EXAMINING THE RELATIONSHIP BETWEEN SCHOOL CLIMATE AND TEACHER SELF-EFFICACY IN OREGON

by

Vincent Domingo

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Philosophy

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ABSTRACT

The purpose of this quantitative, predictive correlational study is to determine if school climate (SC) factors can accurately predict teachers' self-efficacy (TSE) in Oregon public schools. Using social cognitive theory and ecological systems theory as theoretical frameworks for this study, the importance of this research includes, adding Oregon data to the body of knowledge, narrowing the research gap, and a better understanding of SC and TSE that may be applied to improving a school's climate, school planning, increasing TSE, and retaining teachers. The sample for this study were Oregon public school teachers, 69 of which participated in the study. Two instrumentations were used to collect data, School Climate Index and Teachers' Sense of Efficacy Scale surveys. The instrumentations were distributed to the teachers by the districts' superintendents using email. Multiple regression analysis was used to analyze the collected data. Although SC factors' collegial leadership, teacher professionalism, and academic press were not significantly correlated to TSE, community engagement was significantly correlated. The statistics show that together, the combined SC factors were significantly correlated to TSE. In conclusion, this study replicated previous studies examining the relationship between SC and TSE and that more research is needed to narrow the research gap. Limitations to this study include improving sample size and diversity. A few recommendations for future research are replicating this study in another state, using different instruments, and examining a reverse relationship to see if SC can be predicted by TSE factors.

Keywords: teachers, school climate, self-efficacy, social cognitive theory, ecological systems theory, Oregon Department of Education

Dedication

I dedicate this dissertation to God, Nikki, and my family. From the beginning of this journey to the end, God has been there for me. If it was not for Nikki Kinoshita, I probably would not have pursued my PhD degree. Although my family are unaware I'm getting my PhD (they will know soon enough), they have always supported and encouraged all my endeavors. They wanted a doctor in the family, too. Even though I'm not a medical doctor, I'm a doctor, nonetheless.

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Thank you to all my Liberty University professors. With your guidance, I've been able to get through this difficult journey and earn a PhD in Education. Especially to Dr. Benny Hoiwah Fong and Dr. Michelle Barthlow, your patience, never ending support, and fast response allowed me to finish my dissertation according to my timeline and at my pace. Thank you so much.

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List of Abbreviations

Institutional Review Board (IRB)

Oregon Department of Education (ODE)

Predictive Correlational Research Design (PCRD)

School Climate (SC)

School Climate Index (SCI)

Teachers' Self-Efficacy (TSE)

Teachers' Sense of Efficacy Scale (TSES)

CHAPTER ONE: INTRODUCTION

Overview

The purpose of this quantitative, predictive correlational study was to determine if school climate (SC) factors can accurately predict teachers' self-efficacy (TSE) in Oregon public schools. Chapter One provides the necessary information and background covering SC and TSE. Included in the background section is an overview of the history and theoretical framework for this study. The problem statement investigates recent literature on the topic, while the purpose statement presents the significance and motivation for the current study. The last section introduces the research question, and it provides definitions related to this study and its background.

Background

The field of education is important in many countries (Lacks & Watson., 2018). Globally, education is competitive and requires good teachers to deliver quality education (Almessabi, 2021). Thus, teachers play a major role in education and within educational institutions (Zhang et al., 2021). A constant issue for educational institutions is recruiting and retaining good teachers. Although research studies found high TSE an important factor in retaining teachers (Perera & John, 2020), a lack of studies show what relationships contribute to high TSE. A topic in particular is SC and TSE, and the type of relationship that exists between the two. Some studies have shown SC aspects as having a significant effect on TSE (Almessabi, 2021; Wilson et al., 2020), while other studies have not shown a relationship between SC and TSE (Lacks & Watson, 2018).

In general, SC has many dimensions (Zakariya, 2020). The most common and agreed upon dimensions are physical, social, and academic, and together, these dimensions form a

school's learning environment (Mansor et al., 2021). From previous research studies, teachers who work in and perceive a positive SC often have high TSE (Zakariya, 2020). Supporting the notion, Zhang et al. (2021) found SC to be a key predictor of TSE. Although there have been research studies on SC and TSE independently, a search for studies examining the relationship between SC and TSE is limited (Almessabi, 2021). For educational institutions, understanding the relationship between SC and TSE can have tremendous implications, from improving academics (Lacks & Watson, 2018); improving quality of teaching (Zhang et al., 2021); and recruiting and retaining good teachers (Wolf et al., 2021).

Historical Overview

With over 40 years of research, high TSE is still a determinant of teachers' commitment (Shaukat et al., 2019). Factors influencing TSE can also affect teachers' future behaviors (Schunk & DiBenedetto, 2020). Teachers' self-efficacy evolved from Albert Bandura's (1986) social cognitive theory, which emphasized that learning occurs in a social setting in combination with a person's interaction, behavior, and environmental experiences. Social cognitive theory analyzes cognition, behavioral, and environmental factors in conjunction with a person's personal and social experiences (Bandura, 1986). In 1977, Bandura proposed two concepts called efficacy expectation and outcome expectancy. Efficacy expectation is an individual's belief and abilities to take action to accomplish a task, and outcome expectancy is an individual's belief and action to pursue and achieve a desired outcome. Bandura (1997) then defined the concepts as self-efficacy in social cognitive theory because the concepts reflect an individual's cognitive beliefs and ability to exercise an action to attain desired results. Since social-cognitive aspects are important in TSE, research studies began searching for a link connecting a school's environment to TSE (Wolf et al., 2021).

When discussing a school's environment, sometimes called SC, the discussion may get broad and cover a multitude of topics. Topics include environment, infrastructure, safety, teaching, learning, engagement, social environment, and diversity (Mansor et al., 2021). The human factor in SC typically refers to values, norms, social relationships, teaching, and learning (Lacks & Watson, 2018). Therefore, the overall SC can influence, and be influenced, by the people involved (Wang & Degol, 2016). Research on SC often cites Bronfenbrenner (1986) ecological systems theory as the origin. Although researchers use ecological systems theory as a theoretical framework for SC, researchers are yet to come to an agreement on the definition and parameters (Capp et al., 2020). Despite the differences in definition, various SC surveys have become a popular method for gathering school environment data (Debnam et al., 2021). In the beginning, SC sought to improve students' learning environment (Daily et al., 2019). As years passed, SC expanded to help provide a good working environment for teachers, too (Capp et al., 2020). Studies examining the relationship between SC and TSE have shown SC having a direct effect on TSE (Zakariya, 2020). Properly understanding the relationship between SC and TSE is essential in recruiting and retaining effective teachers (Zakariya, 2020).

Society-at-Large

Most people understand teachers are important and play a significant role in students' achievements (Almessabi, 2021; Mahler et al., 2018; Zhang et al., 2021). Students make decisions based on their educational experience, thus affecting what they do in their future (Kim & Gentle-Genitty, 2020). As teachers work within SC conditions, the actions teachers take can influence students' experience and shape positive attitudes and feelings (Daily et al., 2019). In addition, teachers with high self-efficacy can influence students' self-efficacy and improve academic achievements (Alemssabi, 2021).

One of the biggest challenges educational institutions face is recruiting and retaining effective teachers (Wolf et al., 2021). As rewarding as teaching is, educational institutions face high teacher attrition rates. To address the issue, research studies have highlighted the importance of building up TSE to improve job satisfaction (Zakariya, 2020). Perera and John (2020) showed teachers with high self-efficacy experienced higher job satisfaction, and the TSE-job satisfaction correlation was consistent across multiple educational grade levels.

Aside from teachers, educational institutions are dealing with an increasingly complex and evolving educational system (Jacobson et al., 2019). To address the issues from a broader perspective, educational institutions are beginning to focus on collecting SC data to better understand the changes (Burusic, 2019). Knowing and understanding SC factors is important because SC data reveals a school's current environment (physical, academic, and social) and potentially how to make improvements. The key element is school leadership's ability to utilize SC data to develop a strategic plan (Debnam et al., 2021). More importantly, research showed having a positive SC elevated teacher outcomes and job satisfaction, while also improving a school's overall learning environment.

Theoretical Background

The theoretical background for examining relationships between SC and TSE highlights Bronfenbrenner's ecological systems theory (1986) and Bandura's social cognitive theory (1986). The two theories provide the core constructs to examine relationships and connections between SC and TSE (Almessabi, 2021). Relationships exist between SC and TSE as environmental factors engage social-cognitive aspects of an individual (Wolf et al., 2021). Social cognitive theory forms the foundation for TSE, while ecological systems theory forms the foundation for SC.

Beginning with ecological systems theory, Bronfenbrenner (1986) explained how a person's development happens through the surrounding environment and reciprocal interactions with other people within the same environment. From the theory's description, a conceptual relationship exists between SC and social aspects of a teacher (Zakariya, 2020). Wolf et al. (2021) reinforced the idea by describing how environmental factors interact with and affect a person's social cognition and career decision making.

Since ecological systems theory relates to social environmental factors, the theory also touches upon a person's social cognition. Bandura's (1986) social cognitive theory has similarities in how learning occurs dynamically due to the interactions of the person, behaviors, and the environment. Although this study focuses on TSE, the relationship between social cognitive theory and general self-efficacy illustrates self-efficacy as a subset of social cognitive theory (Bandura, 2006). Self-efficacy is an individual's beliefs in their ability to organize and act upon situations to accomplish tasks. Moreover, self-efficacy levels describe the strength an individual believes and the ability the individual possesses to accomplish tasks, increasing the probability of desired outcomes (Barni et al., 2019). Teachers' self-efficacy is a specific type of self-efficacy as TSE relates to teachers' beliefs and abilities to accomplish teaching activities (Zhang et al., 2021).

Although the different levels of TSE appear to be similar across geographic boundaries, the importance of this study is to examine and understand the relationship between SC and TSE in Oregon public schools. Research studies have examined separately SC and TSE extensively. To whatever extent, research studies examining the relationship between the two have been lacking (Almessabi, 2021). The implications of this study can help to explain and possibly

address teacher recruitment and retention, and potentially improve school performance by properly analyzing SC data.

Problem Statement

Educational institutions understand teachers are important to students' academic success (Mahler et al., 2018). In spite of how important teachers are, a shortage of good teachers is an issue, and retaining teachers is not an easy task (Wolf et al., 2021). As reported by Zakariya (2020), two ways to retain teachers are to ensure teaching is enjoyable and to increase job satisfaction. Teachers who perceive teaching as rewarding often continue the profession (Wolf et al., 2021).

Two factors, SC and TSE, may have a positive effect on retaining teachers. Research studies have shown teachers with high self-efficacy experience greater job satisfaction than teachers with low self-efficacy (Perera & John, 2020; Zhang et al., 2021). Other studies examining SC also showed high levels of teacher job satisfaction when working in a positive school environment (Burusic, 2019). Based on research studies investigating SC and TSE, the studies found both as being influential in retaining teachers (Zakariya, 2020). While educational systems are evolving (Jacobson et al., 2019), and institutions are experiencing high attrition rates (Wolf et al., 2021), SC and TSE may play a significant role in positively impacting schools.

A collection of research studies on SC exists, but Burusic (2019) suggested an examination of SC contributions on TSE is still lacking. Similarly, schools are beginning to use SC surveys, but little information exists connecting SC factors with TSE (Debnam et al., 2021). Mansor et al. (2021) investigated the relationship between SC and TSE in Malaysia using sixth form (pre-university) teachers. Their research is just one out of a scant few found on SC and TSE, suggesting a need to examine other teacher groups from other countries to compare. The

problem is existing literature has not fully addressed the relationship between SC and TSE because a broad group of teachers and school environments exists. Thus, this study fills a gap in literature examining the relationship between SC and TSE for Oregon public school teachers, which represents an unresearched group of teachers and school environments.

Purpose Statement

The purpose of this quantitative, predictive correlational study is to determine if school climate (SC) factors can accurately predict teachers' self-efficacy (TSE) in Oregon public schools. If a relationship exists, the strength of the correlation may imply the predictive strength of the variables. The predictor variables for this study are the SC factors collegial leadership, teacher professionalism, academic press, and community engagement subscales. In collecting SC data, this study used the School Climate Index (SCI) instrument developed by Tschannen-Moran et al. (2006). In the SCI, collegial leadership evaluates school leadership by the quality of support and respect for teachers they oversee; teacher professionalism refers to teachers' attitudes and behaviors toward their professional commitment in pursuit of school goals; academic press assesses a school's desire to achieve academic excellence; and community engagement is the extent to which a school has formed a relationship with its community, continuing to maintain that relationship (Tschannen-Moran et al., 2006). The criterion variable for this study is the level of TSE. In collecting TSE data, this study used the Teachers' Sense of Efficacy Scale (TSES) instrument developed by Tschannen-Moran and Hoy (2001). The TSES instrument measures overall TSE by surveying teachers' beliefs and ability to engage students, apply instructional strategies, and manage a classroom.

The population for this study consisted of Oregon public school teachers. Course subjects varied in order to gather general TSE. Teacher demographics included gender, age, ethnicity,

background education, and years of experience. The demographic information provided a foundation for organizing the results of SC and TSE relationships. A sample of Oregon public school teachers throughout the state participated as part of the research to examine the relationships between SC and TSE. The population in the state of Oregon ranks in the middle compared to other states. Oregon public school teachers is a population not yet researched regarding SC and TSE relationships. Thus, teacher participants from all Oregon public schools were potential targets.

Significance of the Study

By conducting a research study on SC and TSE, the findings will add to current literature available examining relationships between SC and TSE. In addition, Oregon public school teachers' data fulfills a gap and is the first study in the state of Oregon. Relationships between SC and TSE in Oregon public schools may reveal useful information for the State of Oregon Department of Education (ODE). Similar to other states, ODE is having difficulties recruiting and retaining effective teachers.

Schools are experiencing teacher shortages, which have impacted the local community (Granziera & Perera, 2019). A shortage of teachers also undermines educational goals, such as the Individuals with Disabilities Education Act, which promises individualized programs for students with disabilities (Peyton et al., 2021). Recruiting and retaining teachers is a challenge for other countries, too (Wolf et al., 2021). In addressing the issue, research studies have shown schools having high teacher job satisfaction do a better job at retaining and reducing teacher turnover (Zhang et al., 2021).

Extensive research on teacher job satisfaction has linked SC and TSE as important factors affecting job satisfaction (Zakariya, 2020). Granziera and Perera (2019) mentioned the level of

TSE induces the level of job satisfaction. Zakariya (2020) linked commitment to teaching with job satisfaction. Lastly, Shaukat et al. (2019) identified teachers' day-to-day activities in correlation with job satisfaction. From the three studies mentioned, TSE is the common element predicting a teacher's job satisfaction (Zakariya, 2020). Understanding SC and TSE relationships, schools can better strategize ways to improve TSE.

From a broader perspective, schools can begin by examining SC factors. Zhang et al. (2021) mentioned teachers with high TSE are most likely to have positive perceptions of SC. In addition, an understanding of SC enables schools to discern other factors affecting overall school performance (Burusic, 2019). Experienced school leaders know having SC data can act as a guide for school planning and improvements (Debnam et al., 2021). The SC data also provides an opportunity for school leadership to collaborate with key stakeholders and encourage contributions to the process.

Researching Oregon public school teachers, teacher shortages, and expanding a broader view of SC factors are reasons to examine the relationships between SC and TSE. Investigating the population of Oregon public school teachers adds to the current literature. Research on SC and TSE has practical applications, such as understanding and potentially resolving teacher shortages and improving teachers' job satisfaction. With additional research studies on SC factors, scholars will gain a better and deeper understanding of the relationship between SC and TSE. Adding the results of Oregon data to existing literature also lessens the number of uninvestigated states by one.

Research Question

RQ1: How accurately can *teachers' self-efficacy* be predicted from a linear combination of *school climate* factors for Oregon public school teachers?

Definitions

1. *Academic Press* - A subscale of SCI, which refers to a school's desire for academic excellence (Tschannen-Moran et al., 2006).
2. *Classroom Management* - A subscale of TSES, which describes a teacher's beliefs in their ability to organize and manage a classroom for positive learning (Tschannen-Moran & Hoy, 2001).
3. *Collegial Leadership* - A subscale of SCI that assesses the quality of school leadership with regard to supporting and respecting the teachers for whom they are responsible (Tschannen-Moran et al., 2006).
4. *Community Engagement* - A subscale of SCI, which refers to the extent a school has developed and fosters a mutual relationship with its community (Tschannen-Moran et al., 2006).
5. *Instructional Strategies* - A subscale of TSES that examines a teacher's beliefs in their ability to develop and implement course instruction and feedback mechanisms (Tschannen-Moran & Hoy, 2001).
6. *School Climate (SC)* - A school's environment that entails physical, social, and academic dimensions (Mansor et al., 2021).
7. *School Climate Index (SCI)* - A research instrument used to measure SC (Tschannen-Moran et al., 2006).
8. *Self-Efficacy* - A person's beliefs in their own ability to organize, act, and accomplish tasks they set out to do (Bandura, 2006).
9. *State of Oregon Department of Education (ODE)* – Represents school districts within the state of Oregon.

10. *Student Engagement* - A subscale of TSES that measures a teacher's beliefs in their ability to engage and motivate students (Tschannen-Moran & Hoy, 2001).
11. *Teacher Professionalism* - A subscale of SCI, it refers to teachers' behaviors and their commitment to their profession to achieve school goals (Tschannen-Moran et al., 2006).
12. *Teacher Self-Efficacy (TSE)* - Self-efficacy relating to teachers and their beliefs in their ability to fulfill their teaching profession (Zhang et al., 2021).
13. *Teachers' Sense of Efficacy Scale (TSES)* - A research instrument used to measure TSE (Tschannen-Moran & Hoy, 2001).

CHAPTER TWO: LITERATURE REVIEW

Overview

This literature review brings to light school climate (SC) and teachers' self-efficacy (TSE), investigating elements contributing to SC and TSE relationships. Beginning with two foundational frameworks, Bandura's social cognitive theory (1986) is the theoretical base for TSE, while Bronfenbrenner's ecological systems theory (1986) is the theoretical base for SC. A common element between social cognitive theory and ecological systems theory is the role environmental climate plays in shaping an individual. To further explain environmental factors within SC and TSE, related literature investigated prior studies on each topic separately, followed by studies examining their relationship. After thoroughly reviewing research literatures, the chapter summarizes current findings on SC and TSE and links the information to this study.

Theoretical Framework

The theoretical frameworks used to guide this study are Albert Bandura's social cognitive theory (1986) and Bronfenbrenner's ecological systems theory (1986). Social cognitive theory is the core theory which applies to self-efficacy theory (Bandura, 1997), and of which teaching self-efficacy is a subset. Through personal, behavioral, and environmental factors, social cognitive theory describes the interaction between those factors as it influences human behavior (Bandura, 1986; Otaye-Ebede et al., 2019; Rubenstein et al., 2018; Schunk & DiBenedetto, 2020; Wang & Lin, 2021). Ecological systems theory relates to social cognitive theory by emphasizing and describing the environmental factors shaping an individual's experience and development. Overall, social cognitive theory is the foundation for TSE, while ecological systems theory is the foundation for SC.

Social Cognitive Theory

Social cognitive theory maintains a psychological perspective dealing with human functions (Schunk & Usher, 2019). Although the theory is primarily in the field of psychology, the theory's wide application often spans to other fields, such as education, business, and health (Schunk & DiBenedetto, 2020). Bandura's social cognitive theory focuses on the dynamics of personal, behavioral, and environmental factors regulating and influencing people's behavior (Bandura, 1986; Otaye-Ebede et al., 2019; Rubenstein et al., 2018; Schunk & DiBenedetto, 2020; Wang & Lin, 2021). A central premise of social cognitive theory is the belief an individual can decide the outcome of life events (Schunk & DiBenedetto, 2020). Thus, social cognitive theory applies to self-efficacy as individual beliefs and capability to execute actions produce desired outcomes (Bandura, 1986). Social cognitive theory and self-efficacy are pertinent to teachers' beliefs and teaching capabilities (Rubenstein et al., 2018). Therefore, social cognitive theory is an adequate framework for this study.

Theorist and Origination

In the 1960s, Albert Bandura (1977) developed what was then called *social learning theory*. Social learning theory emphasized the importance of observation and motivation in learning (Schunk & DiBenedetto, 2020). Refining his work on social learning theory, Bandura (1986) recognized other important social variables in human behavior. Consequently, he evolved social learning theory into social cognitive theory. The conceptual framework for the new theory centered on personal, behavioral, and environmental factors (Bandura, 1986; Otaye-Ebede et al., 2019; Rubenstein et al., 2018; Schunk & DiBenedetto, 2020; Wang & Lin, 2021). Since then, social cognitive theory has been used in various studies (Rubenstein et al., 2018). In the field of

education, the reciprocal interaction between teachers' personal experiences, behaviors, and the school environment reflects similarities to SC and TSE.

How Social Cognitive Theory has Advanced Literature

Through years of research, Bandura's (1986) social learning theory evolved into social cognitive theory. Since then, there are many social cognitive theoretical perspectives derived from Bandura's theory (Schunk & DiBenedetto, 2020). Other research studies have also contributed to developing, testing, and expanding the theory (Schunk & Usher, 2019). As a result, many research studies have referenced Bandura's social cognitive theory due to the theory's research applications and diverse contexts, which include extensive testing of the theory's predictability and reliability (Schunk & DiBenedetto, 2020).

A key aspect of social cognitive theory is the concept of self-efficacy (Bandura, 1986). Prior to firmly defining self-efficacy, Bandura (1977) proposed two principles of self-efficacy, called *efficacy expectation* and *outcome expectancy*. Efficacy expectation refers to an individual's trust and confidence to achieve a task, while outcome expectancy is an individual's belief the task undertaken will have a desired outcome (Bandura, 1986). Derived from self-efficacy, TSE explains self-efficacy in the context of teaching (Barni et al., 2019).

Relates to the Study

To fully understand the origins of TSE requires an understanding of social cognitive theory (Perera & John, 2020). Almessabi (2021) believed the social cognitive theory framework is the foundation for TSE. The definition of TSE is similar to self-efficacy, except it describes teachers' beliefs and capacity to handle teaching tasks (Zhang et al., 2021). Namely, teachers' profession, which includes teaching activities, classroom management, instructional practices, and any other related activities influencing students' academic outcomes (Barni et al., 2019).

TSE exhibits the same facets as social cognitive theory, such as personal, behavioral, and environmental factors. An example would be individuals regulating behaviors by making self-assessments and evaluating the surrounding environment (Otaye-Ebede et al., 2019). Comparable to this study, the interactions between personal, behavioral, and environmental factors may explain relationships between SC and TSE. Almessabi (2021) suggested social cognitive theory guides SC and TSE to form examinable internal and external cues within an environmental context. In addition, Rubenstein et al. (2018) proposed environmental factors are of great importance, which is the other theoretical framework examined in this study.

Ecological Systems Theory

The foundation of SC comprises environmental factors. Bronfenbrenner's (1976) ecological systems theory describes human development relative to environmental settings. Ecological systems theory explains the complex and dynamic interactions of an individual with other people and the surrounding environment (Buser et al., 2020). For example, a child's development occurs within the environment and through a reciprocal relationship with their parents (Lin & Bates, 2010). Bronfenbrenner (1977) described ecological systems theory in the context of individual and environmental relationships. The simple description allows ecological systems theory to be prevalent across different fields of study (Graves & Sheldon, 2018). Given the broad scope and applicability, the theory enables seamless application within any discipline and is flexible to allow researchers to examine different levels of environmental influence (Buser et al., 2020). Using an ecological systems theory approach allows analysis of various systems within an environment (Phala & Hugo, 2022).

Theorist and Origination

The origins of ecological systems theory derive from social ecology (Bronfenbrenner, 1977). Social ecology focuses on how individuals interact and affect the environment (Buser et al., 2020), whereas ecological systems theory examines how the environment influences the individual within a setting (Phala & Hugo, 2022). Bronfenbrenner (1976) first introduced ecological systems theory, which described a person's development through interactions with the environment. During the 1970s, at the time of the theory's initial development, Bronfenbrenner presented the theory as having four environmental systems making up an individual's surroundings (Bronfenbrenner, 1979).

The original four environmental systems were microsystem, mesosystem, exosystem, and macrosystem, and the systems formed a concentric circle around the individual (Bronfenbrenner, 1977). The first is microsystem, the closest to the individual which represents people (e.g., parents) and the environment (e.g., house) immediate to the individual (Liu et al., 2021). Second is mesosystem, which includes interrelations between two or more settings between the individual and the microsystem, such as school and friends (Childs & Scanlon, 2022). Third is exosystem, the larger environmental system that indirectly affects the individual, such as an individual's friends' parents and the community (Iruka et al., 2020). Fourth is macrosystem, which contains the cultural context (e.g., beliefs, values, culture, and society) of the individual (Kuchynka et al., 2022).

Eventually, the ecological systems theory evolved and included a fifth system called chronosystem (Bronfenbrenner, 1986). Moore et al. (2020) referred chronosystem to time, relating to an individual and the environment, and changes occurring over a period of time. They used past events, such as the Great Recession and the COVID-19 pandemic, as examples of

major environmental changes. The ecological systems model is a systematic approach to investigating an individual's environment and the influence each system has on the individual (Bronfenbrenner, 1989). Using the five systems, the theory recognizes relationships between one another within an environment and how the systems contribute to the life of an individual (Phala & Hugo, 2022).

How Ecological Systems Theory has Advanced Literature

Ecological systems theory typically explains how environmental factors influence a person's development (Kitchen et al., 2019). The theory extends beyond normal individual development and refines psychological, social, and cultural well-being (Phala & Hugo, 2022). Encompassing the microsystem, mesosystem, exosystem, macrosystem, and chronosystem, an individual's behavior and self-efficacy gets affected, too (Zakariya, 2020). In ecological systems theory, the systems work together to affect the whole individual. As a result, ecological systems theory can aid other theories, such as explaining social context, understanding structural conditions, and examining the impact of economic and political factors on an individual (Lőrinc et al., 2020). For instance, the macrosystems may include beliefs and cultural values within a society, along with established laws and regulations governing the political and economic climate. Macrosystem elements then interact with the exosystem and mesosystem structures, presenting opportunities and challenges during which individuals are constructing experiences. As demonstrated, ecological systems theory uses a systems approach to investigate how an environment influences a person (Moore et al., 2020). Ecological systems theory's integrated system navigates various cognitive, emotional, motivational, and social processes (Buser et al., 2020), which characterizes SC and TSE factors.

Relates to the Study

The ecological system theory operates through multiple systems in a coordinated fashion (Buser et al., 2020). School climate factors seem to function the same way, where factors work in coordination to affect teachers and students. The theory seamlessly applies itself to a wide range of disciplines. Application of ecological systems theory encourages researchers to consider the individual as a whole and to investigate the different environmental factors within the surroundings (Bronfenbrenner, 1979). As an example, Lin and Bates (2010) applied Bronfenbrenner's theory to explain a child's development by examining how the different environmental factors worked together to influence the child. Using a similar approach, Mansor et al. (2021) applied ecological systems theory to explore how SC affects TSE.

How the Theories Interrelate with the Study

Bandura's (1986) social cognitive theory provides the framework for TSE. Within social cognitive theory, self-efficacy is a central element describing an individual's beliefs and actions (Schunk & DiBenedetto, 2020). As a result, TSE applies the theory of self-efficacy to teachers' beliefs and ability to perform teaching duties in pursuit of achieving desired results (Barni et al., 2019). Another aspect of social cognitive theory is environmental factors' influence on teachers (Rubenstein et al., 2018). In the context of school, SC represents environmental factors that affect teachers (Zakariya, 2020). When viewing SC from the perspective of Bronfenbrenner's ecological systems theory, SC factors parallel the theory's environmental factors. For this reason, the theory encourages researchers to examine teachers from a holistic view. Although research studies have examined relationships between SC and TSE, the lack of studies and existing knowledge gaps suggest further research is needed (Almessabi, 2021; Mansor et al., 2021). This

study fills a gap by examining the relationship between SC and TSE using a different population not yet researched, teachers in the state of Oregon.

Related Literature

Related literature for this study examines SC and TSE. When describing TSE, the focus is on teachers' beliefs and capability to attain desired academic outcomes (Barni et al., 2019). Based on social cognitive theory, TSE explores personal, behavioral, and environmental factors influencing teachers' behavior (Rubenstein et al., 2018). Social cognitive theory factors examined in this literature are personal values, confidence, motivation, job satisfaction, and stress. An overlapping aspect of SC and TSE is the environmental climate (Almessabi, 2021). In this study, the selected SC factors stem from Wang and Degol's (2016) review of SC construct and school domains. The domains have been adapted for this study to include five domains entitled school staff, physical environment, social environment, community, and academics. Previous research studies have suggested further research is needed to examine the domains and the relationship between SC and TSE (Almessabi, 2021). Since SC and TSE are both multidimensional constructs, an objective in examining related literature within this study is to identify variables which may indicate (ignore) the existence of a relationship and to potentially discover new (old) variables not yet applied in research studies.

Teachers' Self-Efficacy

Everyone possesses self-efficacy. Self-efficacy varies among people where different levels of efficacy match individuals' perceived beliefs and capabilities to perform actions (Bandura, 1977; Bandura, 1997). In the field of education, TSE reflects teachers' beliefs and ability to perform teaching tasks and obligations in pursuit of achieving student learning and educational goals (Barni et al., 2019; Granzeria & Perera, 2019). Hence, teachers play an

important role in students' well-being and future academic achievements (Almessabi, 2021; Mahler et al., 2018). Perera and John (2020) found support for students' academic achievements by showing a positive correlation between high TSE and student success rates. Given Bandura (1986) proposed four sources of general self-efficacy, the sources also apply to TSE. The four sources of self-efficacy are mastery experiences, vicarious experiences, verbal persuasion, and physiological and affective states (Bandura, 1997).

The first source of self-efficacy, mastery experiences, described an individual's perception and belief of past experiences (Keshavarz, 2020; Truong & Wang, 2019). The second source, vicarious experiences, explained how observation and modeling other people can also influence an individual by making comparisons (Asakura et al., 2022; Linge et al., 2021). The third source, verbal persuasion by significant people, can convince and encourage individuals to believe and take action (Garriott et al., 2021; Nob, 2021). The remaining source, psychological and affective states, effect an individual's physical and emotional feelings of competence and capabilities (Gebauer et al., 2021; Webb & LoFaro, 2020). In relation to TSE, personal values; beliefs and confidence; motivation; job satisfaction; and stress and burnout touches upon at least one, if not all, sources of self-efficacy.

Personal Values

Personal values are intrinsic and greatly influence people's behavior (Bandura, 1986). Barni et al. (2019) noticed that, in the right school environment, a teacher's personal values can drive teaching potential and behaviors. They also found teachers' personal values are important predictors of TSE. Teachers' beliefs and values significantly influence TSE and greatly improve teaching ability (Lin & Bates, 2010).

Social cognitive theory explains how personal and behavioral factors influence people's beliefs and actions (Bandura, 1986). Since the core of TSE is teachers' beliefs and ability to take actions, personal values are a central element for teachers' decisions (Barni et al., 2019). Teachers' beliefs and values not only affect a teacher's perceived teaching, but beliefs may also affect school staff perception (Lin & Bates, 2010). School staff are generally school leadership, administration, teachers, and students. Teachers' personal values can also intertwine with educational values, such as ethics, norms, morality, and democracy (Rudasill et al., 2018). When teachers' personal values align with an educational institution's culture, the synergy between value and culture creates a motivating SC to teach in (Wolf et al., 2021). School leaders' responsibility seem to be to maximize collective values to improve SC and TSE.

Taking a systems approach, Lőrinc et al. (2020) reiterated how beliefs and values fall under macrosystems of Bronfenbrenner's ecological systems model. They explained how personal values from a macrosystem perspective show TSE overlapping onto the social environment and community factors of SC. Additionally, mesosystems and exosystems incorporate physical environment and school staff within a SC. Since macrosystems interact with mesosystems and exosystems to shape people's experiences, Lőrinc et al. made a connection supporting the idea of relationships existing between SC and TSE. Research studies have recognized and supported SC and TSE relationships (e.g., Almessabi, 2021; Mansor et al., 2021; Wilson et al., 2020), but for this current study, there was no literature explaining in great detail the connection between SC and TSE.

Understanding the effects of teachers' beliefs and personal values is important considering the impact on TSE. Perera and John (2020) reported, teachers' personal values may translate into high TSE, at which high levels would increase a teacher's ability to positively

affect students' learning. In comparison to beliefs, teachers' personal values are more important and drives teachers' beliefs and goals (Barni et al., 2019). Nevertheless, research studies often reference teachers' beliefs when describing TSE (e.g., De Coninck et al., 2020; Granziera & Perera, 2019; Markova, 2021; Romero-Ariza et al., 2021; Rubenstein et al., 2018; Wyatt & Dikilitas, 2021; Zhang et al., 2021).

Beliefs and Confidence

Teachers' beliefs play a key role in TSE (Barni et al., 2019). Social cognitive theory supports belief is psychological and impacts the functions of a human (Schunk & Usher, 2019). A teacher's belief influences teaching style, student engagement, and classroom practices (Lin & Bates, 2010). The daily routine of teachers in a classroom reflects a teacher's beliefs and ability to teach effectively (Granziera & Perera, 2019). Teachers' beliefs act as filters and guides teaching performance (Perera & John, 2020). Beliefs can impact instructional practices in a classroom (Lin & Bates, 2010) and the choice of activities a teacher undertakes (Wyatt, 2021). The concept of beliefs and self-efficacy are key elements of social cognitive theory (Bandura, 1986). Regarding TSE, teachers' firm beliefs and ability to teach related tasks compel teachers to take certain types of actions (Barni et al., 2019; Granziera & Perera, 2019; Mahler et al., 2018; Zhang et al., 2021).

The psychological context of teachers' beliefs regarding what is important and what is not important, and how teachers affect students, are vital information to know (Lin & Bates, 2010). Bandura's social cognitive theory expresses beliefs as a social cognitive state nurturing self-efficacy development (Granziera & Perera, 2019). Teachers' beliefs often mention a teacher's attitude towards teaching, learning, students, and overall education (Lin & Bates, 2010). Rather than examine teachers' attitudes (internal), Almessabi (2021) analyzed teachers' SC factors

(external) to formulate what relationships may exist affecting teachers' beliefs and overall TSE. Ecological systems theory applies because the theory describes a dynamic relationship between an individual and the environment (Bronfenbrenner, 1976). The flexibility of ecological systems theory allows researchers to investigate various levels of environmental factors (Buser et al., 2020). Zakariya (2020) mentioned research studies examining environmental relationships exist, but additional research is needed to get a deeper understanding. Despite this research not examining relationships between SC factors and teachers' attitudes, attitudes are still important and are directly linked to TSE. As an example, positive attitudes tend to signify high TSE (Lacks & Watson, 2018) and empower teachers to attain teaching goals because of their firm beliefs and self-efficacy (Wolf et al., 2021).

A quality of having firm beliefs is teachers' increased feeling of confidence in skills and ability to promote student learning (Lacks & Watson, 2018). As social cognitive theory pertains to TSE, teachers' beliefs and ability to teach become relevant to building confidence (Rubenstein et al., 2018). Research have shown confident teachers are most likely to actively promote student engagement and achieve positive results in student learning (Mahler et al., 2018). Teachers with high self-efficacy demonstrate a high level of confidence and play a key role in envisioning and planning academic goals (Barni et al., 2019). Aside from academic obligations, confident teachers enjoy teaching, having high job satisfaction ratings (Granziera & Perera, 2019). Even during critical situations, confident teachers can adapt to any challenging environment (Schunk & DiBenedetto, 2020). Overcoming challenges is partly due to high TSE and intrinsic motivation (Wolf et al., 2021).

Motivation

In the domain of self-efficacy, motivation is a prominent feature (Schunk & DiBenedetto, 2020). Motivational beliefs compel teachers to believe and accomplish tasks at hand (Rubenstein et al., 2018). In social cognitive theory, an individual's beliefs influence behaviors and actions (Bandura, 1986). Self-efficacy principles are core components of social cognitive theory (Bandura, 1977); therefore, motivation has significance within social cognitive theory (Schunk & DiBenedetto, 2020). If teachers lack motivation, a teacher may avoid teaching activities, concede to challenges, or choose to pursue easier, simpler, and ineffective instructional strategies (Rubenstein et al., 2018).

Research studies reviewed for this study described motivation as a unidirectional relationship to TSE (e.g., Bas, 2022; Chan et al., 2021; Lauermann & Berger, 2021; La Velle, 2021; Mahler et al., 2018). The reality is self-efficacy and motivation works bidirectionally, reciprocating and mutually reinforcing one another (Granziera & Perera, 2019). Schunk and DiBenedetto (2020) indicated teachers with high self-efficacy used motivation to make choices, act on the choices, and persevere through challenges until the goal is reached. Conversely, they also found teachers with high self-efficacy substantiate beliefs through gradual progress and actions, which then enhances motivation. Wolf et al. (2021) found high self-efficacy motivated teachers to take action when teachers normally would not. This study explores a topic not often found in research studies on SC and TSE, whether SC influences both TSE and motivation simultaneously during dynamic exchanges between TSE and motivation.

The dynamic concept of motivation describes motivational processes (Schunk & DiBenedetto, 2020). Before discussing motivational processes, Barni et al. (2019) explained motivation as a two-dimensional system. They explain the first dimension as openness to change,

and the second is self-enhancement and self-transcendence. Self-enhancement prioritizes personal interest, whereas self-transcendence concerns the welfare of others. Self-transcendence indirectly incorporates ecological systems theory by addressing other people's welfare (Bronfenbrenner, 1976). People's welfare is important in ecological systems theory because the environment affects people (Buser et al., 2020). The two motivational dimensions is another topic obscure from research studies on SC and TSE relationships. Instead, research studies on SC and TSE focus on and discuss motivational processes.

Motivational processes are personal factors influencing behaviors (Schunk & DiBenedetto, 2020). Since motivation engages an individual's personal characteristics and behaviors, social cognitive theory has an intrinsic role in motivational processes because the theory emphasizes the dynamic relationship between personal factors and behaviors (Bandura, 1986). The concept aligns with Hattie et al.'s (2020) description of internal and external factors that affect motivational processes. A characteristic of motivational processes is the constant change in personal factors affecting behaviors (Schunk & DiBenedetto, 2020). An example of constant change is teachers' personal values and the first dimension, openness to change (Barni et al., 2019). The case being TSE and motivation are bidirectional, Granziera and Perera (2019) suggested change is occurring due to reinforcing motivational processes. They believed TSE is constantly constructing and deconstructing beliefs, which are essential to social cognitive theory and self-efficacy (Bandura, 1986). The goal is to build up teachers' beliefs so teachers can effectively teach and promote student learning (Rubenstein et al., 2018).

Self-efficacy and motivation are attributes necessary to be effective teachers (Granziera & Perera, 2019). Students' success increases when teachers are knowledgeable and motivated (Mahler et al., 2018). What has been consistent in affecting student learning is teacher

motivation (Rubenstein et al., 2018). Teachers with high self-efficacy can have motivational outcomes similar to students with high self-efficacy (Schunk & DiBenedetto, 2020). The correlation between teachers and students' self-efficacy occurs because motivated teachers' actions affect student engagement (Barni et al., 2019). Motivation is important in a teaching profession, so does having high TSE, as it affects student learning (Mahler et al., 2018).

Job Satisfaction

A report by Zhang et al. (2021) found teachers with low self-efficacy and low job satisfaction often lose enthusiasm and were ineffective in facilitating students' learning. The idea that low self-efficacy and low job satisfaction reduces enthusiasm fundamentally supports Schunk and DiBenedetto's (2020) thoughts on people's life choices. Self-efficacy and social cognitive theory explore individual's beliefs (Bandura, 1986), and in the case of teachers, the theoretical framework examines TSE, motivation, and job satisfaction and tries to explain why teachers leave the profession (Zhang et al., 2021). Most recent studies regarding teachers investigated TSE, stress and burnout, and job satisfaction (Skaalvik & Skaalvik, 2017). Several definitions of job satisfaction exist, but in general, job satisfaction is a positive (negative) emotional state to the extent a person likes (dislikes) a job and perceives the tasks as fulfilled (Zhang et al., 2021). An individual's job satisfaction is a helpful indicator of long-term job growth and commitment (Shaukat et al., 2019). A teacher's perceived job satisfaction correlates highly with job performance (Zhang et al., 2021), which can also be an influencing element in TSE (Shaukat et al., 2019).

Some aspects of a teacher's job can elevate job satisfaction. Examples include working with students and colleagues (Shaukat et al., 2019), and freedom of autonomy (Skaalvik & Skaalvik, 2017). Barni et al. (2019) found high levels of TSE were linked to job satisfaction. In

other studies, links between SC, TSE, and job satisfaction were discovered (Zhang et al., 2021). Since SC, TSE, and job satisfaction relationships have a varying degree of breadth and depth, ecological systems theory is a useful framework for dissecting the different relationship levels. Ecological systems theory provides five environmental systems called microsystem, mesosystem, exosystem, macrosystem, and chronosystem (Bronfenbrenner, 1977) to evaluate the levels of SC, TSE, and job satisfaction relationships. To simplify this research study, the scope of the study is to replicate a previous study on SC and TSE, which does not assess job satisfaction separately. In future studies, narrowing the focus solely on SC and teachers' job satisfaction may be worth investigating to compare to SC and TSE.

When discussing teachers' job satisfaction, a couple of ways teachers attain satisfaction is by watching students succeed and by being a part of an inclusive SC (Zakariya, 2020). Another way SC affects teachers' job satisfaction is by getting support from school staff (Shaukat et al., 2019). School staff is a SC factor impacting teachers' job satisfaction. This study's examination of the relationships between teachers, school staff, and SC strengthens the researcher's choice to use social cognitive theory and ecological systems theory to examine TSE and SC. The researcher for this study continues to explore other SC variables that may, or may not, contribute to TSE. The aim is to understand the interconnections amongst different variables. By recognizing how job satisfaction and other variables interact with SC and TSE, the researcher can make informed assessments in the results and findings section of this study. In addition, this study may provide useful information for other researchers looking for something other than predictability, such as causation. An objective in examining relationships between SC and TSE is to understand the interrelationships between the multitudes of variables and factors, such as commitment and job satisfaction.

During the search process for relevant articles and journals on SC and TSE, the list of research studies found were on SC, TSE, and job satisfaction. The list of research studies looked at positive correlations (e.g., Katsantonis, 2020; Shakeel et al., 2022; Zhang et al., 2021; Zakariya, 2020). Zhang et al. (2021) signified emerging research on TSE, SC, and job satisfaction, included stress and burnout. They found by reducing stress, teachers' well-being increased. The reverse is also true where high TSE and job satisfaction reduced job-related stress (Barni et al., 2019). Other research studies showed teachers' SC perceptions were key predictors of TSE, job satisfaction, and level of stress (Wilson et al., 2020). To gather a complete picture of SC factors' predictability on TSE, a review of literature on stress and burnout is required.

Stress and Burnout

Despite the fact research studies have linked SC, TSE, and job satisfaction to teacher stress and burnout, there has been inadequate research completed exploring SC factors' influence on stress and burnout (Daniilidou et al., 2020). Workplace stress is the physical and mental responses an individual experience during a challenging or threatening situation at work (Zhang et al., 2021). Stress occurs when an individual has difficulties coping with the demands placed on the job. Different from stress, burnout is a combination of exhaustion (emotional and physical), detachment, and diminished personal accomplishments (Van Droogenbroeck et al., 2021). Daniilidou et al. (2020) pointed out the results of burnout normally occur when teachers experience prolonged work-related stress. They felt stress and burnout are concerning, as it impacts teachers' ability to effectively perform duties. Considering social cognitive theory emphasizes an individual's behavioral factors (Bandura, 1986; Otaye-Ebede et al., 2019), examining aspects of stress and burnout may act as predictors on TSE. The impact of stress and burnout on TSE are relevant to teachers' beliefs and teaching abilities (Rubenstein et al., 2018).

Stress and burnout are known to reduce TSE and demoralize teachers to the point of leaving the profession (Skaalvik & Skaalvik, 2017).

Research studies have found teachers' SC perceptions to be a key predictor of TSE, job satisfaction, and stress (Wilson et al., 2020). Whether satisfaction and stress directly or indirectly affect SC, TSE, or both, may be worth exploring. To remain focused on building the body of knowledge, this study is replicating an existing study and following a set of boundaries and scope. However, reasons to examine stress and burnout also have to do with potentially exploring practical applications affecting SC and TSE.

When examining relationships between SC and TSE, teachers' feelings, such as stress and burnout, might be influential. In reality and in practice, stress and burnout have caused high levels of exhaustion, turnover, and early retirement for teachers (Daniilidou et al., 2020). Teachers' beliefs and behaviors, as mentioned in social cognitive theory, explain how individuals decide on a desired outcome (Bandura, 1986), such as turnover. Teacher turnover causes attrition and is a major challenge at educational institutions (Granziera & Perera, 2019), indicating a growing need to understand teacher turnover and burnout. Van Droogenbroeck et al. (2021) indicated teachers' stress and burnout is a dynamic process not caused by a single event, but rather a combination of perceptions, behaviors, and SC factors. How people's behaviors and environmental factors are complex systems interact with each other was explained in the ecological systems theory (Bronfenbrenner, 1977). Stress and burnout can also cause a teacher to experience physical and mental health problems (Daniilidou et al., 2020), making ecological systems theory an important framework in identifying potential environmental factors causing stress and burnout. From an ecological systems theory perspective, classroom management belongs to the microsystem environmental view due to the relation teachers have with a school

(Bronfenbrenner, 1979). Daniilidou et al. (2020) examined a teacher's microsystem environment and suggested stress and burnout may cause teachers to shift careers. They added, a key reason has to do with teaching mastery and TSE during a certain phase in a teacher's professional career. Teaching mastery is important because mastery experiences is the first source of self-efficacy (Butt et al., 2020; Eun, 2019).

As mentioned, job satisfaction and stress and burnout are factors that can impact SC and TSE relationships. This study considers the role job satisfaction and stress play on SC and TSE relationships, but for the purpose of this study, the researcher will continue to focus solely on SC factors and TSE. The information gathered on job satisfaction, stress, and burnout may be of use when examining data results. Examining SC factors is necessary, since research studies have linked stressful classrooms with low TSE (e.g., Bottiani et al., 2019; Hayes et al., 2020; Lauerman & Hagen, 2021).

Classroom Management

Among the many stressors for teachers is classroom management (Bottiani et al., 2019). Examining Tschannen-Moran and Hoy's (2001) TSE model, the model identified two domains called classroom management and a teacher's ability to keep classroom order for TSE. Both classroom management and teachers' responsibility to maintain classroom order further suggest using Bronfenbrenner (1977) ecological systems framework in this study. The reasoning is teachers' beliefs greatly impact classroom practices (Lin & Bates, 2010). Classroom management is a teaching task that requires proper handling and management (Wolf et al., 2021). Classroom management seems like a physical SC factor but reviewing Tschannen-Moran et al.’s (2006) SC model, classroom management may actually fall under teacher professionalism. Research studies consider classroom management as teacher professionalism because TSE beliefs influence a

teacher's behavior in a classroom (e.g., Rubenstein et al., 2018; Mansor et al., 2021). Since TSE beliefs influence teachers' behaviors, social cognitive theory is useful in connecting beliefs to actions (Bandura, 1986), such as translating teachers' beliefs to teaching capabilities.

A teacher's role is to manage a classroom to facilitate student learning (Rubenstein et al., 2018). Managing a classroom measures a teacher's ability to handle problems in a bound space, maintain a classroom, and apply a level of TSE (Daniilidou et al., 2020). Fostering a positive TSE enables teachers to be effective in a classroom, which in turn affects a teacher's job satisfaction and lowers burnout (Perera & John, 2020). Zakariya (2020) found TSE in classroom management was not significant in teachers' job satisfaction. If classroom management is not significant in teachers' job satisfaction, but significant in SC factors, then classroom management might not generate causal inference.

A classroom environment is a microsystem in Bronfenbrenner's (1979) ecological systems model. The microsystem is a level one factor when describing SC. The classroom is the immediate environment a teacher interacts with, which means classroom organization and processes are SC factors which can affect a teacher. Given this study is examining relationships between SC factors and TSE, the author of this study is aware of how classroom management may affect teachers. Research studies have examined connections between classroom management and TSE (e.g., Granziera & Perera, 2019; Perera & John, 2020; Rubenstein et al., 2018), but research studies connecting classroom management and SC are scant (Perera & John, 2020).

School Climate

Almessabi (2021) found a link between high TSE and SC. Aligning with Bronfenbrenner's (1976) ecological systems theory, the theory emphasizes the importance of

environmental factors and the effects on individuals. There are multitudes of environmental factors in SC, each operating at different system levels of ecological systems theory. Examples include classroom environment and teachers (microsystem); teachers and co-workers (mesosystem); students' parents and the community (exosystem); cultural backgrounds and beliefs of teachers and students (macrosystem); and students graduating or teachers retiring (chronosystem). Zakariya (2020) found SC significantly contributes to public school teachers' and students' self-efficacy. Tschannen-Moran et al. (2006) underscored the importance of quality SC in public schools and the effects on TSE and student achievement. Although this study does not examine students, the author acknowledged SC and TSE factors affect students, too. There are many SC factors to consider when examining possible relationships with TSE.

The current public school environment, as reported by Tschannen-Moran et al. (2006), describes how state and federal governments are the driving force in public schools' policies. They call attention to the fact that SC data is being used to improve schools to meet state and federal governments' benchmarks, as governments continue to raise public school standards. Measuring SC factors is a complicated process (Lacks & Watson, 2018). Before examining SC data, researchers need to set boundaries and clearly define the factors. Setting a scope for SC is an issue the academic community has yet to come to a consensus on, including the parameters and definition of SC (Chirkina & Khavenson, 2018; Olsen et al., 2018). One group of scholars define SC as physical structures, relationships, values, teaching, and learning (Mansor et al., 2021), while another group define SC as the environment, culture, and overall school specific settings for teachers and students (Burusic, 2019). However, the common theme shows SC is multifaceted, where the factors within can interact with one another. An adapted four domain SC by Wang and Degol (2016) seemed to be a better fit in explaining relationships between SC

factors and TSE. Their defined four domains are institutional environment, safety, community, and academia. To better align the domains with Tschannen-Moran et al. (2006) School Climate Index instrument, a reorganization of institutional environment and safety into three domains called school staff, physical environment, and social environment is needed.

School Staff

A healthy public school climate embodies positive interactions between teacher and administration, generally called *school staff* (Tschannen-Moran et al., 2006). School staff consists of school leadership, administration, and teachers. Within a school's organizational structure, school staff are responsible for nurturing a learning environment and promoting a positive SC (Burusic, 2019). Ecological systems theory shows how school staff is a component of the mesosystem, where the school's beliefs, values, and culture comprise the exosystem (Childs & Scanlon, 2022). Capp et al. (2021) found, often, staff members prioritize students' SC experience over school staff's own experience. They identified staff members as critical factors in creating a positive SC. To give an example, teachers with high stress display teacher professionalism by continuing to commit time and energy toward students' learning (Shakeel et al., 2022). Public school principals promote collegial leadership by supporting teachers and the effort teachers make in pursuit of students' achievements (Tschannen-Moran et al., 2006). In both cases, collegial leadership and teacher professionalism help to foster student engagement and positively affect students' experience. Research studies by Astor and Benbenishty (2019) have linked students' experience with SC, while Zakariya (2020) have linked teachers' experience with SC. Understanding the different viewpoints of school staff is crucial in interpreting what roles staff members play in the school and how schools can create a positive SC (Capp et al., 2021).

When discussing school staff, there are generally three categories. The categories are school leadership, teachers, and administration. Individually, school leadership is normally principals, chancellors, and presidents, who make key decisions and are responsible for achieving school goals (Capp et al., 2021). As a group working together, which may include teachers and administration, school leadership becomes collegial leadership. Teachers instruct students and guide learning objectives, giving teachers the greatest impact on students' success (Almessabi, 2021; Mahler et al., 2018; Zhang et al., 2021). Administration handles the functions and operations of a school (Capp et al., 2021). Together, school staff is responsible for the academic press of a school (Holzberger et al., 2020). In public schools, academic press is a school's desire for quality education and commitment to excellence. Social cognitive theory can influence a school's collegial leadership, teacher professionalism, and academic press. The theory emphasizes understanding the dynamics of personal and behavioral factors, and how the behaviors affect people's actions (Bandura, 1986; Otaye-Ebede et al., 2019). Relating to this study, social cognitive theory explains how beliefs and actions of school leadership, teachers, and administration can influence students. In a public school, administration and teachers' actions contribute to teacher professionalism, academic press, and community engagement, which can positively affect student achievements and the SC (Tschannen-Moran et al., 2006).

Normally, when researchers discuss SC, the focus is on investigating school leadership and teachers, or collegial leadership (Lacks & Watson, 2018). There are insufficient research studies examining administration's influence on SC (Capp et al., 2021). Within a SC, school leadership are the decision makers, while teachers instruct student learning (Debnam et al., 2021). When working together, school leadership and teachers form collegial leadership. School leadership and teachers may operate independently, but this study examines a holistic and

collegial leadership perspective on SC and TSE. Bronfenbrenner (1976) described the interactions between co-workers (leadership and teachers) from a mesosystem environment because workers work together and operate closely with the microsystem. Capp et al. (2021) pointed out how equally important school administration is because administrators are the human systems running a school, providing support to school leadership and teachers. They emphasized the importance of staff members in SC research, theory, and practice because staff members foster a positive SC for students. From their research, the views of administration are essential in understanding how schools enhance SC and how administration's role impacts the SC environment. Capp et al.'s research is one of the seldom found studies examining administrations' influence on SC. Regardless of the role of administration, replicating a previous study requires narrowing the focus on teachers and school leadership because the instrumentation used in this study measures only collegial leadership and teacher professionalism.

The section on TSE discusses teachers, while the section on SC discusses school leadership and collegial leadership. School leadership is key to establishing a quality SC experience (Capp et al., 2021). Reports have shown school leadership often has a positive view of SC than administration and teachers (Capp et al., 2020). When school leadership respects and supports teachers and administration, the leadership group transforms into collegial leadership (Tschannen-Moran et al., 2006). Collegial leadership behaviors can positively improve school leadership, teachers, and administration's individual beliefs and actions as well (Hu et al., 2019). Also, research studies by Allen et al. (2015) and Tschannen-Moran and Gareis (2015) showed how important collegial leadership's influence is on SC. Although collegial leadership promotes shared leadership, there needs to be a primary leader within. Tschannen-Moran et al. (2006) explained, as an example, principals demonstrate collegial leadership by being supportive and

encouraging teachers and administration to share ideas. They further explained, principals balance directives and discretion to ensure academic press and educational goals are met. Furthermore, principals' actions affect collegial leadership, teacher professionalism, academic press, and community engagement. Thus, leadership is considered an art in influencing people (Mansor et al., 2021). A growing number of empirical evidence suggest school leaders' positive influence on school staff creates a positive SC (De Smul et al., 2020; Debnam et al., 2021; Forfang & Paulsen, 2021).

Research studies showed the importance of school leadership-teacher collaboration, or collegial leadership, in affecting SC (De Smul et al., 2020; Debnam et al., 2021). Therefore, the dynamics and combined aggregate of school leadership and teachers may be greater together than separately. A school leader also possesses a certain leadership style. Burusic (2019) suggested, a principal's leadership style can predict a public school's SC. Other factors possibly affecting school leadership are school budgets, policies, and institutional decisions (Capp et al., 2021). School leadership factors not mentioned in this study may also affect SC and TSE. This research study does not account for all possible factors influencing school leadership. This study only recognizes school leadership as an important link between teachers, collegial leadership, TSE, and SC.

Physical Environment

Early research studies on SC investigated how physical structures affected school effectiveness (Burusic, 2019). The reasoning in the past was school facilities and buildings equated to teachers' work environment (Mansor et al., 2021). Although the previous studies did not specifically mention public schools, the general descriptions presumably include public school facilities. Applying ecological systems theory, an individual's surrounding environment

can influence personal development (Bronfenbrenner, 1986). In a public school, examining how classrooms affect teachers is an example of ecological systems theory microsystem environment (Liu et al., 2021). To illustrate, disorganized classrooms, poor lighting, and unkept hallways are stressors affecting teachers and students' behaviors (Hurd et al., 2018). In today's public schools, the physical dimension of SC also includes teachers' surroundings, available resources, and security (Mansor et al., 2021).

Public school security, or safety, is a critical SC factor in a school's environment (Debnam et al., 2021). Safety has become a necessity in fostering a positive SC (Burusic, 2019). With rising school violence, safety is becoming a school's priority (Debnam et al., 2021). Within the ecological systems theory, safety falls under the exosystem environment because safety does not directly affect student learning or teachers' teaching ability (Iruka et al., 2020). Instead, safety indirectly affects students' and teachers' beliefs and behaviors, which relate to social cognitive theory. For instance, the lack of school safety causes students and teachers to feel uneasy (Capp et al., 2021), thus affecting teachers' beliefs and actions according to social cognitive theory (Bandura, 1977).

Research evidence shows school leaders are promoting safer schools by creating a positive SC (Capp et al., 2021). When school leaders involve teachers and administration in the process, school leaders create a safer SC through collegial leadership. Debnam et al. (2021) indicated most students and school staff express concerns when SC lacks safety, especially if a school has experienced a mass shooting in the past. As an example, they found schools that experienced shootings ranked safety high in priority compared to schools that have not experienced shootings at all. Therefore, based on their research, there is a great chance different schools may perceive safety and SC differently. Consequently, safety perceptions may affect

research studies examining relationships between SC and TSE. Regardless of safety, a positive SC is a catalyst in encouraging and stimulating a school's learning environment (Almessabi, 2021). Having safer classrooms and a healthy physical environment creates a positive SC in which students and teachers perceive a conducive place for learning (Van Houte, 2005).

A public school's physical environment has relevance when exploring TSE. Burusic (2019) identified physical work conditions affect teacher behaviors, and how the environment can stimulate and inspire positive feelings. In contrast, a public school's physical disorder and disorganization can cause stress (Hurd et al., 2018). The positive and negative experiences of public school environments demonstrate ecological systems theory's effect on teachers. The ripple effect impacts social cognitive theory outcome expectancy on teachers' beliefs in achieving a desired outcome. Case in point, a good physical working environment can reduce stress, increase job satisfaction, and positively affect SC (Burusic, 2019). Two concepts worth noting are, teachers' job satisfaction is associated with TSE (Zakariya, 2020), and examining SC factors as predictors of TSE is a different study compared to TSE predicting SC (Almessabi, 2021).

Public school classrooms are physical environments where SC factors can impact TSE. Rubenstein et al. (2018) suggested teachers' feelings in a classroom are attributable to a school's physical features and structures. They found teachers preferred to organize and decorate a classroom to create a comfortable space. The goal is to facilitate and inspire a positive SC and learning environment for the teacher and the students. A positive classroom environment also impacts classroom processes and academic outcomes (Perera & John, 2020). Overall, teachers are responsible for classroom management. Effectively managing a classroom illustrates how classrooms can create a positive SC and increase TSE (Zakariya, 2020). Having a positive SC

and high TSE reinforces a stimulating physical learning environment along with its social environment (Mansor et al., 2021).

Social Environment

Contemporary studies view social environment as equally important as the physical environment (Burusic, 2019). The quality of interpersonal relationships has great importance in public schools and can positively impact student learning (Tschannen-Moran et al., 2006). Ecological systems theory reinforces the viewpoints because the theory emphasizes environmental factors' effect on an individual while also explaining how other people affect an individual's personal development (Lin & Bates, 2010). Some SC attributes include physical structures coupled with social relationships (Lacks & Watson, 2018). When developing an educational plan to improve SC, the key is to look at every aspect, such as a school's physical structures and social environment (Mansor et al., 2021). The human component plays a critical role within a social environment (Schunk & DiBenedetto, 2020).

The social dimension in SC includes the quality of relationships, partnerships, collaboration, and respect for diversity (Burusic, 2019). Examples of social relationships within a school are student-student, student-teacher, teacher-teacher, and teacher-administration. Open relationships between school leaders, teachers, and administration foster a positive school climate and balances structure, support, and consideration for school staff (Tschannen-Moran et al., 2006). The quality of social relationships depends on frequency, regularity, and familiarity (Lacks & Watson, 2018). High quality relationships include perceptions of support and respect for others (Debnam et al., 2021). In low quality relationships, school staff are insincere, involve game playing, and wastes time and effort (Tschannen-Moran et al., 2006). Different from the perspective of ecological systems theory, where scholars may be interested in environmental

factors' effect on an individual (Bronfenbrenner, 1977); social cognitive theory examines the interactions between an individual, other people, behaviors, and the environment (Bandura, 1986; Otaye-Ebede et al., 2019). Social cognitive theory's efficacy expectation describes the importance of other people and the social environment in developing an individual's trust and confidence to achieve a task while nurturing positive relationships (Bandura, 1986).

Within a public school, Shakeel et al. (2022) described high quality social relationships' ability to increase TSE and personal resources. They also suggested an increase in teacher professionalism, as public school teachers feel obligated and compelled to repay the school. One such example is emotional support. Teachers' emotional support encourages attentiveness and responsiveness to students' wants and needs (Perera & John, 2020). When public school teachers perceive a high quality SC, teacher professionalism increases, as teachers devote a higher amount of cognitive, emotional, and behavioral resources to teaching (Shakeel et al., 2022). Research has shown SC social dimension contributes to TSE (Mansor et al., 2021). Social support is a key element within TSE because support is a description of the social backing of other people in order to help an individual (Burusic, 2019). By way of illustration, some students find interest in becoming a teacher based on the support and encouragement students receive from teachers (Perera & John, 2020). Public school teachers apply teacher professionalism when teachers show positive emotions but hide negative feelings (Shakeel et al., 2022). Teacher professionalism plays a major role in students' social-emotional development and TSE (Burusic, 2019). As a result, there might be a need to explore how beliefs develop the social perspectives of teachers, further reiterating the necessity for more research to understand relationships between SC and TSE.

To increase TSE, teachers should belong to an encouraging and supportive SC (Burusic, 2019). School leaders can also influence TSE (Lacks & Watson, 2018). In practice, some school leaders improve TSE by sharing decision-making duties with teachers, which is an example of collegial leadership. Sharing duties demonstrate a school leader's respect for teachers and promote partnerships (Mansor et al., 2021). Another way to show respect is through diversity. School leaders can form a positive social environment that encourages diverse values, cultures, and norms among administrators, teachers, students, and the community (Almessabi, 2021). An ideal public school climate allows teachers access to resources, encourages collaboration, and advocates community engagement (Shakeel et al., 2022). The overall effect is teachers feel valued and empowered, which positively affects TSE (Lacks & Watson, 2018). Schools with high TSE and a positive SC show greater activity, engagement, and support for the local community (Mansor et al., 2021).

Community

School and community collaboration do not happen automatically (Kim & Gentle-Genitty, 2020). Collaboration requires conscious awareness and developing joint relations to bridge structures and strategies together (Debnam et al., 2021). Public schools with a positive SC often involve collaborative work, healthy student-teacher relationships, and community engagement (Shakeel et al., 2022). In a SC, community engagement involves all school-community actors (Burusic, 2019). Due to the involvement of school-community actors, the joint relationship operates within the macrosystem environment of the ecological systems theory. The macrosystem environment consists of the relationship, participation, and the cultural context of the partnership (Kuchynka et al., 2022). Kim and Gentle-Genitty (2020) found effective school

community engagement varied and depends on shared ideologies. They also suggested successful community engagement promotes democracy, shared power, and form partnerships.

Public schools with a democratic structure are significant in engaging the community (Kim & Gentle-Genitty, 2020). Through the lens of social cognitive theory, the democratic process describes people cordially engaging one another with different behaviors within an environmental setting (Bandura, 1986; Otaye-Ebede et al., 2019). A democratic process promotes school-community members' decisions, equality, and respect for other people, and drives community engagement (Kim & Gentle-Genitty, 2020). Engagement causes people to form beliefs and act accordingly to produce an intended outcome (Schunk & DiBenedetto, 2020). The impact school-community members have on SC and community engagement depends on the activities and the degree of engagement. Throughout the community engagement process, fair democratic decisions involve all stakeholders (Kim & Gentle-Genitty, 2020) and communication is open and transparent (Anderson et al., 2019). By describing what community engagement is and the democratic process, this study sheds light on the actors and activities defining SC community factors. Democracy is a core element in successful school-community collaboration and engagement (Kim & Gentle-Genitty, 2020). Establishing equal relations and fair treatment regarding community members becomes important because often collaboration will not offer equal opportunities or be beneficial for all members (Kim, 2019). Regardless, the aim of community engagement is to transform schools and communities and to build strong partnerships (Kim & Gentle-Genitty, 2020).

The term *partnership* describes the relationship between school and community members. Mansor et al. (2021) expanded the context of partnership by referring to the external environment (community) a school must engage with. Successful school-community engagement

depends on healthy partnerships. A healthy partnership is one where school-community members build cooperation and treat each other with respect to address shared issues (Kim & Gentle-Genitty, 2020). Recognizing and incorporating members' specific skills are important at empowering members to contribute to the partnership (Kim, 2019).

In a school-community partnership, engaging members, such as students and the families, are important. To foster a positive SC, students and families should have the right to decide on education (Kim & Gentle-Genitty, 2020). Public schools serving marginalized communities encourage community engagement (Riddle et al., 2021). However, marginalized students and families feel disempowered and excluded from school-community engagement (Soutullo et al., 2019). A lack of partnership may cause social injustice and problems, which dampen a positive SC. A major effect of social issues is the dispiriting of students from actively engaging in schools (Kim, 2019). Strategies to counter social issues and reverse the effect include empowering partnerships and active community engagement towards shared goals (Anderson et al., 2019). Another strategy incorporates school community engagement teams to regularly stay connected with families (Riddle et al., 2021).

Given enough time and resources, partnerships can work to meet changing needs and advance successful school-community engagement (Anderson et al., 2019). Observations influencing community engagement are student-family interactions, nurturing healthy communities, and building relationships. The key is for scholars to understand how and why community engagement is an influential element in SC and education development (Wolf et al., 2021). As a whole, educational development and planning looks at the physical environment, social environment, and academic press of a school (Mansor et al., 2021).

Academics

Competent teachers are highly sought after professionals (Lacks & Watson, 2018). Especially at a time when countries are competing internationally to attract talented teachers because capable teachers can elevate an educational institution's academics (Almessabi, 2021). Academic constructs refer to teaching and learning (Wang & Degol, 2016). In relation to SC, Tschannen-Moran et al. (2006) defined academic quality and desire for excellence as academic press. They described schools' academic press as setting the tone to organize, establish goals, and determination to achieve academic excellence. Given academic press involves school leaders, teachers, administration, students, and families, a school's academic level seems to blend collegial leadership, teacher professionalism, and community engagement. Demonstrating the combination of collegial leadership, teacher professionalism, community engagement, and academic press in public schools, teachers set high goals for students, principals support teachers, administration facilitates students' progress and communicates with families, and the community celebrates and honors students when they do well academically (Tschannen-Moran et al., 2006).

Although academic press seems to be an important factor in predicting TSE, Almessabi's (2021) study did not find academic press to be statistically significant. To verify and possibly further explain Almessabi's results, this study is a replication examining a different population. Although academic press was not statistically significant, Almessabi found collegial leadership to be statistically significant at predicting TSE. A basis for collegial leadership is the responsibilities leadership have at implementing school policies, managing resources, and overseeing the school, aside from supporting teachers (Holzberger et al., 2020). Collegial leadership is a critical piece in implementing high academic standards while being sensitive to

the well-being of teachers and students (Debnam et al., 2021). By implementing high academic press, public schools may potentially improve upon existing SC.

A good SC materializes with the existence of positive attitudes and feelings toward academics (Zakariya, 2020). Positive SC is an essential element in enhancing academic press (Lacks & Watson, 2018). Promoting positive SC factors can shape a supportive academic environment, but allowing negative SC factors to dwell can ruin the environment (Burusic, 2019). Examples of teachers' SC factors and the ecological system theory environments are other teachers' co-workers and the school itself (microsystem); teachers' relationship with collegial leadership, school staff, and students (mesosystem); school policies and academic press (exosystem); school traditions and community engagement (macrosystem); and teachers' promotions and anniversaries (chronosystem). The SC factors mentioned can have a direct or indirect effect on academic press. Using ecological systems theory provides a systematic way to examine SC factors.

The outcome of the system environments produces different SC conditions (Burusic, 2019). An important academic facet to explore to better understand SC conditions is educational development. Educational development can determine the strength of a school's academic press (Mansor et al., 2021), such as a school's learning environment. Less educated, uninspiring, and unmotivated teachers may be the cause for poor academic learning environments, whereas the opposite would create a superb learning environment (Burusic, 2019). When teachers maintain a positive mindset, the learning environment produces quality teaching, encourages students, and increases students' success (Mahler et al., 2018). Bandura (1986) described an individual's positive mindset as a function of efficacy expectation of social cognitive theory. The goal is to convert efficacy and pursue outcome expectancy, which is another component of social cognitive

theory. Having efficacy expectancy and outcome expectancy are the core principles driving self-efficacy. As a result, TSE has the potential to motivate teachers to push high levels of academic press and set higher student achievement goals.

High levels of academic press often equate to greater student achievements (Tschannen-Moran et al., 2006). Driving academic press are teachers who have the ability to positively impact students' performance (Mahler et al., 2018). High TSE correlates with teachers' enthusiasm and commitment to teach, as well as students' motivation and achievements (Tschannen-Moran & Hoy, 2001). An encouraging teacher often involves students in the learning process, thus motivating and inspiring students to do more (Barni et al., 2019). Teachers with high self-efficacy displays dedication to academic press and students' success (Lacks & Watson, 2018). Perera and John (2020) acknowledged a positive correlation between TSE and student achievement.

Barni et al. (2019) suggested students' high academics contribute to TSE. Conversely, Mahler et al. (2018) proposed TSE determines the quality of students' academics. Replicating a previous study analyzed how academic press predicts TSE, but not the other way around. In the future, a researcher may want to examine how TSE predicts academic press. High academic press is achieved through commitment when teachers set high expectations and support students' needs (Mansor et al., 2021). Support refers to teachers being respectful and available to students (Debnam et al., 2021). By being supportive, teachers foster a suitable learning environment conducive to academic success. Academic press and social dimensions are SC factors which can affect TSE (Mansor et al., 2021).

Research studies have shown a correlation between SC and TSE (Almessabi, 2021; Mansor et al., 2021), while a contradicting study has shown no relationship between the two

(Lacks & Watson, 2018). Research studies showing a relationship exists between SC and TSE differed in one study, which found academic press to be a significant contributor (Mansor et al., 2021), whereas another study found academic press to be insignificant (Almessabi, 2021). The contradicting outcomes may suggest various variables are the cause of the discrepancies. The fact that research studies show disagreements between two groups (correlated and non-correlated) and within a group (academics, significance, and insignificance) implies further research is needed to examine SC and TSE relationships. Since the relationship between SC and TSE is still inconclusive in the scientific community, this study fills a gap in literature and adds to the body of knowledge.

Summary

This review in literature examined previous research studies and identified what has been done, how prior studies relate to this research, and what is currently lacking when examining relationships between SC and TSE. To understand the relationship between SC and TSE, a review of concepts and theoretical frameworks explain the connection between the two. There are two theoretical frameworks outlining the foundations for SC and TSE. The first is Bandura's (1986) social cognitive theory. Social cognitive theory is the theoretical framework explaining the origins of self-efficacy, which has led to TSE. The second is Bronfenbrenner's (1976) ecological systems theory. Ecological systems theory focuses on the surrounding environment and people affecting an individual. Both theories are clearly different, but they seem to overlap in the areas of social and environmental factors.

The researcher for this study reviewed related literature pertaining to SC and TSE. The two sections are delineated into topics of interests. Beginning with TSE, this literature reviewed personal values, beliefs and confidence, motivation, job satisfaction, stress and burnout, and

classroom management. The topics are subcomponents which make up TSE. Research studies offered explanations on each topic with varying degrees of significance on TSE and SC. Examples included how personal values influence teachers' behavior (Barni et al., 2019); what role teachers' beliefs have on teaching and taking action (Granziera & Perera, 2019; Mahler et al., 2018; Zhang et al., 2021); knowing and understanding motivation has a profound effect on self-efficacy (Schunk & DiBenedetto, 2020); the overall dynamics between job satisfaction, stress, and burnout (Skaalvik & Skaalvik, 2017); and classroom management effectiveness (Perera & John, 2020). Classroom management is a factor touching upon TSE and SC.

Another section is about SC. A SC emphasize factors involved in a school's environment. Topics of interest included school staff, physical environment, social environment, community, and academics. School staff are the human resources within a school, which includes school leadership, administration, and teachers. When discussing school leadership, SC uses collegial leadership to measure school leaders' support and respect for teachers. Also, a positive SC and collegial leadership tends to affect teacher professionalism. Teachers demonstrate professionalism by showing commitment to teaching, student success, and achieving school goals. School staff are responsible for nurturing a positive learning environment (Burusic, 2019).

Examining the physical environment seems straightforward and links the physical characteristics of a school. Public schools are a perfect example showing how physical attributes of ecological systems impact teachers and TSE. In recent studies though, the physical environment extends beyond physical features. A physical environment includes teachers' surroundings, resources, and security (Mansor et al., 2021). Lately, public schools' security and safety have become priorities because of school violence, such as mass shootings (Debnam et al., 2021), aside the physical environment is the social environment. A public school's social

environment is equally important within a SC because a social environment measures the quality of the social relationships between school staff, teachers, and students (Lacks & Watson, 2018). Consequently, social relationships impact collegial leadership and teacher professionalism.

Outside of a school's social environment is the local community. Community engagement is important, as it unifies school leadership, teachers, students, families, and community members. A healthy SC actively engages the community and develops school-community collaboration using a democratic process through shared power, responsibilities, goals, and building strong partnerships (Kim & Gentler-Genitty, 2020). The academic aspect focuses on teaching and learning between teachers and students (Wang & Degol, 2016). Academic press establishes a school's desire for academic excellence. In public schools, academic press normally applies throughout the school district. Collegial leadership and teacher professionalism are the impetus of academic press within a SC. This study has shown factors affecting SC and TSE relationships. Unexplored research areas exist, but this review in literature solely focuses on replicating a previous study examining the relationship between SC and TSE.

After reviewing research studies related to this research, there are still knowledge gaps to be filled. Knowledge gaps include further clarification between contrasting studies; a multitude of possible combination of variables relating to SC and TSE; and a lack of a diverse set of research studies examining different populations. The researcher for this study wants to make clear this study is examining relationships between SC and TSE. This research has the potential to examine the relationship in reverse (TSE on SC), but the intent of this study is to examine SC on TSE. The goal is to replicate a previous study examining relationships between SC and TSE, and to use the findings to add to the body of knowledge.

CHAPTER THREE: METHODS

Overview

The purpose of this quantitative, predictive correlational study is to determine if school climate (SC) factors can accurately predict teachers' self-efficacy (TSE) in Oregon public schools. Although there are various SC factors, this study focused on collegial leadership, teacher professionalism, academic press, and community engagement within Oregon public schools. The participants for the study were public school teachers throughout the state of Oregon. Participants completed two surveys, one was the School Climate Index (SCI) and the other was the Teachers' Sense of Efficacy Scale (TSES). Data collected by these instruments provided the necessary data for descriptive statistics and multiple linear regression analysis.

Design

This study uses a quantitative, predictive correlational research design (PCRD) to determine if relationships exist between SC factors and TSE. Prediction studies follow a scientific approach using a correlational design framework. The purpose of PCRD is to search for predictive relationships between *predictor* variables and a *criterion* variable (Gall et al., 2007). Predictor variables are variables which forecast a response variable outcome, while the response variable, or criterion variable, acts as a dependent variable to the predictors.

Since PCRD focuses on statistical predictive relationships, it does not manipulate any of the measured variables, making it a nonexperimental design (Gall et al., 2007). The three types of information gathered from prediction studies are for developing theories, predictive validity tests, and identifying the extent a criterion variable can be predicted. Prediction studies tend to focus more on the latter and at maximizing correlations. In PCRD, it is important to properly define the criterion variable to identify predictive relationships.

The two instruments used for this study are SCI by Tschannen-Moran et al. (2006), and TSES by Tschannen-Moran and Hoy (2001). This study examined the relationship between SCI predictor variables labeled as *collegial leadership, teacher professionalism, academic press*, and *community engagement*. The SCI predictor variables, collegial leadership describes school leadership with respect to teachers within a school; teacher professionalism refers to a teacher's behavior and attitude towards their profession; academic press describes a school's desire for excellence; and community engagement is the extent of involvement a school has with its community (Tschannen-Moran et al., 2006). When using PCRD, it gives researchers the ability to evaluate how these variables, by itself or in combination, develop relational patterns (Gall et al., 2007).

Some limitations of PCRD include its inability to establish cause-and-effect relationships, causal inferences, and the requirement for further research (Gall et al., 2007). The advantage of PCRD is that it is simple, and it can examine relationships between variables. Furthermore, PCRD allows researchers to analyze multiple variables in one study. Despite the limitation, correlational design was appropriate for this study because the degree, direction (positive or negative), and predictability of the correlations between SC factors and TSE is of interest. Additionally, further research into the predictive relationship between SC and TSE can provide crucial information for other research studies and add to the body of knowledge in education.

Research Question

RQ1: How accurately can *teachers' self-efficacy* be predicted from a linear combination of *school climate* factors for Oregon public school teachers?

Hypothesis

The null hypothesis for this study is:

$H_0$1: There will be no significant predictive relation between the criterion variable *teachers' self-efficacy* scores and the linear combination of predictor variables (*collegial leadership, teacher professionalism, academic press,* and *community engagement*) for Oregon public school teachers.

Participants and Setting

The population for this study comprised Oregon public school teachers. The teachers taught at various elementary (K through 5th grades), intermediate (6th through 8th grades), and high schools (9th through 12th grades) throughout the state of Oregon. Using convenience sampling, the teacher participants completed a School Climate Index (SCI) survey developed by Tschannen-Moran et al. (2006) and a Teachers' Sense of Self-Efficacy Scale (TSES) developed by Tschannen-Moran and Hoy (2001). The sample size comprised 69 teacher participants, which meets the required minimum of 66 for correlational analysis when assuming a medium effect size with statistical power of .7 and alpha level, $\alpha = .05$ (Gall et al., 2007). The participants were Oregon public school teachers from different schools in different districts.

Population

The participants for the study were Oregon public school teachers located throughout the state of Oregon. What is important in PCRD is to ensure that the participants in the population were relevant to the research study in order to get quality results (Gall et al., 2007). For instance, the study by Lacks and Watson (2018) identified a specific population from Southside Virginia middle schools to survey teacher participants. Research studies on Oregon public schools examining relationships between SC and TSE are not available. Therefore, selecting Oregon public schools to sample narrows a gap in literature. Participants' grade levels ranged from elementary to high school, including teachers who taught various subjects. Using convenience

sampling, participants voluntarily completed two surveys on SC and TSE. Considering Oregon's population is less than most states, sampling Oregon's public school teachers from different districts helped to garner a sufficient sample size.

Participants

For this study, the number of teacher participants was 69, which met the required minimum. According to Gall et al. (2007), 66 teachers are the required minimum for multiple regression analysis assuming a medium effect size with statistical power of .7 and with a level of significance of .05 alpha. A similar study by Mansor et al. (2021) examined 695 teacher responses from 36 sixth form (pre-university) schools. The sample size was more than enough to demonstrate a relationship between SC and TSE with at least a medium effect size.

In this study, out of the 69 participants, 54 were females (78%) and 15 were males (22%). The ethnicities were three Native Hawaiian/Pacific Islander (4%), 54 White (78%), two Black (3%), no American Indian or Alaska Native (0%), 4 Asian (6%), and 6 Other Race (9%). Participants' grade levels taught were 33 elementary, K through 5th grades (48%); nine intermediate, 6th through 8th grades (13%); and 27 high school, 9th through 12th grades (39%). Regarding teaching experience, no teachers had less than a year teaching experience (0%), 12 had one to five years teaching experience (18%), 21 had six to 10 years teaching experience (30%), three had 11 to 15 years teaching experience (4%), and 33 had 16 years or more teaching experience (48%).

Setting

All of Oregon public schools (elementary, intermediate, and high schools) were potential sources of teacher participants. The participants were in-class teachers that taught different subjects, which included teaching a variety of students. Since the COVID-19 pandemic, schools

and teachers had to adjust to the environment to ensure school safety. Some adjustments included smaller class sizes, shorter class times, shift to online teaching, and mask wearing and social distancing precautions. Depending on a school's location, Oregon public schools served a mixture of low, middle, and upper-income students. Sampling occurred during the second quarter of the 2022-2023 school year.

Instrumentation

Replicating two studies by Almessabi (2021) and Lacks and Watson (2018), this study used the same two instruments to collect and measure SC and TSE data. Developed by Tschannen-Moran et al. (2006), the first instrument was the School Climate Index (SCI). The second instrument, Teachers' Sense of Efficacy Scale (TSES) was developed by Tschannen-Moran and Hoy (2001). The latter instrument is most popular amongst TSE researchers. Both instruments were useful in measuring SC and TSE because they collect continuous data on an interval scale, which is a requirement for multiple linear regression analysis. Prior to using these instruments, Dr. Megan Tschannen-Moran responded to a request for permission to use and permitted the use of both instruments. See Appendix A for Dr. Megan Tschannen-Moran's permission letter.

School Climate Index

The purpose of the SCI instrument is to measure the climate perceptions of a school. Each school has a unique climate, which comprises environmental and structural factors (Nishimura et al., 2020); cultural beliefs (Austin & Roegman, 2021); and how involved teachers, students, and parents are (Berkowitz et al., 2021). A positive school climate enhances social-emotional and academic outcomes (Lőrinc et al., 2020). Most researchers studying SC inherently want to find ways to improve the effectiveness of schools (Zhang, 2021). Even though this study

examines only the relationships between SC and TSE, other studies have shown SC to be a major contributor affecting teacher stress and job satisfaction (Zhang et al., 2021). What is most important is for researchers to understand the mechanisms of SC to improve teachers' well-being (Hu et al., 2019). Many research studies have used SCI to gauge teachers' perceptions of their SC (e.g., Almessabi, 2021; Lacks & Watson, 2018; Tschannen-Moran & Gareis, 2015).

SCI consists of four subscales: collegial leadership; teacher professionalism; academic press; and community engagement (Tschannen-Moran et al., 2006). The first subscale is collegial leadership. Collegial leadership describes a school leader's conduct, who is caring, compassionate, and supportive. The second subscale is teacher professionalism. Teacher professionalism is a teacher's ability and commitment to their students. Professionalism also includes respect for teachers' colleagues through cooperation and open communication, as well as being supportive. The third subscale is academic press. Academic press is the degree to which school leaders, administrators, and teachers work together in pursuit of academic excellence. The fourth subscale is community engagement. Community engagement refers to a school's commitment to foster a positive relationship with the community. The four subscales are shown in Table 1. For each subscale, sample items and item sources are listed. A total of 28 question items were categorized by collegial leadership (7 items), teacher professionalism (8 items), academic press (6 items), and community engagement (7 items).

Table 1

School Climate Index Sample Items

Subscale	Sample Items	No. of Items	Item Sources
Collegial Leadership	The principal is friendly and approachable. The principal puts suggestions made by the faculty.	7	OHI OCDQ
Teacher Professionalism	Teachers are committed to helping students. Teachers respect the professional competence of their colleagues.	8	OHI
Academic Press	The school sets high standards for academic performance. Students respect others who get good grades.	6	OCDQ
Community Engagement	Community members are responsive to requests for participation. Parents and other community members are included on planning committees.	7	OHI

Note. OCDQ = Organizational Climate Descriptive Questionnaire (Hoy et al., 1991; Hoy & Sabo, 1998); OHI = Organizational Health Inventory (Hoy & Feldman, 1987).

Tschannen-Moran et al. (2006) included in their study strong reliability and validity measures for SCI. As shown in Table 2, Cronbach's alpha coefficient of reliability were .96 overall, and for each subscales .93 collegial leadership, .94 teacher professionalism, .92 academic press, and .93 community engagement. Furthermore, Tschannen-Moran et al. factor analysis supported construct validity with the following ranges of .56 to .91 for collegial leadership, .66 to .83 for teacher professionalism, .53 to .74 for academic press, and .73 to .87 for

community engagement.

Table 2

Descriptive Data for School Climate (N = 82)

Variables	*M*	*SD*	Range	Reliability
School Climate Index, Overall	3.75	.27	3.04-4.37	.96
Collegial Leadership	3.88	.38	2.89-4.58	.93
Teacher Professionalism	3.93	.25	3.14-4.44	.94
Academic Press	3.57	.31	2.76-4.41	.92
Community Engagement	3.57	.40	2.41-4.40	.93

A principal axis factor analysis was run on a 28-question questionnaire (Tschannen-Moran et al., 2006). The analysis revealed three factors that had eigenvalues 13.97, 3.84, and 2.28, all of which were greater than one, and which explained 49.91%, 13.70%, and 8.13% of the total variance. Cumulative percent were 49.91%, 63.61%, and 71.74%, respectively. Although reduced to three factors because community engagement and academic press subscales merged to form a single factor, the four factors were retained since the subscales are conceptually distinct. Theoretically possible, a school may have strong academic press without the presence of a strong community engagement, but in practice, Tschannen-Moran et al. showed that was not the case among middle schools they studied. In schools where students who do well academically are honored, there seemed to be a high level of community engagement, interest, and support. Therefore, community engagement and academic press were retained in the SCI.

The SCI instrument comprised 28 questions and used a five-point Likert scale that ranges from *Never* to *Very Frequently*. Responses were as follows: Very Frequently = 5, Often = 4, Sometimes = 3, Rarely = 2, and Never = 1. The combined possible score on the SCI ranged from

28 to 140 points. A score of 28 points was the lowest possible score, meaning that teachers perceived their school climate as poor. Contrastingly, a score of 140 points is the highest possible score, meaning that teachers perceived their school climate as great. The average time to complete the SCI instrument was about 20 minutes.

Teachers' Sense of Efficacy Scale

The purpose of the TSES instrument is to measure a teacher's efficacy. See Appendix C for the TSES instrument. Prior to the development of TSES, constant measurement issues made other TSE instruments unreliable for researchers to use (Tschannen-Moran & Hoy, 2001). Since TSE had significant implications, Tschannen-Moran and Hoy sought to develop a new TSE measure. At the time, they reviewed existing TSE instruments from responsibility for student achievement, teacher locus of control, Webb scale, Ashton vignettes, Gibson and Dembo teacher efficacy scale, and Bandura's self-efficacy scale. Along with the development of a long form and short form TSES instrument, they tested its reliability and validity using data from other studies. Since both forms were found reliable and valid, this study used the short form version of the TSES instrument.

As noted by Burgueño et al. (2019), TSE can substantially predict teachers' psychological well-being, hence the use of TSES for this study. A popular instrument, TSES is used by researchers who are studying TSE (e.g., Almessabi, 2021; George et al., 2018; Lacks & Watson, 2018; Perera & John, 2020). Scarparolo and Subban (2021) mentioned TSES is a well-recognized instrument because of its reported construct validity and reliability. For this reason, they found TSES to be a widely used teacher efficacy measure in TSE studies. Translation variants of TSES have been used in other research studies, also (Ma et al., 2020).

TSES consists of three categories, which are, *student engagement, instructional*

strategies, and *classroom management* (Tschannen-Moran & Johnson, 2011). The first category is student engagement. Student engagement relates to a teacher's ability to engage and motivate students to achieve academic expectations. The second category is instructional strategies. Instructional strategies apply to a teacher's efficacy, general instructional practices, developing effective teaching strategies, and setting goals and objectives for students. The third category is classroom management. Classroom management refers to a teacher's capacity to manage their classroom and control students' environment to optimize student learning. Although the three categories may provide useful data, this study focused on replicating a previous study and only measured the overall TSES score.

Tschannen-Moran & Hoy (2001) included in their study strong reliability and validity measures for TSES long and short forms. Cronbach's alpha coefficient of reliability for the short form is .90 overall, and for each category .81 student engagement, .86 instructional strategies, and .86 classroom management. Furthermore, their factor analysis supported construct validity with the following ranges of .62 to .75 for student engagement, .63 to .75 for instructional strategies, and .61 to .83 for classroom management. To be specific, the student engagement low-end range of .62 refers to question 11 of the TSES short form, "How much can you assist families in helping their children do well in school?" (p. 800), and the high-end range of .75 refers to question 7, "How much can you do to get students to believe they can do well in school work?" (p. 800). Instructional strategies low-end range of .63 refers to question 5 of the TSES short form, "To what extent can you craft good questions for your students?" (p. 800), and the high-end range of .75 refers to question 10, "To what extent can you provide an alternative explanation, for example when students are confused?" (p. 800). Classroom management low-end range of .61 refers to question 8 of the TSES short form, "How well can you establish a

classroom management system with each group of students?" (p. 800), and the high-end range of .83 refers to question 1, "How much can you do to control disruptive behavior in the classroom?" (p. 800). Other researchers have also confirmed the reliability and validity of variant translations of TSES (Pintus et al., 2021).

In this study, the instrument used is the short form version. Both short (12 questions) and long (24 questions) forms are reliable and valid (Tschannen-Moran & Hoy, 2001), the difference being the number of questions asked. The short form comprises 12 questions and uses a nine-point Likert scale that ranges from *None at all* to *A Great Deal*. Responses are as follows: A Great Deal = 9, Quite a Bit = 7, Some Degree = 5, Very Little = 3, and None at all = 1. The combined possible score on the TSES ranges from 12 to 108 points. A score of 12 is the lowest possible score, meaning a teacher perceives their efficacy to be low, and a score of 108 points is the highest possible score, meaning that a teacher perceives their efficacy to be high.

The TSES instrument also collects descriptive statistics in nominal and ordinal data form. Information, such as a teacher's gender, years of experience, and grade level, are just some of the descriptive statistics in this study. The descriptive data is to help group and compare the data and not necessarily for examining the actual relationships between SC and TSE. By collecting descriptive statistics, demographic information may reveal possible influences and provide reasonings between SC and TSE relationships. With descriptive statistics, the overall information may suggest further research for other researchers to investigate. The average time to complete the TSES instrument is about 20 minutes.

Procedures

The data collected for this research is original data versus archival data. Data collected during a research study is original data, compared to archival data, which is data that is available

prior to the start of a research study (Gall et al., 2007). Before data collection began for this study, the researcher contacted the Oregon Department of Education (ODE) by phone to inquire about surveying Oregon public school teachers. The ODE representative responded by indicating that each district superintendent is responsible and approves surveying their teachers. With the information, ODE emailed the researcher with a list of the Oregon district superintendents. Prior to contacting the superintendents, a copy of the Institutional Review Board (IRB) approval document from Liberty University was available in case a superintendent requested a copy. See Appendix B for Liberty University's IRB approval for this study. Once a superintendent approved the research, surveying the district's teachers began.

With ODE and district superintendents' approvals, the researcher created a cover letter email template for distribution. The email template contained an introduction by the researcher, information about the research study, a request for participation, and consent by completing the online survey. See Appendix C for the cover letter email. An email template was sent to the district superintendents, then they distributed the email to the district's public school teachers. During the data collection process, email communication followed secure protocols to ensure individuals' confidentiality. Electronic communication via email remained on the server. No hard copies were distributed.

On the cover letter email, there were links to the SCI and TSES surveys. Oregon public school teachers completed an electronic version of the surveys using Google Forms. The online surveys were available for four weeks before the deadline date. As a follow-up, the superintendent sent out one reminder email a week before the deadline. Past the deadline, the online survey was closed. Anyone trying to access the online survey was presented with a survey closed message.

Data collected from the online surveys was in Google Sheets format. The Google Sheets file remained on the researcher's Google Drive account until it was ready for data analysis, ensuring data security. At all stages of the data collection process, all participants' identifying information was protected. Data was stored securely and only the researcher had access to the records. Through cloud computing, data was stored on a Google Drive and accessible only by the researcher. Like many cloud storage, the system required a username, password, and multi-factor authentication to access the Google Drive and the data. The data will be retained for a period of five years after the completion of this research study.

Data Analysis

Multiple linear regression was used to analyze the SCI factors and TSES scores. Gall et al. (2007) suggested using multiple linear regression analysis to determine if predictive correlations exist between predictor variables (collegial leadership, teacher professionalism, academic press, and community engagement) with the criterion variable (TSE). In addition, multiple regression analysis is effective in predicting behavior and is a popular analysis technique (Olvera Astivia & Zumbo, 2019). Researchers need to bear in mind there are critics suggesting multiple regression is unreliable and antiquated (Snell, 2020). However, an overwhelming support for multiple regression analysis suggests otherwise. Those supporting multiple regression emphasize the statistic technique is not at fault, but rather the quality of the data used in the analysis. Reiterating the importance of identifying a population relevant to this study and collecting quality data from participants prior to running multiple regression analysis was mandatory.

Multiple regression analysis is a statistical technique in prediction studies that correlates continuous data scores on each predictor variable with a continuous criterion variable (Gall et al.,

2007). The demand for multiple regression in prediction studies stems from its ability to yield a vast amount of information and the versatility in predicting relationships among variables. Restating the research question, this study examined how accurately can TSE be predicted from a linear combination of SC factors for Oregon public school teachers. With multiple regression analysis, it can estimate the magnitude and statistical significance of variables and has a predictive ability which this study intends to investigate. Multiple regression is also a primary technique for maximizing prediction. The most common type of multiple regression is ordinary least-squares regression, or linear regression. Other types include stepup, stepdown, and stepwise. The other types apply to different conditions and depend on a researcher's purpose for analysis, data forms, and whether the assumptions require it. This study does not use the other types of regression variants because the study replicates two previous research studies using multiple linear regression.

Normally, multiple linear regression analysis begins with a scatter plot to show correlations between two variables (Gall et al., 2007). Since this study uses four predictor variables, the study used a matrix scatter plot for data screening. The purpose of a scatterplot is to visually screen the data to identify correlations, check for missing data points, and to spot any inaccuracies. Before initiating actual data analysis, the researcher needed to select a statistics software to use. Due to the popularity and availability, SPSS software was used to run the data analysis for this research study.

After entering the data into SPSS, the next step was to screen the actual data. The researcher sorted the data, looking for variable inconsistencies. Reviewing the matrix scatter plots to detect multiple linear outliers between criterion and predictor variables, the researcher checked for extreme bivariate outliers. The assumption of bivariate outliers used scatter plots

between all pairs of independent variables (x, x), such as collegial leadership to teacher professionalism and academic press to community engagement. By examining all pairs of independent variables (x, x), the scatter plots show if any variables correlate with other variables. An examination of the predictor variables (x) and the criterion variable (y), such as collegial leadership to TSES overall score, followed, showing if the predictor variables correlated with the criterion variable. Following the scatterplot analysis were assumption tests. As proposed by Gall et al. (2007), multiple regression requires a check for assumption of linearity and bivariate normal distribution, and non-multicollinearity be met.

The assumption of linearity and bivariate normal distribution tests also used a scatter plot for examination. Both assumption tests checked for a linear relationship between each pair of variables. If the variables are not linearly related, the power of the test is reduced. The assumption tests use scatterplots for each pair of predictor variables (x, x), and between predictor variables (x) and the criterion variable (y). A visual chart similar to a classic cigar shape implies the assumption tests are in conformity. Both assumption tests met the requirements for this study.

The assumption of non-multicollinearity used a Variance Inflation Factor (VIF) test to ensure the absence of multicollinearity. If a predictor variable (x) highly correlates with another predictor variable (x), then the pair essentially provides the same information about the criterion variable (y). A VIF value greater than 10 is too high, implying multicollinearity is present, which violates this assumption. Acceptable VIF values are between 1 and 5. The assumption of non-multicollinearity met the requirements for this study.

Another assumption required for multiple regression is homoscedasticity (Laerd Statistics, n.d.). Testing for homoscedasticity looks for the collective relationship between all predictor variables and the criterion variable. In SPSS, the scatterplot used for homoscedasticity

is a plot of studentized residuals and unstandardized predicted values. If homoscedasticity exists, the scatterplot shows no pattern, and the data points will be spread fairly evenly. Regarding this study, there was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values.

Conducting multiple regression analysis using SPSS software, the first step was to compute the best single predictor variable. Computing the correlation between the best predictor and the criterion variable yields a multiple correlation coefficient (*R*). The first predictor correlation coefficient (*r*) will equal the multiple correlation coefficient ($r = R$). When setting up SPSS for multiple regression, the criterion variable and all predictor variables are entered in the linear regression dialog box. Unless specified, SPSS software will continue to compute the next best predictor of the criterion variable and repeat the process until there are none left.

Using SPSS software to compute multiple regression, the computer outputs a few tables to examine. The Model Summary table provides *multiple correlation coefficient* (*R*), *coefficient of determination* (R^2), and *adjusted R*-square values. Adjusted *R*-square may substitute coefficient of determination (R^2), the difference being adjusted *R*-square examines only predictor variables affecting the criterion variable, whereas coefficient of determination (R^2) examines all variables. According to Gall et al. (2007), multiple correlation coefficient (*R*) measures the degree of the relationship between a combination of predictor variables and the criterion variable. In this study, the multiple correlation coefficient (*R*) measured the relationship between the SCI subscales (collegial leadership, teacher professionalism, academic press, and community engagement) and the overall TSES score. The closer *R* is to -1.00 or 1.00, the stronger (significant) the predictors relationship is to the criterion variable. The next step is to interpret the significance of the predictor variables.

Beginning with the ANOVA table from SPSS, a review of *F-ratio* (*F*), and *p-value* (*p*) shows whether all combined predictor variables significantly affect the criterion variable. The *F*-ratio checks if the overall regression model is a good fit, while the *p*-value (*p*) indicates significance (Laerd Statistics, n.d.). If $p > .05$, the analysis fails to reject the null hypothesis and no further analysis is needed. Otherwise, if $p < .05$, the combined predictor variables *p*-value is significant and requires further examination to identify which combination of predictor variables are significant. Using the Coefficients table from SPSS shows each predictor variable's coefficients (*B*) and *p*-value (*p*). The coefficient values (*B*) for each predictor variable indicate the degree of correlation against the criterion variable while other predictor variables are held constant. Similar to the ANOVA table, *p*-value (*p*) indicates significance but for each predictor variable. The results of multiple regression for this study tests whether the null hypothesis is rejected at the 95% confidence level, or if the results failed to reject the null hypothesis.

CHAPTER FOUR: FINDINGS

Overview

The purpose of this quantitative, predictive correlational study was to determine if school climate (SC) factors could predict teachers' self-efficacy (TSE). Predictor variables were collegial leadership, teacher professionalism, academic press, and community engagement (numerical scores). The criterion variable was TSE scores. A multiple linear regression was used to test the hypothesis. The Results section includes the research question, null hypothesis, data screening, descriptive statistics, assumption testing, and results.

Research Question

RQ1: How accurately can *teachers' self-efficacy* be predicted from a linear combination of *school climate* factors for Oregon public school teachers?

Null Hypothesis

$H_0$1: There will be no significant predictive relation between the criterion variable *teachers' self-efficacy* scores and the linear combination of predictor variables (*collegial leadership, teacher professionalism, academic press,* and *community engagement*) for Oregon public school teachers.

Descriptive Statistics

Descriptive statistics were obtained on each of the variables. The sample consisted of 69 participants. Scores on the School Climate Index (SCI) factors ranged from seven to 35 for collegial leadership, eight to 40 for teacher professionalism, six to 30 for academic press, and seven to 35 for community engagement. A high score in any of the SCI factors meant that the teacher perceived the factor frequently occurring at their school, whereas a low score meant that the teacher perceived the factor rarely occurring at their school. Teachers' self-efficacy was

measured using the Teachers' Sense of Efficacy Scale (TSES). A high score of 108 meant the teacher had high TSE, whereas a low score of 12 meant the teacher had low TSE. Table 3 provides the descriptive statistics for each variable.

Table 3

Descriptive Statistics

	n	Min	Max	*M*	*SD*
Collegial Leadership	69	14	35	29.07	5.217
Teacher Professionalism	69	18	40	34.19	5.250
Academic Press	69	7	29	22.06	5.252
Community Engagement	69	14	35	27.20	4.943
TSES (Total Score)	69	60	108	89.22	10.641
Valid N (listwise)	69				

Results

A multiple regression was conducted to see if there was a relationship between SCI factors and TSES scores for Oregon public school teachers. The predictor variables were collegial leadership, teacher professionalism, academic press, and community engagement scores. The criterion variable was TSES total scores. The researcher rejected the null hypothesis at the 95% confidence level where $F(4, 64) = 8.98$, $p < .001$. There was a significant relationship between the predictor variables (SCI scores) and the criterion variable (TSES total scores). Table 5 provides the regression model results.

Table 4

Regression Model Results [a]

Model		*SS*	*df*	*MS*	*F*	Sig.
1	Regression	2768.392	4	692.098	8.982	<.001[b]
	Residual	4931.347	64	77.052		
	Total	7699.739	68			

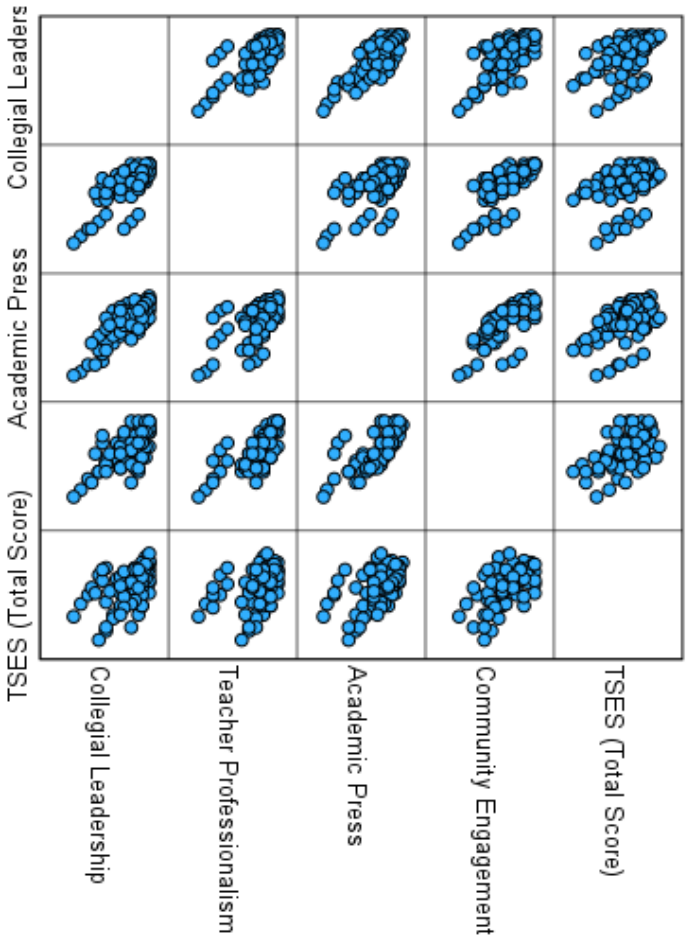
a. Dependent Variable: TSES (Total Score)
b. Predictors: (Constant), Community Engagement, Collegial Leadership, Teacher Professionalism, Academic Press

Data Screening

The researcher sorted the data and scanned for inconsistencies on each variable. No data errors or inconsistencies were identified. A matrix scatter plot was used to detect bivariate outliers between predictor variables and the criterion variable. No bivariate outliers where identified. See Figure 1 for the matrix scatter plots.

Figure 1

Matrix Scatter Plot



Assumption of Linearity

The multiple regression requires that the assumption of linearity be met. Linearity was examined using a scatter plot to check whether each predictor variable was linearly related to the criterion variable. If the relationship between a predictor variable and the criterion variable did not follow a straight line, the data has failed the assumption of linearity. The data in the matrix scatter plot follows a straight line. Therefore, the assumption of linearity was met. See Figure 1 for the matrix scatter plot.

Assumption of Bivariate Normal Distribution

The multiple regression requires that the assumption of bivariate normal distribution be met. The assumption of bivariate normal distribution was examined using a scatter plot to check whether the predictor and criterion variables were normally distributed along a diagonal line. If the points are not aligned along the diagonal line, the assumption of bivariate normal distribution is violated. The data in the matrix scatter plot aligned along a diagonal line and formed an ellipse-shaped pattern. Therefore, the assumption of bivariate normal distribution was met. Figure 1 provides the matrix scatter plot.

Assumption of Multicollinearity

A Variance Inflation Factor (VIF) test was conducted to ensure the absence of multicollinearity. This test was run because if a predictor variable (x) is highly correlated with another predictor variable (x), they essentially provide the same information about the criterion variable. If the Variance VIF is too high (greater than 10), then multicollinearity is present. Acceptable values are between 1 and 5. The absence of multicollinearity was met between the variables in this study. Table 5 provides the collinearity statistics.

Table 5

Collinearity Statistics[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	Collegial Leadership	.202	4.942
	Teacher Professionalism	.335	2.989
	Academic Press	.224	4.468
	Community Engagement	.321	3.112

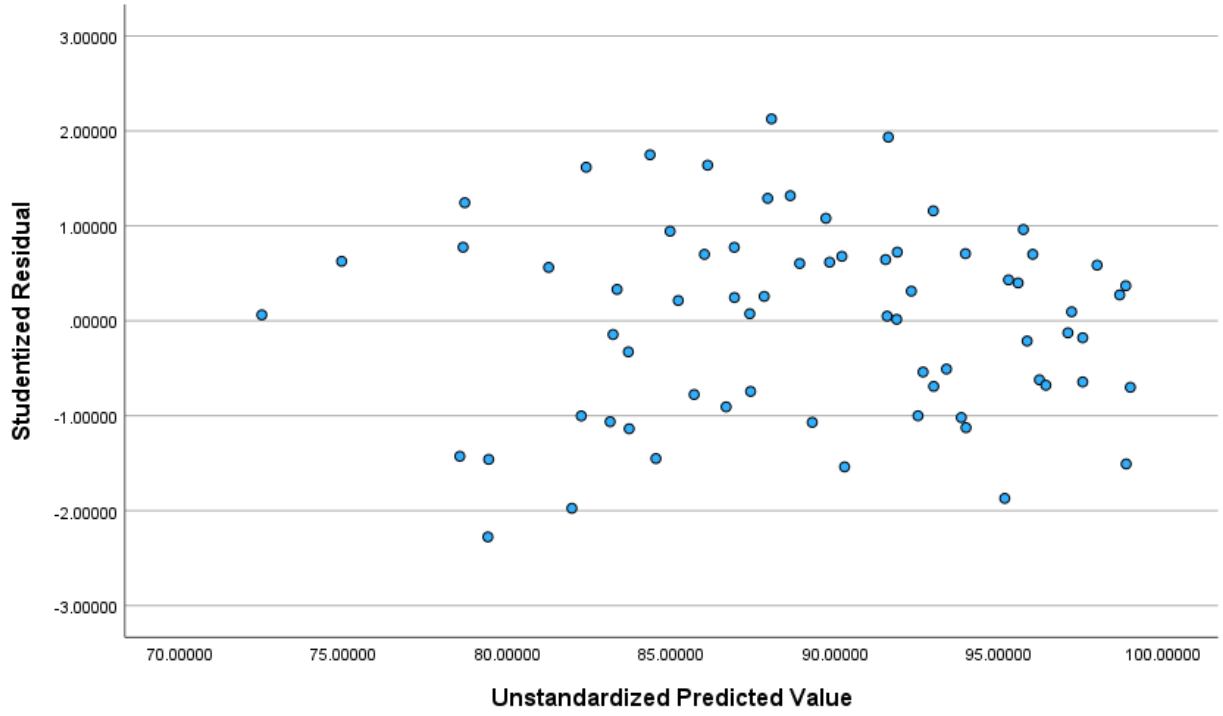
a. Dependent Variable: TSES (Total Score)

Assumption of Homoscedasticity

The multiple regression requires that the assumption of homoscedasticity be met. Homoscedasticity was examined using a scatter plot to check whether the variance was equal for all predicted values of the criterion variable. If the residuals were not evenly spread, but differ in height (e.g., a convex or concave shape), the data does not have homoscedasticity. As assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values, the points exhibit no pattern and is constantly spread across the scatter plot. Therefore, the assumption of homoscedasticity was met. See Figure 2 for the scatter plot.

Figure 2

Studentized Residual Plot



Effect Size

The model's effect size was very large where R = .600. Furthermore, R^2 = .360 indicating that approximately 36% of the variance of criterion variable can be explained by the linear combination of predictor variables. Table 6 provides a summary of the model.

Table 6

Model Summary[b]

Model	*R*	R^2	Adjusted R^2	*SEM*
1	.600[a]	.360	.320	8.778

a. Predictors: (Constant), Community Engagement, Collegial Leadership, Teacher Professionalism, Academic Press
b. Dependent Variable: TSES (Total Score)

Coefficients

Because the researcher rejected the null hypothesis, analysis of the coefficients was required. Based on the coefficients, it was found that community engagement score was the best and only statistically significant predictor of TSES total scores where $p < .004$. Table 7 provides the coefficients.

Table 7

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	*t*	Sig.
1	(Constant)	57.128	7.270		7.858	<.001
	Collegial Leadership	.427	.454	.209	.942	.350
	Teacher Professionalism	-.415	.351	-.205	-1.183	.241
	Academic Press	.127	.428	.063	.298	.767
	Community Engagement	1.141	.380	.530	3.003	.004

a. Dependent Variable: TSES (Total Score)

CHAPTER FIVE: CONCLUSIONS

Overview

This study examined the relationship between school climate (SC) factors and teachers' self-efficacy (TSE). Chapter Five investigates the data results and discusses the findings, implications, and limitations. The findings are compared to previous research studies, theories, and existing literature. Some findings support and contradict the studies, theories, and literatures. In summary, the findings and the implications of this study add to the existing body of knowledge and narrows the gap in research. The last section in the chapter discusses recommendations for future research.

Discussion

The purpose of this study was to determine if SC factors can accurately predict TSE in Oregon public schools. There are many SC factors to consider, but this study examined four factors, collegial leadership, teacher professionalism, academic press, and community engagement, while examining teachers' overall self-efficacy scores. The hypothesis for this study states, there will be no significant predictive relation between the criterion variable *teachers' self-efficacy* scores and the linear combination of predictor variables (*collegial leadership*, *teacher professionalism*, *academic press*, and *community engagement*) for Oregon public school teachers. Using multiple regression analysis, the results showed a significant relationship between SC factors and TSE. Therefore, the null hypothesis was rejected. Investigating the linear combination of SC factors, this study's findings supported and contradicted two previous research studies by Lacks and Watson (2018) and Almessabi (2021). The findings also supported and contradicted existing literature related to examining the relationship between SC and TSE.

This study surveyed 69 Oregon public school teachers. The data collected showed the majority were female teachers (54); teachers' ethnic backgrounds were mostly White (54); grade levels taught were split between elementary (33) and high school (27), the rest were intermediate (9); a little less than half of the teachers (33) had 16 or more years of experience; and a large majority of teachers (61) taught in a rural area. Compared to the replicated studies, the study by Lacks and Watson (2018) surveyed 55 public middle school teachers in rural Virginia, while the study by Almessabi (2021) surveyed 108 public and private school teachers in elementary, middle, and high schools in Abu Dhabi. Using a population similar to the former study and a different one than the latter study, data from this study supports Lacks and Watson (2018) research, while contradicting Almessabi's (2021).

This study rejected the null hypothesis at the 95% confidence level where $p < .001$, thus requiring analysis of the coefficients. Examining the coefficients (see Table 7), the researcher recognized SC factors collegial leadership, teacher professionalism, and academic press were not significant, but community engagement was. Even though Lacks and Watson's (2018) research study did not reject their null hypothesis, their findings showed no significant correlation between collegial leadership, teachers professionalism, and academic press in relation to TSE, except for community engagement, which was significant. Their demographic results included majority females, too. Almessabi's (2021) study did not mention gender results. As mentioned, this study supports Lacks and Watson's (2018) study due to similar SC results. A possible explanation is population sampling in the United States and within rural communities. Unlike Almessabi's (2021) study, which sampled teachers in Abu Dhabi, SC factors collegial leadership and teacher professionalism were significantly correlated to TSE, except for community engagement and academic press, which contradicts this study.

The United States and Abu Dhabi are two different countries that have different beliefs, values, and culture. Examining teachers in these countries, it would not be a surprise if teachers' response to SC factors and TSE varied considerably. Based on the findings, this study supports and acknowledges that teachers' views on SC and TSE are indeed different in the United States and Abu Dhabi. If a country's cultural difference is the reason, this study supports using Bronfenbrenner's (1977) and Bandura's (1986) theoretical frameworks. Applying the theories, ecological systems theory suggests environmental climate plays a role in shaping an individual and social cognitive theory explains that personal, behavioral, and environmental factors influence an individual's behavior, such as self-efficacy. Using ecological systems theory, the macrosystem environment as a reference, the results demonstrate ecological systems theory. Data from this study expressed the macrosystem by depicting how TSE in the United States positively correlated with community engagement, whereas TSE in Abu Dhabi positively correlated with collegial leadership and teacher professionalism. Ecological systems theory suggests that an environment's cultural context (e.g., culture and society) affects the development of an individual and the formation of a belief system (Bronfrenbrenner, 1977), thereby encompassing social cognitive theory's belief system and how it affects teachers' action, or self-efficacy. Hence, the cultural context between the United States and Abu Dhabi differs between this study and Almessabi (2021) but is similar between this study and Lacks and Watson (2021). Various research studies have linked other factors, such as school leadership (Capp et al., 2020) and student's high academics (Barni et al., 2019) correlating with TSE. A direct observation of this study contradicts those factors because school leadership and students' high academics are critical elements in collegial leadership and academic press, which both were not significantly correlated to TSE. Another example, Hu et al. (2019) found collegial leadership

behaviors had a positive effect on TSE. The results of this study showed no significant correlation between collegial leadership and TSE, thus, contradicting Hu et al.'s (2019) study. Bandura's (1986) social cognitive theory explains TSE and the actions teachers take are products of teachers' beliefs. Applying social cognitive theory to the findings, the teacher participants from this study seemed to believe collegial leadership had little impact on self-efficacy. Another example is teacher professionalism. Rubenstein et al. (2018) indicated teacher professionalism is related to TSE beliefs. Since this study showed no significant correlation between teacher professionalism and TSE, it contradicted Rubenstein et al.'s (2018) study. Applying social cognitive theory again, teachers from this study seemed to believe teacher professionalism had little impact on self-efficacy, too. This study supported social cognitive theory and explained why teacher professionalism had little positive impact on TSE. In support of Hayes et al.'s (2020) study, they implied teachers' commitment creates stress and lowers TSE, which might be a reason teacher professionalism was not significantly correlated to TSE in this study.

Lastly is academic press. Barni et al. (2019) suggested high academics contribute to high TSE. The results of this study showed no significant correlation between academic press and TSE, which contradicts Barni et al.'s study. Supporting Bronfenbrenner's (1977) ecological systems theory, this study characterized the theory's mesosystem, explaining how collegial leadership and teacher professionalism may interrelate with academic press. Within ecological systems theory's mesosystem, this study's findings showed collegial leadership and teacher professionalism was not significantly correlated to TSE, thereby possibly causing academic press to not be significantly correlated to TSE, too. Granted this study contradicts previous literature, however, it supports the two theoretical frameworks, social cognitive theory, and ecological systems theory.

Tschannen-Moran et al. (2006) emphasized the importance of SC factors affecting TSE in public schools. Due to this study's lack of significance between collegial leadership, teacher professionalism, and academic press with TSE, this study seemed to contradict what scholars believe are SC factors' predictive qualities on TSE. In particular, this study contradicted Debnam et al.'s (2021) research study, which suggested that school leadership-teacher collaboration (collegial leadership) is an important element in establishing a quality SC. A practical explanation is that sometimes school leaders and teachers are forced to collaborate despite frictions between them. This study supported social cognitive theory and why collegial leadership might not be significantly correlated to TSE. The data, the theory, and the potential that school leaders and teachers are unable to collaborate, reinforces social cognitive theory's explanation that the dynamics of personal and environmental factors (positive or negative), influences people's behavior (Bandura, 1986).

Thus far, this study contradicted and may question SC factors' predictive qualities on TSE. Nonetheless, educational leaders continue to use SC data to improve schools and, as a measure, to meet educational benchmarks set by federal and state governments (Tschannen-Moran et al., 2006). Rather than neglecting SC factors entirely, Mansor et al. (2021) suggested focusing on how community engagement can play a role in affecting SC and in educational development, which this study supports because community engagement was significantly correlated to TSE. This study also supports ecological systems theory, as it expresses community engagement occurring in a macrosystem and exosystem. Within a macrosystem and exosystem, this study's community engagement outcome supported how different stakeholders (school leaders, teachers, students, parents, and government) may promote collaboration despite differences in culture, beliefs, and goals (Kuchynka et al., 2022), consequently having a positive

effect TSE. This further supported the idea that community engagement enhances a SC with which a democratic structure exists and that teachers and other stakeholders can be proud of (Kim & Gentle-Genitty, 2020). Due to community engagement's significant correlation with TSE, the findings of this study supported the study by Mansor et al. (2021). They suggested schools that have a positive SC and embrace the local community tend to have more teachers with high TSE.

To clarify, this study does not propose the data collected having a positive or negative SC environment or TSE levels. Nevertheless, an assumption can be made by looking at the descriptive statistics (see Table 3) that both SC factors and TSE mean values were above average and exhibited a positive sign. Further research is needed to be certain of the positivity. Rather, this study presents whether TSE can be predicted from a linear combination of SC factors in Oregon public schools. The findings of this study supported Bandura's (1986) social cognitive theory and Bronfenbrenner's (1977) ecological systems. On the other hand, this study supported and contradicted existing literature and the two replicated studies by Lacks and Watson (2018) and Almessabi (2021). Mainly, this study supported the findings of Lacks and Watson (2018), while contradicting Almessabi's (2021).

The results of this study showed a significant relationship between a combination of SC factors and TSE, thus rejecting the null hypothesis that there will be no significant predictive relation between them. Examining each SC factor resulted in collegial leadership, teacher professionalism, and academic press not having a significant correlation to TSE, while community engagement showed significance. Notwithstanding, the regression model conveyed one of the predictor variables (community engagement) is statistically significant in predicting the criterion variable (TSE). The other SC factors (collegial leadership, teacher professionalism,

and academic press) had no significant correlation with TSE. The data and information provided by this study may be minimal in the context of overall SC and TSE research, but the study provides implications for adding to the existing body of knowledge and narrows the gap in research for scholars and future researchers.

Implications

Focusing on previous research studies examining SC and TSE in the United States, a review of literature yielded one study examining SC and TSE in the country. The study by Lacks and Watson (2018) investigated Virginia public school teachers, which alone provides insufficient data to generalize relationships between SC and TSE in the United States. With this research study completed in the state of Oregon, generalization was still insufficient, but it does narrow the research gap. To assure generalization, the academic community requires examining SC and TSE data for 48 other states. By adding this study to the existing body of knowledge, the researcher encourages other researchers to examine relationships between SC and TSE in other states to further close the gap in the research.

The lack of information from existing literature shows more research is needed to advance scholars' understanding of the relationship between SC and TSE. Prior to this study, Lacks and Watson's (2018) research contradicted other studies by showing no significant correlation between SC factors and TSE. A closer examination of their study showed collegial leadership, teacher professionalism, and academic press did not correlate with TSE, except for community engagement. This study matches their study in that only community engagement was correlated to TSE. Another similarity between Lacks and Watson's study, which was the sample teacher population. The sample population were teachers who taught in the United States and in rural areas, whereas Almessabi (2021) study sampled teachers in Abu Dhabi. The fact that Lacks

and Watson (2018) and this study had similar populations and identical SC factors' significances to TSE, adds external validity to the SC and TSE body of knowledge. Ecological systems theory supports validity, too. The theory supports understanding a population's environmental social context and structural conditions, and comparing them to another population with similar environmental settings, may produce consistent outcomes. On the grounds of this, ecological systems theory supports validity. External validity is important and is presented here, which implies future SC and TSE research in the United States and within rural areas should produce similar results.

Based upon the population similarities and differences between this study, Lacks and Watson (2018), and Almessabi (2021), ecological systems theory's exosystem bolsters how teachers are affected by the country they live in and the areas they teach. The implications of the two studies in the United States having similar results compared to a study in Abu Dhabi seem to exhibit exosystem consistency, further supporting ecological systems theory and builds upon the existing body of knowledge. In addition, the information enriches ecological systems theory by providing a different perspective, specifically examining relationships between SC factors and TSE. Researchers should feel certain when using ecological systems theory framework as a foundation in their research studies. As such, future research examining the relationship between SC and TSE should continue using ecological system theory.

Past research studies found a significant relationship between SC and TSE, except for a few studies that did not find significance. This study falls into the former category, adding to the body of knowledge that supports SC factors have predictive qualities and correlates with TSE. Though this study is just one additional research added to the body of knowledge, the implication of this study should increase the confidence scholars have when using SC factors to predict TSE

in future research studies. School leaders can also be confident the SC data they collected at their school(s) is useful in determining teachers' overall self-efficacy levels. Additionally, knowing which SC factors have significance on TSE allows school leaders to focus their energy and effort on specific factors. Based on this study, implications suggested school leaders should emphasize community engagement in developing plans to improve SC and TSE.

School leaders understand teachers play a critical role in students' achievements (Zhang et al., 2021). To be effective, teachers must establish a high level of self-efficacy. Social cognitive theory shows an individual's beliefs and ability to take action is likely to produce an individual's expected outcome (Bandura, 1986). Translated into TSE, social cognitive theory applies to teachers' beliefs and teaching capabilities. Since SC factors' collegial leadership, teacher professionalism, and academic press did not significantly correlate with TSE, the findings imply teachers in rural areas may believe other SC factors are more important when it comes to teaching. On account of this study, the implications social cognitive theory speculates are whether classroom management and instructional practices increases TSE. These types of inquiry encourage further research, which promotes adding to the existing body of knowledge and enhances scholars' understanding of social cognitive theory in the context of SC and TSE.

Most teachers agree there is a relationship between SC and TSE (Almessabi, 2021). The findings of this study suggested community engagement is a significant SC factor that has a positive correlation with TSE. This study adds to the existing body of knowledge by reinforcing Tschannen-Moran et al. (2006) who argued the importance of community engagement in schools. Particularly, they found improvements in TSE and student achievement. They theorized schools cannot work in a void, instead, local communities and schools mutually influence and benefits from each other. The results of this study add to the existing body of knowledge by

supporting the effect that community engagement has on schools. Implications about community engagement can help school leaders develop strategic plans to improve their SC. Since community engagement has shown significance and correlation with TSE, implications of this study suggest community activities will have a positive effect on teachers' lives.

Teachers are important and play an instrumental role in students' learning (Mahler et al., 2018; Zhang et al., 2021). A constant challenge schools have is recruiting and retaining competent teachers (Wolf et al., 2021). Research studies have found teachers with high TSE were confident, enjoyed teaching, and had elevated levels of job satisfaction (Granziera & Perera, 2019). The implications of this study may provide Oregon school districts' superintendents with ways to improve teacher recruitment and retainment. By way of illustration, school leaders might recruit teachers by showing how teachers impact local communities. Incorporating community building and activities that involve the school, teachers, students, parents, and other community members encourages collaboration and partnership (Shakeel et al., 2022), potentially increasing self-efficacy of existing teachers. The implications of recruiting and retaining teachers alone are considerable, given that it has been a constant challenge for many schools (Wolf et al., 2021).

Limitations

A few limitations have been identified in this study. By evaluating the limitations, the researcher attempted to identify internal and external validity threats that may affect the study. Understanding the limitations and threats allows researchers to control or limit potential effects on research studies (Gall et al., 2007). External validity call attention to how a study's outcome can be generalized to other settings, while internal validity ensures confidence in the results and was not affected by other factors or variables.

The first limitation found in this study acknowledges generalizing research within the state of Oregon. Unbeknownst prior to the start of the study, most participants that responded were teachers from rural areas, ethnically white, and female. The sample was not diverse and representative of all teachers within the state of Oregon. Generalization should be avoided for schools in suburban or urban areas, teachers with ethnical background other than white, or male teachers. Additional research studies in Oregon examining SC and TSE are needed to confirm external validity.

The second limitation was the research design. This study used a quantitative, predictive correlational research design to determine if relationships exist between SC factors and TSE. Gall et al. (2007) explained, correlational design cannot be used to determine causation among variables. Instead, correlational design searches for predictive relationships between a predictor variable and a criterion variable. They cautioned how correlational studies examine relationships and associations between variables but should not be used for causal inferences. They suggested using quasi-experimental designs for casual inferences instead.

The third limitation was the sample size. Using convenience sampling to garner participation, the sampling method yielded 69 participants, multiple regression requires a minimum of 66. The relatively small size may not represent the total teacher population. Increasing the sample size and using random sampling would provide a stronger case for external validity and generalization.

The fourth limitation found in this study was self-reporting questionnaires. This study used SCI and TSES instruments, which are self-reporting questionnaires. Self-reporting creates an internal validity concern over participants' biases. These biases can appear on participants'

responses and affect a study's findings. Shadish et al. (2002) recognized self-reporting biases and suggested combining self-reports with other information.

A fifth limitation was the impact COVID-19 pandemic had on the study. The COVID-19 pandemic was a historical event that changed every day norms and people's lives, including schools and teachers. History is an internal validity threat (Shadish et al., 2002). Events occurring within a research period could have causal effects on the study. Nonetheless, this study was completed during the pandemic. A follow-up research study in the near future would verify the internal validity of this study.

Recommendations for Future Research

Research studies examining the relationship between SC and TSE provides useful information for scholars and practitioners. Scholars may use the information to further understand the impact SC has on TSE, while practitioners, such as school leaders, may use the information to develop strategic plans to improve their schools. In continuing the effort to examine the relationship between SC and TSE and add to the body of knowledge, filling existing gaps, the following are recommendations for future research.

1. Researching other states besides Oregon and Virginia school teachers might depict trends between SC and TSE within the United States.
2. Replicating this study but examining a population in the suburban or urban areas may advance SC and TSE understanding in other areas beyond rural areas, providing a different study to compare with.
3. Conduct a research study examining how SC can be predicted from a linear combination of TSE factors to see if the reverse relationship is congruent.
4. Replicate this study using different instruments to see if the findings yield similar results.

5. Since community engagement was the only SC factor significantly correlated to TSE in this study, an investigation of community engagement on TSES factors, student engagement, instructional strategies, and classroom management may show which TSES factor is most significant.

These are some recommendations for future research. A plethora of potential research studies exist that would help to portray a holistic view of the relationship between SC and TSE. There is no set research study to conduct first, or priorities, instead the recommendations are possible next steps to continue from this research.

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APPENDIX A

Dr. Megan Tshannen-Moran's Permission Letter

William & Mary
School of Education

MEGAN TSCHANNEN-MORAN, PHD
PROFESSOR OF EDUCATIONAL LEADERSHIP

April 2, 2022

Vincent Domingo,

You have my permission to use the Teacher Sense of Efficacy Scale (formerly called the Ohio State Teacher Sense of Efficacy Scale), which I developed with Anita Woolfolk Hoy, in your research. You can find a copy of the measure and scoring directions on my web site at https://mxtsch.pages.wm.edu/ . Please use the following as the proper citation:

> Tschannen-Moran, M & Hoy, A. W. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education, 17*, 783-805.

You also have permission to use the School Climate Index, which I developed with Wayne Hoy and John Hannumb, in your research. You can find the measure and scoring directions on my web site at https://mxtsch.pages.wm.edu/ . Elements of the measure have been adapted and added since its original inception, so please use the following as the proper citations:

> DiPaola, M. F., & Tschannen-Moran, M. (2005). Bridging or buffering: The impact of schools' adaptive strategies on student achievement. *Journal of Educational Administration, 43*(1), 60–71.
>
> Hoy, W. K., Hannum, J., & Tschannen-Moran, M. (1998). Organizational climate and student achievement: A parsimonious and longitudinal view. *Journal of School Leadership, 8*, 336–359.
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> Tschannen-Moran, M., Parish, J., & DiPaola, M. (2006). School climate: The interplay between interpersonal relationships and student achievement. *Journal of School Leadership, 16*, 386–415.

I will also attach directions you can follow to access my password protected web site, where you can find the supporting references for this measure as well as other articles I have written on this and related topics.

All the best,

Megan Tschannen-Moran
William & Mary School of Education

P.O. Box 8795 • Williamsburg, VA 23187-8795 • (757) 221-2187 • mxtsch@wm.edu

APPENDIX B

Institutional Review Board Approval

Date: 9-29-2022

IRB #: IRB-FY22-23-260
Title: Examining the Relationship Between School Climate and Teacher Self-Efficacy
Creation Date: 9-6-2022
End Date:
Status: Approved
Principal Investigator: Vincent Domingo
Review Board: Research Ethics Office
Sponsor:

Study History

Submission Type	Review Type	Decision
Initial	Exempt	Exempt

APPENDIX C

Cover Letter Email

Dear Public School Teachers,

As a graduate student in the School of Education at Liberty University, a Christian based college, I am conducting research as part of the requirements for a PhD degree. The purpose of my research is to examine the relationship between school climate and teachers' self-efficacy.

I am writing to you that you may help me by completing a short survey (10-15 minutes). Participants must be 18 years of age or older and be a public school teacher. Participation will be completely anonymous, and no personal, identifying information will be collected.

To participate, click the link here (https://forms.gle/9fuT25FamBVtbSN36), or by using the QR code below.

A consent document is provided on the first page of the survey. The consent document contains additional information about my research. Because participation is anonymous, you do not need to sign and return the consent document unless you would prefer to do so.

I appreciate your help and thank you for your time.

Sincerely,

Vincent Domingo
PhD candidate
Liberty University