expect all teachers' behavior to reflect the group average. Such simplistic thinking is apt to lead the literature to be too broadly and inappropriately applied. (p. 588)

Sanders and his colleagues established the priority of teacher effect over the school effect within the setting of The Tennessee Value-Added Assessment System (TVAAS). They found that teacher effectiveness is one of the most significant aspects influencing students' academic achievements. According to Sanders et al. (1997), "Over the years, educational researchers have investigated many factors considered to affect student learning. At the heart of this line of inquiry is the core belief that teachers make a difference" (p. 57). These results led Sanders et al. (1997) to note:

> The results of this study will document that the most important factor affecting student learning is the teacher. In addition, the results show wide variation in effectiveness among teachers. The immediate and clear implication of this finding is that seemingly more can be done to improve education by improving the effectiveness of teachers than by any other single factor. Effective teachers appear to be effective with students of all achievement levels regardless of the levels of heterogeneity in their classes. If the teacher is an ineffective, student under that teacher's tutelage will achieve inadequate progress

> academically, regardless of how similar or different they are regarding their academic achievement. (p. 63)

Teaching Environment and Effect on Teacher and Principal Effectiveness

A teaching environment refers to the diverse physical locations, context, and social interaction in which the learning takes place (Grubaugh & Houston, 1990). According to Cheng (1994):

> The internal environment is the context of learning and consists of the physical environment and the psychological environment. The physical environment of the school and classroom—facilities; spaces, lighting, ventilation, desks and chairs, and air pollution—affect the safety and comfort of students and thereby affect learning and personal development. The psychological environment refers to the social quality of the school and classroom. Especially as it relates to perceptions and feelings about social relationships among students and teachers. (p. 222)

The physical environment involves the arrangement of the desks and the distribution of learners across the classrooms. According to Grubaugh and Houston (1990):

> Room setting is a powerful nonverbal variable that can be manipulated to establish an effective learning environment and teacher-to-student communication. Also, student desk arrangement, a nonverbal factor in the classroom organizational scheme, can significantly affect student-to-student interaction, and thus group and individual behavior. (p. 376)

Classroom social environment as it is defined by Darkenwald (1987), is "the personality of the environment . . . [that] is socially constructed by teacher, students, and their interactions, thus leading to distinctive attitudinal and behavioral norms" (p. 56). The social interaction among teachers and students involves the behavioral aspects within the classroom that affect

student performance and teacher effectiveness. Results from a 2004 survey indicate that 75% of teachers exert time in an effort to teach efficiently because they do not have distributive performance in their classrooms (Public Agenda, 2004). The environment influences the capability of the teachers to teach and, hence, determines the effectiveness of the process. Researchers have studied the relationship between the classroom environment, student behavior, and teacher effectiveness (Visser, 2001). The environment determines the aptitude of the teacher to interconnect with all the pupils in the classroom. The environment influences the communication between the teacher and the student (Martella et al., 2003). In a proper environment, the interaction between the students and teachers is high, which has a positive impact on the teaching process. According to Guardino and Fullerton (2010), "A well-organized classroom permits more positive interactions between teachers and children, reducing the probability that challenging behaviors will occur" (p. 9). The students, as well as the teachers, are also comfortable in a good environment, which minimizes disruptive behavior. This ensures that the teacher is able to teach the students effectively.

Moreover, many researchers have shown the crucial significance of effective teacher reforms, which attain better achievement by working to better the structural context in schools (Johnson, 1990, 2016; Kennedy, 2010). Kraft and Papay (2014) suggested "that school context in which teaching and learning occur can have important consequences for teachers and students, influencing career decisions of teachers, influence their effectiveness and affect student outcomes" (p. 476). Thus, there are great influences of school context on teacher effectiveness and pupil achievement (Boyd et al., 2011; Johnson et al., 2011; Ladd, 2011). Therefore, there is increasing evidence that points toward a robust and direct association between the physical environment and teacher effectiveness.

One psychologist who developed a theory of personality that contains both personal and environmental aspects was Lewin (1935). Lewin stated, “Objects are not neutral but have an immediate psychological effect on behavior” (p. 77). Thus, the workplace environment is critical for teacher effectiveness. According to Whitebook et al. (2017):

> Educators’ ability to apply their knowledge and skills and to continue to hone their practice requires a workplace environment that supports their ongoing learning, prioritizes time without child responsibilities for professional activities (such as planning and sharing with colleagues), and offers dependable benefits that ensure their well-being. (p. 9)

Also, according to DuFour and Eaker (2009), “Educators can create an environment that fosters [*sic*] mutual cooperation, emotional support, and personal growth as they work together to achieve what they cannot accomplish alone” (p. 4). Effective teachers require a workplace that encourages their works in a variety of methods to keep their efficient teaching with students (Johnson, 2006).

The term effective teacher does not only mean experiences, knowledge, expertise but also includes the circumstances under which they work.

Ye (2017) concluded:

> Teachers’ working conditions play an important role in a school’s ability to deliver high-quality education. Schools that are able to offer their teachers a safe, pleasant, and supportive working environment that can better attract and retain good teachers and motivate them to do their best (p. 234).

According to Futernick (2007):

> Our study tells us that teachers are less concerned with compensation (though they are not unconcerned with it) than they are with a whole range of particulars about their work environment. Work environment, or perhaps more specifically described the teaching and learning environment. Also, the findings from our study demonstrate that teaching and learning conditions play a critical role in teachers' decisions to stay or leave the classroom—even more than compensation. (p. 2)

Futernick (2007) noticed that when given the chance to work as a collaborative team with other capable teachers who have shared beliefs and interests, teachers, together, can be more productive and transform their school into a high-achieving school. He argued that the important factors are groups, time, physical setting, class size, self-sufficiency and common authority, leadership, a well-rounded program, outside support, and parent/community participation. Leithwood and McAdie (2007) divided working conditions into two levels: classroom level and school level. Leithwood and McAdie discovered that "at the classroom level, evidence suggests that both the volume and complexity of teachers' workloads have important consequences for them" (p. 43). Furthermore, at the school level, there are four sets of working conditions "that have a significant influence on teachers' internal states: school cultures, structures, relations with the community and operating procedures" (Leithwood & McAdie, 2007, p. 43). DuFour and Eaker (1998) defined a professional learning community in terms of educators building a setting that promotes reciprocal support, emotional assistance, and individual development as they work together to attain what cannot be achieved alone.

Principal's Leadership Style and Impact on Teaching Effectiveness

> According to Gerstner et al. (1994) as cited in Dufour and Eaker (1998):

> Without a competent caring individual in the principal's position, the task of school reform is very difficult. Reform can be initiated from outside the school or stimulated from within. But in the end, it is the principal who implements and sustains the changes through the inevitable roller coaster of euphoria and setbacks. (p. 181)

Similarly, U.S. Education Secretary Arne Duncan noted, "There's no such thing as a high-performing school without a great principal. . . . You simply can't overstate their importance in driving student achievement, in attracting and retaining great talent to the school" (Connelly, 2010, p. 34). Researchers have shown the significance of the principal in leading school improvement and cultivating student success and teaching effectiveness. Leithwood et al. (2004) reviewed investigations on school leadership and concluded that leadership is the second factor after classroom instruction in impacting student learning. According to Marzano et al. (2005):

> Leadership is considered to be vital to the successful function of many aspects of a school . . . The aspects of schooling that have been linked to leadership in school buildings (1) a school had a clear mission and goals, (2) the overall climate of the school, (3) the attitudes of teachers, (4) the classroom practices of teachers, (5) the organization of curriculum and instruction, (6) students' opportunity to learn. (p. 5)

Silins (1994) and his colleagues determined that effective leadership is seen in "the extent to which the principal works toward whole-staff consensus in establishing school priorities and communicates these priorities and goals to students and staff, giving a sense of overall purpose" (p. 620). Leadership, as described by these components, "not only influences individuals—it influences the organizational system in which individuals (e.g., teachers, students, and parents) work" (Hallinger & Heck, 1998, p. 171).

Amanchukwu et al. (2015), in their research, reviewed leadership theories, principal styles and their significance to educational administration. Their study concluded:

> Success is certain if the application of the leadership styles, principles and methods is properly and fully applied in school management because quality educational leadership tradition offers great opportunity to further refine educational leadership and management policies and practices by accepting and utilizing the basic principles and styles of educational leadership. (Amanchukwu et al., 2015, p. 6)

The leadership style of the principal is an important aspect that influences teaching effectiveness (Sebastian & Allensworth, 2012). According to Amanchukwu et al. (2015):

> Leadership styles are the approaches used to motivate followers. Leadership is not a "one size fits all" phenomenon. Leadership styles should be selected and adapted to fit organizations, situations, groups, and individuals. It is thus useful to possess a thorough understanding of the different styles as such knowledge increases the tools available to lead effectively. (p. 9)

In the perspective of Goldman (1998), "In a learning environment, leadership style says everything about the leader's deeply held educational beliefs—and these are mirrored in the culture of the school" (p. 20). The style of the leaders is a cumulative factor total of all of their works and actions (Rutherford, 1985). Finland is an example of a nation that has a well-performing education system and economy. One of the domains used in consideration for Finland's economic growth was education and training by leveraging human capital (Sahlberg, 2007). Sahlberg (2007) continued:

> Finnish education policies intended to raise student achievement have been built upon ideas of sustainable leadership that place strong emphasis on teaching and learning,

> intelligent accountability, encouraging schools to craft optimal learning environments and implement educational content that best helps their students reach the general goals of schooling. (p. 147)

Therefore, the principal plays a significant role in running all the schools. According to Loeb et al. (2010):

> Effective principals influence a variety of school outcomes, including student achievement, through their recruitment and motivation of quality teachers, their ability to identify and articulate school vision and goals, their effective allocation of resources, and their development of organizational structures to support instruction and learning. (p. 2)

Principals are also accountable for providing directions to a variety of stakeholders. The teachers report to the principal, and in most cases, the principal has a main influence on the teachers. The principal who is able to inspire the teachers plays an essential role in terms of cultivating their effectiveness. The principal can also ensure that a positive environment is created, which can boost the morale of the teachers (Ling & Ling, 2012). This has a straight impact on the performance of the teachers. However, if the principal cannot inspire the teachers, the morale will be lowered, leading to poor performance. Poor leadership skills can also result in low morale and a bad association between the teachers and the principal, which negatively impacts teaching effectiveness.

School Leadership and Impact on Performance

District leadership, such as the superintendent and the school board, affects the performance of teachers and the principals. It is the governing body, such as a school board, that usually approves and authorizes policies, guidelines, and standards that should be met at the school level (Cameron & Lindqvist, 2014). Such guidelines, standards, and policies may

influence the performance of teachers and principals. Normore (2007) believed that "successful school districts provide well-structured leadership development opportunities and experiences by capitalizing in long-term investment of time, energy, attention, and resources to professional development programs" (p. 8). Goodlad (2004) suggested the primary task for all novel superintendents ought to be choosing and promoting both leadership and managing skills in the most talented individuals for principal placement.

Additionally, instead of micromanaging teachers and principal performance, school boards should use *research-based* school improvement models to maximize potential. DuFour and Mattos (2013) found that there is "no research to support the assumption that educators choose to use mediocre instructional strategies and withhold effective practices until they receive increased financial incentives" (p. 35). The teacher characteristics that are normally observed, such as education, experiences, teacher credentials, or salary, have not been regularly associated with student achievement (Rivkin et al., 2005). According to Protsik (1996), "Although the predominant single-salary schedule is equitable, objective, and provides for predictable budgeting, it fails to hold teachers accountable for school-wide student performance" (p. 3). There is little indication to support the idea that rewarding teachers and principals for good performance by the school board and other supervisors is an important motivational factor (DuFour & Mattos, 2013). Threats and consequences also do not serve as performance motivators. Much research has consistently found that merit pay has no consequence on improving student achievements or modifying teachers' behavior in a good way; however, it might participate in reducing student learning (Fryer, 2013; Pfeffer & Sutton, 2006; Springer et al., 2010).

Pink (2011), in his book, *Drive: The Surprising Truth About What Motivates Us*, shows compelling evidence that merit pay has no significant effect on the performance of teachers and

principals. Pink presented the need for purpose, mastery, and autonomy and how nonprofit work provides all of these three. The National Center for Education and the Economy stated that there is no evidence that the carrots-and-sticks approach helps to improve student achievements (as cited in Tucker, 2011). Pink (2011) noted that "rewards usually do more harm than good. By neglecting the ingredients of genuine motivation—autonomy, mastery and purpose—they limit what each of us can achieve" (p. 47). Additionally, Pink posited that a carrots-and-sticks strategy "can extinguish intrinsic motivation, diminish performance, crush creativity, and crowd out good behavior" (2011, p. 220). Dan Pink (2011) summarizes three significant motivations: purpose, mastery and autonomy. He entitled these three Motivation 3.0. According to Pink, motivation suggests that what educators really need is much more than money. Today educators are seeking autonomy, mastery, and purpose. Mastery requires the mindset where educators can always develop their abilities. It is comprised of individual potential and grit.

Instructional, transformational, and educational leadership by school boards and district leadership have been directly related to improved and positive performance outcomes in the form of improved teacher engagement and increased organizational commitment on the part of the teachers. For example, Edmonton Public Schools' Communities of Practice is a large district in which most teachers and principals meet together, with support from the district, to learn and improve collaboratively from technology (Robertson, 2014). It has two elements: a persistent online community site in which members can find and share information with their coworkers and regular face-to-face sessions where staff can have enough time to discuss and collaborate. According to Fullan (2014):

> To maximize impact, the principal must seek ideas from other similar schools that perhaps have had more success and must see herself or himself as a system player. When

> the ideas of thousands of principals are unleashed and shared, imagine the resources. When principals form productive partnerships with other schools…they can gain through regular interaction between their staff and that of other schools. (p. 116)

In sum, leadership, as described by these elements, "not only influences individuals—it influences the organizational system in which individuals (e.g., teachers, students, and parents) work" (Hallinger & Heck, 1998, p. 171). Such factors, in turn, are known to improve the school environment significantly, resulting in improved teacher engagement, growth, and commitment, which, in turn, translate into improved student outcomes. Furthermore, effective communication applied by the school board and district administration also helps in improving the principal–teacher relationship, which helps in development of a collaborative culture. Good school board communication is also associated with improved classroom environment, which will likely help students achieve improved outcomes (DuFour & Eaker, 1998). According to Dufour and Marzano (2009), "Time devoted to building the capacity of teachers to work in teams is far better spent than time devoted to observing individual teachers" (p. 67). An example of this notion is that trust is a vital and important ingredient in building effective organizational cultures between the principal-teachers. Forsyth et al. (2011) found that "trust is the keystone of successful interpersonal relations, leadership, teamwork, and effective organizations" (p. 3). "Relational trust" for growth is related to feelings that culture concentrates on learning rather than judgments about how weak or strong the individual is. According to Fullan (2014),

> Principals who help build collaborative cultures do so by establishing conditions of nonjudgmentalism (by offering feedback primarily for growth) and transparency (by being open about results and practice). Most teachers grow under these conditions, and in

> a culture of healthy pressure (high expectations), and support (both technical and emotional), peers help each other grow. (p. 75)

Healthy Interaction With Fellow Staff Members and Effectiveness

The National School Climate Council (2007) stressed that a sustainable, positive school climate is one that fosters youth development and learning necessary for a productive, contributing and satisfying life in a democratic society: school climate is established on patterns of educators' experiences of school life and reflects norms, goals, values, interpersonal relationships, teaching and learning practices, and organizational structures.

Hoy et al. (1991) defined climate as "a general term that refers to teachers' perceptions of their work environment, and assertion it is influenced by formal and informal relationships, personalities of participants, and leadership in the school" (p. 8). Barth (2006) found a substantial impact on the relationships among teachers and the principal. He proposed that the relationships among the school's members point out significant links within that school's culture.

According to Gruenert (2008), "School climate is thought to represent the attitude of an organization. It seems that a happy teacher is considered a better teacher, and this attitude influences the quality of instruction" (p. 57). Thus, the presence of a healthy interaction among fellow staff members is an influential factor in defining the effectiveness of an individual teacher. Also, a healthy interaction enables teachers to discuss with each other the performance of the students (Thapa et al., 2013). This enables the teachers to obtain information about specific students and the approach that they can use when teaching them. The presence of a healthy interaction is important in inspiring teamwork among the teachers. The presence of a healthy relationship leads to teamwork among the teachers, which is essential in ensuring that the

students are able to obtain the required knowledge. A healthy relationship among staff members is important, as it is for the common good of the students (Freiberg, 1999).

Researchers indicate a robust and affirmative relationship between relational interactions and motivation, academic learning outcomes, and social behavior (Anderson, 1982; Brookover et al., 1978; Thapa et al., 2013). Relational interactions may be among teachers and principals, teachers and students, and teachers and their coworkers. These interactions are about healthy relationships and whether educators inside schools interact with each other suitably. Increased interactions result in improved emotional support for students, organized classrooms, and improved relationships between teachers and students (Freiberg, 1999).

Moreover, the relationship between the teachers and the principal has direct effects on the students. Principals who lead schools that have a significant improvement in students' learning typically make an important contribution to employee effectiveness as well as student ownership of learning (Andrews & Soder, 1987; Bossert et al., 1982; Murphy & Hallinger, 1992). The presence of a good relationship between the principal and the teacher ensures that issues affecting the students are discussed and solved. The teacher can also freely express their concerns when the relationship between the teacher and the principal is good (Smith & Flores, 2014). The confidence of the teacher will be boosted in the presence of a good relationship with the principal. However, when the connection between the principal and the teacher is poor, it will be difficult for frequent meetings to be held and problems solved. This will directly affect the performance of the teachers. Leaders can solve problems more easily at the school level when establishing good relationships among staff members. According to Davis and Wilson (2000):

> If leaders are to create an empowering organization, they need to establish positive relationships within the work setting, develop groups that work collaboratively in making

> decisions, inspire and guide the organization, and put in place a process of renewal for the organization. (p. 250)

It is also vital to observe that the levels of disagreements will be high when the relation between the principal and the teacher is poor (Jackson & Marriott, 2012). High levels of disagreement will make it difficult for the issues affecting the students to be solved.

System Leadership's Influence on Teacher and Student Welfare

School boards and district leadership can be faced with various challenges when promoting quality teaching and overall effectiveness among teachers. *The Flat World and Education* by Darling-Hammond (2015) stated that America's obligation to fairness will define our future. Darling-Hammond believed that teaching is one substantial school-related element in students' attainment and that improving teachers' effectiveness can help increase students' achievement levels. In some instances, the district leadership and school boards may find it difficult to retain highly qualified teachers.

One study on teacher training concluded, "Pre-service training is essential to teach subject matter. In-service training is essential to teach teaching skills" (Farrell & Oliveira, 1993, p. 15). Another study by Angrist and Victor (2001) suggested that the training program was intended to increase the teaching of language skills and mathematics and that training emphasized pedagogical methods instead of subject content developed in U.S. schools. It led to an improvement in students' test scores. Also, this study suggested, "Teacher training may provide a less expensive strategy for raising test scores than reducing class size or adding school hours" (Angrist & Victor, 2001, p. 346). In many cases, teachers leave the school after undergoing training and upgrading their skills. This is a challenge for the school district. In other instances, there is a lack of adequate finances to sponsor the teachers to undergo further

professional growth. Professional development is useful in educating the knowledge and skills of the teachers (Björk et al., 2014).

The concept of systems leadership is increasingly gaining significance and wider acceptance within the educational domain and leadership discourse. The adoption and implementation of systems leadership lead to the formation of organizational networks, which in turn promotes school collaborations resulting in professional development and institution-wide reforms (Boylan, 2016). This concept is being widely encouraged and has gained significant support in academic literature owing to its contribution to fostering educational leadership beyond a single entity and encouraging student and teacher well-being. It fosters collective leadership and mutual interaction and cooperation among principals from across various schools in a network format and promotes increased interaction and collaboration between teachers. This type of approach enables schools within the network to address and resolve the inherent complexities pertaining to educational contexts and mitigates the potential negative effects through collaboration and interaction. Is there any correlation between principal–teacher relationship, organizational environment, and teacher attitudes? According to Prawat (1993) who was cited in Blasé and Blasé (2000):

> The goal in a learning community is to build connections between people, socially and intellectually. Control interferes with this process; it distances people from one another. Commitment strengthens interpersonal connections . . building a learning community is tantamount to developing a commitment to shared learning. (p. 130)

There is increasing evidence indicating the highly crucial role played by principals in determining learning environments and influencing a positive school culture. Research states that

principals who take an active interest in managing the organizational climate at schools tend to foster positive growth, creativity, cooperation, and openness (Hall & George, 1999).

Fullan (2014) stated, “The principal’s role is to lead the school’s teachers in a process of learning to improve their teaching, while learning alongside them about what works and what does not” (p. 55). A healthy learning environment is not only about what is healthy for students; it is also what is healthy for employees. In the case of schools, principals are those who determine the healthy environments for both teachers and students. For instance, Hall and George (1999) developed an outline and measure for evaluating principal change facilitator style (CFSQ). They identified significant differences in how principals lead schools. They wanted to learn about the change process and what could happen to educators related to these changes. The results of these efforts by Hall and George provided useful information to both principals and teachers about the influences teacher and principal success in a climate of change. First, they studied principal–teacher interaction (PTI). The teacher’s implementation success had a correlation value of 0.74 with principal change facilitator style, which shows a moderate to high level of correlation. Three change facilitator styles are often utilized. First is that of initiator in which “a clear and strongly held vision about where school is headed and what is the best for students” (Hall & George, 1999, p. 168). The second style is that of manager in which the leader’s “first priority is keeping the school well organized and running smoothly” (Hall & George, 1999, p. 168). Finally, the style of responder may be utilized in which “principals attend to the current concerns and perceptions of teachers, the community and others” (Hall & George, 1999, p. 168).

The framework for change contains three clusters with two scales/dimensions implanted with each cluster: “Cluster 1. Concern for People: Scale 1 (social/informal) and Scale 2

(formal/meaningful); Cluster 2. Organizational Efficiency: Scale 3 (trust in others) and Scale 4 (administrative efficiency); Cluster 3. Strategic Sense: Scale 5 (day-to-day) and Scale 6 (vision and planning)" (Hall & George, 1999, p. 170). It also results in active participation from staff in the form of feedback and informally solicited input, which further contributes to the development of a healthy learning environment (Price, 2012).

Research suggests that the association between principals and teachers helps in creating an atmosphere for studying, alternatively mentioned as school climate or learning environment. Jack Jennings, president of the Center on Educational Policy in Washington, D.C., stated:

> Leadership only succeeds if the leader brings other people along into the same vision, and they are all able to work together and trust one another. A school that's in deep trouble is going to take years to change, and it has to be a continuous process with continual supports. And that means it can't be one person, but a group of people who are dedicated enough to stay with something for a long period of time. (Mitgang, 2012, p. 4)

Factors such as shared organizational vision, mutual trust, and respect, as well as free and open communication channels, help immensely in creating a positive learning environment. Various studies have corroborated the fact that a highly trusting and positive learning environment contributes to increased levels of satisfaction among staff, improved interpersonal relationships among the principals and teachers, and increased level of commitment from the faculty (Bryk et al., 2009; Hoy et al., 2002, 2003; Leithwood & Jantzi, 1990, 2000; Leithwood et al., 1998; Louis et al., 2010). Also, Robinson et al. (2008) suggested, "The more leaders focus their relationships, their work, and their learning on the core business of teaching and learning, the greater their influence on student outcomes" (p. 636).

Another form of feedback and inputs is frequent assessments, which are important in determining the performance of the teachers. According to Fullan (2014), "Most teachers do not get feedback on their teaching and thus do not improve. All feedback in a sense is evolution, and when delivered primarily for growth, it results in improvement" (p. 29). The frequent feedback enables the teachers to understand their areas of weakness, and the feedback needs to be informative (Brehm et al., 2015). Howard and McColskey (2001) commented that "evaluation that leads to professional growth requires teachers to look honestly at their weaknesses and strengths" (p. 49). This is useful in ensuring that the teachers are capable of increasing their performance. According to Danielson and McGreal (2000) in their book *Teacher Evaluation to Enhance Professional Practice Administrations,* administrators can use a three-track evaluation system for professional development for all teachers:

> Track I, for beginning teachers, promotes growth and new learning through mentoring, frequent observations, and support systems. Track II, for tenured teachers—that is, most teachers in the system—promotes professional learning experiences through self-assessment, goal setting, data collection, formative evaluations, study groups, action plans, and evaluation in which teachers play an active role. Track III, for tenured teachers needing assistance, focuses on remediating difficulties and recommending further action. (p. 12)

Alternatively, U.S. Secretary of Education John King said, "If teacher evaluation feels like a 'gotcha' system, it won't work" (Moody, 2018, para 3). More should be done to concentrate on a teacher's ongoing growth than only spending 30-60 minutes per observation. Moody (2018) continued that one of the methods to reset significant systems as a contribution to improve teachers' practices which

> design systems as a formative feedback process. Moving from *gotcha*—a compliance-driven process with a single score at the end of the year—to a growth-oriented process requires more formative, ongoing feedback from those tasked with evaluating teachers. (p. 2)

Further, teacher evaluations should be established on their capability to achieve the essential responsibility as experts transferring instruction that assists students in learning (Weisberg et al., 2009). Tucker and Stronge (2005) stated, "An evaluation approach that examines both the act of teaching and the results of teaching provides a more balanced and realistic appraisal of teacher effectiveness" (p. 12).

In order for the assessment to be effective, it should be designed to help teachers improve and be supported. This will provide the teachers with adequate time to improve their performance. According to Khattri et al. (1995), "Performance assessments can be an effective instructional tool, but only if teachers receive sufficient training and support" (para. 1). Marzano (2012) argued:

> Both measurement and development are important aspects of teacher evaluation. When measurement is the primary purpose, a small set of elements is sufficient to determine a teacher's skill in the classroom. However, if the emphasis is on teacher development, the model needs to be both comprehensive and specific and focus on the teacher's growth in various instructional strategies. (para. 31)

The essential aim of teacher evaluation must be increasing teacher growth and effectiveness, not just reporting low performance as an introduction to dismissal (Weisberg et al., 2009). Also, the main purpose for administering observations for teachers should be to learn what they taught in a good or satisfactory way or not, who they taught in a good or satisfactory

way or not, and where they should concentrate next. Hattie (2012) argued, “I never allow teachers or school leaders to visit classrooms to observe teachers; I allow them to observe only students—the reactions that students have to incidents, to teaching, to peers, to the activity” (p. 138).

Education Level

Is there any correlation between principal’s support for instructional teacher leadership and teacher effectiveness? Instructional leadership theory has practical roots in findings from the late 1970s and early 80s in urban schools (Edmonds, 1979). It involves leadership intended for boosting teachers’ professional learning and development and arbitrating different educational and organizational applications (e.g., mission, school climate, goals, and curriculum; Robinson et al. 2008; Southworth, 2002). Therefore, principals’ contribution to teacher knowledge and growth as co-learners in both casual and official settings has great influence on pupil achievements (Robinson et al., 2008). Timperley (2011) asserted that teachers’ learning and growth are reliant on principals’ methodical help and on principals being near the daily functioning setting. Effective principals engage in dialogue with teachers, guiding them to establish professional development that is mutually agreed upon.

Leithwood et al. (1999) assessed six methods to school leadership. One of the six methods of school leadership was instructional leadership, which teaches that leaders should consider “the behaviors of teachers as they engage in activities directly affecting the growth of students” (Leithwood et al., 1999, p. 8). Therefore, teacher behavior is obviously the main issue, which affects the development of students. Moreover, instructional leadership concentrates on other organizational factors such as school culture since it is believed that these affect teacher behaviors as well. The issue of a principal directing and engaging in a teacher’s job in the

classroom is a sensitive issue. Salo et al. (2015) maintained, “Teaching is characterized by a strong professional autonomy, resulting in isolation and freedom from interference” (p. 492). In their study, Blasé and Blasé (2000) noted:

> Over 800 American teachers responded to an open-ended questionnaire by identifying and describing characteristics of principals that enhanced their classroom instruction and what impacts those characteristics had on them. We found that in effective principal-teacher interaction about instruction processes such as inquiry, reflection, exploration, and experimentation result; teachers build collection of flexible alternatives rather than collecting rigid teaching procedures and methods. (p. 132)

One study classified two efficient instructional leadership practices: leaders engaging their leadership with teachers in order to endorse thinking, teachers’ skilled growth, and cooperative investigation (Stronge et al., 2008). Making recommendations, principals engaged with teachers both formally and informally to reinforce day-to-day connections. These ideas were focused, suitable, supporting, collaborative, and nonthreatening, and were illustrated by “listening, sharing their experiences, using examples and demonstrations, giving teachers choice, contradicting outdated or destructive policies, encouraging risk taking, offering professional literature, recognizing teachers’ strengths, and maintaining a focus on improving instruction” (Blasé & Blasé, 2000, p. 133). Marzano et al. (2011) believed “the purpose of supervision should be the enhancement of a teacher’s pedagogical skills, with the ultimate goal of enhancing student achievement” (p. 2). For example, the Marzano Teacher Evaluation Model (MTEM) is designed around promoting dialogues between principals and teachers about instructional practices.

Studies have shown that the acceptance and application of a school-based instructional teacher leadership program help in the overall professional development of teachers and increase

their instructional effectiveness. Such improved teacher effectiveness then leads to improvement in students' academic performance (Smylie et al., 2002). Furthermore, such programs can help in reducing the responsibilities of the principals who are overburdened with work and shift it to the teachers instead, thereby resulting in increased authority and control on the part of the teachers. Increased autonomy further translates into improved effectiveness for the teachers. According to Jumani and Malik (2017), "Teacher autonomy is the teachers' capacity to engage in self-directed teaching, which may include general professional autonomy, collegial professional autonomy, and individual autonomy" (p. 21). To achieve instructional aims and create a favorable learning environment, teachers require freedom for decision-making to offer the greatest chances for students' complete growth. The concept of instructional teacher leadership is known to improve professional development of the teachers, increase school-wide collaborative efforts between them, and lead to improved teaching (Hawley & Valli, 1999; Loucks-Horsley, 1995; Richardson & Placier, 2001). Such support by the principals also contributes to improved instructional capacity for the teachers (Smylie et al., 2002).

Teachers in most states are required to earn a bachelor's degree and take a particular number of courses in the domain of education to be able to obtain a teaching license from the states. Findings suggest a correlation between the quality of teachers' undergraduate institutions and student attainment (Clotfelter et al., 2010). According to Cochran-Smith et al. (2017):

> Holding teacher education accountable has been the major approach to reforming teacher education in the US for the last two decades, assuming that enhanced teacher education quality depends on vigilant public evaluation and monitoring of outcomes related to teacher education institutions, programs, and teacher candidates. (p. 572)

The performance of the teachers can be an influential factor in terms of teaching the students. Teachers who have more education training in the subject they teach are more efficient in improving student learning outcomes (Darling-Hammond, 2010).

Do teacher and principal levels of educational attainment (e.g., bachelor's, master's, and doctor of philosophy) impact their professional effectiveness? The level of educational attainment of the teachers and principal has a direct impact on their professional effectiveness (Darling-Hammond, 2000). Teacher education level means the educational degree attained by teachers and principals. The higher the educational level of the teacher, the more qualified they are. According to the No Child Left Behind Act (NCLB; 2002), “Highly qualified teachers are defined as those who hold at least a bachelor’s degree, are fully licensed or certified by the state in the subjects they teach, and can demonstrate competence in the subjects they teach” (as cited in Tucker & Stronge, 2005, p. 6). Darling-Hammond (2000) studied the relationship between teacher qualifications, other school contributions, and student attainment across states. Darling-Hammond accomplished this by using data from a 50-state survey of policies. She concluded that:

> Teacher quality characteristics such as certification status and degree in the field to be taught are very significantly and positively correlated with student outcomes. Characteristics such as education level (percentage of teachers with master’s degrees) show positive relationships with education outcomes. (Darling-Hammond, 2000, p. 23)

Sadler et al. (2013) revealed, “Beliefs about teacher knowledge shape both the policies regulating how teachers are prepared, certified, hired, and evaluated as well as programs that provide ongoing professional development for practicing teachers” (p. 1021). In order for the teacher to perform well, it is essential for them to be prepared with more information and skills,

which can only be obtained through improving the levels of education (Darling-Hammond & Lieberman, 2013). A teacher with a master's degree is more knowledgeable as compared to a teacher with a bachelor's degree. It is for this reason that the teachers are usually encouraged to further their knowledge through learning. A doctor of philosophy equips the teachers with the capability to produce new knowledge. A teacher with the ability to create new information can perform much better as compared to a teacher with only a bachelor's degree. According to Clotfelter et al. (2007), "Taken together the various teacher credentials exhibit quite large effects on math achievement, whether compared to the effects of changes in class size or to the socio-economic characteristics of students, as measured, for example, by the education level of their parents" (p. 2).

The level of education also impacts positively on the professionalism of the teachers. The professionalism of the teacher is improved when they attain a higher level of education. Many states inspire their teachers to seek National Board Certification (NBC), which is a robust, effective indicator of teacher quality and student outcomes (Cavalluzzo, 2004). According to the National Board for Professional Teaching Standards (NBPTS), "Teachers who earn NBC have successfully gone through a rigorous, standards-based assessment process to affirm their knowledge of content and pedagogy, use of high-quality instructional practices, and involvement in professional activities" (as cited in Cavalluzzo, 2004, p. 6). The professional performance of the teacher can also be improved if they have a higher level of education as it exposes them to different sets of knowledge and skills. Therefore, teacher quality is a crucial feature of students' accomplishments and learning (Payne & Wolfson, 2000; Rockoff, 2004). According to Burnett (1996), "Quality in education is difficult to define and measure. An adequate definition must include student outcomes. Most educators would also include in the definition the nature of the

educational experience that helps to produce that outcome—the learning environment" (p. 46). A research synthesis by Goe (2007) on the connection between teacher quality and student outcomes discovered that:

1. Teacher quality may be evidenced by teachers who possess the following characteristics. Qualifications and experience appropriate to grade level and subject matter.
2. High expectations for students, particularly those at risk for poor outcomes.
3. Creation of a classroom environment that encourages all students to participate in worthwhile learning activities.
4. Desire to help students achieve at high levels.
5. Ability to motivate at-risk students to come to school and participate in class, even if their achievement scores do not show significant gains.
6. Excellent skills in mentoring new teachers and acting as stabilizing forces in high-turnover schools. Willingness to work diligently with students with special needs, whose test scores may not reflect teacher contributions. (p. 1)

Teacher qualifications such as knowledge and experience play a critical role in improving their overall effectiveness and, in turn, improving the students' learning outcomes (Goe & Stickler, 2008). Teacher years of experience are significantly related to student achievement. Clotfelter et al. (2007) concluded, "A teacher's experience, test scores and regular licensure all have positive effects on student achievement, with larger effects for math than for reading" (p. 2). Greenwald et al. (1996) found that "resource variables that attempt to describe the quality of teachers (teacher education and teacher experience) show very strong relations with student achievement" (p. 384). Teachers who have a certain level of expertise are known to have a better

grasp of the key issues faced by their students and could help develop curriculum based on their professional development students' learning growth as opposed to implementing strict routines regardless of their impact on students' learning or understanding of the subject being taught (Rockoff, 2004).

Kane et al. (2008) studied the correlation between teacher effectiveness on student success and certification status among teachers in New York City using panel data on students' reading and math test scores. They further found:

> Teachers in their second year of teaching have value-added .033 standard deviations higher in math and .023 standard deviations higher in reading than teachers in their first year. Teachers in their third year of teaching have value-added .052 standard deviations higher in math and .034 standard deviations higher in reading than teachers in their first year. (Kane et al., 2008, p. 28)

Historical studies carried out on teachers to recognize the influence of teachers' knowledge on their decision-making skills observed that factors such as the nature and level of expertise with regard to their pedagogical and practical knowledge significantly influence and motivate culturally responsive teaching and contribute to an increase in learner knowledge (Clark, 1993; Clandinin, 1986; Shulman, 1986). For instance, Monk (1994) found that mathematics pedagogy courses have a great impact on student achievements. According to Sadler et al. (2013):

> Teachers with the proper practical knowledge of a given concept can achieve larger gains with their students than can those lacking that SMK [subject matter knowledge]; a teacher without knowledge may teach the concept incorrectly, and students may end up with the same incorrect belief as their teacher. (p. 1043)

Furthermore, it was observed that teacher qualification is the key factor that differentiates between an expert and a novice teacher. Expert teachers with higher qualifications tend to excel at their jobs, offer improved and meaningful learning assignments to their students, foster disciplinary learning based on extensive research, employ a scientific approach and help develop mathematical models that can be useful in practical learning in a real-life environment.

According to Melnick and Meister (2008), "New teachers do not have the requisite knowledge to understand the complex interrelationships among management, behavior, and academic tasks" (p. 40). Experienced teachers are usually more effective than beginner teachers in classroom management and communication ability. Experienced teachers are generally effective with students because they use an assortment of strategies (T. E. Glass, 2001). Fetler (1999) found that "schools with more experienced and more highly educated mathematics teachers tended to have higher achieving students" (p. 9). Qualified teachers are better equipped to develop educational pedagogies that encourage increased student participation through classroom puzzles, discussions, and journal or log writing assignments, and in the process, foster continuous development among the students (Moll & González, 2004).

Is there any relationship between professional development programs and teacher effectiveness? Teachers' continued joining in great excellence professional development programs is an essential adding element in increasing teachers' awareness and abilities, altering thoughts and beliefs, cultivating instructional performs, and boosting student attainments and growth (Akiba & Liang, 2016; Darling-Hammond et al., 2009b; Desimone, 2009). Little (1987) defined professional development as "any activity that is intended partly or primarily to prepare paid staff members for improved performance in present or future roles in the school districts" (p. 491). According to Desimone (2009), "Professional development is a key to reform in

teaching and learning, making it essential that we use best practice to measure its effects" (p. 192). Darling-Hammond et al. (2017) also endorsed professional development: "Effective professional development as structured professional learning that results in changes in teacher practices and improvements in student learning outcomes" (p. v).

According to Akiba and Wilkinson (2016):

> Most recently, the federal US $4.35 billion Race to the Top (RTTT) Program encouraged and rewarded states that developed innovative plans for educational reforms. One of the four cores educational reform areas in the RTTT Program specified by the U.S. Department of Education (USDOE) is "recruiting, developing, rewarding, and retaining effective teachers and principals, especially where they are needed most. (p. 2)

According to Bell et al. (2010), "Effects are of two kinds: changes in teacher knowledge/practice and increases in student learning" (p. 480). There are many studies connecting teacher professional development to changes in their knowledge or practices. Empirical researchers suggest a general consensus that there are critical sorts of professional development to improve teachers' knowledge and skills: (a) concentrating on the subject matter, (b) being intelligible, intensive (duration), and persistent with implementing new professional development, (c) endorsing active learning and shared participation; and (d) involving other school initiatives (Darling-Hammond et al., 2009a; Desimone, 2009; Desimone, Porter, Garet et al., 2002; Desimone & Garet, 2015; Garet et al., 2001). Also, Hiebert (1999) stated the significance of high values, content concentration, and deep-learning chances for teachers:

> Research on teacher learning shows that fruitful opportunities to learn new teaching methods share several core features: (a) ongoing (measured in years) collaboration of teachers for purposes of planning with (b) the explicit goal of improving students'

> achievement of clear learning goals, (c) anchored by attention to students' thinking, the curriculum, and pedagogy, with (d) access to alternative ideas and methods and opportunities to observe these in action and to reflect on the reasons for their effectiveness. (p. 15)

Garet et al. (2001) indicated that "professional development that focuses on academic subject matter (content), gives teachers opportunities for 'hands-on' work (active learning), and is integrated into the daily life of the school (coherence), is more likely to produce enhanced knowledge and skills" (p. 935). The subject matter emphasis of teacher learning is the greatest significant feature (Desimone, 2009). The content throughout professional development events should be varied and cover at least four new choices. Activities differ in relative importance that focus on the subject matter content that teachers are expected to teach, including the teaching procedures teachers will apply. Garet et al. (2001) believed some activities are meant mainly to increase teachers' knowledge, skills of subject-matter content; common pedagogy; and "pedagogical content knowledge[—teaching applied in certain content areas, such as] forces and motion in physics" (p. 923). Activities focus on changes in teaching improvement practices. Shulman (1986) defined pedagogical content knowledge as that:

> Which goes beyond knowledge of the subject matter per se to the dimension of the subject matter of teaching. The category of pedagogical content knowledge includes the most regularly taught topics in one's subject area, the most useful forms of representation of those ideas, the most powerful analogies, illustrations, examples, explanations and demonstration—in a word, ways of representing and formulating the subject that make it comprehensible to others . . . . Pedagogical content knowledge also includes an understanding of what makes the learning of specific topic easy or difficult; the

> conceptions and preconceptions that students of different ages and backgrounds bring with them to the learning of those most frequently taught topics and lessons. (pp. 9-10)

For instance, emphasis on activities is aimed to assist teacher use of certain curriculum resources. Activities differ in the objectives for pupil learning. Some activities focus on assisting teachers in increasing pupil performance in the essential skills or students' conceptual understanding (Garet, 1999). Finally, activities differ in the concentration on the methods by which students learn specific subject matter. Liang et al. (2015) suggested that "teacher knowledge of subject matter, teaching methods, student learning and development, technology, and assessment are all important elements of teacher effectiveness and students benefit from their teachers' participation in continuous learning" (p. 26). Various research and study findings have identified a relationship between the teacher's subject matter knowledge and the learning outcomes (Darling-Hammond, 2000; Darling-Hammond et al., 2013).

Continuous development and learning are important for the teachers in ensuring that their experience and skills are improved. The professional skills of the teachers can be improved if they undertake short courses as part of continuous learning and development (Darling-Hammond & Lieberman, 2013). The teachers can continue carrying out their duties while at the same time engaging in short courses. The knowledge and skills of the teachers can be improved, as they will be exposed to new knowledge and ideas. The short courses are important in ensuring that the teachers acquire new skills that improve their abilities to deliver the learning to the students. Teachers should be encouraged to develop their skills continuously, which is important in improving their ability to keep up with technological changes. Technological changes are affecting the education sector, and teachers have to embrace technology. Continuous learning and development can also be important to teachers in terms of improving their abilities to

manage change (Blömeke et al., 2014). Change management is important to teachers due to the flexible nature of the learning environment. It is therefore important for the teacher to undertake continuous learning after every three months.

Teacher effectiveness is directly linked to student performance (Boyd et al., 2005). Hence, it is highly imperative to ensure that consistent efforts are made to increase the quality of teachers through professional development programs. Various educational reform policies introduced over the years have stressed the significance and relevance of professional development programs aimed at teachers in a bid to improve their effectiveness, with varied results (Fullan & Hargreaves, 1996). This is substantiated by the fact that several teacher certification programs today require ongoing professional development since it is straightforwardly connected to improved student performance and enhanced teacher effectiveness (Garet et al., 2001).

Various studies indicate a robust and constructive connection between professional development programs and an increase in self-reported knowledge among teachers (Hill & Ball, 2009; Hill et al., 2005). Such improvement in teacher effectiveness is all the more apparent in teachers teaching mathematics and science (Desimone et al., 2002):

> The most important factor affecting student learning is the teacher. In addition, the results show wide variation in effectiveness among teachers. The immediate and clear implication of this finding is that seemingly more can be done to improve education by improving the effectiveness of teachers than by any other single factor. Effective teachers appear to be effective with students of all achievement levels, regardless of the level of heterogeneity in their classrooms. If the teacher is ineffective, students under that teacher's tutelage will achieve inadequate progress academically, regardless of how

> similar or different they are regarding their academic achievement. (Sanders et al., 1997, p. 63)

Educational leadership is one of the greatest significant aspects that has a profound influence on constructing great collaborative learning and educating environment at the school level and developing pupil's achievement (Blasé & Blasé, 1999). Leadership is usually hard to define and assess. Leaders have plenty of responsibilities and many tasks they need to accomplish each day. School leaders are always confronted with various cultures and situations in which they have the chance to lead. According to Kouzes and Posner (2002), "Leadership is not all about personality; it's about practice" (p. 13).

Most contemporary theories view leadership as one of three standpoints: leadership like a process or connection, leadership like a mixture of qualities or character features, or leadership like particular behavior or a particular set of leadership skills. In the additional predominant theories of leadership, there is the perception that, at minimum, leadership is a process that includes impacts with a group of individuals to achieve the achievement of goals (Rowe, 2007). According to Northouse (2016), "Leadership is a process whereby an individual influences a group of individuals to achieve a common goal" (p. 5).

Effective leaders understand that in order to encourage people to follow, they must promote trustworthy interactions. "Leaders establish an atmosphere of trust by their daily actions" (Marzano et al., 2005, p. 16). Rebore and Walmsley (2010) defined leadership as "a way of life of dedication to the academic community and profession" (p. 22). According to Marzano et al. (2005), "School leadership has a substantial effect on student achievement" (p. 14). Effective leaders make decisions based on students' and teachers' interests (Houston et al., 2008).

Leadership theorists (e.g., Fullan, 1999, 2001; Rust & Freidus, 2001) believed that effective schools refer to effective leaders as those who have the most substantial effect on the school success. According to Bredeson (1985), “While schools make a difference in what students learn, principals make a difference in schools” (p. 29).

Rutherford (1985) noted that effective principals:

> (1) Have clear, informed visions of what they want their schools to become visions that focus on students and their needs; (2) translate these visions into goals for their schools and expectations for their teachers, students and administrators; (3) continuously monitor progress; and (4) intervene in a supportive or corrective manner when this seems necessary. (p. 32)

According to Waters et al. (2003):

> Effective leaders understand how to balance pushing for change while at the same time, protecting aspects of culture, values, and norms worth preserving. They know which policies, practices, resources, and incentives to align and how to align them with organizational priorities. They know how to gauge the magnitude of change they are calling for and how to tailor their leadership strategies accordingly. Finally, they understand and value the people in the organization. They know when, how, and why to create learning environments that support people, connect them with one another, and provide the knowledge, skills, and resources they need to succeed. This combination of knowledge and skills is the essence of balanced leadership. (p. 4)

Moreover, in the only published meta-analysis, Marzano et al. (2005) testified an ordinary effect size of around 0.4 between leadership and student academic outcomes.

Thus, according to Stronge et al. (2008), “A key responsibility of school leaders is to sustain learning, and this can best be accomplished through leading learning endeavors that are focused on long-term outcomes rather than short-term returns” (p. 23). Also, leaders need to guarantee that the leadership style implemented formulates a convincing vision that stimulates teachers toward higher accomplishment (Hallinger & Heck, 1998). A primary component of leadership is the impact it has on followers that then influences the organization (Bass, 1985).

In practical terms, studies have indicated that principals play a highly crucial role in fostering professional growth and development of teachers by supporting teachers through timely feedback, acting as instructional leaders; and enabling the teachers to reflect on their performance through appropriate opportunities (Blasé & Blasé, 1999; Kraft & Papay, 2014). Effective leadership of the principals is also cited as a critical factor in retaining skilled teachers by influencing their decision to stay on the job (Kraft & Papay, 2014). Teacher collaboration, mutual interactions, and collective approach are known to influence improved effectiveness among them. There is increased sharing between teachers with regard through instructional leadership with regard to factors such as coaching, reflection, collegial investigation, forming of study groups, as well as problem-solving (Blasé & Blasé, 1999).

Principals are an inevitable part of the school system, and hence their support is of crucial significance for effective school leadership. “They are the key drivers that help manage and supervise the entire spectrum of stakeholders within the school system which includes teachers, parents, students, the school board members, policy makers, support staff as well as the union officials” (Mangin, 2007, p. 319). These stakeholders are highly reliant on principal support for the availability of necessary data to make crucial decisions. Also, as key instructional leaders, principals improve and rely on leadership contributions from teachers and parents (Leithwood et

al., 2004). The aptitude of the school to improve its overall performance both in terms of teacher effectiveness as well as student performance outcomes depends heavily on the principal. Findings have indicated that principals' active role in supporting their staff and employees helps bring about crucial educational reforms, resulting in increased effectiveness, improved performance, and greater sustainability for the schools (Elstad, 2008; Rossmiller, 1992).

Principal Behaviors and Characteristics

According to (Hanny, 1987) by the 21st century, all school principals need to be dynamic instructional leaders. For example, many researchers such as Blasé and Blasé (2000), Cotton (2003), Hallinger (2005), and Waters et al. (2003) identified certain practices applied by effective principals.

Table 1

Certain Practices Applied by Effective Principals' Responsibilities

Author	Practices
Cotton (2003) classified principal behaviors.	Vision and Goals, High Expectations Supportive School Climate, Visibility and Accessibility, Continuous Improvement, Observations and Feedback, Professional Development, Role Modelling, and Recognition of Achievements.
Waters et al. (2003)	Visibility, intellectual stimulation, curriculum and Instruction, resources optimizer, contingent rewards.
Hallinger (2005) and Blasé and Blasé (2000)	Climate of high expectations, visibility, encourage innovation, modeling, and staff development.
Smith and Andrews (1989)	Visible presence, instructional resource, communicator, and resource.

Effective principals have particular leadership behaviors and practices. The principals are known as the instructional leaders of the school who can apply best practices to lead the growth of objectives for all schools 'students and staff. Also, the principals who present as skillful do so

across an assortment of behavioral dimensions (Cotton, 2003). Principals should concentrate on their leadership on evolving the school climate, the intellectual stimulation of employees, and the facilitation of teachers' professional development to make an affirmative learning environment for students (Waters et al., 2003).

Leadership Style and Theories

Northouse (2016) defined leadership style as:

> Consist[ing] of the behaviour pattern of a person who attempts to influence others. It includes both directive behaviours and supportive behaviours. Directive behaviours help group members accomplish goals by giving directions, establishing goals and methods of evaluation, setting timelines, defining roles, and showing how the goals are to be achieved. Directive behaviours clarify, often with one-way communication, what is to be done, how it is to be done, and who is responsible for doing it. Supportive behaviours help group members feel comfortable about themselves, their co-workers, and the situation. Supportive behaviours involve two-way communication and responses that show social and emotional support to others. Examples of supportive behaviours include asking for input, solving problems, praising, sharing information about oneself, and listening. Supportive behaviours are mostly job related. (p. 94)

Leadership is a miscellaneous notion embracing several elements (Bonnici, 2011). One of these elements is leadership style, the way and manner of providing direction. Bass and Riggio (2006) reported that Burns (1978) conceived leadership as either transformational or transactional approaches that stimulated numerous interests of researchers. For Burns, effective leaders would be competent and have the necessary ability, knowledge, or skill to create societal changes.

There are plenty of leadership behaviors and characteristics that may inspire effective leadership. The primary leadership theories that greatly impact on school achievement are the following: transformational leadership, transactional leadership, and instructional leadership. Each possesses subtle characteristics which apply to leadership and motivation.

Transformational Leadership

Downton first invented the term transformational leadership in 1973. It was a significant method of leadership and started through an effort by political sociologist James MacGregor Burns (1978) entitled *Leadership*. In his work, Burns (1978) sought to connect the roles of both leadership and followership. According to Burns, transformational leaders are defined as people who care for their followers and drive their own strength to meet their followers' needs and potential. From the perspective of Burns (1978), transformational leaders form "a relationship of mutual stimulation and elevation that converts followers into leaders and may convert leaders into moral agents" (p. 4).

Northouse (2016) said that transformational leadership contains four aspects, including idealized influence, which "describes leaders who act as strong role models for followers; followers identify with these leaders and want very much to emulate them" (p. 167). Next is inspirational motivation, and "it is descriptive of leaders who communicate high expectations to followers, inspiring them through motivation to become committed to and a part of the shared vision in the organization" (Northouse, 2016, p. 169). Intellectual stimulation is the third factor. According to Burns (2003), "It includes leadership that stimulates followers to be creative and innovative and to challenge their own beliefs and values as well as those of the leader and the organization" (p. 169). Individualized thought is the final factor. It is described as

"representative of leaders who provide a supportive climate in which they listen carefully to the individual needs of followers" (Burns, 2003, p. 169).

Transformational leaders in organizational innovation in education must be able to make an encouraging organizational climate, meet goals, and enhance the job satisfaction and dedication of teachers by providing them with a motive (Leithwood & Jantzi, 1999; Rowold & Schlotz, 2009). Transformational leaders demonstrate the significance and importance of required targets in simple methods and create stimulating anticipations (Bass & Avolio, 1990). Leaders who display transformational leadership regularly have a robust group of inner morals, ethics, and standards. They are efficient and successful at inspiring and emulating their followers to perform in ways that benefit everyone as opposed to simply the leader's own interests (Kuhnert, 1994).

Transactional Leadership

According to Bryant (2003), "Transformational leadership may be more effective at creating and sharing knowledge at the individual and group levels, while transactional leadership is more effective at exploiting knowledge at the organizational level" (p. 33). Koech and Namusonge (2012) noted that transactional leadership, using a carrot or a stick, includes three factors regularly categorized as "instrumental in followers' goal attainment" (p. 4). Contingent reward, also known as constructive leadership, occurs when leaders develop a *goal transaction* based on rewards for the desired outcomes. These leaders set and explain expectations, exchange resources and provide assistance for positive follower performance. Another level to Bass' (1993) idea is Management by Exception. Here leaders supervise employee performance and impose instructions to avoid mistakes. Next was *Passive Management by Exception* (Bass, 1997). Leaders in this transactional scenario take no action unless deviations begin to occur, so

they wait for mistakes to happen before action is taken. Laissez-faire leadership is where leaders avoid assuming responsibility and are not available when needed for assistance (Bass, 1997). To Burns (2003), the distinction between transformational and transactional leadership is that transactional leaders exchange one thing for another, while transformational are more concerned with change.

Instructional Leadership

Instructional leadership was established in the mid-twentieth century (Bridges, 1967; Grobman & Hines, 1956; Gross and Herriot, 1965; Lipham, 1961; Uhls, 1962). Bridges (1967) evaluated instructional leadership for principals in a detailed and analytical way. Bridges (1967) explained:

> Of the seven major task areas for which principals have responsibility, curriculum and instruction has generated the most sound and fury. On the one hand, the principal has been exhorted to exert instructional leadership; while on the other hand, he has been told flatly that such a role is beyond his or any other human being's capacity. The problem with these disputations is that the proponents of a given position have neither defined sharply what is signified by the concept of instructional leadership nor made their assumptions explicit. (p. 136)

According to Hallinger and Wang (2015), Bridges' (1967) perception led to two pathways in school leadership practice. "First, he pointed to the need for a sound conceptual definition of this practice-based term. Second, Bridges highlighted the tension that existed (and continues to exist to this day) between prescriptions for principals to be instructional leaders and the 'contextual realities' of leading schools" (Hallinger & Wang, 2015, p. 3). Then, instructional leadership theories emerged from the 1980s concentrated on direct classroom practices and the

teaching and learning process (Hallinger & Murphy, 1986). An essential characteristic of instructional leadership was the assurance of the principal's participation in educating and studying processes (Bossert et al., 1982; Hallinger & Heck, 1996a; Hallinger & Murphy, 1986). Andrews and Soder (1987) identified the role of instructional leadership in terminologies of behaviors: resource contributor, instructional help, communicator, and a noticeable existence. Instructional leadership is defined as monitoring of classroom instruction, teachers, and curriculum growth (Smith & Andrews, 1989). Hallinger and Murphy (2012) stated, "Today, we view instructional leadership as an influence process through which leaders identify direction for the school, motivate staff and coordinate school and classroom-based strategies aimed at improvements in teaching and learning" (p. 7).

Blasé and Blasé (1999) wrote that effective instructional leadership consists of two main actions, which are "talking with teachers to promote reflection and promoting professional growth" (p. 133). Effective principals respect discourses that promote teachers to reflect analytically on their proficient practice. There are five main dialogue strategies, including "making suggestions, giving feedback, modeling, using inquiry and soliciting advice and opinions, and giving praise" (Blasé & Blasé, 1999, p. 133). In making recommendations, effective principals can make recommendations to teachers during and after observation as well as in day-to-day interactions. These recommendations are typically characterized by:

> Listening, sharing their experiences, using examples and demonstrations, giving teachers choice, contradicting outdated or destructive policies, encouraging risk taking, offering professional literature, recognizing teachers' strengths, and maintaining a focus on improving instruction. (Blasé & Blasé, 1999, p. 133)

Combining Transformational and Instructional Leadership

Instructional, transformational, and educational leadership by school boards have all three been directly associated with improvement and positive performance outcomes in the form of increased teacher engagement and organizational commitment on the part of the teachers. According to Orphans and Orr (2013), "Effective instructional and transformational leadership practices are strongly associated with improved teacher engagement and commitment and organizational culture and effectiveness, which in turn are positively associated with improved student outcomes" (p. 681). Such factors, in turn, are known to improve the organizational environment significantly, resulting in improved teacher engagement and commitment that, in turn, translate into improved student outcomes. Integrating transformational and instructional leadership such as direction setting, developing teachers through instructional practices, teacher engagement, and support and organizational help are most significant for teacher commitment and effectiveness (Leithwood & Jantzi, 2008; Thoonen et al., 2011).

The question is, what should be the emphasis of school leadership that affects student learning? Instructional leadership focusing on enhancing education and learning or transformational leadership that concentrates more on making capacity for growth? Transformational leadership highlights the leader's responsibility to inspire teachers for a cooperative vision and motivate teachers for the greatest levels of performance (Bass, 1985). Moreover, transformational leadership does not engage directly with educating and learning by the principals (Hallinger, 2003). A meta-analysis conducted by Robinson et al. (2008) built on past research syntheses (e.g., Hallinger & Heck, 1996b, 1998; Leithwood et al., 2004; Leithwood & Jantzi, 2005) of the school leadership research to answer many questions. The data found instructional leadership is more effective than transformational leadership.

How School Leaders Influence Teachers

A 1970 Senate Committee Report on Equal Education Opportunity explained the significance of the principal as:

> In many ways the school principal is the most important and influential individual in any school. He or she is the person responsible for all activities that occur in and around the school building. It is the principal's leadership that sets the tone of the school, the climate for teaching, the level of professionalism and morale of teachers, and the degree of concern for what students may or may not become. The principal is the main link between the community and the school, and the way they perform in this capacity largely determines the attitudes of parents and students about the school. If a school is a vibrant, innovative, child-centered place, if it has a reputation for excellence in teaching, if students are performing to the best of their abilities, one can almost always point to the principal's leadership as the key to success. Marzano et al., 2005, pp. 5-6)

When leaders shape organizational climates and cultures, they can generate ethical standards that direct the moral or immoral behavior of stakeholders or cooperatives in a top-down way (Schaubroeck et al., 2012). According to Bottoms and Fry (2009), "Principals can profoundly influence student achievement by working with teachers to shape a school environment conducive to learning" (p. 5). Hallinger and Murphy (1987) set three dimensions for their theoretical framework for developing principals' instructional leadership. The third dimension was endorsing a positive school climate.

Evans (2000) stated, "Transformation begins with trust" (p. 287). Trust in schools is established through the substantiation of honesty, shrewdness, and genuineness. These features

derive from personal thoughts and beliefs. The leader creates trust through compassion, morality, openness, consistency, and capability.

Building relational trust in schools is one of the vital elements that contribute to successful leadership. It is highly imperative to ensure that principals encourage and motivate increased interaction among the staff and employees through effective leadership as communication helps foster positive relationships between the employees and leads to shared information (Bryk & Schneider, 2002). Establishing a climate of exchange of respect and information within a school setting further helps in increasing the level of job satisfaction, reduces burnout rates, and leads to increased turnover. It also helps in preventing conflicts, creating increased transparency, and promoting a healthy environment, resulting in high performance for both the teachers as well as the students (Bryk & Schneider, 2002; Rossmiller, 1992).

Maslach et al. (2001) defined burnout as a stress syndrome in response to a relationship to work that contains depersonalization of teachers and administrators:

> Burnout is a prolonged response to chronic emotional and interpersonal stressors on the job and is defined by the three dimensions of an overwhelming exhaustion, feelings of cynicism and detachment from the job, and sense of ineffectiveness and lack of accomplishment. (pp. 397-399)

Burnout has been related to a variety of undesirable personal consequences, including decreased organizational commitment and job satisfaction (Lee & Ashforth, 1996). Burnout is a pattern of withdrawal from a high-stress workplace where teachers not only feel separate from the workplace but also experience exhaustion and a lack of accomplishment. Furthermore, they depersonalize colleagues and school leaders as a method of psychologically ignoring them

(Demerouti et al., 2001). This withdrawal is related to other patterns of work-associated withdrawal, such as frequent turnover (Lee & Ashforth, 1996).

According to the University Community Partnerships at Michigan State University (2004),

> A caring school climate is associated with school success: Higher grades, engagement, attendance, expectations and aspirations, a sense of scholastic competence, fewer school suspensions, and on-time progression through grades (19 studies); Higher self-esteem and self-concept (5 studies); Less anxiety, depression and loneliness (3 studies); and Less substance abuse (4 studies). (p. 5)

According to extensive research by Stover (2005):

> Good climate and culture are key to the success of urban schools, according to researchers who've spent years studying the subtle interpersonal dynamics that take place among students and educators. Many are convinced that a closer look at climate and culture can help urban boards determine why one school is academically successful and—more important—why another is poor performing and consistently failing to improve. (p. 1)

Thus, effective leadership can notably impact the expedition for higher student attainment, increase teacher effectiveness, and increase the capability of schools to meet accountability standards.

Communication

Burns (1978) stated, "One of the leader's fundamental acts is to induce people to be aware or conscious of what they feel—to feel their true need so strongly, to define their values so meaningfully, that they can be moved into purposeful action" (p. 44). Therefore, it is essential

that principals create a healthy connection or relationship with their teachers. Apart from good leadership, increased interaction and open communication channels are also known to be instrumental in achieving improved academic outcomes for the students. Research indicates a strong and positive relationship between interaction and academic learning outcomes. Blasé and Blasé (2002) performed a study of 809 public school teachers that summarized their insights of their school leaders and which aspects have the most impact on their classroom performances. This study identified six characteristics of an effective leader:

> (1) Avoids restrictive and intimidating approaches to teachers; (2) believes in teacher choice and discretion; (3) integrates collaboration, inquiry, and reflective discussions; (4) embraces growth and change; (5) respects teachers' knowledge and abilities; (6) and are committed to enacting school improvement and reform. (Blasé & Blasé, 2002, p. 22)

Moreover, this study also found that leaders who consistently communicate with their teachers and provide opportunities for collaborative reflection are considered effective. This type of leadership inspired teachers to differentiate instruction and to plan effectively.

Increased interaction results showed improved emotional support for students, organized classrooms, and improved relationships between teachers and students. According to a study carried out by Freiberg and Lamb (2009), coordinated teachers were most fruitful in achieving improved learning outcomes for the pupils since it permitted them to grant autonomy to their students to complete the tasks assigned. Increased interaction is also directly related to improved attention in class,increased student participation in classroom activities, and effective curriculum delivery (Pettigrew et al., 2013).

Professional Development and Institute-Wide Reforms

The concept of system leadership is increasingly gaining significance and wider acceptance within the educational domain and leadership discourse. The adoption and implementation of system leadership lead to formation of organizational networks, which promotes school collaborations resulting in professional development and institute-wide reforms. Leithwood and Seashore-Louis (2013), in their book, *Linking Leadership to Student Learning*, summarized that principals who concentrated on instructions such as teacher knowledge, skills, motivation, professional development, and on providing an assurance of encouraging working conditions (e.g., time for collaboration and interaction between teachers) had a substantial influence on student learning in the school. This concept is being widely encouraged and has gained significant support in academic literature due to its contribution to fostering educational leadership beyond a single entity and to its encouragement of student and teacher well-being. It fosters collective leadership and mutual interaction and cooperation among principals across various schools in the network and promotes increased interaction and collaboration between teachers. This type of approach enables schools within the network to address and resolve the inherent complexities pertaining to educational contexts and mitigate the potential negative effects through collaboration and interaction (Boylan, 2016).

Effective intervention strategies applied by the school board also help in improving principal-teacher relationships, which helps in the development of a collaborative culture, creation of an improved classroom environment, and it helps students achieve improved outcomes (Hallinger & Heck, 2010; Hoy et al., 2002; Orphans & Orr, 2013). Education standards employed currently across schools tend to focus heavily on academic achievement of students, which, in turn, is based on the effectiveness of teachers. According to National Policy

Board for Educational Administration (2015), the Professional Standards for Educational Leaders strive to confirm district and school leaders are capable of increasing students' achievements and meeting high expectations. Hence, teachers and leaders are under increased stress to perform and improve learning outcomes for their students. According to Egley and Jones (2005), "With high-stakes accountability, many teachers and principals have reported feeling pressure to increase students' standardized test scores" (p. 14).

Research has indicated that excessive focus and insistence on improving the academic performance of students, placed on teachers from school boards, hinder not only their professional judgments but also stifles their creativity and morale. It is also known to influence their leadership potential and abilities significantly. Furthermore, it hinders collaborative efforts between teachers leading to the deterioration of their effectiveness (Egley & Jones, 2005).

Bentley and Rempel (1980) defined morale as "the professional interest and enthusiasm that a person displays toward the achievement of individual and group goals in a given job situation" (p. 2). Therefore, "low staff morale results from professional lives that have little meaning; from frustration and the inability to change what is happening" (Wentworth, 1990, p. 1). "Clearly, the principal is the key figure in raising teacher morale and commitment" (Lester, 1990, p. 274).

Various studies address the relationship between a principal's relationships on teacher morale. Hardy (1999) listed many reasons to demonstrate why teachers are leaving the profession by the thousands at nearly 7% per year: poor wages, increased duties, poor relationships with administrators, and inadequate control over school policies and practices. Also, Egley and Jones (2005) performed a study to observe the relations between elementary teachers and their principal when under a lot of pressure. They discovered a significant and

positive association between inviting leadership behaviors and teacher morale. They concluded that engaging leaders focused on relationships interact with teachers by concentrating on mutual respect, which ultimately affects the achievement level of students.

Principals, therefore, have the ability to impact teacher morale and effectiveness by establishing a healthy relationship on a day-to-day basis (Hunter-Boykin et al., 1995; Lester, 1990; Rhodes et al., 2004). On the contrary, support extended by school principals to teachers, in the form of coaching, training, and growth, as well as the freedom to exercise professional judgment, is known to improve teacher performance significantly. Support lent by principals to teachers is also documented to result in instructional improvement, creation of a collaborative school culture, and improvement in employee morale (Gallagher, 2012).

Principal Leadership Roles and Responsibilities

There is increasing evidence indicating the highly crucial role played by principals in shaping the learning environment and influencing a positive school culture. According to Bredeson (1985), "While schools make a difference in what students learn, principals make a difference in schools" (p. 29). Many researchers have shown that a principal's leadership style and the culture within schools have a major effect on teacher effectiveness (Brennan & MacRuaric, 2011; Roby, 2011). Research states that principals who take an active interest in managing the organizational climate at school tend to foster positive growth, creativity, cooperation, and openness. The principal investment also results in active participation from staff in the form of feedback and inputs, which further contributes to the development of a healthy learning environment (Price, 2012; Woodman et al., 1993). Research suggests that the correlation between principals and teachers helps in creating an atmosphere for learning, alternatively referred to as school climate or learning environment.

Factors such as shared organizational vision, mutual trust, and respect, as well as free and open communication channels, help immensely in creating a positive learning environment. According to Reeves (2006):

> Leaders can use vision to build trust rather than break it if they are willing to let their rhetoric give way to reality and allow their vision to become a blueprint rather than public relations baloney. Effective visions help individuals understand that they are part of large world and also reassure them of their individual importance to the organization. (p. 36)

Various studies have corroborated the fact that a highly trusting and positive learning environment contributes to increased levels of satisfaction among staff, improved interpersonal relationships among the principals and teachers, and increased levels of commitment from the faculty (Bryk et al., 2009; Hoy et al., 2002; Leithwood & Jantzi, 1990, 2000; Leithwood et al., 1998; Louis et al., 2010). As such, leaders should emphasize creating a culture of reciprocated trust and esteem for productive learning environments for students and teachers (Bryk & Schneider, 2002; Bryk et al., 2009).

Wong (1999) stated, “The only factor that increased student achievement was the significance of the teacher. Thus, administrators create good schools and good teachers create good classrooms” (p. 1). This indicates that any procedures set in place by principals should be focused on support to enhance teachers’ knowledge and performance and to develop their classroom management. Principal preparation programs are observed by researchers to be highly useful in influencing and enhancing overall school performance by enabling building a team of qualified teachers. Principals have immense influence over the performance of their schools, and it is widely observed by researchers that they play a crucial role in hiring, developing, and

retaining highly effective teaching staff (Fuller et al., 2010). According to a study carried out by the Centre for Teaching Quality, it was observed that principals help in creating a positive learning environment which, in turn, motivates the staff to perform better irrespective of the students' academic level of achievements or demographics.

For effective leadership, the role of the principal should focus on the following for structure and satisfying the school's vision. Principals are required to have a well-defined vision for their schools (Manasse, 1985; Zmuda et al., 2004). Principals should concentrate on the degree of excellence of instruction in their schools (Marzano et al., 2005; Portin et al., 2003). Principals should ensure that teachers and students meet the schools' goals (Leithwood & Riehl, 2003). Principals need to concentrate on school improvement for effective schools (Manasse, 1985). Principals should transfer to teachers and students that knowledge is the greatest significant task (Cotton, 2003; Marzano et al., 2005).

According to Sebastian and Allensworth (2012), "Strong leadership practices are intended to affect school processes that mediate the effects of leadership on student achievement" (p. 628). Those processes can be generally classified into five scopes. In their research on Chicago school improvement, Bryk et al. (2009) indicated that improving elementary schools requires five essential supports. The essential supports are "coherent instructional guidance system, professional capacity, strong parent-community-school ties, student-centered learning climate, and leadership drive change" (Bryk et al., 2009, p. 24).

Professional aptitude of the faculty contains the "combination of skills, beliefs, dispositions, and work arrangements of teachers at the school" (Bryk et al., 2009, p. 54). Through efficient, professional development programs, school leaders support teacher learning, teaching, and the capacity to work together to develop instruction. This support will help leaders

recruit and retain proficient faculty. Additional principal actions like feedback, professional development, and modeling critical thinking are also critical supports for teachers.

The initiation of technology has immensely transformed the educational climate. Large-scale innovations continue to redefine and replace the old and conventional modes of teaching and learning, replacing them with newer and better ones. Such rapid changes within the external environment place constant pressure on educational institutions to change and adapt to the learning requirements of the students and tend to disrupt the existing patterns of teaching as well as academic expectations for the students (Dimmock, 1995; Stringer & Hourani, 2015; Zhu & Engels, 2013). Studies carried out over the years have emphasized the various challenges and obstacles faced by schools in adapting to the changes and living up to the learning expectations and needs of the pupils. Effective school leadership that aims at developing and implementing newer programs to address such changes is known to contribute to improving teaching and learning for the students (Geijsel et al., 2001). Collaborative teaching, participative management, and open communication are the key drivers of effective school management, which, in turn, lead to improved learning results for the pupils (Cameron, 2005; Geijsel et al., 2001; Hayes, 1996; Mitchell & Sackney, 2016; Quicke, 2000).

The Superintendency

The position of superintendent is the most powerful within public school systems (Glass, C.S, 2001). The district leadership of the superintendent, in conjunction with the influence of the school board, influences both principal and teacher effectiveness as reflected in student performance. According to Houston and Eadie (2002), “The superintendents who in our experience are most effective . . . function as full-fledged, contemporary CEOs, seeing themselves more fully as leaders, not just chief administrators” (pp. 19-20). A main obligation of

the superintendent includes communicating with the school board and with individual board participants (Lashway, 2002). According to Cuban (1998),

> Superintendents have always been hired to administer districts. Both managing and leading are core responsibilities expected from superintendents, even though they produce friction. Managing, for example, means keeping the organization working smoothly and efficiently toward its goals. Stability is the password. Reducing conflict is highly prized. Leading, on the other hand, means seeking changes, taking risks, and accepting conflict as a natural condition in the district. (p. 45)

Björk et al. (2014) explained the superintendent as a district-level CEO as well as a daily manager. The superintendent is in charge of ensuring that legislated instructions, policies, and rules are applied correctly and satisfactorily; they provide supervision and help to local schools. Björk et al. (2014) stated:

> Local school districts exist at the pleasure of the state, which has complete control of its boundaries, jurisdiction, funding and defining powers of the board of education. Local school boards are elected, and members hold staggered terms to ensure continuity of decisions over time. (p. 7)

In the 21st century, superintendents should recognize the demands that are placed on them and their leadership for efficient schools and pupil accomplishment by acknowledging that they should apply and encourage essential modification that influences each side of schools in the school structure, systemic modification (Holzman, 1993). Also, as the chief school administrator, the superintendent is considered the responsible entity for the effective and proficient job of the school district (Lashway, 2002).

Marzano and Waters (2009) conducted a sophisticated meta-analysis study, which included nearly 40 years of research and study findings. This study intended to identify the characteristics of effective schools, leaders, and teachers. They analyzed findings from 27 studies, including 2,817 schools and 3.4 million students. Marzano and Waters (2009) observed the association between district-level leadership in executing educational improvement, concluding the following:

> Of the twenty-seven reports examined in the meta-analysis, fourteen contained information about the relationship between overall district-level leadership and average student academic achievement in the district. These fourteen reports included data from 1,210 districts. The computed correlation between district leadership and student achievement was .24 and was statistically significant at the .05 level. (p. 4)

Marzano and Waters (2009) identified six main superintendent responsibilities and practices that had a statistically considerable influence on student attainment, shown in Table 2.

Table 2

Superintendent's Responsibilities

Responsibilities	Practices
Goal setting process	The superintendent involves board members and principals in the process of setting goals.
Non-negotiable goals for achievement and instruction	Goals for student achievement and instructional programs are adopted and are based on relevant research.
Board alignment with and support of district goals	Board support for district goals for achievement and instruction is maintained.

Table 2 Continued

Responsibilities	Practices
Monitoring goals for achievement and instruction	The superintendent monitors and evaluates implementation of the district instructional program, impact of instruction on achievement, and impact of implementation on implementers
Use of resources to support the goals for achievement and instruction	Resources are dedicated and used for professional development of teachers and principals to achieve district goals.
Defined autonomy; superintendent relationship with schools	The superintendent provides autonomy to principals to lead their schools but expects alignment on district goals and use of resources for professional development.

The first five of these responsibilities link to educational goals, and the last one explains autonomy. According to Lashway (2002), "Goals do not require superintendents to immerse themselves in the details of instructional planning and execution, but they must be knowledgeable enough to hold principals and teachers accountable for effective practice" (p. 3). Also, Petersen (2002) stated, "The critical importance of the superintendent's individual actions and modelling of academically oriented goals helps maintain the district's ability to focus on the academic achievement of students" (p. 166).

The superintendent's leadership has the ability to build or break school cultures, climates, beliefs, standards, and stakeholder enthusiasm, and attitudes rely on their leadership style; furthermore, the superintendent is responsible for developing leadership practices in effectiveness for principals and teachers. There is a direct connection between instructional (i.e., teacher) leadership efficiency and student outcomes. Additionally, the efficiency of district-level leadership and school-level leadership is also directly tied to student learning outcomes (Hardy, 1999; Liu & Meyer, 2005; Wentworth, 1990).

Chapter Summary

Chapter 2 summarized the literature related to the study. The literature review presented research in three sections and laid the foundational framework for state of mindset, principal effectiveness, and teacher effectiveness. The review in this section assisted to contextualize and place the basis for the research questions and the hypothesis examined in this study. Research recommends that the most important aspect in cumulative student achievement is teacher effectiveness (Owings et al., 2006; Rutledge et al., 2010). Teachers hold a mixture of implicit beliefs, "and these beliefs affect perception, interpretation, and judgments and action teachers make every day" (Clark, 1988, p. 7). As Evans (1998) wisely noted:

> The most strikingly common factor to emerge as influential on teachers' morale, job satisfaction and motivation is school leadership. Whether it was the extent to which it enabled or constrained teachers, created and fostered school professional climates that were compatible with teachers' ideals, or engaged their commitment and enthusiasm, the leadership affected by their head teachers was clearly a key determinant of how teachers felt about their jobs. (p. 118)

The aim of this literature review was to deliver support for and a basis for the current study in creating the relationship between mindset and leadership effectiveness, teacher's satisfaction and effectiveness.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

This chapter introduces the research methodology used for this quantitative study to understand the relationships among elements of a culture of mindset and how they impact teacher and principal effectiveness in Indiana elementary schools. It is expected that this study will supply principals and teachers with tools and insights that inspire good practices and stronger relationships. With the existence of research supporting leadership effectiveness, teacher effectiveness, the mindset elements of school culture, and self-efficacy, additional research into their impact on the overall mindset in an Indiana elementary school should guide professional development and self-opportunities for school principals and teachers. It is further intended to build an environment that improves student outcomes as reflected in teacher and principal effectiveness.

This chapter illustrates an in-depth research methodology for this study. It addresses the basic constructs of the study, including the study populations and sample as well as the instrument used to collect data. Also, the chapter research questions, null hypotheses, sample population, instrumentation, data collection processes, and the method used for statistical analysis are discussed.

Design

Quantitative research was applied and explained by Fraenkel et al. (2012). Fraenkel et al. defined it as "research in which the investigator attempts to clarify phenomena through carefully designed and controlled data collection and analysis" (pp. 6-7). According to Creswell (2003),

> A quantitative approach is one in which the investigator primarily uses postpositivist claims for developing knowledge (i.e., cause and effect thinking, reduction to specific variables and hypotheses and questions, use of measurement and observation, and the test of theories), employs strategies of inquiry such as experiments and surveys, and collects data on predetermined instruments that yield statistical data. (p. 18)

As defined by Creswell (2003), a quantitative method is suitable when a researcher tries to find relationships between variables. A quantitative method is appropriate for the study because it addresses the research problem in very particular and fixed terms (Cooper & Schindler, 1997). "Quantitative researchers seek explanations and predictions that will generate to other persons and places. The intent is to establish, confirm, or validate relationships and to develop generalizations that contribute to theory" (Leedy & Ormrod, 2001, p. 102). Because of this, a quantitative research method is the most appropriate choice for this study.

Creswell (2007) recommended the cross-sectional survey as the "preferred type of data collection procedure" (p. 155) for competence in design, the economy of the design, and acceleration of turnaround in data collection. Creswell (2007) stated, "A survey design provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population. From sample results, the researcher generalizes or draws inferences to the population" (pp. 155-156). According to Ary et al. (2010), "The survey permits you to

gather information from a large sample of people relatively quickly and inexpensively" (p. 378). This quantitative study utilized an electronic survey data gathering technique to address the research questions and deliver questionnaires.

A cross-sectional, web-based survey methodology was utilized for the purposes of this study. Fraenkel et al. (2012) defined a cross-sectional survey as a survey that gathers information from a sample of predetermined participants. Furthermore, Ary et al. (2010) stated, "A cross-sectional survey is the method of choice if you want to gather the data at one point in time" (p. 377). Fraenkel et al. (2012) clarified web-based survey advantages when they stated, "Other advantages of Internet-based surveys include greater convenience, lower costs, faster turnaround, multimedia interface, mobile administration, and reduced data entry. Disadvantages can include lower response rates and erroneous data entry due to speedy responding facilitated by computers" (p. 397). Ary et al. stated:

> Another important benefit is in the processing of survey data. Web-based surveys can significantly reduce the amount of time and effort and the costs associated in compiling the data into a system for analysis. Furthermore, because they are available 24 hours a day, respondents can reply when and where they choose. (p. 385)

For the purpose of this quantitative study, an electronic survey methodology was utilized, using a web-based program called Qualtrics. The survey was sent via e-mail through a Qualtrics account to a selected sample from a specific population with one electronic follow-up reminder to maximize response rates. A participation invitation to take part in the survey was electronically delivered to all public elementary school principals and teachers serving Grades 6 through 12 in the State of Indiana.

Research Questions

A set of research questions was specifically developed for this study. The questions correspond to the methodology and are the basis for the null hypotheses. The questions are as follows:

RQ1: Does growth mindset on the part of teachers and principals predict a significant amount of variance in principal effectiveness?

RQ2: Is there a significant difference between principal and teacher growth mindset?

RQ3: Is there a significant difference between principal and teacher effectiveness?

RQ4: Is there a significant difference between years of teacher experience and growth mindset?

RQ5: Is there a significant difference between years of principal experience and growth mindset?

RQ6: Is there a significant difference between years of teacher experience and teacher effectiveness?

RQ7: Is there a significant difference between years of principal experience and principal effectiveness?

Null Hypotheses

In this study, the following set of null hypotheses involved were developed for inferential testing to be conducted:

$H_0$1: Growth mindset on the part of teachers and principals does not predict a significant amount of variance in principal effectiveness.

$H_0$2: There is no significant difference between principal and teacher growth mindset.

$H_0$3: There is no significant difference between principal and teacher effectiveness.

$H_0$4: There is no significant difference between years of principal experience and growth mindset.

$H_0$5: There is no significant difference between years of teacher experience and growth mindset.

$H_0$6: There is no significant difference between years of teacher experience and effectiveness.

$H_0$7: There is no significant difference between years of principal experience and effectiveness.

Recruitment of Participants

Indiana public school principals were invited to participate in this study. E-mail addresses were obtained from the IDOE's Public Records Department and used to contact the population sample (Appendix A). Invited principals received an e-mail invitation outlining the purpose of the research, university affiliation, methodology, potential for risk or non-risk for participation, an explanation of informed consent, and my contact information, as well as that of my faculty sponsor (Appendix B). One week into the data collection period, a follow-up e-mail was sent thanking those who had participated and reminding others of the deadline for participation (Appendix C). Following the closing of the data collection period, a thank-you e-mail was sent (Appendix D).

Data Collection Process

In this study, data collection was compiled from the results yielded from the survey instrument and analyzed to discover if the results are statistically significant. Survey data was obtained using the Qualtrics format, which is a web-based program. The identification of potential participants was achieved using a single-state sampling method of all current Indiana

elementary public school principals and teachers identified by the IDOE after receiving approval from the Indiana State University Institutional Review Board (IRB).

The survey was distributed via e-mail to all subjects in the study population. Participants were able to answer the questions and submit responses online. The period of data collection began when the participants received the survey e-mail and closed two weeks after that time. To reach the optimum return rate, a reminder wassent one week following the initial correspondence. The follow-up e-mail served as a polite request for participation and a thank you to participants who had already completed. No monetary incentives were offered for participation in the survey. Participants were notified of the voluntary nature of their participation. Survey data were collected through the Qualtrics administration platform and analyzed using the statistical program, Statistical Package for the Social Sciences (SPSS), version 20. Each e-mail contained the following information: (a) an introduction of the study's purpose, its potential usefulness, and the importance of the data for improving school achievement; (b) a request for cooperation by explaining how respondent cooperation is important to conduct this study; (c) contact information for both my faculty sponsor and the researcher; (d) limited time for return and the average time to complete the survey, confidentiality assured; explained how the protection is provided by assuring that respondent names will never be associated to any answer on the questionnaire and the e-mail will be discarded; (e) appreciation for respondents' cooperation.

Instrumentation

The survey instrument consisted of three parts consisting of 33 items overall (Appendix E). Section I asked for demographic data about the respondents in questions 1 through 6. Age was assessed as a continuous variable. Gender is a dichotomous variable with 0 for females and

1 for males. Also, position, years of service, and primary motivation for remaining in the profession of education are variables. Section II contains questions 7 through 14, which focus on mindset. These questions are derived and adapted from different aspects of the Implicit Theories of Intelligence Survey (ITIS) developed by Dweck (1999). The questions are intended to assess the impact of the school mindset environment and how it may be influencing the motivation and success of both teachers and principals (Blackwell et al., 2007). In addition to the measures from Dweck et al. (1995a), the participants were given additional items designed to measure perceptions of ability at work, effort at work, job satisfaction, delivery of instruction, focus at work, and attitudes toward the workplace. Subjects responded to these items using the same scale used by Dweck et al. Items are intended to discover whether respondents endorse a fixed or growth mindset. The items identified whether respondents possess an inclination toward a fixed or growth mindset. Section III contains questions 15 through 33 addressing educator effectiveness based on the Stronge Teacher Effectiveness Performance Evaluation System (Stronge and Associates, 2015); also, the Teacher Activity Survey, used by Garet et al. (1999); overall job satisfaction taken from Brayfield and Rothe (1951); and the Teacher Effectiveness Scale developed by Kumar and Mutha (1974). The original instrument contained 69 items, including academic, professional, social, emotional, moral, and personality areas. The reliability of the Teacher Effectiveness Scale was 0.82. The face validity of the measures is fairly high. The Teacher Activity Survey used by Garet et al. (1999), as part of their national evaluation of the Eisenhower Professional Development Program, contained survey questions addressing self-reports of teacher experiences and behavior. The Teacher Activity Survey delivered results on the extent to which Garet et al. investigated professional development structures that were present in professional learning community accomplishments and the overall association

between professional development characteristics and teaching outcomes. In addition, questions were created from the review of literature and the five pivotal practices that shape instructional leadership identified by Mendels (2012). Overall job satisfaction was measured using five items taken from Brayfield and Rothe (1951). Many studies indicated that the scale reliability is high. Judge et al. (1998) used this scale, and the reliability of the five-item scale was 0.88. I structured the survey data by the variables of interest and derive inferential statistics using simple linear regression, *t*-test, and ANOVA to answer the research questions.

The participants for this study comprised all public elementary school principals and teachers in the State of Indiana Grades K-6. The single-stage sampling was derived from the Indiana K-12 public school teacher and principals' database, maintained by the Indiana Department of Education (IDOE), with the elimination of charter and private K-12 Indiana teachers and principals, to guarantee that all principals and teachers are working in the framework of the IDOE's rules, regulations, and expectations. All 1,925 public elementary representing 407 school districts will be invited to participate in this study.

Survey Validity

According to Price (1997), "Validity is the degree to which a measure captures the concept it is designed to measure" (p. 307). Creswell (2014) shared three forms of validity to look for in a survey instrument:

> (a) Content validity (Do the items measure the content they were intended to measure?), (b) predictive or concurrent validity (Do scores predict criterion measure? Do results correlate with other results?), and (c) construct validity (Do items measure hypothetical constructs or concepts?). (p. 160)

In order to determine survey instrument content validity, the survey was evaluated by a group of students enrolled in an Indiana State University Educational Leadership Ph.D. Cohort group. The group was asked the following questions:

- Are the instructions clear and easy to understand?
- How long did the survey take to complete?
- Did the questions make sense?
- Do you have any suggestions for improvement?

Based on the feedback received, changes were made to the survey in accordance with the cohort's suggestions. The survey was reviewed on March 12, 2019. Changes were made after the first round of feedback and were resubmitted to the group for a final review on April 7, 2019. The survey was reviewed again by the students enrolled in an Educational Leadership Ph.D. cohort to support content validity. After the data is collected, a Pearson Product Moment Correlation (PPMC) will be utilized to analyze construct and predictive validity. Before the PPMC is utilized, I will ensure the four basic statistical assumptions are met. Fraenkel et al. (2012) described the PPMC as follows:

> When variables are correlated, a correlation coefficient is produced. This coefficient will be a decimal, somewhere between 0.00 and +1.00 or –1.00. The closer the coefficient is to +1.00 or –1.00, the stronger the relation. If the sign is positive, the relationship is positive, indicating that high scores on one variable tend to go with high scores on the other variable. If the sign is negative, the relationship is negative, indicating that high scores on one variable tend to go with low scores on the other variable. Coefficients that are at or near .00 indicated that no relationship exists between the variables involved. (p. 340)

According to Price (1997), criterion-related validity is

> the degree of correspondence between the measure and some other accepted measure, the criterion. One form of this is called concurrent validity, where the criterion and the measure are assessed at the same point in time. Another form is predictive validity, where the measure is expected to be highly related to some future event or behavior, the criterion. Criterion-related validity is not often assessed in organizational research. (p. 307)

The high validity and reliability of the scale have been established in many studies across various research contexts and ethnically diverse populations (Dweck 1999, 2000; Luszczynska et al., 2005).

Survey Reliability

According to Price (1997), reliability is the extent to which a measure produces the same results when used repeatedly. *Consistency* is often used as a synonym for reliability. Creswell (2014) suggested looking "for whether authors report measure of internal consistency (Are the items' responses consistent across constructs?), and test-retest correlations (Are scores stable over time when the instrument is administered a second time?)" (p. 160) as a measure of reliability. In other words, reliability is the consistency of survey responses over time. This study ensured reliability as measured by Cronbach's alpha. Tavakol and Dennick (2011) defined Cronbach's alpha as follows:

> Alpha was developed by Lee Cronbach in 1951, to provide a measure of the internal consistency of a test or scale; it is expressed as a number between 0 and 1. Internal consistency describes the extent to which all the items in a test measure the same concept or construct and hence it is connected to the inter-relatedness of the items within the test.

> Internal consistency should be determined before a test can be employed for research or examination purposes to ensure validity. In addition, reliability estimates show the amount of measurement error in a test. Put simply, this interpretation of reliability is the correlation of test with itself. Squaring this correlation and subtracting from 1.00 produces the index of measurement error. (p. 53)

Higher values of alpha are better, and a reliability of 0.70 or higher is the most desirable (Spector, 1992).

Study Variables

Creswell (2014) defined a variable as a "characteristic or attribute of an individual or an organization that can be measured or observed and that varies among the people or organization being studied" (p. 52). Creswell (2014) stated, "The variables need to be specified . . . so that it is clear to readers" (p. 169). Fraenkel et al. (2012) defined independent variables as "those that the researcher chooses to study in order to assess their possible effect(s) on one or more other variables" (p. 80). Fraenkel et al. defined a dependent variable as "the variable that the independent variable is presumed to affect" (p. 80). The independent variables for ANOVA in this study are years of experience, teacher and principal responses to effectiveness, and teacher and principal responses to mindset. Dependent variables in the study are effectiveness and mindset.

In the linear regression test, the teacher and principal responses to survey questions for mindset are the predictor variables, and effectiveness questions are the criterion variables. Using statistical tools, such as linear regression and ANOVA, I examined the relationships between teacher and principal effectiveness and mindset levels.

Data Analysis

Simple linear regression was used for question one. Data showed the relationship between growth mindset and principal effectiveness with a regression line drawn through the data points. The regression line defined a precise, one-to-one relationship between each *x* value (growth mindset) and its corresponding *y* value (effectiveness).

The goal of this question was to identify and define the straight line that provides the *best fit* for a specific set of data. According to Gravetter and Wallnau (2013):

> Because a straight line can be extremely useful for describing a relationship between two variables, a statistical technique has been developed that provides a standardized method for determining the best-fitting straight line for any set of data. The statistical procedure is regression, and the resulting straight line is called the regression line. (p. 561).

Therefore, "the statistical technique for finding the best-fitting straight line for a set of data is called regression, and the resulting straight line is called the regression line" (Gravetter & Wallnau, 2013, p. 561). According to Brace et al. (2012):

> Regression is a statistical technique that allows us to predict someone's score on one variable on basis of their scores on one or more other variables. It involves one dependent variable, which we term the criterion variable, and one or more independent variables, which we refer to as the predictor variables. (p. 255)

The simplest linear model involves only one independent variable and states that the true mean of the dependent variable changes at a constant rate as the value of the independent variable increases or decreases. Thus, the functional relationship between the true mean of Y_i, denoted by $\mathcal{E}(Y_i)$, and X_i is the equation of a straight line: $\mathcal{E}(Y_i) =$ = β_0 + $\beta_1 X_i$. β_0 is the

intercept, the value of $\mathcal{E}(Y_i) =$ when X = 0, and β_1 is the slope of the line, the rate of change in $\mathcal{E}(Y_i) =$ per unit change in X (Rawlings et al., 2006, p. 2). Where Y is the dependent variable, independent variables X, the mean of the dependent variable $\mathcal{E}(X)$. β_0 is the intercept, the value of $\mathcal{E}(Y_i)$ when X = 0, and β_1 is the slope of the line, the rate of change in $\mathcal{E}(Y_i)$ per unit change in X (Brace et al. (2012).

To study the research question, a linear regression was conducted to examine whether or not growth mindset (predictor variable) predicts principal effectiveness (criterion variable). A linear regression is a suitable analysis when the aim of research is to measure the degree of an association between a dichotomous or interval/ratio predictor variable on an interval/ratio criterion variable. In this study, the predictor variable is growth mindset, and the criterion variable(s) is principal effectiveness. The following regression equation was used: y = b1*x + c; where y = estimated principal effectiveness, c = constant, b = regression coefficient, and x = growth mindset. The F-test was used to assess whether the independent variable predicts the dependent variable. R-squared was reported and used to determine how much variance in the dependent variable can be accounted for by the independent variable. The t-test was used to determine the significance of the predictor, and beta coefficients was used to determine the magnitude and direction of the relationship. For statistically significant models, for every one unit increase in the predictor, the dependent variable will increase or decrease by the number of unstandardized beta coefficients. The assumptions of a linear regression—linearity and homoscedasticity—was assessed. Linearity assumes a straight-line relationship between the predictor variables and the criterion variable, and homoscedasticity assumes that scores are

normally distributed about the regression line. Linearity and homoscedasticity was assessed by examination of scatter plots (Statistics Solutions, 2013).

The independent samples t-test was used for questions two and three. Gravetter and Wallnau (2013) stated:

> The independent-measures t statistic uses the data from two separate samples to help decide whether there is a significant mean difference between two populations or between two treatment conditions . . . The goal of an independent-measures research study is to evaluate the mean difference between two populations. (p. 325)

Brace et al. (2012) indicated that an independent samples t-test makes clear assumptions about data. "They are measured at interval or ratio level, meets the assumption of homogeneity of variance, and are drawn from a population that has a normal distribution" (p. 19). The null hypothesis for the independent t-test is that the population means from the two unrelated groups are equal. The independent-measures t statistic

> emphasizes the fact that the design involves separate and independent samples and makes a comparison between two groups of individuals. The research study uses two separate samples to represent the two different populations (or two different treatments) being compared. Using subscripts to differentiate the two populations, the mean for the first population is μ_1, and the second population mean is μ_2. The difference between means is simply $\mu_1 - \mu_2$. As always, the null hypothesis states that there is no change, no effect. (Gravetter & Wallnau, 2013, p. 317).

For the independent-measures t-test, I used sample mean differences, μ_1 and μ_2, to estimate the population mean difference, $\mu_1 - \mu_2$. The confidence interval estimates the size of the population mean difference between the two populations or treatment conditions (Gravetter &

Wallnau, 2013, p. 330). Also, in the independent-measures t-test, I ensured the two populations from which the samples were selected have same variances; this assumption is mentioned as homogeneity of variance. When a hypothesis test with an independent t statistic finds a significant difference, there is no difference between the two population means. I computed a measure of the effect size, which was Cohen's d, as a standardized measure of the mean difference. The t-test dependent variables in this study are teachers' mindset and principals' mindset.

A one-way ANOVA was used for questions four and five. The statistical method for comparing the means of numerous populations is called analysis of variance, or ANOVA. "One-way ANOVA examines equality of population means for a quantitative outcome and a single categorical explanatory variable with any number of levels" (Seltman, 2013, p. 171). According to Gravetter and Wallnau (2013):

> Analysis of variance (ANOVA) is a statistical technique that is used to test the significance of mean differences among two or more treatment conditions. The null hypothesis for this test states that, in the general population, there are no mean differences among the treatments. The alternative states that at least one mean is different from another. The test statistic for ANOVA is a ratio of two variances called an F-ratio. The variances in the F-ratio are called mean squares, or MS values. (p. 381)

The one-way ANOVA test allows us to simultaneously examine the effect of two independent variables and to investigate how the independent variables combine to affect the dependent variable (Brace et al., 2012). "In ANOVA, the variable (independent or quasi-independent) that designates the groups being compared is called a factor. The individual conditions or values that make up a factor are called the levels of the factor" (Gravetter & Wallnau, 2013, p. 388).

Moreover, “The term one-way, also called one-factor, indicates that there is a single explanatory variable (“treatment”) with two or more levels, and only one level of treatment is applied at any time for a given subject” (Heiberger & Neuwirth, 2009, p. 171).

> When employing ANOVA, begin by checking that the dependent variable comprise data measured at interval or ratio level. Second, the data are drawn from population, which is normally distributed. Third, there is homogeneity of variance that the samples being compared are drawn from a population, which has the same variance. Finally, independent random samples must have been taken from each population. (Brace et al., 2012, p. 192)

Chapter Summary

The information encompassed within Chapter 3 presents in detail a comprehensive illustration of the methodology and procedures utilized to carry out this study. For future replication of the present study, the elucidated procedure for methodology is demonstrated**.** Chapter 3 provided the method of design, research questions, null hypotheses, and population sample size. Additionally, recruitment, data collection, instrumentation, and the efforts taken to ensure validity and reliability of the instrument were presented. Finally, study variables and the data analysis were described. This quantitative study provided a guide to a better understanding of the relationship between principal and teacher effectiveness and the implications for principal and teacher mindset.

CHAPTER FOUR

DATA ANALYSIS & FINDINGS

Introduction

This chapter describes the analysis conducted using SPSS software and displays the empirical results to examine the hypotheses of this research. This chapter comprises eleven major sub-sections. Following this first introduction section, the second section introduces the list of variables and their related questions in the questionnaire. The third section represents the research hypotheses and the relationships between the variables. The fourth section presents the data screening of the variables. This section explains the procedures used to purify the data through replacing missing values, removing univariate outliers, and testing normality of data distribution. The fifth section conducts exploratory factor analysis (EFA) to examine the stability of the factor loadings of the items of Mindset and Effectiveness. The sixth section provides a general explanation of the survey respondents and sample profile. The seventh section presents the descriptive results of the variables. The eighth section conducts single linear regression with an ANOVA table to examine the research hypothesis and evaluate the direct effects of Mindset as an independent variable on Effectiveness as the dependent variable. The ninth section conducts an independent sample t-test to examine mean difference of Mindset and Effectiveness between the teacher and principal. The tenth section conducts a One-Way/Welch ANOVA to examine mean difference of Mindset and Effectiveness between the groups of teacher and

principal years of experience. The eleventh section provides a summary of the analysis results and achievement.

List of Variables

Table 3 represents the list of hypothesized variables in this study with their relative questions in the questionnaire survey.

Table 3

List of Hypothesized Variables

Construct / Variable	Item No.	Questions	Scale
School Position	1	Q3	Dichotomous 1= Teacher 2= Principal
Experience	1	Q4	Ordinal Categorized 1 = Less than 10 years 2= 10 – 20 years 3= 20 – 30 years 4 = 30 – 40 years 5 = More than 40 years
Mindset (M)	13	Q8 – Q20	7-Point Likert Scale 1 = Strongly Disagree 2= Disagree 3= Somewhat Disagree 4 = Neutral 5= Somewhat Agree 6= Agree 7 = Strongly Agree
Effectiveness (E)	16	Q21 – Q35	7-Point Likert Scale 1 = Strongly Disagree 2= Disagree 3= Somewhat Disagree 4 = Neutral 5= Somewhat Agree 6= Agree 7 = Strongly Agree

Research Hypotheses

In this chapter, the educator used alternative hypotheses as an opposing theory in relation to the null hypotheses developed in the methodology chapter because the educator could gather enough data and evidence to support the majority of the alternative hypotheses. In other words, we assumed there should be a significant relationship between Mindset and Effectiveness as well as a significant difference in the mean values of Mindset and Effectiveness between the groups of school position and years of experience. The codes and description of the research hypotheses and their links with the research questions and applied statistical tests are represented in Table 4.

Table 4

List of Research Questions, Hypotheses & Related Statistical Test

Research Question	Research Hypothesis	Statistical Test
RQ1) Does mindset on the part of teachers and principals predict a significant amount of variance in effectiveness?	H1) Mindset has significant positive effect on effectiveness	Single Linear Regression
RQ2) Is there a significant difference between principal and teacher regarding mindset?	H2) There is a significant difference in the mean value of mindset between principal and teacher	Independent Sample T-test
RQ3) Is there a significant difference between principal and teacher regarding effectiveness?	H3) There is a significant difference in the mean value of effectiveness between principal and teacher	Independent Sample T-test
RQ4) Is there a significant difference between years of teacher experience and mindset?	H4) There is a significant difference in the mean value of mindset between years of teacher experience	One Way ANOVA
RQ5) Is there a significant difference between years of principal experience and mindset?	H5) There is a significant difference in the mean value of mindset between years of principal experience	One Way ANOVA

Research Question	Research Hypothesis	Statistical Test
RQ6) Is there a significant difference between years of teacher experience and effectiveness?	H4) There is a significant difference in the mean value of effectiveness between years of teacher experience	One Way ANOVA
RQ7) Is there a significant difference between years of principal experience and effectiveness?	H5) There is a significant difference in the mean value of effectiveness between years of principal experience	One Way ANOVA

Data Screening

Before the data analysis was conducted, it was essential to consider the accuracy of the data entered into the data file as well as the output that would produce non-distorted correlations (Tabachnick & Fidell, 2007). This section will discuss the necessary data screening procedures prior to data analysis, which are the detection and replacement of missing data, detection and removal of outliers, and the confirmation that the data distribution of the items are normal.

Replacing Missing Values

Missing data occurs when there is no information for one or more cases in relation to a variable. Little and Schluchter (1985) stressed that missing data up to 5% might not cause any serious problems in the interpretation of the findings. The screening of the data indicates that the amount of missing data for all variables was zero, below the threshold of 5% as recommended by Little and Schluchter. Thus, no replacement was needed for the variables.

Removing Outliers

The treatment of outliers is an imperative step in the data screening method. Outliers refer to observations with a unique combination of characteristics identifiable as distinctly different from the other observations (Hair et al., 1998). Checking for outliers is important as they could affect the normality of the data, which could then distort the statistical results (Hair et

al., 1998; Tabachnick & Fidell, 2007). For outlier detection, besides examining histograms and box plots, each variable was examined for the standardized (z) score. According to Hair et al. (1998), for small sample sizes, Absolute (z) > 3 is evidence of an extreme observation. Therefore, any Z-score greater than 3 or less than -3 is considered to be an outlier. The standardized (z) scores of the variables are summarized in Table 5.

Table 5

Result of Univariate Outlier Based on Standardized values

Variable	Initial Standardized value (Z-Score)	
	Lower Bound	Upper Bound
School Position	-.620	1.604
Experience	-1.098	2.679
M1	-2.174	1.087
M2	-2.073	1.372
M3	-1.847	1.834
M4	-2.181	1.346
M5	-2.019	1.687
M6	-2.164	1.262
M7	-2.164	1.121
M8	-1.988	2.156
M9	-1.179	2.695
M10	-2.055	1.185
M11	-1.915	2.054
M12	-1.293	1.096
M13	-2.184	1.092
E1	-2.218	1.363
E2	-2.141	1.258
E3	-2.231	1.129
E4	-1.993	1.519
E5	-1.897	1.787
E6	-2.214	1.433

Variable	Initial Standardized value (Z-Score)	
	Lower Bound	Upper Bound
E7	-1.947	.939
E8	-2.002	1.488
E9	-2.007	1.546
E10	-1.859	1.827
E11	-2.169	1.635
E12	-2.154	1.725
E13	-1.140	1.349
E14	-1.977	2.106
E15	-2.713	.930
E16	-1.753	2.276

N = 190

As shown in Table 5, the results indicated that the standardized (z) scores of the cases for all the variables ranged from -2.713 thru 2.695, indicating that none of the variables exceeded the threshold of ±3. Thus, there are no outliers among the 190 cases.

Assessment of the Data Normality

The normality test was conducted using the Kolmorove-Smirnov (K.S.) test to determine whether the data set of the variables was well-modeled by a normal distribution or not. Normality is the main assumption of parametric tests. The K.S. p-value above the standard significant level of 0.05 represents a normal distribution of the data. Field (2009) suggested that in the condition of a violation of the assumption of normality due to a significant K.S. p-value, it would be sufficient to inspect the value of the skewness and kurtosis and virtually observe the shape of the distribution. For this reason, in the present study, skewness and kurtosis were employed to assess normality of the data. Skewness values reflect the symmetry of the distribution score, and a skewed variable means that the score is not at the center of the

distribution. Kurtosis, however, gives information about the *peakness* of the distribution, which can be either too peaked (i.e., with short and thick tail) or too flat (i.e., with long and thin tail) (Tabachnick & Fidell, 2007). As a rule of thumb, the data may be assumed to be normally distributed if skew and kurtosis are within the range of -1 to +1, -2 to +2, or even 3 (Schumacker & Lomax, 2010). Byrne (2013) suggested using a cut-off point of less than 7 as an acceptable value for the kurtosis. She added that the data which are skewed within the range of -2 to +2 could be considered as being normally distributed. Table demonstrates the results of normality test for the variables.

Table 6

Results of Normality Test

Variable	Kolmogorov-Smirnov		Skewness	Kurtosis
	Statistic	P-value	(≤±2)	(≤±7)
School Position	.454***	.000	.994	-1.024
Experience	.217***	.000	.452	-.714
Mindset (M)	.301***	.000	-1.146	.124
Effectiveness (E)	.193***	.000	-.805	-.284
M1	.312***	.000	-1.143	-.034
M2	.225***	.000	-.819	-.317
M3	.155***	.000	-.173	-.695
M4	.257***	.000	-.881	-.204
M5	.15***	.000	-.224	-.668
M6	.211***	.000	-.743	-.381
M7	.227***	.000	-.924	-.244
M8	249***	.000	-.537	-.259
M9	.256***	.000	.64	-.62
M10	.237***	.000	-.874	-.276
M11	.244***	.000	-.377	-.246
M12	.221***	.000	-.109	-1.741
M13	.247***	.000	-.945	-.16
E1	.257***	.000	-.845	-.267
E2	.202***	.000	-.78	-.398
E3	.177***	.000	-.725	-.388
E4	.162***	.000	-.419	-.745
E5	.189***	.000	-.071	-.557
E6	.191***	.000	-.622	-.331

Variable	Kolmogorov-Smirnov		Skewness	Kurtosis
	Statistic	P-value	(≤±2)	(≤±7)
E7	.221***	.000	-.66	-.964
E8	.238***	.000	-.576	-.768
E9	.167***	.000	-.403	-.558
E10	.146***	.000	-.125	-.683
E11	.201***	.000	-.564	-.456
E12	178***	.000	-.517	-.392
E13	.241***	.000	-.037	-1.761
E14	.163***	.000	-.158	-.698
E15	.313***	.000	-1.387	1.528
E16	.208***	.000	-.018	-.533

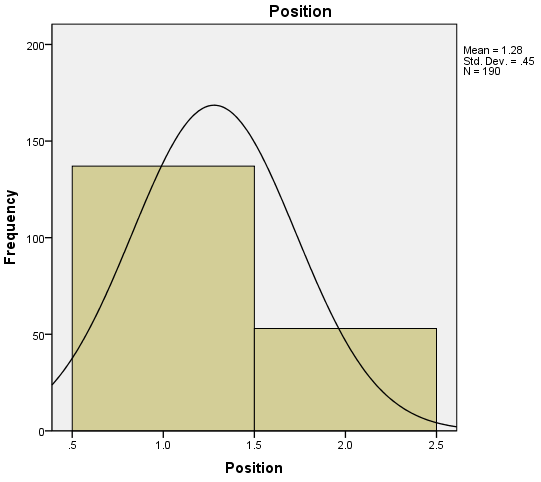
*$p <$ 0.05 , ** $p < 0.01$, *** $p < 0.001$

As shown in Table 6, the result of K.S. test of normality indicated that the data sets of all variables were not normally distributed because of having p-values less than the standard significance level of .05. Nevertheless, the results of assessing deviation from normality showed that the value of skewness for the variables ranged from -1.387 to 0.994, within the acceptable range of ±2. The results also indicated that the kurtosis value of the variables ranged from -1.741 to 1.528, within the acceptable range of ±7. Therefore, it can be concluded that the data set of all variables was well-modeled by a normal distribution (Byrne, 2013). Figure 3 shows the histogram and normal curve of the hypothesized variables.

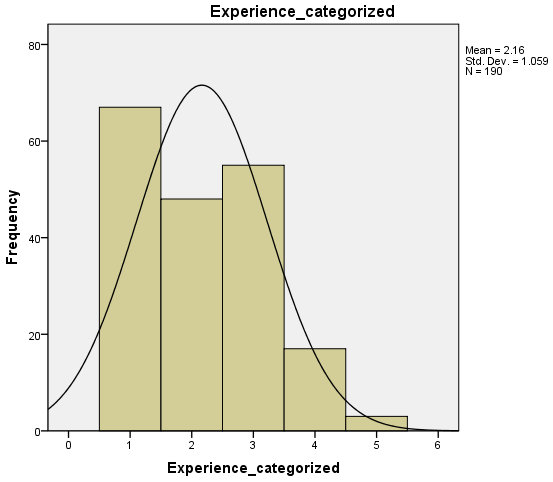
Figure 3

Histogram and Normal Curve of the Hypothesized Variables

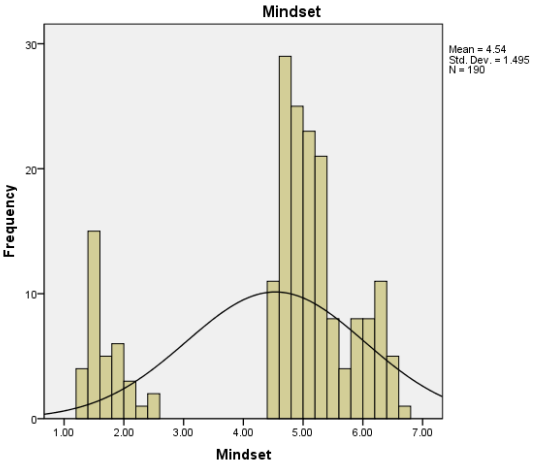
School Position Experience

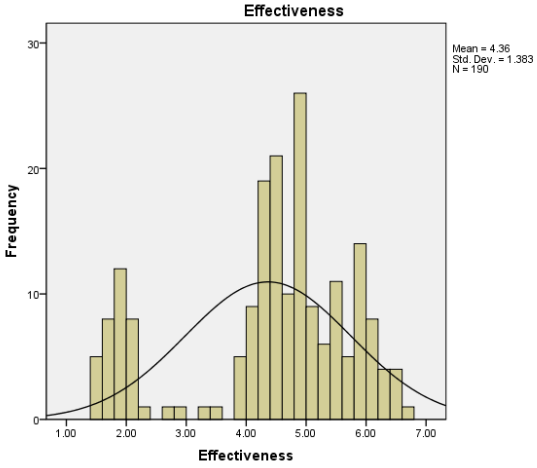


Mindset (M)



Effectiveness (E)





Exploratory Factor Analysis (EFA)

Exploratory factor analysis (EFA) serves the purpose of attaining data reduction, or preserving their original state and character, as well as removing items that had lower factor loadings and cross loadings (Hair et al., 2006). EFA was conducted in this study to examine the stability of the factor loadings of the items of Mindset and Effectiveness to ensure the factorial validity of the instruments employed in the study. The responses were examined using Principal-Components analysis as the extraction technique and Varimax as the orthogonal rotation method. To determine the suitability of the data for EFA, the value of Bartlett's test of sphericity (BTS) and

the results of the Kaiser-Meyer-Olkin (KMO) test to measure sampling adequacy were checked as the assumptions of EFA (Kaiser, 1974). The KMO tests whether the partial correlations among items are small. The KMO values must be greater than 0.60 (Blaikie, 2003). Bartlett's test of sphericity determines whether the correlation matrix is an identity matrix, which would indicate that the factor model is inappropriate; it is supposed to be significant at $p < 0.05$ to present the adequacy of the correlations among variables and thus provide a reasonable basis for factor analysis (Williams et al., 2010).

Moreover, Scree plots and Eigen values were examined to ensure that the factors number is mainly liable for the data variation (Tabachnick & Fidell, 2007). In the case of Eigen values, the Kaiser criterion value of 1.00 was the determining measure to decide on the number of factors. The variance, as illustrated by the factor result, was considered with an objective level of 60% and/or more of its entire variance. It has also been proved to be adequate for a factor resolve in the field of social sciences (Hair et al., 2006). Diekhoff (1992) considered 50% of the described total variance as its entry/verge.

Communality procedures were also applied as a component of the factor analysis. Communalities portray the quantity of the variance in the original variables that are considered by the factor solution. The factor solution is expected to describe half of each of the original variable's variance, at best; hence, the communality value for each of the variables should be at 0.50 or more. Therefore, for the purpose of specification, variables with communalities of less than 0.50 were omitted from any following analysis (Hair et al., 2006).

In assessing the convergent validity, items were retained according to the following criteria: 1) factor loading greater than 0.5 and 2) no cross-loading of items. In other words, items were dropped where they have a loading of less than 0.5 or where their loadings are greater than

0.5 on two or more factors (Hair et al., 2006). The reason for choosing a cut-off point of 0.5 or greater in this study was because this threshold value was considered crucial in ensuring practical significance for sample sizes of 150 and above before the analyses proceed to the confirmatory factor analysis (Hair et al., 2006; Ledesma & Valero-Mora, 2007).

Discriminant validity refers to the extent to which factors are distinct and uncorrelated. A primary method for determining discriminant validity during an EFA is to examine the factor correlation matrix. Correlations between factors should not exceed 0.7. A correlation greater than 0.7 indicates a majority of shared variance; 0.7 * 0.7 = 49% shared variance (Jackson, 1969). The EFA results of the research variables are represented in Table 7.

Table 7

Results of Exploratory Factor Analysis (EFA)

Construct	Item	1st Iteration				2nd Iteration		BTS	KMO	EV[g]	Var[h] (%)	CA[i]
		Com[c]	F1[d]	F2[e]	F3[f]	Com[c]	F1[b]					
Mindset (M)	M1	.848	.919	.057		.827	.909	.000	.969***	8.398	76.346	.969
	M2	.785	.878	.119		.778	.882					
	M3	.63	.787	.099		.622	.789					
	M4	.784	.859	.214		.783	.885					
	M5	.714	.764	.36		.682	.826					
	M6	.772	.859	.185		.772	.879					
	M7	.81	.872	.222		.81	.9					
	M8	.758	.829	.265		.756	.87					
	M9[a]	.779	.014	.882								
	M10	.857	.887	.263		.854	.924					
	M11	.73	.848	.104		.722	.85					
	M12	.554	-.303	-.68								
	M13	.791	.874	.162		.791	.89					
Effective -ness (E)	E1	.752	.852	.138	.083	.742	.861	.000	.963***	9.181	70.624	.965
	E2	.77	.869	.056	.104	.767	.876					
	E3	.804	.89	.074	.08	.802	.895					
	E4	.712	.839	-.021	.088	.709	.842					

Construct	Item	1st Iteration				2nd Iteration		BTS	KMO	EV[g]	Var[h] (%)	CA[i]
		Com[c]	F1[d]	F2[e]	F3[f]	Com[c]	F1[b]					
	E5	.675	.774	-.041	.274	.643	.802					
	E6	.825	.901	.036	.105	.826	.909					
	E7[a]	.918	.129	.003	.949							
	E8	.719	.831	.129	.112	.71	.843					
	E9	.764	.863	.128	-	.73	.855					
	E10	.659	.807	.053	.07	.659	.812					
	E11	.787	.882	.025	.094	.784	.885					
	E12	.687	.825	.078	.028	.675	.822					
	E13 [a]	.758	.264	.766	.319							
	E14	.549	.719	.003	.177	.544	.738					
	E15[b]	.759	.092	-.839	.215							
	E16	.622	.743	-.059	.256	.59	.768					

Note. [a] Item is deleted because only a single item loaded on the extracted factor. [b] Item is deleted because of small factor loading less than 0.5 on each extracted factor. [c] Communalities. [d] Factor 1. [e] Factor 2. [f] Factor 3. [g] Eigen Value. [h] Variance. [I] Cronbach Alpha.

As shown in Table 7, all the items of Mindset and Effectiveness were assessed through the EFA in an iterative process. The following sub-sections demonstrate the results of performing EFA for each construct.

Mindset

The results of the first iteration of EFA showed that the communality values of all 13 items of Mindset were above the threshold of 0.5 as recommended by Hair et al. (2006), ranging between 0.554 and 0.857. Two-unit factors were extracted for the 13 items of Mindset. In assessing the convergent validity, 11 items (i.e., M1, M2, M3, M4, M5, M6, M7, M8, M10, M11, M13) showed factor loadings above the threshold of 0.5 in the first extracted factor as recommended by Hair et al. (2006), ranging between 0.764 and 0.919. The results also indicated that only one item (i.e., M9) has factor loading above 0.5 on the second extracted factor (i.e.,

0.882). The twelfth item (i.e., M12) showed negative factor loading on the second extracted factor (i.e., -0.680). Therefore, the ninth and twelfth items of Mindset (i.e., M9 and M12) were removed from the allocated items of Mindset, and EFA was performed again. The second iteration of EFA showed communality values of all 11 remaining items of Mindset were above the threshold of 0.5, ranging between 0.622 and 0.854. A unit factor was extracted over the 11 items with factor loadings above the threshold of 0.5, ranging between 0.789 and 0.924. Therefore, there was no need to remove any further items from the Mindset construct. Because only one factor was defined through EFA for Mindset, the correlations between factors and discriminant validity were not applicable for checking.

Effectiveness

The results of the first iteration of EFA showed that the communality values of all 16 items of Effectiveness were above the threshold of 0.5 as recommended by Hair et al. (2006), ranging between 0.549 and 0.918. Three-unit factors were extracted for the 16 items of Effectiveness. In assessing the convergent validity, 13 items (i.e., E1, E2, E3, E4, E5, E6, E8, E9, E10, E11, E12, E14, E16) showed factor loadings above the threshold 0.5 in the first extracted factor as recommended by Hair et al., ranging between 0.719 and 0.901. The results also indicated that only one item (i.e., E13) had factor loading above 0.5 on the second extracted factor (i.e., 0.766). The seventh item (i.e., E7) was also found as a single item and loaded sufficiently on the third extracted factor (i.e., 0.949). The fifteenth item (i.e., E15) showed negative factor loading on the second extracted factor (i.e., -0.839). Therefore, the seventh, thirteenth, and fifteenth items of Effectiveness (i.e., E7, E13, and E15) were removed from the allocated items of Effectiveness, and EFA was performed again. The second iteration of EFA showed communality values of all 13 remaining items of Effectiveness were above the threshold

of 0.5, ranging between 0.544 and 0.826. A unit factor was extracted over the 13 items with factor loadings above the threshold of 0.5, ranging between 0.738 thru 0.909. Therefore, it was not necessary to remove any further items from the Effectiveness construct. Because only one factor was defined through EFA for Effectiveness, the correlations between factors and discriminant validity were not applicable to be checked.

The Bartlett's test of sphericity for all constructs was 0.000, below the standard significance level of 0.05 as recommended by Williams et al. (2010). The resulting value of KMO for Mindset and Effectiveness Characteristics was 0.969 and 0.963, respectively. All values were above the cut-off value of 0.6 as recommended by Blaikie (2003).
Based on the validity results, the Eigen value of Burnout level was 8.398 and 9.181 for Mindset and Effectiveness, respectively. All values were above the cut-off of 1 as recommended by Tabachnick and Fidell (2001). The values of variance for Burnout level for Mindset and Effectiveness were 76.346 and 70.624, respectively. All values were above the cut-off of 50% as recommended by Diekhoff (1992).

The Cronbach's Alpha values, which describes the degree to which a measure is error-free, were 0.969 and 0.965 for Mindset and Effectiveness, respectively. All values were above the threshold of 0.7, as suggested by Nunnally and Bernstein (1994). Therefore, the achieved Cronbach's Alpha for both Mindset and Effectiveness constructs were considered as sufficiently error-free.

Demographic Profile

Table 8 represents the frequencies and percentages of demographic variables.

Table 8

Demographic Profile

Group	Frequency	Percentage
Gender		
Male	27	14.2
Female	163	85.8
Age		
21-30 Years	22	11.6
31-40 Years	35	18.4
41-50 Years	67	35.3
51-60 Years	51	26.8
More than 60 years	15	7.9
School Position		
Teacher	137	72.1
Principal	53	27.9
Experience		
Less than 10 years	67	35.3
10-20 years	48	25.3
20-30 years	55	28.9
30-40 years	17	8.9
More than 40 years	3	1.6
Academic Delivers		
Males	1	0.5
Females	13	6.8
Both of the Same	176	92.6
Motivation Reason		
Job Satisfaction	151	79.5
Wages and Wage-Related Benefits	39	20.5

$N = 190$

Over 190 collected questionnaires, 27 useful responses were received from males (14.2%) and 163 from females (85.8%). Therefore, the sample of this study is mainly dominated by women. Regarding the age of the respondents, 11.6% were 21-30 years old, 18.4% were 31-40 years old, 35.5% were 41-50 years old, 26.8% were 51-60 years old, and 7.9% were more than 60 years old. Regarding the school position of the respondents, 72.1% were teachers, and 27.9% were

principals. Therefore, the sample of this study is mainly dominated by teachers. The respondents were asked to specify their experience: 35.3% of the respondents stated that they have fewer than 10 years of experience, 25.3% have 10-20 years, 28.9% have 20-30 years, 8.9% have 30-40 years, and 1.6% have more than 40 years of experience. The respondents were also asked to specify their academic delivery. One of the respondents (0.5%) stated male, 6.8% stated females, and a majority of them (92.6%) stated both male and female as the same. Finally, in specifying motivational reasons, 79.5% of the respondents noted job satisfaction, while 20.5% of them indicated wages and wage-related benefits.

Descriptive Statistics Variables Using 7-Point Likert Scale

In this analysis, the descriptive statistic of the hypothesized variables (i.e., Mindset and Effectiveness) were examined. The mean was applied as a measure of central tendency, while the standard deviation was applied as a dispersion index to indicate the degree to which individuals within each variable differ from the variable mean. Table 9 demonstrates the results of descriptive statistics of hypothesized variables.

Table 9

Results of Descriptive Statistics of hypothesized Variables

Variable	Scale	Mean	Standard Deviation	Minimum	Maximum
Mindset (M)	7-Point Likert	4.54	1.50	1.3	6.7
Effectiveness (E)	7-Point Likert	4.36	1.38	1.5	6.6

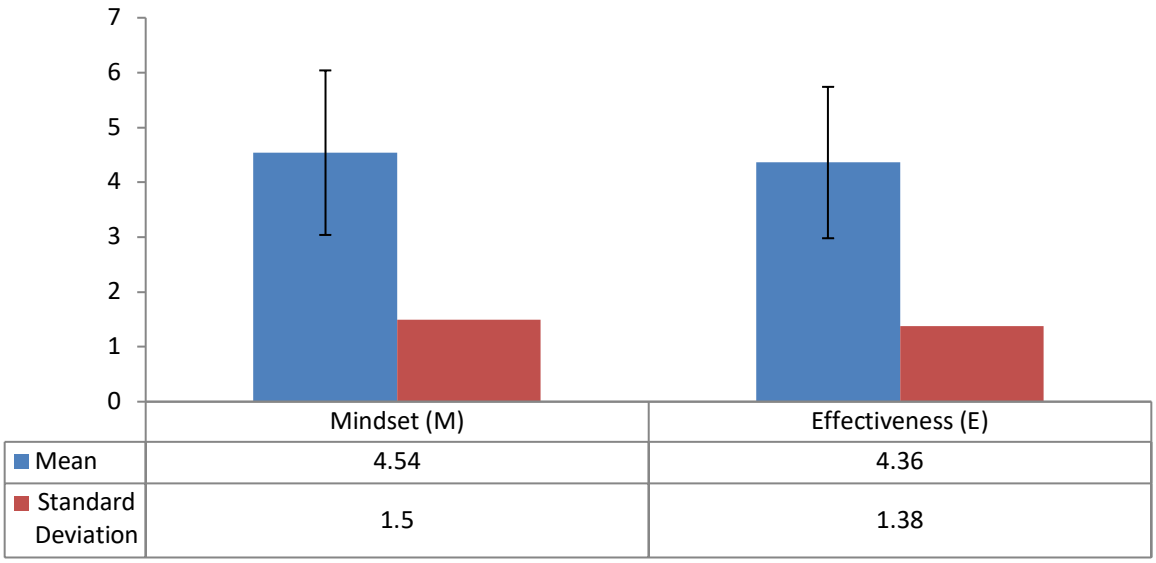
Note. $N = 190$, No Missing Values

As indicated in Table 9, the mean values of Mindset and Effectiveness constructs were 4.54 and 4.36, respectively. Both mean values were above the mid-point of 4. The phenomenon

indicated that the consensus of respondents' perceptions toward both constructs were above the average. The standard deviation of Mindset and Effectiveness constructs were 1.50 and 1.38, respectively. Figure 4 gives an illustration of the mean of variables together with their standard deviations.

Figure 4

Means and Standard Deviation of variables



	Mindset (M)	Effectiveness (E)
Mean	4.54	4.36
Standard Deviation	1.5	1.38

Single Linear Regression

A linear regression method was used to determine the contribution of predictor or independent variable (i.e., Mindset) on the criterion or dependent variable (i.e., Effectiveness). Analysis was carried out using SPSS software. Regarding the research framework, hypothesis H1 (i.e., Mindset has significant positive effect on effectiveness) was examined using a single Linear Regression model.

Assumptions in Linear Regression

According to Hair et al. (2009), a number of assumptions should be met before single linear regression analysis is conducted; otherwise, the validity of the findings would be threatened. These assumptions pertain to linearity between the dependent variable and independent variable, constant variance of error term (homoscedasticity versus heteroscedasticity), and independence of error term. These assumptions apply to the independent variable, dependent variable, and to the relationships as a whole (Hair et al.,2003).

Linearity between Dependent and Independent Variables. Linearity requires that the relationship between independent and dependent variables is linear. In other words, linearity refers to the consistent slope of change that represents the relationship between an independent and a dependent variable. If the relationship between the independent and the dependent is radically inconsistent, then it will threaten the regression analyses (Uyanık & Güler, 2013). There are many ways to test for linearity. The prevalence approach conducted in this study to test the linearity was the linearity and deviation from linearity test available in the ANOVA test in SPSS. If the p-value for linearity is less than 0.05, the relationship between the independent and the dependent variable is linear and, thus, is acceptable. Table 10 represents the results of the ANOVA table for testing the linearity between Mindset as the independent variable on Effectiveness as the dependent variable.

Table 10

Results of ANOVA Test for Testing Linearity

	F	Df	*p*-value
Linearity	169.143***	1	.000

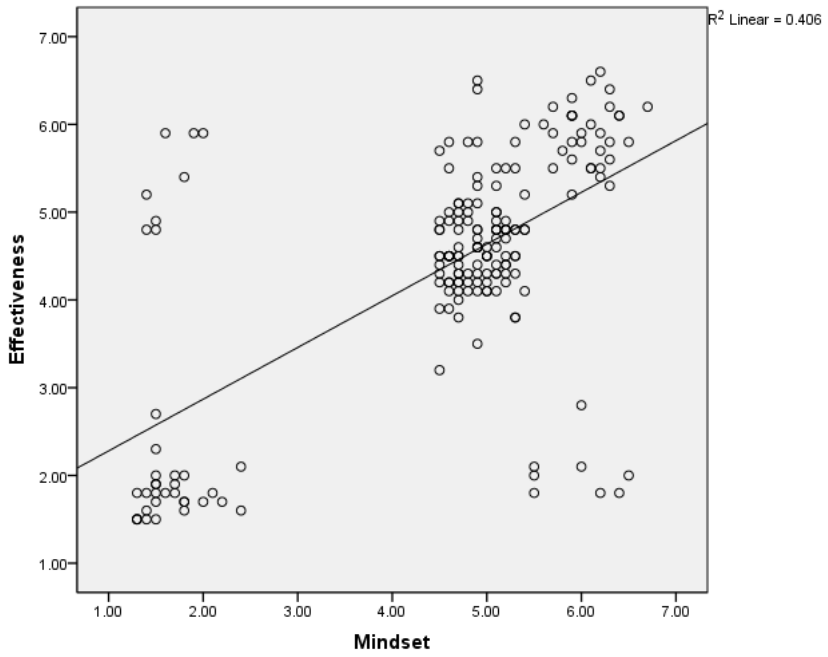
*$p <$ 0.05 , **$p < 0.01$, ***$p < 0.001$

As shown in Table 10, the linearity between Mindset and Effectiveness is statistically significant at 0.001 level; $F(1) = 169.143$, $p < 0.001$. Figure 5 shows the scatterplots and relative line for the

relationship between Mindset as the independent variable on the horizontal axis and Effectiveness as the dependent variable on the vertical axis.

Figure 5

Scatterplot for Relationships between Mindset and Effectiveness



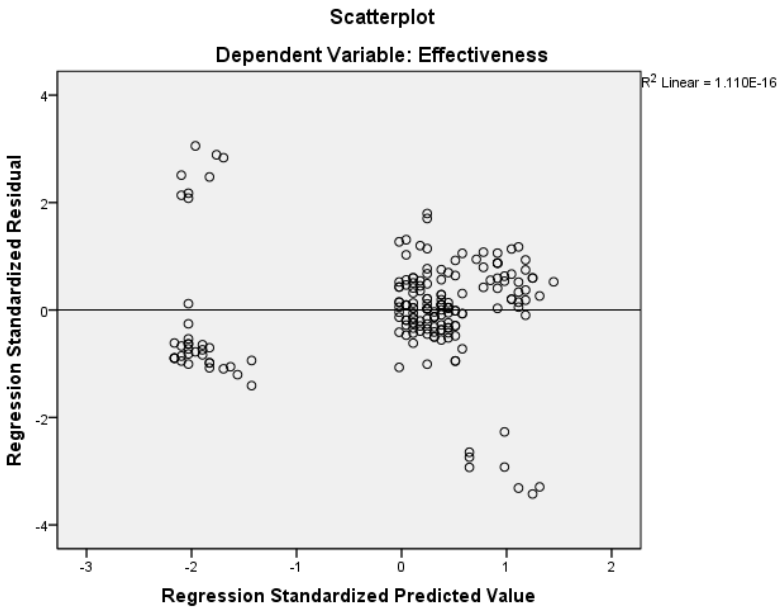
As shown in Figure 5, by following the darker dots in the scatterplot, there appears to be a dark line running from the down-left to the up-right, suggesting a positive relationship between IV and DV; therefore, the relationship was found to be linear and suitable to be analyzed with regression analysis.

Constant Variance of Error Term (Homoscedasticity). The residual plot was used to examine homoscedasticity or homogeneity of variance. This was done by plotting the standardized residuals against the predicted dependent values and comparing them to the null plot. As recommended by Hair et a1. (2006), if the examination of residuals does not show any increasing or decreasing of residuals, the assumption of homoscedasticity is met. In other words,

the homoscedasticity occurs if there is a consistent relationship between the standardized residuals and the predicted dependent values; otherwise, heteroscedasticity occurs, which can violate the assumption of the linear regression. Figure 6 shows the scatterplot of standardized residuals against the predicted dependent values for the regression model.

Figure 6

Results of Scatterplot for Testing Constant Variance of Error Term (Homoscedasticity)



As shown in Figure 6, a flat line appeared in the scatterplot diagram, indicating the value of error term was almost constant and does not depend on the standardized predicted value. Therefore, the variance of error term appeared to be constant for the single linear regression model, meaning the assumption of homoscedasticity was met.

Independence of Error Term (Durbin-Watson). The assumption of independence implies that the samples are independent of one another, meaning the residual is not correlated serially from one observation to the next. This means the size of the residual for one case has no impact on the size of the residual for the next case. To assess this assumption, the Durbin-

Watson was used to test the independence of error terms. The value of the Durbin-Watson statistic ranges from 0 to 4. As a rule, the residuals are uncorrelated if the Durbin-Watson statistic is approximately 2 and lies between 1.5 and 2.5 (Norusis, 1995). A value close to 0 indicates strong positive correlation, while a value of 4 indicates strong negative correlation. The value of the Durbin-Watson test for the regression Model was 2.089, which places in the acceptable range of 1.5 and 2.5, supporting the independence of samples from each other. Therefore, the results from the regression model are reliable and valid.

Validity of Linear Regression

Three measures of goodness to fit of the model were used to check the validity of using the regression model in this study. Table 11 represents the results of validity for the regression model in this study.

Table 11

Results of Validity of Regression Model

Fit Measure 1	Fit Measure 2		Fit Measure 3			
Adjusted R Square	Std. Deviation of null model (DV)	Std. Error of the Estimate	*F*	Df	Sig	Model Validity
.402	1.383	1.069	128.263***	189	0.000	Valid

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

The first measure of goodness to fit of the model was to check the value of adjusted R-square. As shown in Table , the coefficient determinations (R-square) of the single linear regression model was 0.402. As recommended by Quaddus and Hofmeyer (2007), the value of R-square should be greater than 0.30. Since the R-square of 0.402 is above the cut-off of 0.30, it was concluded that the single regression model showed satisfactory goodness to fit of the model.

The second measure of goodness to fit of the model was to compare the standard error of the regression model with the standard deviation of the dependent variable as the null model. The result indicated that without prior knowledge about the influence of the predictor on the dependent variable, the standard deviations of guessing the dependent variable (i.e., Effectiveness) in the null model was 1.383, higher than the standard error of 1.069 in the estimation in the regression model. This result supported the validity of single linear regression model in this study.

The last measure of goodness to fit of the model was to check the F statistic and the p-value of the ANOVA test. As Table shows, the linear regression model was statistically significant: $F(189) = 128.263$, $p < 0.001$. This result indicated that the variation explained by the regression model was not due to chance; hence, using the regression model to predict the dependent variable was better than using the null or intercept-only model, which merely guesses the mean of the dependent variable.

The results of the three applied measures demonstrated that the regression model to predict Effectiveness could adequately satisfy the three applied measures of goodness to fit of the model. The phenomenon supported the validity of the applied single linear egression model in this study; thus, the extracted results from the regression model were reliable and valid.

Results of Linear Regressions

Upon ensuring all of the assumptions of linear regression were adequately met, single linear regression analysis was used to analyze the effect from Mindset as the independent variable on Effectiveness as the dependent variable (i.e., Hypothesis H1). The significance of the regression coefficient of the hypothesized predictor was examined to determine support for hypothesis H1. Table 12 shows the results of the single linear regression.

Table 12

Results of Single Linear Regression

Independent Variable (Predictor)	Unstandardized Coefficients		Standardized Coefficients	*t*	*p*-value	Hypothesis Result
	B	Std. Error	Beta			
Constant	1.691	.248		6.809	.000	
Mindset (M)	.589	.052	.637***	11.325	.000	H1)

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

As shown in Table , the *t*-value and *p*-value of Mindset in predicting Effectiveness were 11.325 and 0.000, respectively. This means that the probability of getting a *t*-value as large as 11.325 in absolute value is 0.000. In other words, the regression weight for Mindset in the prediction of Effectiveness is significantly different from zero at the 0.001 level. Thus, H1 was supported, and the null was retained. Further, the standardized estimate of Beta was 0.637, indicating a positive relationship. This means when Mindset goes up by one standard deviation, Effectiveness goes up by 0.637 standard deviations. The extracted regression formula is as follows: Effectiveness = 1.691 + 0.589* Mindset

Independent Sample T-test

In this study, a parametric comparative test, namely independent sample t-test was used to examine the mean difference of Mindset and Effectiveness between teacher and principal as the two groups of School Position (i.e., H2 and H3, respectively). Before conducting the t-test, it should be determined whether the variances within the two populations being compared are equal or not. Hence, the Levene's test was conducted as an assumption of the t-test to determine

the homogeneity of variances. A p-value higher than 0.05 level demonstrates that the obtained differences in sample variances were likely to have occurred based on random sampling from a population with equal variances. Thus, null hypothesis of equal variances was accepted for the non-significant p-values. Conversely, the equal variance cannot be assumed for the significant p-values.

Homogeneity of Variance (Levene's Test)

Table shows the results of the Levene's test for examining the equality of variance between the groups of School Position for each variable.

Table 13

Results of Levene's Test for the Groups of School Position & Existence of Ride-Hailing Services

Variable	*F*-Statistic	*p*-value	Equal Variances
Mindset	6.275*	.013	No
Effectiveness	7.451**	.007	No

N = 190,581; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

As shown in Table 13, the results of the Levene's test indicated that the equality of variance was not assumed for Mindset and Effectiveness, as their p-values were all below the standard significance level of 0.05. Therefore, the educator looked to the second row of results from Independent Sample T-test.

Results of Independent Sample T-test

The null hypothesis (p-value > 0.05) for independent sample t-test demonstrates the mean value of the dependent variable would not significantly differ between the comparison groups. Table 14 shows the results of independent sample t-test for the groups of School Position.

Table 14

Results Independent Sample T-test for Groups of School Position

Variable	Teacher	Principal	Mean Difference	*t*-value	Degree of Freedom (df)	*P*-value	Hypothesis Result
Mindset	4.421	4.830	-.409	-1.850	113.819	.067	H2) Rejected
Effectiveness	4.201	4.783	-.583**	-3.017	127.707	.003	H3)

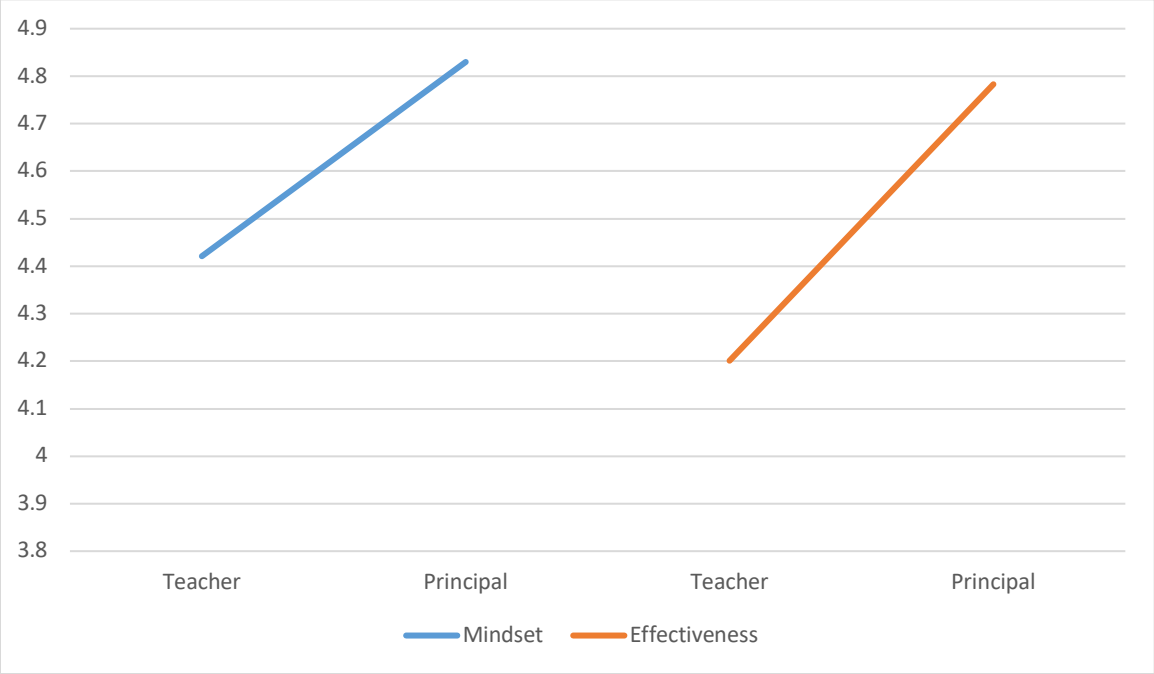
$N = 190$; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

The results of the independent sample t-test showed that the mean value of Mindset for principal (4.830) was slightly higher than teacher (4.421). Nevertheless, the mean difference was not found as statistically significant: Mean difference = -0.409, $t(113.819) = -1.850$, $p > 0.05$. Hypothesis H2 (i.e., there is a significant difference in the mean value of mindset between principal and teacher) was rejected.

The comparison of Effectiveness mean value between teacher and principal indicated that the perception of principal toward Effectiveness (4.783) was significantly higher than teacher (4.201): Mean difference = -0.583, $t(127.707) = -3.017$, $p < 0.01$. Hypothesis H3 (i.e., there is a significant difference in the mean value of effectiveness between principal and teacher) was supported. Figure 7 presents the means plot for a visual understanding of Mindset and Effectiveness mean value differences between teacher and principal.

Figure 7

Means Plot of Mindset and Effectiveness Mean Value Differences between Teacher and Principal



One Way Welch/ANOVA Test

The One-Way Welch test was carried out as a comparative parametric test in this study. The One-Way Welch/ANOVA procedure produces a one-way analysis of variance for a quantitative dependent variable (i.e., Mindset and Effectiveness) by a single independent variable (i.e., years of experience). Therefore, the One-Way Welch/ANOVA test was run to compare the mean value of Mindset and Effectiveness between the groups of years of experience and for each teacher and principal group. The main assumption of the One-Way Welch/ANOVA test is homogeneity of variances, which was examined by Levene's test in this study. The population variances are considered as equal if the Levene's p-value is above the threshold of 0.05. If the

data fails this assumption, the One-Way Welch test should be carried out instead of the One-Way ANOVA test. Table 15 shows the results of Levene's test for examining the equality of variance.

Table 15

Results of Levene's Test for Testing Equality of Variance

School Position	Dependent Variable	Levene's Statistic	Df	*p*-value	Equal Variance
Teacher	Mindset	1.402	136	.245	Yes
	Effectiveness	3.481*	136	.018	No
Principal	Mindset	2.355	52	.067	Yes
	Effectiveness	2.625*	52	.046	No

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

As shown in Table 15, the results indicated that the equality of variance was assumed for Mindset at both teacher and principal groups because of having Levene's p-values above the standard significant level of 0.05 (Teacher: $F(136) = 1.402$, $p > 0.05$; Principal: $F(52) = 2.355$, $p > 0.05$). Conversely, the equality of variance did not assume for Effectiveness for both teacher and principal groups because of having values below the standard significance level of 0.05 (Teacher: $F(136) = 3.481$, $p < 0.05$; Principal: $F(52) = 2.625$, $p < 0.05$). Therefore, the One-Way ANOVA was conducted to examine Mindset mean differences between groups of years of experience, and Welch ANOVA was conducted to examine Effectiveness mean difference between groups of years of experience. Table 16 represents the results of One-Way ANOVA and Welch Tests for examining the mean value difference of Mindset and Effectiveness between the groups of years of experience respectively for the positions of teacher and principal.

Table 16

Results of One Way & Welch ANOVA Tests for Mindset & Effectiveness Mean Comparison

School Position	Dependent Variable	One Way ANOVA			Welch ANOVA			Hypothesis Result
		F	Df	p-value	*F*	Df	*p*-value	
Teacher	Mindset	4.903**	136	.003				H4) yes
	Effectiveness				1.7	48.536	.179	H6) no
Principal	Mindset	1.912	52	.124				H5) no
	Effectiveness				.25	4.662	.898	H7) no

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

As shown in Table 16, the results of One-Way ANOVA indicated that the mean value of Mindset is significantly changed between the years of teacher experience, which supported hypothesis H4: there is a significant difference in the mean value of mindset between years of teacher experience; $F(136) = 4.903$, $p < 0.01$. However, the results showed no significant difference in the mean value of Mindset between years of principal experience, rejecting hypothesis H5: $F(52) = 1.912$, $p > 0.05$. The results of Welch ANOVA indicated that the mean value of Effectiveness was not significantly changed, neither between years of teacher experience ($F(48.536) = 1.7$, $p > 0.05$), nor between years of principal experience ($F(4.662) = 0.25$, $p > 0.05$). Therefore, hypotheses H6 and H7 were both rejected.

Post-Hoc Tests

In addition to determining the mean differences of Mindset between the years of teacher experience, the One-Way procedure determines which means differ and where the difference may lie. Therefore, the One-Way procedure, using the post-hoc Tukey test due to assumed equality of variance, was also used to compare every mean of Mindset against every other in

relation to groups of teacher years of experience. Table 17 shows the results of the Post-Hoc Tukey test.

Table 17

Results of Post-Hoc Tukey Test to Examine Mindset mean Differences between Groups of Teacher Years of Experience

Mindset Mean Value for each Groups of Teacher Years of Experience						Standard Error	P-value	Significant Difference
<10 years (n=65)	10 – 20 Years (n=31)	20 – 30 Years (n=28)	30 – 40 Years (n=13)	>40 Years (n=0)	Mean Difference (MD)			
4.932	3.861				1.071**	.326	.007	Yes
4.932		4.054			0.878*	.338	.05	Yes
4.932			3.992		0.94	.454	.168	No
	3.861	4.054			-0.193	.390	.960	No
	3.861		3.992		-0.131	.494	.993	No
		4.054	3.992		0.062	.502	.999	No

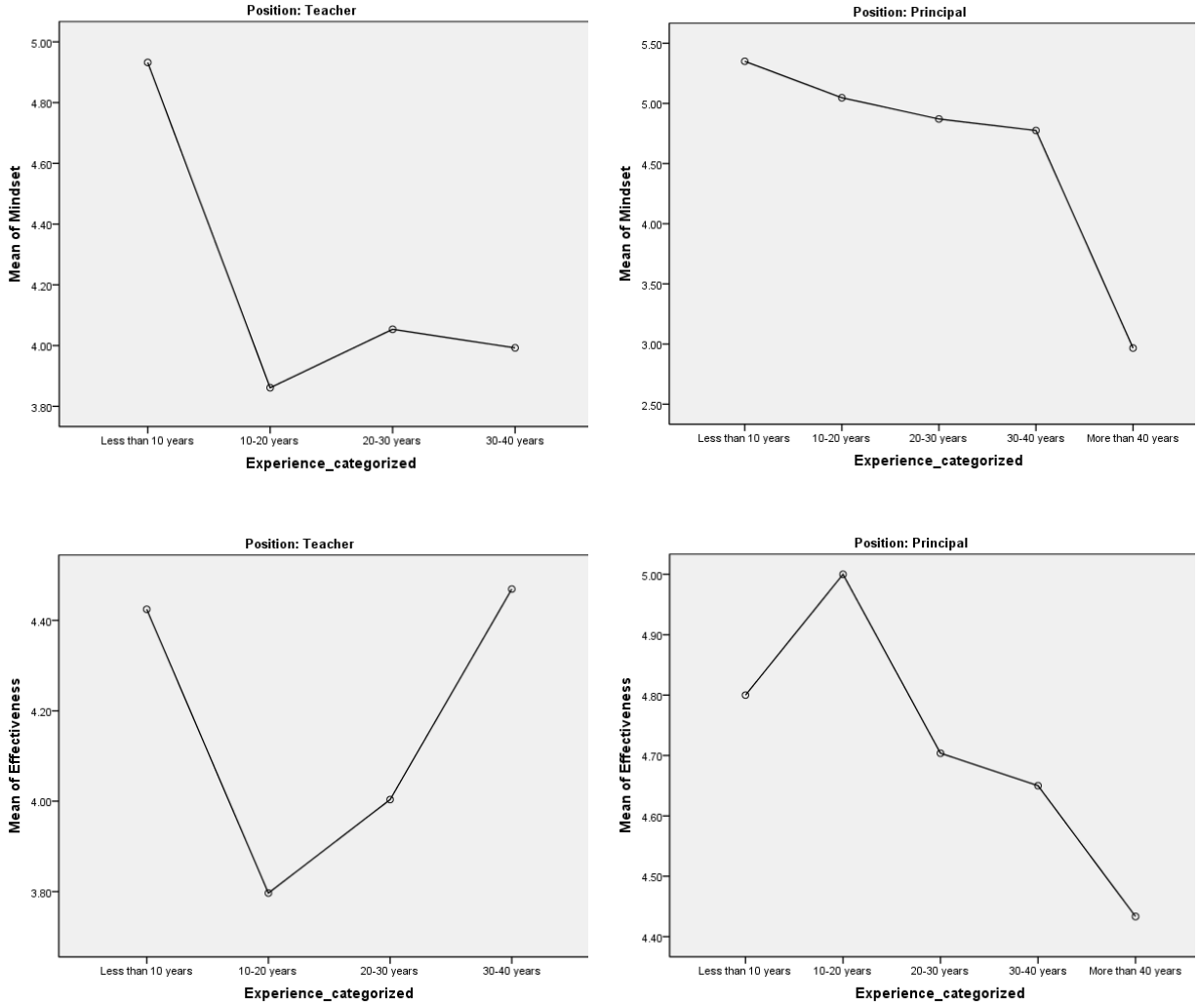
*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

As shown in Table , the results of the post-hoc Tukey test indicated the mean value of Mindset was significantly changed between the first and second and first and third groups of teacher years of experience. The mean value of Mindset for teachers having less than 10 years of experience (4.932) was significantly higher than the Mindset mean value of teachers having 10 to 20 years of experience (3.861; mean difference = 1.071, $p < 0.01$) and teachers having 20 to 30 years of experience (4.054; mean difference = 0.878, $p < 0.05$). Conversely, the mean value of Mindset

was not significantly changed between the other groups of teacher years of experience. Figure 8 represents the mean plots as a better visual understanding of Mindset and Effectiveness mean values between the groups of teacher and principal years of experience.

Figure 8

Means Plot of Mindset & Effectiveness Mean Value Between Groups of Teacher and Principal Years of Experience



Summary of Analysis Chapter

In this research, data analysis was conducted in three major phases. The first phase involved a preliminary analysis of the data. This process is crucial to ensure that the data adequately met the basic assumptions in using parametric tests. In general, the data set of all variables and items was normally distributed and free from failure, missing values, and outliers. The second phase conducted exploratory factor analysis (EFA) to ensure the factorial validity of the instruments employed in the study. As a result, the 11 items of Mindset and 13 items of Effectiveness were adequately assigned to their related construct variables. The third phase applied inferential analyses such as single linear regression, independent sample t-test, and One-Way Welch/ANOVA. Single linear regression was applied to examine the direct effect of Mindset on Effectiveness. As a result, Mindset has significant positive effect on Effectiveness. Therefore, hypothesis H1 was retained. Independent sample t-test was performed to examine the mean difference of Mindset and Effectiveness between teacher and principal. The results indicated that the mean value of Mindset did not significantly change between teacher and principal, while the mean value of Effectiveness for principal was significantly higher than teacher. Therefore, hypothesis H2 was rejected, while H3 was retained. One-Way Welch/ANOVA was conducted to examine the mean difference of Mindset and Effectiveness between the groups of teacher and principal years of experience. The results indicated that the mean value of Mindset was significantly changed between the years of teaching experience, while it was not significantly changed between the years of principal experience. It was also found that there is no significant difference in the mean value of Effectiveness between the years of teacher and principal experience. Therefore, hypothesis H4 was retained, while hypotheses H5, H6, and H7 were rejected.

CHAPTER 5

DISCUSSION OF FINDINGS AND RECOMMENDATIONS FOR FURTHER STUDY

This chapter is divided into three key sections. The first part of the chapter presents the discussion of results, which is a detailed explanation of the results for each of the study hypotheses presented in Chapter 4. This chapter will also present a discussion of descriptive data analysis and the test of study hypotheses to answer the research questions. There is also a review of relevant literature, potential reasons for the results, and educational implications for each finding. The limitations of this study are listed in the third part, followed by recommendations for future research studies in this area under concentration.

Discussion of Findings

This study aims to examine how the mindsets of elementary school teachers and principals affect the level of educator effectiveness. Seven research questions were proposed to test the research hypothesis, and statistical analysis was conducted and presented in the previous section of this report. This section, therefore, discusses the findings from the analysis, which was used to test the proposed research hypothesis and evaluate the research questions.

Research Question 1: Does mindset on the part of teachers and principals predict a significant amount of variance in effectiveness? To answer this research question, the simple linear regression method was used to determine the contribution of the predictor variable (i.e., Mindset) on the criterion variable (i.e., Effectiveness). Regarding the research framework, hypothesis H1 was examined. The results of the linear regression model revealed that there exists a significant and positive relationship between the mindset of the teachers and principals and their level of educator effectiveness; therefore, H_1 is retained because $F(1, 189) = 128.263$, $p < .001$. with regression equation $\hat{y} = .589x + 1.691$. This finding is consistent with Akiba and Liang (2016), who examined the effects of professional learning activities of teachers on achievement growth. It was revealed from their results that teacher-driven research activities through professional conference presentation and participation were also found to be associated with achievement growth in mathematics:

> The data showed that teacher-centered collaborative activities to learn about mathematics teaching and learning (teacher collaboration and informal communication) seem to be more effective in improving student mathematics achievement than learning activities that do not necessarily involve such teacher-centered collaborative opportunities (professional development programs, university courses, individual learning activities) (Akiba & Liang, 2016, p. 273).

A possible reason for this positive relationship may be because the importance of instructors in helping students' growth in areas outside their primary academic competence has long been stressed in teaching and learning theories as described by Bonnici (2011), who prescribed a set of mindset supports and organizing strategies that are just as effective to learners as instructors' instructional methods in their conception of high-quality teaching.

This finding implies that there exists a positive, but multidimensional nature, to teaching, and thus the need to identify strategies for improving teachers' mindset. It is also important to consider the principals' mindset through the design and implementation of evaluation systems, professional development, recruitment, and strategic teacher assignments. Observations of teachers' mindset may be another way to include educators' effectiveness on students' attitudes and actions into elementary education assessment. Specific domains captured on classroom observation instruments (e.g., Emotional Support and Classroom Organization from the Class and Mathematical Errors from the MQI) may serve as indirect measures of the degree to which teachers' mindset influences educators' attitudes and behaviors, according to the findings in this study findings. One advantage of this method is that similar measures are routinely collected as part of teacher evaluation systems, and these measures are not limited to teachers who work in tested grades and topics.

Research Question 2: Is there a significant difference between principal and teacher regarding mindset? This research question was answered with the independent sample t-test by examining whether significant difference exists in the mean value of the mindset levels between the principals and the teachers. The homogeneity assumption of the independent sample t-test was examined using the Levene's test of equal variance, and the test failed to reject the null hypothesis (H2), which is an indication that the obtained differences in sample variances were likely to have occurred based on random sampling from a population with equal variances. Therefore, the equal variance assumption is valid for the sample. It was observed from the results of the independent sample t-tests that the mean value of mindset level for the principals (4.830) is slightly greater than the mean value of mindset level for the teachers (4.421). However, the test of significance indicated that the mean difference is not statistically significant: Mean

difference = -0.409, $t(113.819) = -1.850$, $p > 0.05$. Therefore, there is no significant difference between principals and teachers regarding mindset levels. This finding appears to be inconsistent with Conley (2017), who posited that successes driven by the mindset of veteran teachers (principals) and new teachers are not alike, which was used to highlight the power of positive psychology and placements in schools, classrooms, and communities (Conley, 2017). The researcher made a case for an educational renaissance that places intrinsic motivation in its rightful place: at the very heart of teaching and learning and as the driving force behind all that is done by educators by offering practical strategies and a wide variety of resources to help education administrators develop and model a growth mindset for educator effectiveness through relevant literature, effective examples, and insightful scenarios. These findings lend empirical support to research on the multidimensional nature of teaching (Cohen et al., 2011). This study also identified tensions inherent to this sort of similarity and potential tradeoffs between teachers and principals because this finding implies that high-quality instruction around classroom organization is affected by the teacher's mindset and self-reported behavior of principals. This result is not conclusive, as the insignificant difference in the mindset level of principals and teachers may affect classroom organization. However, if there indeed is a difference between these factors, it raises questions about the relative benefits of fostering orderly classroom environments for learning versus supporting student engagement by promoting positive experiences with schooling by the principals.

Research Question 3: Is there a significant difference between principal and teacher regarding effectiveness? This research question was answered with the independent sample t-test by examining whether a significant difference exists in the mean value of effectiveness levels between the principals and the teachers. The homogeneity assumption of the independent sample

t-test was examined using the Levene's test of equal variance, and the test failed to reject the null hypothesis (H3), which is an indication that the obtained differences in sample variances were likely to have occurred based on random sampling from a population with equal variances; therefore, the equal variance assumption is valid for the sample. It was observed from the results of the independent sample t-tests that the mean value of effectiveness level for the principals (4.783) is greater than the mean value of effectiveness level for the teachers (4.201). Also, the test of significance indicated that the mean difference is statistically significant: mean difference = -0.583, $t(117.7) = -3.017$, $p < 0.01$. Therefore, significant differences between principals and teachers regarding effectiveness levels were found. This finding appears to be consistent with the findings of Darling-Hammond and Rothman (2011), who discovered a significant gap exists between the effectiveness of teachers and the effectiveness of leaders in high-performing education systems. This finding also implies that specific domains captured on classroom observation instruments may serve as indirect measures of the effectiveness with which teachers impact students' attitudes and behaviors. This study, therefore, suggests that an alternative approach, such as incorporating principals' effectiveness into teachers' attitudes and behaviors into students' evaluation through observations of teaching practice does exist.

Research Question 4: Is there a significant difference between years of teacher experience and mindset? This research question was answered with the One-Way Analysis of Variance by comparing the mean value of mindset levels of the teachers among the different categories of years of experience. The homogeneity assumption of the One-Way ANOVA test was examined using the Levene's test of equal variance, and the test failed to reject the null hypothesis (H2) based on [$F(136) = 1.402$, $p > 0.05$], which is an indication that the obtained differences in sample variances were likely to have occurred based on random sampling from a

population with equal variances. Therefore, the equal variance assumption is valid for the sample, and the standard one-way ANOVA test was computed to test the research hypothesis. The result from the one-way ANOVA test revealed that a significant difference exists among the mean values of teachers' mindset values across the different levels of experience considered [$F(136) = 4.903$, $p < 0.01$], and the null hypothesis (H4) was rejected. A post-hoc test was conducted with the Tukey's test of significance, and the result revealed that the mean value of Mindset for teachers having less than 10 years of experience (4.932) was significantly higher than the Mindset mean value of teachers having 10 to 20 years of experience (3.861; mean difference = 1.071, $p < 0.01$) and teachers having 20 to 30 years of experience (4.054; mean difference = 0.878, $p < 0.05$). Conversely, the mean value of Mindset was not significantly different between the other groups of teachers' years of experience. This result appears to be similar to the findings of Fullan (2014). Because Fullan discovered that in an academic setting, the mindset of teachers has an influence on student academic outcomes due to the leadership traits that comes with years of experience. According to Leithwood and Seashore-Louis (2013), "Leadership affects student learning when it is targeted at working relationships, improving instruction and, indirectly, student achievement" (p. 234).

While education and experience can influence the way educators instruct their students, it is just as important for educators to have the appropriate mindset when teaching children (Schleicher, 2012). Though it is ubiquitously known that teachers have an influence on learning outcomes, including student behaviors, it is often assumed that individuals' leadership abilities within an organization are fixed (Dweck, 2010a). This is because it is assumed that leadership is an innate ability that cannot be effectively cultivated or learned except through years of experience (Dweck, 2010b). According to Dweck (2006), "People with a fixed mindset do not

admit and correct their deficiencies" (p. 109). This implies that the leadership abilities of educators are not emphasized as important in the way they should be. This study primarily emphasizes the influence of teacher motivation and mindset regarding job roles on their performance. It is therefore considered that in an elementary school setting, performance management of teachers is challenging.

Research Question 5: Is there a significant difference between years of principal experience and mindset? This research question was answered with the one-way Analysis of Variance by comparing the mean value of mindset levels of the principals among the different categories of years of experience. The homogeneity assumption of the one-way ANOVA test was examined using the Levene's test of equal variance, and the test failed to reject the null hypothesis [$F(52) = 2.355$, $p > 0.05$], which is an indication that the obtained differences in sample variances were likely to have occurred based on random sampling from a population with equal variances. Therefore, the equal variance assumption is valid for the sample, and the standard one-way ANOVA test was computed to test the research hypothesis. The result from the one-way ANOVA test revealed that there is no significant difference among the mean values of principals' mindset values across the different levels of experience considered [$F(52) = 1.912$, $p > 0.05$]. This result is not consistent with Fullan (2014), who discovered that in an academic setting, the mindset of a principal has an influence on student academic outcomes due to the leadership traits that come with years of experience. According to Leithwood and Seashore-Louis (2013), "Leadership affects student learning when it is targeted at working relationships, improving instruction and, indirectly, student achievement" (p. 234).

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Research Question 6: Is there a significant difference between years of teacher experience and effectiveness? This research question was answered with the One-Way Analysis of Variance by comparing the mean value of effectiveness levels of the teachers among the different categories of years of experience. The homogeneity assumption of the One-Way ANOVA test was examined using the Levene's test of equal variance, and the test rejected the null hypothesis (H6) [$F(136) = 3.481$, $p < 0.05$], which is an indication that the obtained differences in sample variances were not based on random sampling from a population with equal variances. Therefore, the equal variance assumption is not valid for the sample, and the Welch One-Way ANOVA test was computed to test the research hypothesis. The result from the Welch's One-Way ANOVA test revealed that there is no significant difference among the mean values of teachers' effectiveness levels across the different levels of experience considered [$F(48.536) = 1.7$, $p > 0.05$]. This result is not consistent with Goe and Stickler (2008), who discovered that there exists a significant relationship between teachers' years of experience and

the performance of their students. Goe and Stickler noted that teacher qualifications such as knowledge and experience play a critical role in improving their overall effectiveness and improving the students' learning outcomes. Teacher years of experience are significantly related to student achievement. Clotfelter et al. (2007) concluded, "A teacher's experience, test scores and regular licensure all have positive effects on student achievement, with larger effects for math than for reading" (p. 2). Additionally, Greenwald et al. (1996) found that "resource variables that attempt to describe the quality of teachers (teacher education and teacher experience) show very strong relations with student achievement" (p. 384). The implication of this result is that teachers who have a certain level of expertise are known to have a better grasp of the key issues faced by their students and could help develop curriculum based on their professional development students' learning growth, as opposed to implementing strict routines regardless of their impact on students' learning or understanding of the subject being taught (Rockoff, 2004).

Research Question 7: Is there a significant difference between years of principals' experience and effectiveness? This research question was answered with the One-Way Analysis of Variance by comparing the mean value of effectiveness levels of the principals among the different categories of years of experience. The homogeneity assumption of the One-Way ANOVA test was examined using the Levene's test of equal variance, and the test rejected the null hypothesis (H7) [$F(52) = 2.625$, $p < 0.05$], which is an indication that the obtained differences in sample variances were not based on random sampling from a population with equal variances. Therefore, the equal variance assumption is not valid for the sample, and the Welch One-Way ANOVA test was computed to test the research hypothesis. The result from the Welch's One-Way ANOVA test revealed that there is no significant difference among the mean

values of principals' effectiveness levels across the different levels of experience considered [$F(4.662) = 0.25$, $p > 0.05$].

The results from hypothesis seven is not consistent with existing literature. Goe and Stickler (2008) noted that principals' qualifications, such as knowledge and experience, play a critical role in improving their overall effectiveness and, in turn, improving the students' learning outcomes. Principals' years of experience are significantly related to student achievement. Clotfelter et al. (2007) concluded, "An administrative educator's experience, test scores and regular licensure all have positive effects on student achievement, with larger effects for math than for reading" (p. 3). Additionally, Greenwald et al. (1996) found that "resource variables that attempt to describe the quality of principals' (teacher education and teacher experience) show very strong relations with student achievement" (p. 385). The implication of this result is that teachers and principals who have a certain level of expertise are known to have a better grasp of the key issues faced by their students and could help develop curriculum based on their professional development students' learning growth, as opposed to implementing strict routines regardless of their impact on students' learning or understanding of the subject being taught (Rockoff, 2004).

Limitations of the Study

1. The mindset level and educators' effectiveness ratings may have been influenced by several confounding variables due to the self-assessment method the study adopted.
2. The mindset levels and educators' effectiveness were self-assessed by the teachers and principals sampled for this study, which may lead to inefficiency in the data due to self-rating bias.

3. This study witnessed a low response rate in the data collection process, which might be because it employed an electronic survey methodology through a web-based survey program called Qualtrics. Low response rate is understood to be one of the disadvantages of the electronic survey methodologies.

Recommendations for Future Studies

This research is limited to elementary school students in the state of Indiana, in the United States of America. Future studies can consider expanding the scope of the study to a larger demographic setting by considering higher educational levels where student responsibility for learning is anticipated because children in elementary school are heavily dependent on their instructors for information and direction. This consideration will widen the tentacles for generalization of the results for enhanced policy-making decisions.

This research focused only on teachers and principals because it was concerned with how teacher mentality affects pupils and how principal attitude improves teacher performance. Also, due to the educator's critical role in primary school children's development, the research focused on teachers and administrators. However, future studies may consider comparing these results with an assessment of parents and the communities, as they may also have an impact on student success. This comparison will help minimize the influence of other stakeholders on the student's performance because of their direct and substantial influence on students' educational experiences.

This study overlooked the fact that, due to geographical and socio-cultural variations, the teaching methods used in Indiana primary schools may not be applicable to other areas of the globe. Therefore, future studies must consider testing the methods adopted in this study among

instructors before implementing them in other geographical locations outside of Indiana, particularly Saudi Arabia, where I believe the results of the research will offer new information.

This research focused on primary school teachers and administrators in public elementary schools in a similar vein. While the study's findings may be relevant to other elementary schools, which is beneficial, because education is influenced at the state level, the findings may not be applicable to other educational levels, such as middle school, secondary school, or higher education. Rather, further study would be required to look at the issue at a different educational level.

Summary

The primary aim of this study was to evaluate how mindset affects people and their personal and professional daily activities. In this study, it was assumed that a fixed mindset tends to discourage every individual from working for the attainment of their goals, whereas the growth mindset tends to encourage people to work harder even after facing obstacles along the way to accomplishing the desired objectives. In this chapter, the main points from the analysis of data presented in chapter four of this report were discussed, and each of the findings was compared with results in existing literature focusing on their relevance and implications for education policymakers for all of the seven hypotheses highlighted in this study; participants and related literature were also reviewed to make suggestions for further research.

The results of the study can be used by education administrators and policymakers to facilitate a healthy mindset and a growing sense of individual’s intellectual efficacy, in the form of a culture of growth mindset, in elementary schools to increase effectiveness among educators and leaders in schools. The results in this study have been able to establish that students’ implicit theories of ability affect their motivation, learning, and achievement outcomes, and these are

affected by the relationship between their teachers' mindset and effectiveness of their principals. Therefore, by implementing a healthy growth mindset in schools, teachers will be more applicable in their roles as leaders and educators, which will then foster a productive mindset among students in the classrooms, resulting in more positive student academic outcomes and a longer achievement trajectory.

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APPENDIX A: LETTER REQUESTING DATA SHARE OF CURRENT INDIANA K-12 TEACHER AND PRINCIPAL E-MAIL ADDRESSES

Indiana Department of Education
Office of Legal Affairs
South Tower, Suite 600
115 W. Washington Street
Indianapolis, IN 46204

17 December 2020

RE: Data Share of current Indiana K-12 teacher and principal e-mail addresses

To Whom it Concerns:

Greetings. I'm a current Ph.D. candidate of the Department of Educational Leadership at Indiana State University in Terre Haute, Indiana. My Committee Chair is Dr. Bradley Balch. I'm conducting a study on the influence of elementary school teacher and principal mindset elements on levels of their effectiveness. In order to determine the current effectiveness levels of K-12 Indiana teachers and principals, I wish to survey current Indiana K-12 public school teachers and principals.

I'm respectfully requesting access to your records of current Indiana K-12 public school teacher e-mails.

Data Requested:
Teacher e-mails for current Indiana K-12 public school teachers
Principal e-mails for current Indiana K-12 public school principals

Sincerely,

Rehab G Alghamdi

APPENDIX B: CONSENT TO PARTICIPATE IN RESEARCH

The Influence of Elementary School Teacher and

Principle Mindset Elements on Levels of Educator Effectiveness

Dear Teacher; Principal [Qualtrics enters first name from database],

You are invited to participate in a research study pertaining to the influence of elementary school teacher and principal mindset elements on levels of their effectiveness among Indiana K-12 public school teachers and principals. All Indiana K-12 public school teachers and principals are being invited to participate. This study is being conducted by Rehab G. Alghamdi as part of a doctoral dissertation with Dr. Bradley Balch serving as the faculty sponsor from the Department of Educational Leadership at Indiana State University.

If you agree to participate in this research study, the following will occur: respond to the survey located at [survey URL]. To access this survey, please click on the survey link. If you have any concerns or questions, please contact me at (217) 819-1642 or at ralghamdi@sycamores.indstate.edu. The survey will be accessible for you to fill up between now and 00:00 p.m. on Day, Month.

Risks in this study are minimized because the procedures used are consistent with sound research design and do not unnecessarily expose any participants to risk.

All records and responses from this study will be kept confidential. No individual's identities will be used; all data will be given codes and saved individually from any identification of participants directly. Participation in this study is unpaid; there will be no consequence or fine for non-participation. The expected benefit of your participation in this study will be the information obtained in regard to which teachers and principal's mindset elements have impact on their effectiveness levels.

The login is exceptional to the participant; however, participant identification will remain confidential, and research data will be kept in secure files at all times. After the study is carried out, all collected data will be destroyed

You are encouraged to ask any questions about this study that will assist you to understand how this study will be done. Please contact me or Dr. Bradley V. Balch by e-mail at brad.balch@indstate.edu or by phone at (812) 237-2802. If you have any concerns about your rights as a research subject, you may contact the Indiana State University Institutional Review Board (IRB) by mail at 114 Erickson Hall, Terre Haute, IN 47809, by phone at (812) 237-8217, or by e-mail at irb@indstate.edu. This study (IRB# 0000000) is approved by the IRB on Month Day, year. Thank you for your efforts and assistance.

Respectfully,

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APPENDIX C: FOLLOW UP E-MAIL TO INDIANA

K-12 PUBLIC TEACHERS AND PRINCIPAL

Teacher and Principal Effectiveness Survey: [survey URL]

Good Morning [first name],

If you haven't completed the survey, please help us out. Join the many Indiana public school teachers and principals in helping define current Indiana teacher and principal effectiveness levels. The link will be active until DAY, MONTH.

Thank you to the [# of respondents] teachers and principals who have already participated in the survey measuring the influence of elementary school teacher and principal mindset elements on levels of their effectiveness. The great participation has been appreciated.

Respectfully,

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APPENDIX D: A THANK YOU E-MAIL TO INDIANA

K-12 PUBLIC TEACHERS AND PRINCIPAL

Teacher and Principal Effectiveness Survey: [survey URL]

Good Morning [first name],

Thank you for participating in this study about the influence of elementary school teacher and principal mindset elements on levels of their effectiveness among Indiana K-12 public school teachers and principals.

We appreciate your assistance and candidness in answering questions. Your contribution to this significant research is invaluable for increasing teachers' and principals' effectiveness in the future.

Respectfully,

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APPENDIX E: SURVEY TO BE SENT TO INDIANA K-12 PUBLIC TEACHERS

The Influence Survey of Elementary School Teacher and Principal Mindset Elements on Levels of Educator Effectiveness

This survey will take approximately 4-6 minutes to complete. It is divided into three sections. Section I contains demographic information, Section II contains mindset items, and Section III addresses effectiveness. The entire survey must be completed for data to be tabulated.

Questionnaire

SECTION 1: DEMOGRAPHIC INFORMATION

1. What is your age? ____ (Less than 10 years) ____ (10-20) ____ (20-30) ____ (30-40) ____ (More than 40 years)

2. What is your gender? Male / Female

3. What is your position in the school? Teacher / Administrator

4. How many years of service do you have in the profession of education?

   _____0-10 years _____11-25 years _____25+

5. Do you believe one gender performs better than the other in delivering academic instruction? Yes / No

6. If you had to choose one of two reasons as a primary motivator for remaining in the profession of education, would it be overall job satisfaction or wages and wage-related benefits (e.g., income, health insurance, retirement pension, contract days annually)?

   Job Satisfaction / Wages and Wage-Related Benefits

SECTION 2: MINDSET

Respond to the mindset statements below related to mindset based on the following Likert-type Scale. As defined by Dweck, Walton, and Cohen (2014), mindset enables an individual to interpret the world on the basis of their independent viewpoints and decide on the future proceedings.

7. I am conscious of my own mindset.

Strongly Disagree Disagree Neutral Agree Strongly Agree

8. All educators can consciously change their mindset.

   Strongly Disagree Disagree Neutral Agree Strongly Agree

9. My perception of my own consciousness is linked to how I approach my duties, and it can't be changed very much.

   Strongly Disagree Disagree Neutral Agree Strongly Agree

10. Much of my job satisfaction is a function of my mindset.

    Strongly Disagree Disagree Neutral Agree Strongly Agree

11. I believe a teacher's mindset affects their delivery of instruction, and it can't be changed very much.

    Strongly Disagree Disagree Neutral Agree Strongly Agree

12. In instruction, experience is a great teacher.

    Strongly Disagree Disagree Neutral Agree Strongly Agree

13. A teacher's mindset influences student mindset, resulting in better student performance.

    Strongly Disagree Disagree Neutral Agree Strongly Agree

14. Effective teachers are born that way.

Strongly Disagree Disagree Neutral Agree Strongly Agree

15. Effective principals are born that way.

Strongly Disagree Disagree Neutral Agree Strongly Agree

16. The principal's mindset is an important factor in influencing teacher mindset.

Strongly Disagree Disagree Neutral Agree Strongly Agree

17. Intelligence can be instilled into one's consciousness as a function of mindset and cannot be changed very much.

Strongly Disagree Disagree Neutral Agree Strongly Agree

18. Effective leadership by a principal influences teacher attitudes toward the workplace and influences the teacher's decision to stay in the profession.

Strongly Disagree Disagree Neutral Agree Strongly Agree

SECTION 3: EFFECTIVENESS

Respond to the effectiveness statements below related to Educator Effectiveness based on the following Likert Scale. As defined by Ko et al. (2014), educator effectiveness is the ability of an educator, particularly a teacher, to provide an environment and disseminate information in such a way that results in positive student academic outcomes.

19. The physical environment directly affects teacher effectiveness.

Strongly Disagree Disagree Neutral Agree Strongly Agree

20. The cultural environment directly affects teacher effectiveness.

Strongly Disagree Disagree Neutral Agree Strongly Agree

21. High-stress workplace environments contribute to increased absenteeism and teacher turnover.

Strongly Disagree Disagree Neutral Agree Strongly Agree

22. My job has a lot of responsibility, but I don't have very much authority.

Strongly Disagree Disagree Neutral Agree Strongly Agree

23. My workplace environment is not very pleasant or safe.

Strongly Disagree Disagree Neutral Agree Strongly Agree

24. The principal's leadership style impacts teaching effectiveness.

Strongly Disagree Disagree Neutral Agree Strongly Agree

25. The principal's relationship with teachers is reflected in teachers' morale and student performance.

Strongly Disagree Disagree Neutral Agree Strongly Agree

26. The district leadership of superintendents and school boards influences both principal and teacher effectiveness as reflected in student performance.

Strongly Disagree Disagree Neutral Agree Strongly Agree

27. Reward and/or providing consequences for educators based on annual performance evaluations motivates improved teacher performance.

Strongly Disagree Disagree Neutral Agree Strongly Agree

28. Teacher performance effectiveness is tied to healthy interactions with peers and within the building and district leadership.

Strongly Disagree Disagree Neutral Agree Strongly Agree

29. I feel reasonably well satisfied with my present job.

Strongly Disagree Disagree Neutral Agree Strongly Agree

30. Most days, I am enthusiastic about my work.

Strongly Disagree Disagree Neutral Agree Strongly Agree

31. Each day of work seems like it will never end.

Strongly Disagree Disagree Neutral Agree Strongly Agree

32. I find real enjoyment in my work.

Strongly Disagree Disagree Neutral Agree Strongly Agree

33. I consider my job rather unpleasant.

Strongly Disagree Disagree Neutral Agree Strongly Agree