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Vibrant Schools: Its Measure, Antecedents, And Correlates

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Vibrant Schools: Its Measure, Antecedents, and Correlates

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A Dissertation

Presented to

The Faculty of the School of Education

The College of William and Mary in Virginia

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Doctor of Philosophy

By

Ayse Nur Gurdal

August 2024

Vibrant Schools: Its Measure, Antecedents, and Correlates

By

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Dedicated to

My dreams and the people who bring light into my life

I am profoundly grateful to my family. My deepest thanks go to my beloved husband, Dr. Jens Boos, whose love, support, and understanding have been my anchor. He was always there, day and night, to listen to my concerns and anxieties. I am incredibly fortunate to have such a brilliant and joyful partner in my life. I also extend my heartfelt thanks to my biological and German families. Being their daughter is a privilege, and their support and unconditional love have been my strength. If I had the chance to live my life again, I would choose to be their child without hesitation.

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Thank you to everyone who has been part of this journey. Your contributions have been invaluable, and this achievement would not have been possible without you.

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Abstract

Vibrant schools prioritize curiosity, creativity, playfulness, collaborative learning, critical thinking, individuality, and empathy, fostering an environment that respects the voices of teachers and students while reducing standardization (Clement et al., 2018; Clement et al., 2017; Tschannen-Moran & Clement, 2018). The purpose of this three-article dissertation was to understand the psychometric properties of Vibrant School Scale (VSS) and its relationship with efficacy constructs, trust, and wellbeing. Multi-stage clustered sampling was used to recruit 50 schools. 35 schools had more than five participants, which was required for multilevel analysis. In total, there were 495 teachers and leaders participating in the study. The first study validated the VSS with 19 items at the school level and three subscales at the individual level. The second study found strong correlations among efficacy constructs and vibrant schools. Teacher self-efficacy was found as a predictor at only the individual level while collective efficacy and leader self-efficacy contributed at the school level. The third study found strong correlations among faculty trust in students, faculty wellbeing, and vibrant schools. Vibrant schools significantly contributed to explaining faculty wellbeing while faculty trust did not contribute independently to the model. This dissertation, with its comprehensive analysis, elucidates the practical implications and benefits of fostering vibrancy in educational institutions. Collectively, these studies provide an in-depth and nuanced perspective on the characteristics that render schools vibrant, the processes by which they attain this state, and the positive outcomes they generate.

Vibrant Schools: Its Measure, Antecedents, and Correlates

Chapter 1

Introduction

Statement of the Problem

School climate studies have served as fundamental pillars in the quest for school effectiveness, elucidating the emotional, social, and behavioral environment of school participants, with an eye toward explicating variability in academic achievement (Bradshaw et al., 2014; Cohen et al., 2009; Thapa et al., 2013; Wang & Degol, 2016). Yet, due to the multidimensional nature of the construct of school climate, consensus among researchers on a conceptualization of school climate has proven challenging (Deal & Peterson, 2009; Lehr & Christenson, 2002; Shukla et al., 2019; Tschannen-Moran et al., 2006). Moreover, its predominant focus on explaining students' academic performance and high-stakes exam scores has lacked a holistic approach (e.g., Bevel & Mitchell, 2012; Bryk & Schneider, 2002; Hoy et al., 1991; Tschannen-Moran et al., 2006). The Vibrant School Scale (VSS) was developed by scholars at the William & Mary School of Education to address the universal desire for educational environments where students flourish academically, emotionally, and socially (Clement et al., 2017). It aims to assess learning spaces that cultivate curiosity, creativity, and rigorous experiential learning experiences. The team dubbed these rich learning environments "vibrant schools."

One of the primary motivations behind this three-article dissertation was the need to validate the VSS within the context of U.S. schools, as it has yet to undergo validation since its development. Given that measurement is context-specific (Ambuehl & Inauen, 2022), validating and scrutinizing the psychometric properties of the VSS within U.S. schools through multilevel analysis would enable other researchers to replicate and utilize a reliable assessment of this

aspirational measure of school climate. Moreover, given the orientation of its developers for fostering strengths-based conversations about our aspirations for schools where students flourish, it is crucial to understand the VSS's antecedents and its correlates. Therefore, the relationships of collective efficacy, self-efficacy of teachers and leaders with the vibrant schools and the correlation of faculty trust in students and faculty wellbeing to the vibrant schools were examined.

Overview of the Three Studies

Article 1: Mining Diamonds: Validation of the VSS

The first research study of this dissertation which was co-authored with my advisor, Dr. Megan Tschannen-Moran who developed VSS in 2017 with her colleagues, addresses the complexities surrounding the measurement and conceptualization of school climate, which plays a pivotal role in students' academic success and overall development (Darling-Hammond & Cook-Harvey, 2018). Despite its importance, the definition of school climate lacks consistency (Tschannen-Moran et al., 2006), leading to varied operationalizations and challenges in measurement. Additionally, existing models of school climate primarily focus on academic achievement, neglecting other crucial aspects of student wellbeing and engagement. To address these shortcomings, Clement et al. (2017) proposed the Vibrant School Climate model, emphasizing positive attributes such as curiosity, collaborative learning, and playfulness in fostering an optimal learning environment. However, their VSS required further validation, particularly through multi-level analysis, to accurately capture the organizational climate of schools.

Furthermore, the length of the VSS with its 27 items might contribute to respondent burden and compromise data quality. Thus, in this study we aimed to refine the VSS by constructing a more concise version while ensuring its alignment with the latent construct of

vibrant school climate. This refinement not only reduces participant burden but also enhances response rates and overall data quality.

Article 2: Fostering Vibrant Schools: The Role of Teacher Self-Efficacy, Leaders Self-Efficacy, and Collective Efficacy

The challenges faced by educational institutions are complex, particularly in the context of evolving societal demands and student needs. In an era where higher-order thinking skills, learning dispositions, and collaboration abilities are imperative for student success, educators and leaders are confronted with increasingly diverse and ambiguous issues (Darling-Hammond & Rothman, 2011; National Research Council, 2012). The stressors associated with these challenges underscore the necessity for collective action and support among educational professionals (Hargreaves & Fullan, 2015; Paniagua & Istance, 2018).

Vibrant Schools offer a promising framework for creating optimal learning environments that transcend the pressures on both adults and students, particularly those stemming from high-stakes examinations. This model emphasizes three key factors—enlivened minds, emboldened voices, and playful learning—which contribute to vibrant educational experiences. Although previous research has highlighted the importance of collective efficacy and self-efficacy beliefs in fostering safe, inclusive, and invigorating learning environments, no studies have explored their combined predictive power within the context of the vibrant school climate.

The aim of this study was to fill this gap by examining the collective efficacy and self-efficacy beliefs of teachers and leaders as antecedents of vibrant schools. By integrating these constructs into a single model, I sought to elucidate their distinct roles and mutual influences, thereby enriching both theoretical frameworks and practical applications in education. Furthermore, by investigating predictors of vibrant schools at both individual and organizational levels, the study offered a comprehensive understanding of the factors contributing to school vibrancy.

Article 3: Examining the Relationship Between Teacher Wellbeing, Faculty Trust, and Vibrant Schools

The last investigation of this three-part dissertation speaks to the critical role of teacher wellbeing within the educational landscape. Teacher wellbeing not only impacts individual teachers but also influences the overall effectiveness of the education system, including teaching practices, student motivation, and academic achievement (Collie et al., 2012; Renshaw et al., 2015; Skaalvik & Skaalvik, 2007). Despite efforts to improve teacher wellbeing, challenges persist due to the demanding nature of the profession, characterized by high levels of stress and emotional labor (Brotheridge & Grandey, 2002; Isenbarger & Zembylas, 2006). Previous research has examined various factors influencing teacher wellbeing, such as job satisfaction, leadership, burnout, organizational trust, and school climate (e.g., Aldridge et al., 2016; Ford et al., 2019; Gregersen et al., 2023; Heinla & Kuurme, 2022; Kouhsari et al., 2023; Mascall et al., 2008). However, there is still a need to explore the comprehensive impact of these factors on teacher wellbeing from a frame of positive psychology, particularly within the context of vibrant school environments.

Vibrant schools, characterized by a sense of community, trust, and positive school climate, have the potential to nurture teacher wellbeing and enhance their enjoyment of the profession (Gray et al., 2017; Yang et al., 2022). By investigating the predictive power of vibrant schools for faculty wellbeing, this study aimed to provide valuable insights into the role of school climate in supporting teacher wellbeing. Furthermore, organizational trust has been identified as a key factor influencing teacher wellbeing (Mascall et al., 2008; Rhee, 2010). However, empirical studies exploring the relationships between various dimensions of organizational trust and teacher wellbeing are lacking. I sought to address this gap by examining the role of faculty trust in students within the context of vibrant school environments in explaining faculty wellbeing.

Significance of This Set of Studies

In Virginia, the Profile of a Graduate initiative, which went into effect for freshmen entering high schools in the fall of the 2018-2019 school year, or the graduating class of 2022, outlines the essential skills and attributes that students are expected to develop by the time they graduate from high school. This framework is built around what are commonly referred to as the 5 Cs: critical thinking, creativity, collaboration, communication, and citizenship (Virginia Department of Education, 2022). The integration of these competencies into the curriculum reflects a comprehensive educational philosophy that recognizes the holistic development of students, emphasizing the interconnectedness of academic and socio-emotional learning, practical skills development, enjoyment in learning, autonomy, and playfulness. By emphasizing these competencies, Virginia seeks to ensure that its graduates are not only academically proficient but also well-prepared to tackle challenges, think innovatively, work collaboratively, communicate effectively, and contribute positively to their communities (Virginia Department of Education, 2022). This dissertation study holds significant promise in uncovering the existing vibrancy within schools in Virginia, sparking discussions on how to enhance the strengths of the schools further to realize 5 Cs. Upon receiving their results on the VSS, schools are encouraged to partake in an Appreciative Inquiry, a structured, strengths-based approach facilitating constructive conversations (Whitney & Trosten-Bloom, 2010). Through this process, the researcher offers a platform for faculty members and school leaders to engage in meaningful dialogue about their vision for the school and strategies for advancement.

Moreover, the studies delved into potential associations of the VSS with factors such as Collective Teacher Efficacy, Teacher and Principal Self-efficacy, Teacher-Student Trust, and Wellbeing. These investigations contribute to a deeper understanding of the elements that contribute to a vibrant educational environment and provide valuable insights for educators and policymakers seeking to foster thriving school communities.

Through the first study, this dissertation contributes to the advancement of research on school climate by refining measurement tools and providing insights into the factors that contribute to vibrant and conducive learning environments for students. Through the second study, this dissertation has the potential to inform educational practice and policy, guiding efforts to create flourishing, empowering, and thriving learning environments for all students. Through its exploration of actionable constructs and holistic perspectives, the study contributes to advancing the applicability of social cognitive theory in education and promoting deeper learning outcomes. Through the third study, this dissertation sheds light on the interconnectedness of factors such as school climate and organizational trust, with teacher wellbeing. In doing so, it contributes to a deeper understanding of the mechanisms associated with teacher satisfaction and commitment. Ultimately, the findings of this research have the potential to inform interventions and policies aimed at promoting teacher wellbeing and enhancing the overall effectiveness of educational institutions.

These three studies complement and build upon each other to form a cohesive exploration of vibrant schools. The sequence begins with the validation of the VSS, ensuring that subsequent researchers can use a robust and reliable construct. This foundational step is crucial, as it provides a scientifically sound basis for measuring the vibrancy of schools. With the second study, I examined the influence of the self- and collective- efficacy construct, allowing for an in-depth understanding of the conditions necessary for schools to achieve vibrancy. By identifying the factors that influence school efficacy, this research sheds light on the prerequisites for creating vibrant educational environments. In the final study, I delved into the correlates of vibrant schools, exploring what contributions vibrant schools can make to various educational outcomes. This comprehensive analysis offers a deeper understanding of the practical implications and benefits of fostering vibrancy in schools. Together, these studies provide a

thorough and nuanced perspective on what makes schools vibrant, how they achieve this state, and the positive impacts they can have.

   NOTE: Since the three articles of this dissertation were based on the same data set collected on each variable, the data collection process is the same for all three articles. In addition, since the limitations and delimitation are on the same data set, that section was only included at the end of Chapter 5. Even though the data analysis and participants sections show similarities, they are different as the required statistical analyses varied. In addition, the first article is co-authored by Megan Tschannen-Moran, my academic advisor and the chair of the dissertation committee.

Definition of Terms

Collective Efficacy refers to "the collective self-perception that teachers in a given school make an educational difference to their students over and above the educational impact of their homes and communities" (Tschannen-Moran & Barr, 2004, p. 190).

Emboldened Voices is a subscale of vibrant schools pointing to the places in which individuals' voices are invited and not ignored or suppressed (Clement at al., 2017).

Enlivened Minds is one of the subscales of vibrant school climate perspective referring to the places where curiosity, critique, and creativity flourish (Clement at al., 2017).

Faculty Trust in Students means the willingness of teachers and leaders to be vulnerable to students based on the confidence that the students are "benevolent, reliable, competent, honest, and open" (Hoy & Tschannen-Moran, 1999, p. 189)

Faculty Wellbeing broadly refers to the PERMA model with five core elements of psychological wellbeing: positive emotions, engagement, relationships, meaning, and accomplishment (Seligman, 2011).

Leader Self-Efficacy was adapted from the principal self-efficacy construct which is defined as "a judgment of his or her capabilities to structure a particular course of action to produce

desired outcomes in the school that he or she leads" (Tschannen-Moran & Gareis, 2007, p. 90).

Playful learning is the third subscale of vibrant schools which refers to the places in which movement, fun, exploratory and experiential learning, as well learning through games and gamification, characterize the learning environment (Clement at al., 2017).

School climate is defined as a reasonably consistent school norms that have an impact on participants' actions and the way they perceive, experience, and behave (Hoy, 1990).

Teacher Self-Efficacy is defined as the extent to which the teacher is confident about their ability to accomplish teaching tasks and professional duties to foster student learning within specific contexts (Tschannen-Moran & Woolfolk Hoy, 2007)

Vibrant School Climate is defined as a reconceptualized climate encouraging children to learn through curiosity, creativity, autonomy, collaboration, and playfulness. The measure has three subscales: enlivened minds, emboldened voices, and playful learning (Clement at al., 2017).

Intended Scholarly Journals to Publish Articles

Intended Outlets for Article 1

 Journal 1: Journal of Psychoeducational Assessment. Manuscripts should follow the general guidelines of the *Publication Manual of the American Psychological Association* (7th edition). Regular manuscripts are restricted to 6000 words including text, references, tables, and figures. An abstract of 100-150 words and 4 to 5 keywords must also be provided. Under some circumstances, expository papers including comprehensive critical reviews and meta-analyses may be allowed up to 9,000 words in total. Impact Factor is 1.7. https://journals.sagepub.com/home/JPA

 Journal 2: Educational and Psychological Measurement. Manuscripts should follow the general guidelines of the *Publication Manual of the American Psychological Association* (7th

edition). Manuscripts must be double-spaced, including the title page, abstract, text, quotes, acknowledgements, references, footnotes, appendices, tables, and figure captions. When appropriate use subheadings to organize lengthy presentations. Explain abbreviations. Tables and figures should not be embedded in the text but should be included as separate pages. Impact Factor is 2.7. https://journals.sagepub.com/home/EPM

Intended Outlets for Article 2

Journal 1: Educational Administration Quarterly (*EAQ*). Ordinarily, manuscripts should be 25 to 40 pages in length, inclusive of references, tables, and figures. All tables should be included in the electronic file. All copies should be typed, double-spaced in Times New Roman 12-point font with notes, references, tables, and figures appearing at the end of the manuscript per APA style. Manuscripts should follow the style of the 7th edition of the *Publication Manual of the American Psychological Association*. Impact Factor is 3.7. https://journals.sagepub.com/home/EAQ

Journal 2: Teaching and Teacher Education. Manuscripts should follow the general guidelines of the *Publication Manual of the American Psychological Association* (7th edition). Manuscripts should be double-spaced and in size 12 font. The word limit for a Research Article is 9000, excluding tables and references. They ask that the word count MUST be between 5000 and 9000 words. Impact Factor is 3.9. https://www.sciencedirect.com/journal/teaching-and-teacher-education

Intended Outlets for Article 3

Journal 1: Teachers and Teaching. A typical paper for this journal should be between 5000 and 8000 words, inclusive of tables, references, and endnotes. Manuscripts should follow the general guidelines of the *Publication Manual of the American Psychological Association* (7th edition). The journal provides a Word template for the research papers to follow. Impact Factor is 2.7- Q2. https://www.tandfonline.com/journals/ctat20

Journal 2: Teaching and Teacher Education. Manuscripts should follow the general guidelines of the *Publication Manual of the American Psychological Association* (7th edition) (American Psychological Association, 2020). Manuscripts should be double spaced and in size 12 font. The word limit for a Research Article is 9000, excluding tables and references. They ask that the word count MUST be between 5000 and 9000 words. Impact Factor is 3.9. https://www.sciencedirect.com/journal/teaching-and-teacher-education

Chapter 2

Article 1 - Mining Diamonds: Validation of the Vibrant School Scale

Key Words: Vibrant School Climate, Playful Learning, Student Voice, Teacher Voice, Curiosity, Critical Thinking, Creativity

Word Count: 12,089

The search for effective schools promoting students' success and their cognitive, interpersonal, and intrapersonal skills creates the basis for many studies on school climate (Bradshaw et al., 2014; Cohen et al., 2009; Thapa et al., 2013; Wang & Degol, 2016). School climate, in very general terms, refers to the overall atmosphere and environment of a school that affects participants' perceptions and behavior (Hoy, 1990). However, there is a lack of consistency about the definition of school climate (Tschannen-Moran et al., 2006). Researchers have operationally defined it differently depending upon their interest, often focusing on disciplinary structure, relationship between students and adults in the school, students' engagement with the school, student safety, and physical environment (e.g., Shukla et al., 2019; Thapa et al., 2013). As school climate is a broad and multidimensional construct, measurement is a challenge when researching school climate (Deal & Peterson, 2009; Lehr & Christenson, 2002; Shukla et al., 2019).

In addition, the focus of school climate studies has often been the academic achievement of students (e.g., Bevel & Mitchell, 2012; Bryk & Schneider, 2002; Hoy et al., 1991; Tschannen-Moran et al., 2006). Criticizing existing school climate models, which are highly oriented toward academic achievement and ignore a more holistic view of students, Clement et al. (2017) argued a thorough assessment of school climate ought to consider and highlight particular positive attributes and conduct, which can then serve as a helpful tool for schools to enhance their

methodologies in a positive and productive way. Therefore, Clement et al. (2017) have put forward the Vibrant School Climate model, which prioritizes fostering curiosity, imagination, playfulness, and independence in children as a means of encouraging learning (Clement et al., 2018; Clement et al., 2017; Tschannen-Moran, 2020; Tschannen-Moran & Clement, 2018). This aspirational model offers guidance for creating an optimal learning environment in schools. The vibrancy of a school can be measured by three factors or subscales: enlivened minds that fosters curiosity, creativity, and critical thinking in classrooms; emboldened voices that value and respect the insights and opinions of all members of the school community; and playful learning, which makes room for movement, fun, and imagination in the educational process (Clement et al., 2018). However, when Clement et al. (2017) developed the Vibrant School Scale (VSS), they used individual-level data analysis and suggested that further research on the scale with multi-level designs was needed to validate the measure because organizational climate is a school-level construct (Clement et al., 2017). Single level approaches to multilevel data suffer from conceptual and statistical issues that render them insufficient as they ignore hierarchical nested structures of multilevel data (Chan, 2006). Therefore, while analyzing multilevel data as in the VSS, multi-level models are required, not only because they yield more precise findings in terms of estimation precision but also because they are conceptually more sufficient than single-level modeling to explain the construct. Therefore, the purposes of this study were to validate the VSS with multi-level analysis and to evaluate the factor structure underlying the VSS.

Furthermore, we aimed to construct a version of the scale that is more conceptually clear and parsimonious, with fewer items that are more closely aligned with the latent construct. There is a relationship between the length of scale forms used to measure psychological constructs and perceived response burden, response rate, willingness to participate in research, and data quality (Eisele et al., 2022; Galesic &Bosnjak, 2009). The VSS developed by Clement et al. (2017) has 27 items in total, nine of which belong to each subscale. The length of the VSS may cause

participants to respond carelessly to the questions in this tool (Ward & Meade, 2023). Therefore, employing factor analysis to the VSS (Clement et al., 2017), we hoped to produce a more concise version that will bring certain benefits such as lessening the burden on the participants, and enhancing the response rate and data quality.

Vibrant School Climate

Schools that are deemed vibrant are those that prioritize aspects such as curiosity, creativity, playfulness, and collaborative learning activities (Clement et al., 2018). In these schools, critical thinking and exploration of new ideas beyond conventional approaches are highly encouraged. Students are provided with engaging and meaningful learning projects that benefit their community. Moreover, these schools value individuality and respect the voices of both teachers and students. They cultivate a sense of empathy and appreciation towards the unique qualities of each student, resulting in reduced standardization (Clement et al., 2018; Clement et al., 2017; Tschannen-Moran & Clement, 2018).

Enlivened Minds

Creating a stimulating educational institution entails cultivating an atmosphere that encourages intellectual and expressive growth among students, teachers, leaders, and parents. These ideas are encompassed in the enlivened minds dimension of a vibrant school (Tschannen-Moran & Clement, 2018). This environment is fueled by the commitment to foster curiosity, creativity, and critical thinking in students.

Curiosity. Curiosity is one of the main drivers of creating a lively learning environment. Curiosity has been characterized as "the recognition, pursuit, and desire to explore novel, uncertain, complex, and ambiguous events" (Kashdan et al., 2018, p. 130). Curiosity is a yearning for knowledge that motivates exploratory behavior (Litman & Spielberger, 2003). In education, curiosity has been identified as a predictor of academic success (Engel, 2013; Ostroff, 2016). Despite this, schools have been criticized over the centuries for diminishing students'

curiosity (Engel, 2015), with some describing it as the missing ingredient for academic achievement (Karwowski & Kaufman, 2017). Therefore, Jirout et al. (2018) provided some strategies for promoting curiosity in children. One strategy was to establish a classroom environment that is comfortable and empowering, where inquiry and questioning are valued. This could be achieved by embracing ambiguity and differences in personal experiences as opportunities for growth, rather than emphasizing the importance of being "true" or "all-knowing." Encouraging curiosity in children could also be achieved by supporting their information-seeking strategies. One effective approach was to provide opportunities for students to explore, emphasizing the process of discovery rather than the end result. It is crucial to create an environment where children feel comfortable asking questions and are given the chance to discover. Without these opportunities, children may not develop their curiosity. The last strategy Jirout et al. (2018) proposed was to encourage learning in children by modeling curiosity and demonstrating that even adults have knowledge gaps they want to fill. It is important to show children that asking questions and conducting research is enjoyable and valuable.

Although children have a natural inclination to ask questions, adults can help guide them by providing clear prompts and assisting in the development of their own inquiries. It is crucial for educators to possess adaptability and freedom not to be overly reliant on a specific set of predetermined learning objectives to create space for curiosity. By doing so, they can avoid the risk of disregarding and suppressing any accidental or unforeseen learnings that might occur during the instructional process (Tschannen-Moran, 2020).

Creativity. Educational creativity refers to enhancing students' creativity through teaching (as opposed to teaching creatively). It has gained attention in education as a foundation for learning, innovation, and problem-solving (Sawyer, 2015; Smith & Smith, 2010). When people have curiosity and confidence, they love questioning the status quo; they also are more anticipatory, better able to show positive work inspiration, and more creative and enthusiastic

(Houghton, 2011). Although some authors have viewed these traits as a personality trait of students, the authors of the VSS reconceptualized these as part of the "personality of the schools." Thus, just as personality characterizes an individual, climate characterizes the "personality" of an organization (Hoy et al., 1991, p. 3). Furthermore, school climates in which children are motivated to interact with other students aid in the development of their creativity (Walsh et al., 2017). Schools that cultivate an inclusive and supportive atmosphere have been found to foster creativity, while also prioritizing positive relationships between teachers and students, as well as peers (Gao et al., 2020). Since vibrant schools value self-initiated, future-focused, and change-oriented behaviors, creativity is a natural part of the "personality" of vibrant schools. In addition, an interactive and dynamic classroom setting can foster creativity and encourage students to think outside of the box. Learners can express their newfound knowledge through various means, such as writing, drawing, constructing, composing, and organizing their ideas in unique ways. This allows for a more holistic approach to learning and can help students retain information better while also developing their critical thinking skills. Despite an education system that values conformity, some teachers strive to cultivate creativity in their classrooms. For teachers to facilitate such an environment that fosters these skills and abilities, teachers should be encouraged and entrusted to be creative themselves, envisioning fresh opportunities for their students and experimenting with new teaching techniques that may or may not succeed. Both teachers and students require innovation-friendly and risk-tolerant environments, fortified with a high standard of trust and security (Tschannen-Moran, 2020).

Critique. Critical thinking is a vital process of reflective thinking that aids in evaluating the accuracy of facts and evidence (Ennis, 2013). It involves the capability to develop, interpret, analyze, and test ideas from various perspectives and opinions. In essence, critical thinking is a cognitive process that allows individuals to make informed judgments and decisions based on logical reasoning and evidence-based analysis. Through this process, individuals can identify

biases, assumptions, and limitations in arguments and ideas, leading to more accurate and well-informed conclusions. Ozden (2023) thought that it is crucial for individuals to develop critical thinking skills during their educational journey. This is because possessing such skills enables one to effectively distinguish between normal circumstances, inferences, and assumptions while simultaneously evaluating arguments and their implications.

It is of utmost importance that the youth of today are adequately oriented towards critique to deal effectively with the realities of the information age (Binkley et al., 2012; McGrew et al., 2018). With the constant influx of copious amounts of information and an ever-increasing number of claims being made, it can be quite a daunting task to navigate the complexities of this age. Moreover, the prevalence of sophisticated methods of manipulating and spinning information to serve various purposes has made it even more challenging to discern truth from falsehood. Therefore, it is imperative that students are equipped with the necessary knowledge and skills to effectively navigate this terrain as they enter adulthood. Such a competency can prove to be invaluable in various aspects of one's life. Ashman and Conway (1997) proposed various educational practices for cultivating critical thinking skills, including scaffolded training, reciprocal teaching, cooperative learning, peer tutoring, cognitive apprenticeships, in addition to conventional teaching methods. The scholars who developed the VSS believe it is essential to confront controversial topics and analyze them in a thorough and impartial manner (Clement et al., 2018). These confrontational topics would encourage students to become curious and creative thinkers, which leads to a continuous cycle of learning. Moreover, they would recognize the importance of teaching students to express their opinions respectfully, logically, and persuasively. This skill is crucial for their personal and professional growth and will serve them well in any future endeavors.

Emboldened Voices

Emboldened voices refers to the dimension by which vibrant schools actively seek input from teachers, students, and parents to inform decisions about curriculum, instruction, programming, and policy, which ensures that everyone's voices will be respected and responded to (Tschannen-Moran & Clement, 2018). A community that is open and supportive, where individuals are valued regardless of their differences, is essential for building meaningful relationships in vibrant schools. Such an environment fosters connections that are built on trust, understanding, and mutual respect. It is a space where everyone feels welcome and cared for, creating a sense of belonging that is vital for personal growth and development.

Teachers hold a vital responsibility in establishing an environment of belonging for their students through nurturing relationships (Pineda-Baez et al., 2019). As teachers serve as the primary source of motivation for students to pursue independent and autonomous learning, it is imperative that they cultivate an engaging and dynamic classroom atmosphere. This involves actively listening to students' needs, concerns, and ideas and using their input to enhance the classroom dynamic. Research showed that students' commitment to learning increases when teachers prioritize student voices and allow them to collaborate with teachers on curriculum and instruction (Rudduck & Flutter, 2000) and when the school is responsive to their input (Kahne et al., 2022).

Teachers can pave the way for student success by empowering students to participate in their learning journey. However, Mitra (2018) noted the reluctance among many adults to foster student voice because the institutionalized roles of teachers and students contradicts this idealized adult-youth partnership. In their study, Jones and Bubb (2021) stated that although teachers claimed to be open to student opinions, the structure of school that only allows rigid implementations of student councils with adult control hindered genuine collaboration between teachers and students. Poorly designed or tokenistic student voice initiatives, which are only

symbolic or superficial rather than a true collaboration and that lack true alternatives, can disempower students and negatively impact their self-concept during participation.

In addition to studies that revealed that empowering students by giving them a greater say in school-related matters can yield positive academic outcomes, recent endeavors also prioritized amplifying student involvement in decision-making processes to enhance overall school performance. Students not only desire to have their voices heard but also yearn to actively engage in the process of bringing about positive changes (Jones & Bubb, 2021). Research conducted by Brasof and Spector (2016) substantiated that integrating students in organizational planning and goal setting can result in more efficacious change strategies. Collaboration with primary school children on school policy, organization, and curriculum planning was found to disrupt traditional norms and enriched the school community (Quinn & Owen, 2016). The viewpoints of young individuals can offer a distinct outlook on matters that adults may overlook or disregard. Students encountering difficulties within the present-day educational system, such as failing grades or the possibility of quitting, possess insightful viewpoints regarding issues with school culture and structure (Smyth, 2007).

It is essential for students to assume responsibility for their learning processes and conduct self-evaluation. This approach disrupts the conventional power dynamics prevalent in the classroom (Cook-Sather, 2006). To fully enrich their academic journey, students should go beyond merely articulating their ideas. It is imperative that they actively engage in decision-making procedures that impact their education and personal growth. Assuming this responsibility empowers them to foster a more constructive school atmosphere and feel a greater sense of agency over their learning experience. Riordan et al. (2019) proposed that researchers and policymakers consider the perspectives of students as a valuable means of gauging the effectiveness of educators and schools in promoting equity and fostering deeper learning. Fostering student's capacity to reflect upon, adjust, and lead their own learning is supported in

deeper learning processes, together with active involvement in dialogue and collaboration (Darling-Hammond et al., 2020; Hilton & Pellegrino, 2012).

Playful Learning

The last essential element in creating vibrant schools is the integration of playful learning into academic pursuits. Playful learning involves hands-on, exploratory, and experimental activities that foster a lively and joyful atmosphere (Clement et al., 2018). Engaging in physical activity and play can stimulate interest and promote the healthy development of young minds (Tschannen-Moran & Clement, 2018). From the moment humans are born, they possess a natural ability to acquire skills through play. Throughout their childhood, they gain an understanding of social norms, roles, responsibilities, and language through inquisitive and playful interactions. This methodology of learning through play harnesses the strength of a child's imagination, encouraging them to actively participate in the learning process.

Whitton (2018) used the term "magic circle" to describe a playful learning environment, which was originally introduced by Huizinga (1955) as an example of a space in which play happens. This idea of a magic circle was later expanded upon by Tekinbas and Zimmerman (2003) as a means of elucidating how individuals construct relationships and realities through play. According to this conceptualization of play (Whitton, 2018), the magic circle, meaning a playful learning space, serves as a designated area where individuals can explore and establish novel standards and conduct, unburdened by the limitations present in the physical realm. In addition, Whitton (2018) proposed three reasons why integrating playfulness and using playful methods are beneficial. First, playful approaches encourage learners to fully engage in the spirit of play (Whitton, 2018). This process of nurturing imagination and ideation through play can enhance creativity (Bateson, 2014) and create a cycle of play, imagination, and innovation. By promoting a playful mindset among learners, they are given the freedom to imagine, experiment, and create in innovative and exciting ways, bounded only by the rules of the magic circle and

without the fear of criticism or defeat. The second reason Whitton (2018) proposed is that playful environments foster a strong sense of intrinsic motivation to participate in learning activities. The concept of playfulness involves a space where individuals enter by choice, with complete autonomy over the rules, actions, and boundaries of play (Karoff, 2013). Participation is driven by the intrinsic rewards of play, rather than any external incentives. This self-motivation fosters personal growth through exploration, experimentation, and discovery, ultimately leading to profound learning experiences. Lastly, playfulness helps students to embrace failure and to lead them to use it as a learning opportunity (Whitton, 2018).

The concept of playfulness as a teaching and learning strategy in education embraces humanistic principles (Mardell et al., 2023). These principles include fostering creativity, promoting personal growth and wellbeing, and cultivating critical thinking skills, as well as a sense of community and connection to the wider world. According to research by Holdsworth et al. (2018), looking at failure as a learning opportunity could cultivate resilience and promote a stronger recovery. Additionally, this mindset can inspire students to take calculated risks (Atkinson, 1957), resulting in more creativity and a heightened emphasis on mastering the learning process and its obstacles, rather than solely on the final outcomes (Dweck, 2010). Moreover, incorporating play into educational activities can be a powerful tool in motivating learners to engage with challenging subjects. Resnick (2004) asserted that adding an element of fun to the learning experience can help foster a more positive attitude towards learning and ultimately lead to better retention of knowledge.

To summarize, vibrant schools empower researchers to rethink school climate as an aspirational measure of the presence of ideal school characteristics. VSS enables educators to host strengths-based conversations about how to move in the direction of those ideals. This approach provides a useful way forward for educators who are seeking to improve their schools. By identifying and prioritizing these ideal characteristics, schools can work towards creating a

positive and engaging environment that fosters academic excellence and promotes the holistic development of their students. Moreover, vibrant schools are schools that foster deeper learning. Deeper learning refers to the development of skills and knowledge that enable students to think critically, collaborate effectively, communicate clearly, and learn how to learn (Darling-Hammond & Cook-Harvey, 2018). Creating vibrant school communities is essential for promoting deeper learning, as it encourages students to engage with their developmental imperative to connect with others, learn, and grow.

The William and Flora Hewlett Foundation, a prominent advocate for enhancing educational practices across the nation, has outlined deeper learning as the acquisition of competencies essential for students to comprehend academic concepts deeply and effectively utilize their knowledge to tackle challenges both within educational settings and in professional environments (Farrington, 2013) According to this perspective, deeper learning revolves around fostering six interrelated competencies widely deemed essential for achievement in higher education, professional endeavors, and civic engagement:

- Mastery of core academic content

- Critical thinking and complex problem-solving skills

- Effective communication skills

- Collaboration skills

- An understanding of how to learn

- Academic mindsets. (Farrington, 2013)

These competencies enable students to transfer their learning to new and complex situations and adapt to the ever-evolving global landscape (Hilton & Pellegrino, 2012). Educational policies and curricula around the world have responded to the need for deeper learning among students. This has resulted in a renewed emphasis on understanding core

concepts within a subject area, as well as developing procedural competence in applying knowledge to solve new problems and adapt to new situations (Bellanca, 2015).

Deeper learning can be enhanced by creating a positive learning community where students gain content knowledge and interpersonal skills (Hilton & Pellegrino, 2012). Moreover, teachers can increase students' interest and willingness to learn by promoting a positive and supportive environment (Darling- Hammond et al., 2020). Recently, Solvik and Glenna (2022) sought to gain insight into the methods employed by teachers to facilitate deeper learning during whole-class instruction. Student deeper learning is possible by fostering engagement, creating an atmosphere conducive to learning, comprehending subject matter, and engaging in reflective metacognition. Extracurricular activities, electives, or innovative academic programs that emphasize student choice, community, and apprenticeship models of learning are the "bright spots" where deeper learning occurs (Mehta & Fine, 2019). These findings underscore the critical importance of secure and encouraging classroom environments as well as the need for a positive school climate. Schools with positive school climate prioritize students' needs and foster a love of learning, support the unique talents of students, and nurture social and cross-cultural skills (Hilton & Pellegrino, 2012). In such an environment, students are given ample opportunities to develop a diverse set of skills that are essential for success in various aspects of life. These skills include taking initiative, being adaptable to changing circumstances, resourcefulness in finding solutions to problems, self-direction in setting and achieving goals, taking responsibility for one's actions, and developing leadership qualities that enable them to work effectively with others (Hilton & Pellegrino, 2012).

Based on the literature review above, creating vibrant school communities is essential for promoting deeper learning, as it encourages students to engage with their developmental imperative to connect with others, learn, and grow. By fostering curiosity, critical and creative thinking, as well as communication and collaboration skills, educators can create an environment

where students are motivated and engaged in their own learning process. This approach aligns with the principles of deeper learning by emphasizing the importance of student-centered instruction and active engagement in the learning process. The VSS was developed to assess these characteristics in schools as a means of sparking strengths-based conversations among educators as they bolster the vibrance of their school communities.

In this study, I set out to answer the following research questions:

1. What is the factor structure of the revised VSS?

    a. To what extent does the structure of the VSS as examined through Multilevel Exploratory Factor Analysis (MEFA) support the content validity of the scale?

    b. To what extent can the number of items in the VSS be reduced while still explaining a similar amount of the variance in each subscale?

2. What is the internal consistency of the measure as a whole and each of the subscales?

    a. What is the Cronbach alpha for the VSS and each of its three subscales?

    b. To what extent can internal reliability be improved by removing items that do not covary strongly?

3. To what extent are the subscales of the VSS correlated with one another and with the measure as a whole?

Methods

The following section explains the research design, research questions, participants, measurement tools used for data collection, and data analysis process.

Research Design

The purpose of this study was to test the psychometric properties of the adaptation of the VSS (Clement et al., 2017) and to explore the degree to which connections among Enlivened Minds, Emboldened Voices, and Playful Learning, the subscales of the VSS (Clement et al., 2017), based on the information collected from teachers and school leaders. Therefore, Dr.

Tschannen-Moran and I used a quantitative cross-sectional survey research design (Creswell & Cresswell, 2023) with the data collected at a single point in time to evaluate the reliability and the validity of the scale and to understand the correlations of the subscales with one another and with the measure as a whole.

Participants

We used multi-stage clustered sampling, as suggested by Bryman and Bell (2019). Schools are the first and main sampling unit, followed by the faculty as the second stage of sampling. We obtained permission from school district offices and then reached out to the principals of each school via phone or email to inquire about the possibility of conducting surveys for the school faculty. With the principal's consent, we included that school in the sample. Next, faculty took part in the study voluntarily. Faculty included both teachers and school leaders.

Several guidelines about sample size with Multilevel Modeling are available in the literature. In practice, 50 groups is a frequently occurring number in organizational and school research (Hoyle & Gottfredson, 2015; Maas & Hox, 2005; Van der Leeden & Busing, 1994; Van der Leeden et al., 1997). However, the simulations in some studies suggested 30 as the number of groups required to have unbiased results and enough statistical power to detect between-group variance (Bell et al., 2014; Ferron et al., 2009; McNeish & Stapleton, 2016). In some studies, even smaller numbers of groups were found to be effective in simulations; for example, Stegmueller (2013) recommended at least 20 clusters, while in the simulation in Austin (2010), Hierarchical Linear Modeling (HLM) performed well as the number of groups reached only 15. Researchers approached smaller numbers with caution. Although Kreft and De Leeuw (1998) stated 30 is the smallest acceptable number, W. J. Browne and Draper (2000) warned against the inaccurate interclass correlation coefficient (ICC) when the number of clusters falls below 30. In addition to the number of groups, group size (individuals per group) is also important in multi-

level models, even though a large number of groups appears more important than a large number of individuals per group (Maas & Hox, 2005). Different group sizes, with the number of participants at 30 (Austin, 2010; Gulliford et al., 1999), of 5–30 (McNeish & Stapleton, 2016), or of 5–50 (Maas & Hox, 2005) were all shown to be enough to have statistical power to detect within-group variability.

We collected data from 51 schools for our study and of those, 35 schools had more than five individual participants for multilevel analysis. This number was within the range of group number and group size recommended in the literature. During the data analysis process, four of the schools (school number: 1, 12, 20, 35) did not have any within-school variation and were therefore deleted. As presented in Table 1.1, the final sample size was 31 (16 elementary, 6 middle, 9 high schools). In 31 schools, there were 494 participants (49 leaders, 446 teachers).

Table 1.1

Participant Demographics Based on School Level and Role in the School

Level	No. of Schools	Leaders		Teachers		Total
		f	%	f	%	
Elementary	16	19	7.7	227	92.3	246
Middle	6	9	11.4	70	88.6	79
High	9	21	12.4	149	87.6	170
Total	31	49	9.9	446	90.1	494

Data Sources

In this study, the reliability and the factor loadings of the VSS items (Clement et al., 2017) and the intercorrelations of VSS and its subscales were assessed. We used an adaptation of the VSS, first developed by Clement et al. (2017), to assess aspirational dimensions of school climate. The authors adapted this 27-item measure to include a closer alignment to the elements of deeper learning. The purpose of this study was to test the psychometric properties of this adaptation. The scale consists of three subscales with nine items each. These are enlivened

minds, emboldened voices, and playful learning. The measure uses a five-item response scale with the following anchors: 1 = *not at all*, 2 = *very little*, 3 = *to some extent*, 4 = *quite a bit*, and 5 = *a great deal*. In a study of 257 teachers, school leaders, parents, and students. We found an overall omega of 0.99 for the VSS for our data set, and the omega of the subscales ranged from 0.88 to 0.92. Some sample items include,

- Enlivened minds: "In this school, creativity abounds"

- Emboldened voice: "I feel I belong here," and

- Playful learning: "We engage in learning with a playful spirit."

Data Collection

The study complied with ethical principles and Institutional Review Board (IRB) guidelines at William & Mary School of Education. The data collection process was launched during May 2023 and was intensified during the Fall 2023 academic semester. The data collection process ended April 2024.

After getting approval to conduct research in six school districts, we invited a representative from each school to navigate to the Vibrant School Website (http://www.vibrantschools.info/) and register their school. Each school was assigned a seven-digit code, and the representative was provided with a sample email to distribute to the stakeholders in their school with a link to an electronic survey.

The survey was administered via Qualtrics, an online survey management tool. The participants then had access to their school's results, presented in a colorful infographic to reciprocate the investment of time they had offered. The personal information of the participants that they provided was collected and securely stored in an account that is password protected. This ensured data were kept safe and anonymous. Only my advisor and I had access to their information, and we took all necessary precautions to prevent any unauthorized access or disclosure of their data.

Data Analysis

School climate is a complex concept that encompasses the values and customs of the people who work in a school (Cohen et al., 2009). A common method for gathering data on school climate is conducting individual surveys and aggregating the results to determine group means that are then used to draw conclusions about the group or school (Bliese, 2000; Zyphur et al., 2008). Over 4 decades ago, Sirotnik (1980) complained that most researchers ignored the organizational unit of analysis when conducting psychometric analyses like exploratory factor analysis and reliability analysis of individual-level data, even when they addressed the unit of analysis issue in the study phase of the research process. In a review of 40 studies on organizational climate, Sirotnik concluded that "the psychometric implications of unit-of-analysis issues have been almost universally ignored in the organizational climate literature" (p. 258). In the intervening decades, it seems that not much has changed. In their systemic literature review, Wang and Degol (2016) reported that numerous school climate investigations have overlooked the nested nature of the data, relying exclusively on individual reports of climate to forecast individual outcomes. On the other hand, most academics concur that school climate is an attribute of the school, as the name suggests (Van Horn, 2003). Therefore, the study of school climate metrics is a good fit for the application of multilevel modeling (Marsh et al. 2012; Marsh et al., 2009; Muthén, 1991). In this study, I conducted Multilevel Exploratory Factor Analysis (MEFA) which can simultaneously analyze the constructs of interest at multiple levels (Byrne, 2012). The latest updates in the quantitative data analysis software such as Mplus, Stata, and R allowed me to perform MEFA with equal or unequal (unbalanced) sample sizes of individual level units across organizational level units. In my analyses, I used Mplus to examine the underlying factor structures of VSS.

Prior to examining the factor structures through MEFA, normal distribution and the ICC was checked to decide whether multilevel analysis was justified. The ICC values, as the extent to

which individuals' rating, are affected by group membership (Bliese, 2000). MEFA allows for the evaluation of many alternative or competing models, such as those with (a) different numbers of factors at the two levels, (b) same factor structures but different loadings across levels, or (c) equal loadings across levels and the same number of factors at each level (Kim et al., 2016). Therefore, it was important to validate the VSS with MEFA so that we were able to understand if there were different loadings of the items across levels compared to the original data reduction (Clement et al., 2017) and potentially to reduce the number of items. For the item reduction process, appreciable factor loadings, fit indices, and the conceptual understanding of the factors were used when deciding on the number of factors to retain as there is no established factor retention criteria specifically for MEFA (Schweig, 2014). For the correlational questions, the Pearson correlation was run to understand the intercorrelation between the subscales and the correlation to the scale as a whole, which is the most common way of measuring linear correlation. To assess the reliability of the scale, a two-level factor was employed, and omega (ω) was estimated within and between levels following the approach described by Geldhof et al. (2014).

Results

In this study, we aimed to validate the VSS and develop a more parsimonious and concise measure of vibrant school climates through multilevel analysis. In this section, I presented the results of our data analysis to address each research question.

Results for Descriptives of Demographic Characteristics and Multilevel Analysis

Descriptive statistics of the VSS with its subscales are shown in Table 1.2. There were statistically significant mean differences of VSS between three school levels as determined by one-way Analysis of Variance (ANOVA), $F(2,492) = 7.92$, $p < 0.01$. Vibrancy in middle school was lower, with each subscale statistically lower than vibrancy in elementary and high schools, $M(\text{VSS}) = 2.95$, $SD(\text{VSS}) = .82$; $M(\text{EM}) = 2.0$, $SD(\text{EM}) = .84$; $M(\text{EV}) = 2.93$, $SD(\text{EV}) = .95$;

M(PL) = 3.01, SD(PL) = .87. Conversely, there were no statistically significant mean differences in VSS between teachers and leaders.

Table 1.2

Descriptive Statistics Based on Demographic Characteristics for Complete Items-VSS

Demographic	n	EM		EV		PL		VSS	
		M	SD	M	SD	M	SD	M	SD
School Level									
Elementary ($n = 16$)	246	3.15	0.71	3.33	0.86	3.46	0.77	3.31	0.71
Middle ($n = 6$)	79	2.9	0.84	2.93	0.95	3.01	0.87	2.95	0.82
High ($n = 9$)	170	3.22	0.78	3.36	0.89	3.28	0.82	3.29	0.78
School Role									
Teacher	446	3.11	0.75	3.25	0.89	3.31	0.81	3.22	0.75
Leader	49	3.37	0.87	3.49	0.9	3.48	0.85	3.45	0.83
Total	495	3.13	0.76	3.27	0.9	3.33	0.82	3.25	0.76

Note. N = 31 schools. EM = Enlivened mind, EV = Emboldened voice, PL = Playful learning; VSS = Vibrant School Scale.

Moreover, before conducting the MEFA, we examined whether the items were normally distributed, as well as the ICC, to determine if the multilevel analysis was justified. The mean, standard deviation, skewness values, and ICC values for each item in VSS are shown in Table 1.3. Skewness ranged from -.44 to .26. Five items (EM4, EM5, EM7, EM8, PL7) that had less than .10 ICC were eliminated. For further analysis, the five items with ICC values less than .10 were eliminated from the data to have an unbiased consideration regarding the multilevel nature of the data (Dyer et al., 2005; Lee, 2000). The ICC levels for the rest of the 22 items showed acceptable variability ranging from .11 to .24.

Table 1.3

Complete Items in the VSS and Descriptive Statistics for MEFA

Item	*M*	*SD*	Skewness	ICC
EM1-Students are supported to pursue their individual interests in school.	3.48	0.94	-0.10	0.11
EM2- There are opportunities at this school for students to pursue topics they are curious about.	3.22	0.95	0.04	0.16
EM3- Curiosity is nurtured in our school.	3.39	1.23	-0.10	0.15
EM4 - Students here are taught to critique the status quo. *	2.77	1.06	0.21	0.04
EM5 - Students here are taught to question why things are the way they are. *	3.03	1.19	0.16	0.02
EM6 - In this school, creativity abounds.	3.38	1.24	-0.09	0.14
EM7 - In this school, controversial issues are openly explored.*	2.66	1.10	0.26	0.06
EM8 - Students apply what they learn to real world problems.*	3.34	1.43	-0.20	0.05
EM9 - In this school, we prize outside-the-box thinking.	3.30	1.27	-0.12	0.15
EV1 - Everyone has a voice in decisions that affect them.	2.92	1.11	0.07	0.17
EV2 - People in this school feel comfortable sharing their opinions.	3.26	1.22	-0.17	0.18
EV3 - There is an abiding sense of community in this school.	3.50	1.12	-0.44	0.24
EV4 - In this school, my voice matters.	3.19	1.23	-0.10	0.20
EV5 - I feel that I belong here.	3.74	1.36	-0.64	0.14
EV6 - In this school, we value collaborative learning.	3.59	1.16	-0.40	0.17
EV7 - We talk about our differences.	3.07	1.05	0.07	0.14
EV8 - Differing perspectives are valued in this school.	3.20	1.21	-0.05	0.16
EV9- Families are meaningfully engaged in the life of the school.	3.20	1.04	-0.03	0.21
PL1 - We engage in learning with a playful spirit.	3.31	0.98	-0.09	0.13
PL2 - We value movement and physical activity as essential to engaged learning.	3.38	1.05	-0.22	0.17
PL3 - We have a lot of fun together here.	3.39	1.14	-0.19	0.16
PL4 - We value and learn from our mistakes.	3.55	0.98	-0.34	0.13
PL5 - We take delight in our diversity.	3.29	1.22	-0.29	0.20
PL6 - In our school, learning is fun.	3.42	1.23	-0.16	0.18
PL7 - In our school, we feel empowered to take responsibility for our own learning.*	3.30	1.15	-0.19	0.09
PL8 - Here we have chances for our imagination to take flight.	3.19	1.10	0.04	0.18
PL9 - We approach complex challenges with flexible thinking.	3.32	0.92	-0.10	0.18

Note. N = 31 schools. MEFA = Multilevel Exploratory Factor Analysis, ICC = Intraclass Correlation, VSS = Vibrant School Scale, EM = Enlivened mind, EV = Emboldened voice, PL = Playful learning

*= Items that were eliminated due to low ICC value

Results for MEFA

For the MEFA, a succession of one to three factors was extracted for both Levels 1 and 2. In an attempt to uncover simple structure, geomin rotation (oblique) with weighted least square mean and variance adjusted estimator was used. Since the items did not approximate a continuous variable enough that the results were unbiased while using maximum likelihood estimators, we used weighted least square mean and variance adjusted estimator which treated the items as categorical variables. Previous research showed unbiased results with this type of estimation and very similar loadings and estimates of underlying structures with five or more categories (Kite et al., 2018). Appreciable factor loadings, fit indices, and the conceptual understanding of the factors were used when deciding on the number of factors to retain, as there is no established factor retention criteria specifically for MEFA (Schweig, 2014). Therefore, to examine the fit of the models for each of the first and second-level EFA and the goodness-of-fit statistics—Root Mean Square Error of Approximation (RMSEA; Steiger & Lind, 1980); Comparative Fit Index (CFI; Bentler, 1990); Tucker-Lewis Index (TLI; Tucker & Lewis, 1973); and Standardized Root Mean Square Residual (SRMR; Maydeu-Olivares, 2017; Pavlov et al., 2021)—were observed. The Chi-square test ($\chi 2$; Cochran, 1952) was not taken into consideration because it is known to be highly sensitive to sample size (i.e., solutions involving large samples would be consistently rejected based on $\chi 2$ even when differences between the sample and model-implied matrices are negligible; Cheung & Rensvold, 2002).

An original recommendation by Bentler (1992) suggested that a CFI value exceeding .90 signifies a well-fitting model. More recent guidance (Hu & Bentler, 1999) suggests a cutoff value closer to .95. Similarly, in line with the CFI, TLI values approaching .95 are indicative of a good fit (Hu & Bentler, 1999). RMSEA values less than .05 are seen as indicative of a good fit, while values in the range of .08 are considered reasonably fitting (M. W. Browne & Cudeck, 1993; MacCallum et al., 1996). Similarly, SRMR values less .05 were considered as a good fit

while values less than or equal to .08 were considered acceptable model fit (Shi et al., 2018). For

item loadings, the cut-off point was considered .40 (Stevens, 2012).

Table 1.4

Model Fit Results of the 3 Within 1 Between MEFA of VSS

Models	Within	Between	χ2	df	RMSEA	CFI	TLI	SRMR Within	SRMR Between
27 ITEMS	3	1	703.49**	597	0.019	0.962	0.955	0.027	0.086
22 ITEMS	3	1	474.74**	377	0.023	0.955	0.944	0.02	0.068
19 ITEMS	3	1	354.97**	269	0.025	0.954	0.941	0.023	0.073
15 ITEMS	3	1	200.32**	153	0.025	0.968	0.956	0.024	0.088

Note. N = 31 schools. VSS = Vibrant School Scale RMSEA = root mean square error
approximation; CFI = comparative fit index; TLI = Tucker-Lewis index; SRMR =
standardized root mean residual; ** $p < .001$.

For the first research question, various models with MEFA fit indices are shown in Table

1.4. First, as can be seen in Table 1.4, there is no model with more than one factor at the between

level and with less than three factors at the within level. We only kept the models with three

factors at the within level because the fit indices did not make the cut-off values stated above,

indicating poor fit. Moreover, for models with more than one factor at the between level, the

items started giving negative residuals and factor loadings more than 1, which indicated either

model misspecification or too many factors extracted. Therefore, the models with three factors at

the within level and one factor at the between level were compared. We started examining the

model with the original VSS with 27 items even though there were five items with ICC values

less than .10 to check the fit indices, $\chi2$ (703.49, df = 597, p < .01; RMSEA= .019; CFI = .96;

TLI=.95; SRMR within = .03; SRMR between = .086). As SRMR between is larger than .08, it

was not considered an acceptable model. After eliminating those five items (EM4, EM5, EM7,

EM8, PL7), we reran the analysis with 22 items, χ^2 (474.74, $df = 377$, $p < .01$; RMSEA= .023; CFI = .96; TLI =.94; SRMR within = .02; SRMR between = .068). Even though this model shows an excellent fit at the individual level and an acceptable fit at the between level, items EV7 and PL4 had factor loadings more than one, which is not logically possible when considering them as correlation coefficients, indicating model misspecification. In addition, the item EV9 did not load with more than the cut-off value .4. Therefore, these three items (EV7, EV9 and PL4) were eliminated and MEFA for VSS with 19 items were rerun. Results confirmed high fit indices and reliability coefficients at the individual level and acceptable values at the between level, χ^2 (354.97, $df = 269$, $p < .01$; RMSEA = .025; CFI = .95; TLI =.94; SRMR within = .02; SRMR between = .07). Since in this model, there were five items for one factor and seven items for each in the last two factors, I tried to eliminate 4 more items (two each from the last two factors) to have a more parsimonious and concise scale. However, in each trial, fit indices for VSS with 15 items were unacceptable at the between level, χ^2 (200.32, $df = 153$, $p < .01$; RMSEA = .025; CFI = .97; TLI =.96; SRMR within = .02; SRMR between = .088). Therefore, I determined that VSS 19 items was the best fit for the current data set.

Standardized parameter estimates/factor loading for the MEFA with 19 Items VSS are shown in Table 1.5. At the within (individuals) level, factor loadings yielded to five items for enlivened minds (factor loadings 0.52–0.70), seven items for emboldened voices (factor loadings 0.47–0.89), and seven items for playful learning (factor loadings 0.48–0.85). At the between schools level, all 19 items loaded into one factor (factor loadings 0.81–0.98).

Table 1.5

Standardized Parameter Estimates for the MEFA With 19 Items

Items	Within Level			Between Level
	EM	EV	PL	Vibrant School
EM1	0.656*			0.814*
EM2	0.705*			0.900*
EM3	0.487*			0.959*
EM6	0.553*			0.982*
EM9	0.519*			0.985*
EV1		0.811*		0.936*
EV2		0.793*		0.950*
EV3		0.712*		0.934*
EV4		0.886*		0.978*
EV5		0.757*		0.971*
EV6		0.470*		0.975*
EV8		0.764*		0.981*
PL1			0.824*	0.937*
PL2			0.845*	0.864*
PL3			0.532*	0.985*
PL5			0.476*	0.881*
PL6			0.762*	0.863*
PL8			0.736*	0.972*
PL9			0.499*	0.983*

Note. N = 31 schools. EM = Enlivened mind, EV = Emboldened voice, PL = Playful learning. All factor loadings were significant at *p* < .001

The Mplus factor analysis methods do not give values for variance explained in a set of variables by a factor. Muthén and Muthén (2017) provided three reasons for their decision. One is that factor analysis does not aim to explain variance but correlations. The other is that typically, oblique factors need to be extracted in which case the concept of variance explained by a factor is not clearcut. Variance explained also connects with Principal Component Analysis which is not factor analysis. However, for a descriptive picture of the difference between the original VSS with 27 items (Clement et al., 2017) and the VSS with 19 items, the percentage of the total eigenvalues of the factors extracted can be reported. Original VSS with 27 items has

18% of total three eigenvalues while the current VSS with 19 items has 15% of total three eigenvalues. The difference between the percentage of variance explained was only three percent. Therefore, looking at the variance in MEFA is inconclusive.

Results for Reliability Analysis

For the second research question, multilevel reliability analyses, including the whole measure as well as its three dimensions, confirmed high internal reliability at both within-school and between school levels for all three dimensions of the VSS with 19 items. For the EM items, within-schools $\omega = 0.88$; for the EV items, within-schools $\omega = 0.92$; and for the PL items, within-schools $\omega = 0.92$. The omega for the full VSS between-schools $\omega = 0.99$ (Table 1.6). On the other hand, original VSS with 27 items yielded to EM within-schools $\omega = 0.83$; EV within-schools $\omega = 0.91$; PL within-schools $\omega = 0.90$, VSS within-schools $\omega = 0.95$. The internal reliability of each subscale at the within level and the whole VSS at the school level were improved by removing items.

Results for Correlational Analysis

For the third and last research question of this paper, we calculated the intercorrelations between the dimensions of vibrant schools with one another and with the full scale through Pearson correlation (See Table 1.6). Enlivened minds was strongly related to emboldened voice ($r = .70$, $p < .01$) and strongly related to playful learning ($r = .76$, $p < .01$), and emboldened voices was also strongly related to playful learning ($r = .81$, $p < .01$). All three subscales were strongly related to the full scale ($r = .89$, .92 and .93, respectively).

Table 1.6

Means, Standard Deviations, and Intercorrelations of the VSS With 19 items

Variable	*M*	*SD*	1	2	3	4
1. Enlivened minds	3.32	0.84	(0.88)	.70**	.76**	.89**
2. Emboldened Voices	3.32	0.94		(0.92)	.81**	.92**
3. Playful learning	3.31	0.83			(0.92)	.93**
4. Vibrant School	3.31	0.79				(0.99)

Note. N = 35 schools. VSS = Vibrant School Scale Internal consistency reliabilities of the measures are reported within parentheses along the diagonal. All correlations are significant at the .01 level. Ratings for the scales based on 5-points scales.

Discussion

This study is the first attempt to discover the factor structure of VSS through multilevel modeling after its original data reduction at the individual level (Clement et al., 2017). As many scholars have noted, school climate scales are expected to be examined as a characteristic of the school, which requires multi-level analysis because of the nested structure of the data (Chan, 2006). The development of the VSS stemmed from a desire to create learning environments characterized by laughter, physical and cognitive engagement, the freedom to share diverse ideas, and a sense of joy. The results of this study offer significant insights into the structure and reliability of the VSS, revealing noteworthy distinctions between individual-level and school-level factor structures. These distinctions support the advocates of multilevel analysis who consider the construct of school climate as the appropriate organizational unit of analysis (Marsh et al., 2012; Marsh et al., 2009; Muthén, 1994; Sirotnik, 1980; Wang & Degol, 2016).

Furthermore, our multilevel analysis revealed that, at the individual level, the factor structure of the VSS remained consistent with the original data reduction, despite variations in the number of items, indicating differences in individual perceptions of what constitutes a vibrant school. At the individual level, the identification of three subscales underscores the nuanced ways in which leaders and teachers experience the aspects of school vibrancy, such as enlivened minds, emboldened voices and playful learning. At the school level, the factor structure of the

VSS consolidated into a single factor, suggesting that the three subscales—enlivened minds, emboldened voices, and playful learning—are interdependent components of vibrant schools. The result of this study regarding the single factor at the school level supports the description of school climate as "the personality of the school" (Hoy et al., 1991, p. XX) and it should be treated as a single attribute of the school even though there are differences in individual perceptions (Van Horn, 2003). This convergence might also reflect the cohesive cultural and environmental factors that shape a school's overall climate, aligning with Bronfenbrenner's ecological systems theory, which posits that macro-level factors often integrate individual experiences into a unified context (Bronfenbrenner, 1979). The overall factor analysis findings align with existing literature that emphasizes the multi-dimensional nature of educational environments, where individual perceptions can vary significantly from aggregated school-wide perspectives (Fan et al., 2011; Koth et al., 2008; Kwong & Davis, 2015; Mitchell et al., 2010; Yang et al., 2018).

The results for validity and reliability analysis provided evidence for a solid school climate scale. The high internal consistency of these dimensions further validates the reliability of the VSS, indicating that each item effectively captures elements that contribute to a vibrant school climate. In addition, the lack of significant difference in the variance explained by the 19-item scale compared to the original 27-item scale implies that the shortened version retains the comprehensive essence of the VSS, making it a more efficient tool for measuring school vibrancy without sacrificing validity.

The high correlation among the subscales at the individual level and their strong relationship with the overall VSS further corroborate the interconnected nature of the dimensions of school vibrancy. The observed cross-loading of items from enlivened minds into playful learning suggests a close interrelation between intellectual engagement and enjoyment in learning. This finding resonates with studies that emphasize the importance of an engaging and

enjoyable learning environment in fostering intellectual curiosity and overall academic enthusiasm (Kahu & Nelson, 2018; Parsons & Taylor, 2011). Overall, the high intercorrelations highlight the importance of fostering playful learning environments where safety and freedom of expression are prioritized. In such settings, students' curiosity and creativity are nurtured. Furthermore, providing opportunities for critical thinking and imagination cultivates a sense of community and belonging, enabling students to discuss controversial ideas without fear of judgment (Tan, 2017). Ultimately, vibrant schools are those that integrate these elements, creating a deeper learning experience for all students, fostering the competencies of deeper learning such as critical and creative thinking, collaboration and communication skills, and citizenship behaviors (Farrington, 2013).

Implications and Directions for Future Research

These results have important implications for both educational research and practice. The reliable differentiation of subscales at the individual level can inform targeted interventions aimed at enhancing specific aspects of school vibrancy. Considering the high intercorrelation among the subscales, supporting and fostering one aspect of vibrant schools will yield improvement in other aspects as well. Meanwhile, the unified factor structure at the school level highlights the potential for school-wide policies and initiatives to foster a cohesive and vibrant educational climate. The validation of a more concise 19-item VSS further offers practical advantages, enabling easier and more efficient administration without compromising the scale's robustness.

In practice, workshops on appreciative inquiry for leaders and teachers might help them foster vibrancy in their schools. By focusing on the strengths and successes within the school community, appreciative inquiry encourages a positive mindset and a collaborative spirit among staff and students. Leaders and teachers trained in this approach can identify and build upon what works well in their educational environment, promoting a culture of continuous improvement

and innovation. These workshops can equip educators with the skills to facilitate constructive conversations, recognize and celebrate achievements, and develop a shared vision for the future. By shifting the focus from problems to possibilities, appreciative inquiry can enhance morale, increase engagement, and create a supportive and dynamic school climate where everyone feels valued and motivated to contribute to the collective success.

Future research should continue to explore the dynamics between individual and school-level perceptions of vibrancy, potentially examining how contextual factors influence these perceptions with larger data sets and larger number of schools. Following up with confirmatory factor analysis within different contexts and conducting both qualitative and quantitative longitudinal studies could provide deeper insights into how vibrancy of schools works and evolves. Multilevel factor analyses specifically hold great importance for the development of VSS as this study is the first step toward multilevel modeling of the construct.

Conclusion

The vibrant school model has its roots in positive psychology. What it offers is to change our mindset on how we approach schooling and human development. With its distinct but closely related dimensions—enlivened minds, emboldened voices, playful learning—the vibrant school climate focuses on authentic student curiosity over standardized learning outcomes. The positive psychology framework we are presenting through the vibrant school climate model welcomes optimism, efficacy, engagement, hope, meaningfulness, and justice in education. Approaching school climate as a property of the school insists on a variety of research methodologies with academic rigor.

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Chapter 3

Article 2 - Fostering Vibrant Schools: The Role of Teacher Self-Efficacy, Leaders Self-Efficacy, and Collective Efficacy

Key Words: Vibrant School Climate, Teachers' Self-Efficacy, Collective Efficacy, Leaders' Self-Efficacy

Word Count: 12,596

In today's professional and societal environments, students require advanced thinking abilities, a disposition for learning, and the capacity to collaborate effectively (Darling-Hammond & Rothman, 2011; Huberman et al., 2014; National Research Council, 2012). As the range of skills and attitudes essential for student success not only in academic settings but also in real-life contexts change, the issues confronting educational organizations are growing in complexity and ambiguity (Fadel et al., 2015). The challenges and the increase in ambiguity are demanding for individual members of schools to resolve independently (Leithwood & Mascall, 2008). In addition, they add to the stress level of teachers (Au et al., 2016). Therefore, the developmental needs of students and contemporary societal settings in education compel leaders and teachers to address challenges collectively (Hargreaves & Fullan, 2015; Hu et al., 2019; Paniagua & Istance, 2018). When teachers experience collegiality and work together toward shared goals, they can build on their capability to promote student learning and handle difficult situations (Surmeli et al., 2024).

Vibrant Schools serve as an exemplary framework for establishing an optimal learning environment within educational institutions to foster collaboration and support among the adults and the students while meeting the developmental needs of the children (Clement et al., 2017). The vibrancy of a school, according to this model, can be assessed through three factors or

subscales: enlivened minds, which encompasses fostering curiosity, creativity, and critical thinking in classrooms; emboldened voices, meaning valuing and respecting the insights and opinions of all members of the school community; and playful learning, which infuses movement, fun, and imagination into the educational process (Clement et al., 2018).

Researchers have explored collective efficacy and self-efficacy beliefs of teachers and leaders and found them to be crucial in creating just, safe, inclusive, and invigorating learning spaces for students, and addressing the changing needs of today's society (e.g., Choi, 2023; Leithwood et al., 2010; Parhamnia et al., 2022; Woodcock et al. 2022). Although previous researchers have found a strong association between positive school climate and efficacy beliefs, many of them investigated school climate models as the predictors of efficacy beliefs. Furthermore, since the vibrant school model is a newly emerging climate model, few studies have been conducted to test it with its antecedents in U.S. educational contexts (e.g., Clement et al., 2017; Tschannen-Moran & Clement, 2018). Therefore, in the present study, I examined the combined predictive power of collective efficacy and the self-efficacy beliefs of teachers and of leaders in explaining variance in vibrant school climates. I also examined the extent to which efficacy beliefs are different from each other and work together to explain vibrancy in schools.

In Bandura's (1997) conceptualization, collective efficacy beliefs and self-efficacy beliefs are distinct constructs. Collective teacher efficacy (CTE) is distinguished from teachers' self-efficacy (TSE) in that it is a property of the school, examined as an attribute inherent to the school community as opposed to the self-beliefs of individuals (Bandura, 1997; Goddard et al., 2000; Goddard & Goddard, 2001; Tschannen-Moran & Barr, 2004). Despite the conceptual distinctions between TSE and CTE, empirical evidence has indicated a robust interconnection between these constructs (Cansoy & Parlar, 2018; Goddard & Goddard, 2001; Gulsun et al, 2023; Lu & Mustafa, 2021; Ninković & Knežević Florić, 2018; Skaalvik & Skaalvik, 2007). Prior research endeavors have not generally integrated both collective efficacy and self-efficacy

within a single model, given their strong mutual influence (Goddard et al., 2004). To test Bandura's (1997) distinct conceptualization of collective efficacy and self-efficacy, I created a regression model inclusive of both individual and organizational level efficacy beliefs.

Examining collective efficacy and self-efficacy beliefs of teachers and leaders as predictors of vibrant schools emerges as a compelling avenue to significantly elevate the applicability of social cognitive theory for deeper learning in the realm of education. By introducing supplementary and actionable constructs, my study not only enriches the theoretical framework but also enhances its practical relevance for educators and leaders alike. Furthermore, the exploration of the predictors of vibrant schools at both individual and school levels contributes to a holistic understanding of distinct factors shaping individual engagement and collective endeavors for a change of mindset about schooling. The outcomes of this study offered valuable insights into elements that enable schools to evolve into flourishing, thriving, and empowering places.

Vibrant School Model

The concept of school climate encompasses the consistent standards within an educational institution that influence educators' and students' perceptions, experiences, and conduct (Hoy, 1990). It serves as a pivotal factor determining the effectiveness of a school (Thapa et al., 2013), encompassing norms, objectives, beliefs, interpersonal dynamics, pedagogical practices, and organizational procedures as perceived by individuals within the school community (Cohen et al., 2009; Kohl et al., 2013). Consequently, scholarly inquiry has increasingly acknowledged the correlation between a positive school climate and various aspects of the school experience, such as TSE (Hosford & O'Sullivan, 2016; Nguyen et al., 2023; Taylor & Tashakkori, 1995; Wilson et al., 2020); principal self-efficacy (Leithwood et al., 2010; Moolenaar et al., 2010; Yada & Savolainen, 2023); and collective efficacy (Kouhsari et al., 2023;

Wilson et al., 2020), along with individual experiences within the school environment (e.g., Charlton et al., 2021).

Vibrant School Climate is described as an aspirational atmosphere fostering children's learning through stimulation of interest, creativity, playfulness, and autonomy (Clement et al., 2017). The vibrancy of a school can be measured by three factors or subscales: enlivened minds, emboldened voices, and playful learning (Clement et al., 2018).

Enlivened Minds

A vibrant educational institution is conceptualized as a fertile ground for intellectual exploration and expressive engagement, fostering the growth of students, educators, administrators, and families (Clement et al., 2017). By nurturing a passion for learning and imparting skills in creativity, curiosity, and critical analysis, these schools serve as catalysts for a lifelong journey of continuous learning. Schwabsky et al. (2020) identified collective efficacy as a predictor of school innovation within the framework of academic optimism. The innovative climate within schools has been demonstrated to act as a mediator, linking the influences of task efficacy and information exchange to enhance employees' creative performance (Thuan, 2021). Consistent with these findings, Yang and Bentein (2023) highlighted the significance of a team-level climate supportive of innovation as a moderating factor, amplifying the impact of entrepreneurial leadership on individual employee creativity. Given that efficacy beliefs serve as motivational drivers for individual creativity, it makes sense to propose that teachers with high levels of efficacy will contribute to the vibrancy of educational institutions.

Emboldened Voices

Active engagement characterizes vibrant schools, where input from teachers, students, and parents is actively sought to inform decisions about curriculum, instruction, programming, and policy, thereby ensuring that all voices are respected and addressed (Tschannen-Moran & Clement, 2018). A community marked by openness and supportiveness, where individuals are

valued irrespective of differences, is fundamental for nurturing meaningful relationships within vibrant school environments. Enhanced leadership scores have been correlated with a more respectful adherence to fundamental norms of coexistence, predicting a better educational climate (Paletta et al., 2017). Nguyen et al. (2023) observed that staff autonomy is positively related to TSE, whereas it is negatively related to teacher stress levels, meaning that the less autonomy teachers have the greater their stress. Furthermore, Zysberg and Schwabsky (2021) underscored the relationship between students' interpersonal relationships, their sense of belonging within the school, and their academic self-efficacy, ultimately influencing academic achievement. In this study, I not only delved into the underlying mechanisms linking organizational-level characteristics to individual-level characteristics but also integrated aspects of vibrant schools into the school climate model. As integral facets of emboldened voices, autonomous participation, interpersonal relationships, a sense of belonging, and mutual respect are pivotal components of vibrant schools, nurturing emotional connections among students and their peers. Examining vibrant schools from the perspectives of teachers and leaders provides further insights into the connections between vibrant school environments and the efficacy beliefs of adult participants within the educational setting.

Playful Learning

Vibrant schools represent the fusion of playful learning with academic endeavors. Playful learning encompasses hands-on, exploratory, and experimental activities that cultivate a dynamic and joyful atmosphere (Clement et al., 2018). Participation in physical activity and play can ignite curiosity and facilitate the wholesome development of young minds (Tschannen-Moran & Clement, 2018). Z. Liu et al. (2024) discovered that when millennial workers perceived a workplace environment as more playful, it encouraged the cultivation of increased self-efficacy. Consequently, teachers in vibrant schools are likely to skillfully manage work-related

responsibilities and generate innovative ideas due to their enhanced change self-efficacy, ultimately enhancing the task and innovation performance of millennial employees.

Hoy et al. (1991) characterized schools with a positive climate as learning environments wherein leaders, educators, students, and other personnel collaborate harmoniously. Moreover, efficacious individuals within the school community engage both individually and collectively with students in enriching, autonomous, harmonious, and gratifying instructional activities (e.g., Baroudi & Hojeij, 2020; Meyer et al., 2022; Wilcox et al., 2014). Consequently, higher efficacy beliefs are expected to foster vibrant school environments that cultivate enlivened minds, emboldened voices, and playful learning.

TSE and Vibrant Schools

Grounded in Bandura's (1997) social cognitive theory, the construct of self-efficacy revolved around an individual's confidence in executing specific courses of action, thereby influencing the strategies employed to attain desired outcomes. An individual's belief in their competence serves as a foundation for motivation and personal achievement (Woolfolk & Hoy, 1990). Extensive research has been conducted on TSE to comprehend its relationship with various aspects of the education field. Besides investigating the correlation between TSE and student achievement, researchers have delved into the levels of stress experienced by teachers, job satisfaction, teaching enjoyment (Katsantonis, 2019; Skaalvik & Skaalvik, 2014; Zakariya, 2020; L. Zhang et al. 2023), and their inclination to remain in the profession (Tschannen-Moran et al., 1998). Researchers underscored the pivotal role of TSE in enhancing job satisfaction, mitigating emotional exhaustion, and consequently fostering a greater commitment to the teaching profession (Katsantonis; 2019; Skaalvik & Skaalvik, 2014; Zakariya, 2020).

TSE has emerged as a strong antecedent influencing teacher effectiveness (Sehgal et al., 2017). Previous studies also demonstrated that TSE has a transformative potential in shaping the creativity in delivery of course information, facilitation of teacher-student interactions, and

regulation of students' learning (Parhamnia et al., 2022; Sehgal et al., 2017). The connections between TSE and the willingness of teachers to adopt innovation support that high TSE enables teachers to embrace quality instructional techniques and equitable teaching practices (Ahn & Bowers, 2023). Therefore, teachers with higher self-efficacy are more likely to manifest a determination to adopt pedagogical approaches to promote enlivened minds, emboldened voices, and playful learning, displaying innovation, resilience, and commitment when confronting challenges associated with educational reform towards vibrant schools.

Beyond its instructional and pedagogical significance, many empirical studies highlight a consensus that TSE is influenced by perceptions of school climate (Chong et al., 2010; Hu et al., 2019; Kouhsari et al., 2023; Malinen & Savolainen, 2016). School effectiveness and school improvement researchers who acknowledge the importance of TSE maintain that positive school climate fosters high TSE beliefs (Almessabi, 2021; Woodcock & Jones, 2020). Research further showed that the relationship between these two constructs is also strong in inclusive education where all participants are equally safe, valued, and respected. For example, Hosford and O'Sullivan (2016) found that teachers feel more efficacious for their inclusive behaviors when they perceive school climate as supportive. Aligning with this, Wilson et al. (2020) employed a distinct model wherein self-efficacy emerged as a crucial mediator, establishing a connection between teachers' perceptions of the school climate and their reported inclusive behaviors. Even though these studies take self-efficacy as a dependent variable in their model, based on the positive correlation between positive school climate and TSE, it seems reasonable that teachers with stronger self-efficacy have a greater chance to form a vibrant school climate that improves the organizational commitment of students, which is defined as a person's affective engagement with the goals, values, and activities of an organization (Hallinger & Lu, 2014).

Leader Self-Efficacy and Vibrant Schools

School leaders play a pivotal role in ensuring the delivery of high-quality education and contributing to school effectiveness and improvement (Hallinger & Heck, 1998). There is a growing research body establishing the relationship between school leadership and student learning (Choi, 2023; Kilinc et al., 2023; Leithwood & Jantzi, 2008; Li & Liu, 2022; Ross et al., 2004). In addition to their direct relationship, school leadership practices have been instrumental in cultivating teacher engagement and job satisfaction, thereby influencing student learning (Ahn et al., 2023; Amels et al., 2021; Bellibas et al., 2021; Dami et al., 2022; Dinham, 2007; P. Liu, 2021). The findings of these studies suggested that leaders serve school effectiveness when they articulate an inspiring vision of learning (Calik et al., 2012); set challenging but attainable goals (McGuigan & Hoy, 2006); and foster teacher learning and development (S. Liu & Hallinger, 2018; Petridou et al., 2017).

One of the robust antecedents of effective leadership internationally acknowledged is the self-efficacy of leaders (Baroudi & Hojeij, 2020; Hallinger et al., 2018; Kelleher, 2016; Leithwood & Jantzi, 2008; McCormick, 2001; Tschannen-Moran & Gareis, 2004). Goddard et al. (2021) precisely defined principal self-efficacy for instructional leadership as "the degree to which principals believe themselves capable of organizing and executing the courses of action required to support teachers in improving instruction and student learning" (p. 476). This definition underscores the essence of efficacy beliefs, emphasizing specific courses of action aimed at producing desired outcomes (Bandura, 1997; Tschannen-Moran & Gareis, 2004). Contrary to demographic variables such as gender and years of administrative experience, which were found to be uncorrelated to principal self-efficacy, Tschannen-Moran and Gareis (2007) identified interpersonal support from teachers, support staff, students, and parents as the most influential predictors of principal self-efficacy. Moreover, they found principals' self-efficacy did not vary significantly by school level, school setting and the proportion of students receiving free

and reduced-price meals, as the indicator of socioeconomic status (SES) of the students. In alignment with these findings, Baroudi and Hojeij (2020) corroborated the notion that private and public-school contexts, used to measure SES, do not exert any significant effect on principal self-efficacy. However, they diverged from Tschannen-Moran and Gareis (2007) by discovering a significant impact of age and gender on principal self-efficacy.

Dimmock and Hattie (1996) attributed great importance to distributed leadership while emphasizing that the concept of self-efficacy among school principals enhances the significance of delegating decision-making responsibilities to the school community. Building upon this perspective, Amels et al. (2021) elaborated on the role of distributed leadership in facilitating teachers' capacity for change, encompassing joint work, collegial support, knowledge sharing, self-efficacy, and the internalization of school goals. The findings of Amels et al. (2023) further indicated that both teachers and their principals perceive distributed leadership and inquiry-based working as crucial for effecting educational change that fully aligns with students' needs. In addition, in situations where leadership is distributed and shared more evenly between youth and adults within a partnership, students assume significant responsibilities in formulating, executing, and assessing a strategy for initiating change (Holquist et al., 2023). Consequently, distributed leadership inherently supports the concept of emboldened voices, defined as a characteristic of vibrant schools where input from teachers, students, and parents is actively sought to inform decisions regarding curriculum, instruction, programming, and policy, thereby ensuring that all voices are respected and addressed (Tschannen-Moran & Clement, 2018). By decentralizing authority and involving a broader spectrum of stakeholders in decision-making processes, distributed leadership frameworks facilitate a culture of inclusivity and shared responsibility shaping a positive school climate (Leithwood et al., 2010; Moolenaar et al., 2010; Yada & Savolainen, 2023). This approach not only empowers teachers and students by valuing their insights but also fosters a more collaborative and responsive educational environment.

Therefore, it is important to investigate how a leader's self-efficacy within a distributed leadership framework -by including teacher leaders in the leader category-contributes to cultivating vibrant schools that challenge existing climate models and prioritize the empowerment of school participants and their needs.

Collective Efficacy and Vibrant Schools

Educational institutions that exhibit high-quality outcomes are characterized by stakeholders who collectively hold the belief in their collaborative capacity to contribute significantly to students' success (Klassen, 2010). The interactions and coordination among these stakeholders give rise to collective capabilities, serving as a central point for shared beliefs (Bandura, 1997; Tschannen-Moran & Barr, 2004). This collective belief was termed *Collective Teacher Efficacy* (CTE), denoting teachers' perceptions within a school that the collective efforts of the faculty will positively influence students (Goddard et al., 2000). Tschannen-Moran and Barr (2004) defined CTE as "the collective self-perception that teachers in a given school make an educational difference to their students over and above the educational impact of their homes and communities" (p. 190). These definitions suggest that collective efficacy is a future-oriented belief that emerges through interaction and coordination within a group.

Previous research explored positive consequences attributed to CTE. Student performance and learning is one of the highly studied correlates of CTE. Teachers with high collective efficacy perceptions can bring about desired outcomes in regard to students' engagement and learning (Goddard et al., 2000; Hoy et al., 2002; Leithwood et al., 2010; Ross & Gray, 2006; Tschannen-Moran & Bar, 2004; Tschannen-Moran & Woolfolk Hoy, 2001), In addition to being a direct predictor and correlate of student achievement, CTE plays a role as mediator in explaining student learning. In a recent study, CTE beliefs were found to serve as fundamental psychological mechanisms between perceived transformational leadership

behaviors and teacher organizational citizenship, student emotional engagement, and student achievement (Boberg & Bourgeois, 2016).

Furthermore, fostering collective efficacy is critical for staff wellbeing. Research showed that collective efficacy leads teachers to feel more job satisfaction and hold greater commitment to teaching, while evidencing reduced stress and experiencing less burnout (Caprara et al., 2003; Klassen, 2010; Tiplic et al., 2015; Viel-Ruma et al., 2010, Ware & Kitsantas, 2007). A recent study indicated that CTE also mediates the relationship between instructional leadership and teacher commitment (Thien et al., 2023). These findings confirmed that collective efficacy is a motivational construct that encourages teachers to be persistent in acting on and achieving challenging goals (Hoy, 2012; Hoy et al., 2006). Considering the contribution of CTE to teacher commitment and job satisfaction, it is no surprise that schools with higher collective efficacy tend to perform better thanks to elevated academic expectations with higher academic goals and stronger learning opportunities (Chong et al., 2010; Wilcox et al., 2014).

CTE was also established as one of the strong elements in school effectiveness. For example, Hattie (2016) placed CTE at the top of the list of factors influencing student achievement. In line with this finding, Goddard et al. (2017) found CTE plays a crucial role in closing the achievement gap among schools. Schwabsky et al. (2020) established the relationship between CTE and school innovation with the support of trust and academic optimism. Therefore, it was hypothesized that CTE will play an important role in predicting vibrant schools, promoting school innovation and effectiveness through job satisfaction, teacher commitment, effective problem-solving skills (Tschannen-Moran & McMaster, 2009) and their creativity in the face of a change (Schwabsky et al., 2020).

School climate has been examined as an antecedent of each efficacy belief mentioned above (e.g., Almessabi, 2021; Leithwood et al., 2010; Woodcock & Jones, 2020; Yada & Savolainen, 2023); however, they have not been examined in the same predictive model.

Therefore, in attempting to support schools to evolve into transformative environments and exercising a change in schooling mindset, it is crucial to seek evidence for the relationship between efficacy beliefs at both individual and organizational level and school climate.

Intercorrelations Among Efficacy Beliefs

In the context of educational, the interplay among collective efficacy, TSE, and leader self-efficacy forms a foundational triad that significantly influences school outcomes. Collective efficacy, defined as the shared belief of a group in its conjoint capabilities to organize and execute courses of action required to produce desired outcomes, creates a supportive environment that enhances overall school performance (Bandura, 1997). TSE, the confidence educators have in their ability to promote students' learning, is crucial for effective teaching practices and student achievement (Tschannen-Moran & Woolfolk Hoy, 2001). Similarly, leader self-efficacy, the belief in one's own ability to lead and enact positive changes, plays a significant role in shaping school climate and fostering a culture of collaboration and innovation (Leithwood & Jantzi, 2008). Understanding the interrelationships among these constructs is essential for developing strategies that bolster educational efficacy at multiple levels, thereby contributing to the creation of more effective and resilient educational institutions.

The relationship between efficacy beliefs and leaders' behaviors has predominantly been explored within the framework of different leadership models, rather than leader self-efficacy beliefs (e.g., Bellibas, 2023; Chen & Rong, 2023; Choi, 2023; Kilinc et al., 2023; Li & Liu, 2022; Y. Liu et al., 2021). School leadership researchers acknowledge that effective leadership enhances efficacy belief (Angelle & Teague, 2014; Cansoy & Parlar, 2018; Thien et al., 2023; J. Zhang & Liu, 2023). For example, researchers found a strong effect of instructional leadership on collective efficacy (Goddard et al., 2021; Thien et al., 2023). J. Zhang and Liu (2023) showed that transformational leadership strongly and significantly affects collective efficacy. In addition,

distributed leadership was found to foster teachers' engagement and their self-efficacy, which consequently affected student academic performance (Kilinc et al., 2023).

Compared to leadership studies, the exploration of leaders' self-efficacy remains a relatively under-researched construct (Bellemans & Devos, 2023; Goddard et al., 2021; Versland & Erickson, 2017; Walker & Qian, 2015). Nonetheless, researchers have acknowledged leaders' self-efficacy as a promising avenue for comprehending how leaders enact change (Dimmock & Hattie, 1996); regulate their leadership and coping strategies (Tschannen-Moran & Gareis, 2004); and develop approaches for motivation, behaviors, and expectations (Versland & Erickson, 2017). Few studies underscore the potential of leaders' self-efficacy beliefs in shaping collective efficacy (Hallinger et al., 2018; Goddard et al., 2021; Ross et al., 2004; Versland & Erickson, 2017; Yada & Savolainen, 2023) as efficacious school leaders foster shared decision making, shared goals and collaboration (Tschannen-Moran & Gareis, 2004). Conversely, the studies on the relationship between TSE and leadership were limited to different leadership models rather than leader self-efficacy (e.g., Kurt et al., 2012; S. Liu & Hallinger, 2018; Sehgal et al., 2017)

Although CTE and TSE are conceptually distinct, with CTE being a property of the school community (Bandura, 1997; Goddard et al., 2000; Tschannen-Moran & Barr, 2004), they share common roots, including mastery experience, vicarious experience, social persuasion, and affective state (Adams & Forsyth, 2006; Goddard et al., 2004; Tschannen-Moran & Barr, 2004). Moreover, empirical evidence suggests a robust correlation between these constructs (Cansoy & Parlar, 2018; Goddard & Goddard, 2001; Gulsun et al., 2023; Lu & Mustafa, 2021; Ninković & Knežević Florić, 2018; Skaalvik & Skaalvik, 2007). For instance, Cansoy and Parlar (2018) and Skaalvik and Skaalvik (2007) separately found that high levels of individual TSE contribute to a stronger sense CTE among school staff. This relationship is reciprocal; as Goddard and Goddard (2001) highlighted, schools with high collective efficacy often nurture and sustain high levels of

self-efficacy among their teachers. Such findings underscore the mutual reinforcement between TSE and CTE, where the confidence of individual teachers and the collective confidence of the school community bolster each other.

In addition to individual relationships between distinct efficacy beliefs, Kurt et al. (2012) uncovered that collective efficacy serves as a mediating and amplifying factor in the significant relationship between transformational leadership and TSE. Aligning with this, Sehgal et al. (2017) underscored the influential roles of collaboration and principal leadership in shaping TSE. Furthermore, Cansoy and Parlar (2018) found that collective efficacy is strongly and substantially indicated by how successful school leaders behave and act, and by the level which teachers believe in their competence. These findings collectively contribute to our nuanced understanding of the interplay between leadership practices, collective efficacy, and TSE in educational contexts. Therefore, it is important to investigate how leaders' self-efficacy, TSE, and collective efficacy of teachers and leaders work together to and how this combination of variables form and foster vibrant schools.

Research Questions

Based on the literature review, the following research questions guided this study:

1. To what extent do collective efficacy and self-efficacy of teachers and leaders predict school vibrancy?

a. What is the relationship between TSE and a vibrant school?

b. What is the relationship between TSE and leaders' self-efficacy?

c. What is the relationship between leaders' self-efficacy and a vibrant school?

d. What is the relationship between leaders' self-efficacy and collective efficacy?

e. What is the relationship between collective efficacy and a vibrant school?

f. How do these relationships manifest differently across school levels (elementary, middle, and high schools)?

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As depicted in Figure 2.1, the Vibrant School Scale (VSS), Collective Efficacy Beliefs, and Leaders' Self-Efficacy are conceived of as properties of the school, while TSE is conceived of as a property of individuals. School Climate is defined as the "personality" of an organization (Hoy et al., 1991, p. 3) and it reflects the overall environment of the school influencing and being influenced by interactions and relationships within the school. Collective efficacy is a shared belief among educators in their collective capacity to influence student outcomes and achieve educational goals, which extends beyond individual capabilities (Hoogsteen, 2020; Tschannen-Moran & Barr, 2004). Leader self-efficacy is also often conceptualized as a school-level property rather than an individual-level variable because of its significant impact on the entire school's functioning and climate (see Goddard et al., 2021; Yada & Savolainen, 2023). The leader's self-efficacy influences not just their own actions and attitudes but also the collective behaviors and attitudes within the school, shaping the overall organizational culture. Conversely, TSE is considered an individual-level property because it refers to the personal beliefs and perceptions that teachers hold about their own abilities to influence student engagement, motivation, and achievement (Bandura, 1997; Tschannen-Moran et al., 1998; Tschannen-Moran & Woolfolk Hoy, 2007; Woolfolk & Hoy, 1990).

Figure 2.1

Conceptual Framework for Vibrant School
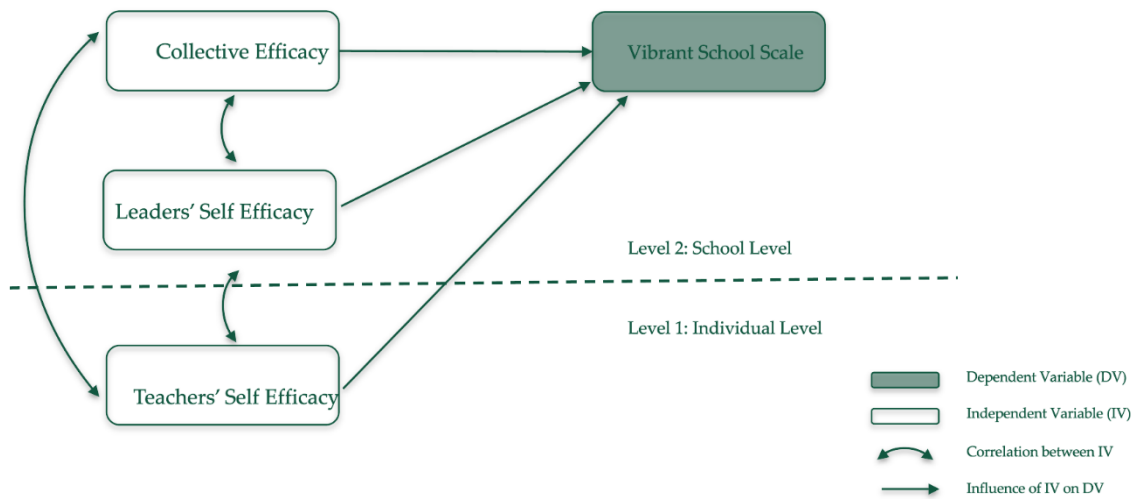
Methods

The following section explains the research design, research questions, participants, measurement tools used for data collection, and data analysis process.

Participants

I employed a multi-stage clustered sampling methodology as recommended by Bryman and Bell (2019). Schools served as the primary sampling unit in the initial stage, followed by the faculty as the secondary sampling stage. To initiate the process, I sought permission from the school district offices and subsequently contacted the principals of each school via phone or email to inquire about the feasibility of conducting surveys for the school faculty. Upon obtaining the principal's consent, the respective school was included in the sample. Subsequently, faculty members voluntarily participated in the study. In this study, leaders are defined as principals, assistants/vice principals, deans, department chairs, instructional coaches, and so forth.

A number of guidelines about sample size with Multilevel Modeling are available in the literature. In practice, 50 groups is a frequently occurring number in organizational and school

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research (Hoyle & Gottfredson, 2015; Maas & Hox, 2005; Van der Leeden & Busing, 1994; Van der Leeden et al., 1997). However, the simulations in some studies suggested 30 as the number of groups to have unbiased results and statistically enough between-group variance (Bell et al., 2014; Ferron et al., 2009; McNeish & Stapleton, 2016). In addition, there are fewer numbers of groups that were effective in simulations; for example, Stegmueller (2013) recommended at least 20 clusters, while in the simulation in Austin (2010), Hierarchical Linear Modeling (HLM) performed well only as the number of groups reached 15. Researchers approached smaller numbers with caution. Although Kreft and De Leeuw (1998) stated 30 is the smallest acceptable number, W. J. Browne and Draper (2000) warned against the inaccurate interclass correlation coefficient (ICC) when the number of clusters falls below 30. In addition to the number of groups, group size (individuals per group) is also important in multi-level models, even though a large number of groups appears more important than a large number of individuals per group (Maas & Hox, 2005). Different group sizes such as a group size of 30 (Austin, 2010; Gulliford et al., 1999); of 5–30 (McNeish & Stapleton, 2016); and of 5–50 (Maas & Hox, 2005) are shown to be enough to have statistical power and within group variable.

Within the range of group number and group size stated in the literature, data from 35 schools were available for this study. However, since there was no leaders' input from each school (school number: 6, 11, 12, 23, 27, 30, 31), I had to keep only 28 schools (12 elementary, 7 middle, and 9 high schools) for the analysis of the second article. In these 28 schools, there were 391 participants (51 leaders, 340 teachers) in total. See Table 2.1.

Table 2.1

Participant Demographics Based on School Level and Role in the School

Level	No. of Schools	Leaders		Teachers		Total
		f	%	*f*	%	
Elementary	12	19	11.4	147	88.6	166
Middle	7	11	14.7	64	85.3	75
High	9	21	14	129	86	150
Total	28	51	13	340	87	391

Data Sources

TSE

To assess the self-efficacy of teachers in this study, I used the Teachers' Sense of Efficacy Scale developed by Tschannen-Moran and Woolfolk Hoy (2001). This survey is comprised of 24 items designed to gauge teachers' perceptions of their competence in implementing effective teaching strategies, fostering student engagement, and managing classroom dynamics. For this study, eight items were used to assess teacher's efficacy beliefs in their instructional strategies and student engagement. The Teachers' Sense of Efficacy Scale investigates educators' beliefs and confidence in their capacity to fulfill their teaching responsibilities successfully, offering insights into their perceived capabilities and effectiveness across various facets of their teaching practice. For the purposes of this research, the original nine-point response scale was adapted to a 5-point scale, maintaining the original anchors: 1 = *not at all*, 2 = *very little*, 3 = *to some extent*, 4 = *quite a bit*, and 5 = *a great deal*. In the current study, the internal consistency of the scale was determined to be 0.92.

Leaders' Sense of Efficacy

I adapted the Principal Sense of Efficacy Scale, an 18-item assessment tool, to gauge leaders' self-perceived capabilities in various facets of school leadership (Tschannen-Moran & Gareis, 2004). The scale encompasses three domains, each consisting of six items: moral

leadership, instruction, and management. All items share a common sentence stem: "In your current role as principal, to what extent can you..." I adapted the directions to read "In your current role, to what extent can you..." I modified the original 9-point response scale to a 5-point scale, retaining the original anchors: 1 = *not at all*, 2 = *very little*, 3 = *to some extent*, 4 = *quite a bit*, and 5 = *a great deal*. The reliability of the Leaders' Sense of Efficacy Scale in this sample, assessed through Cronbach's alpha for internal consistency with all 7 items (4 for instructional leadership, 2 for moral leadership, 1 for management) used in this study, was determined to be .89. Sample items include "In your current role, to what extent can you facilitate student learning in your school?" and "In your current role, to what extent can you generate enthusiasm for a shared vision for the school?"

Collective Efficacy

In this research, I adapted the Collective Teacher Beliefs Scale, developed by Tschannen-Moran and Barr (2004), with the objective of gauging a faculty's conviction about its collective capacity to impact student achievement. The scale is comprised of 12 items presented as questions that evaluate perceptions related to both instructional strategies and school discipline. However, for the purposes of this study, the Collective Efficacy scale with only six items focusing on instructional strategies was used for both teachers and leaders. In the context of this study, the original 9-point response scale was replaced with a 5-point scale, preserving the original anchors: 1 = *not at all*, 2 = *very little*, 3 = *to some extent*, 4 = *quite a bit*, and 5 = *a great deal*. The reliability of the scale for the current study was determined as .93. Exemplary items from the scale include questions such as "How much can your school do to get students to believe they can do well in schoolwork?" and "How much can teachers in your school do to promote deep understanding of academic concepts?"

VSS

In this study, I employed a modified version of the VSS (Gurdal & Tschannen-Moran, 2024) initially developed by Clement et al. (2017) to evaluate the aspirational facets of school climate. The measure can be used as one single factor scale at the school level while it comprised of three subscales at the individual level: enlivened minds (5 items), emboldened voices (7 items), and playful learning (7 items; Gurdal & Tschannen-Moran, 2024). The measurement employs a 5-item response scale with the following anchors: 1 = *not at all*, 2 = *very little*, 3 = *to some extent*, 4 = *quite a bit*, and 5 = *a great deal*. The reliability of VSS was determined as .96. Sample items include: "In this school, creativity abounds," "I feel I belong here," and "We engage in learning with a playful spirit."

Data Collection

This research adhered to ethical principles and follows the guidelines set by the Institutional Review Board (IRB) at William & Mary School of Education. The data collection initiative began during the Fall 2023 academic semester as a doctoral level class project.

Upon securing approval to conduct research in six school districts, representatives from each school were invited to visit the Vibrant School Website (http://www.vibrantschools.info/) and register their school. Each school received a unique 7-digit code, and the representatives were equipped with a sample email to disseminate to their school's stakeholders, containing a link to an electronic survey.

The survey was administered through Qualtrics, an online survey management tool. Participants were subsequently granted access to their school's results, presented in a visually engaging infographic as a gesture of appreciation for their invested time. The data were securely stored in a password-protected account to ensure confidentiality and data security. Only myself and my advisor had authorized access to this information, and stringent measures are in place to prevent any unauthorized access or disclosure of participant data.

Data Analysis

Before initiating data analysis, a pivotal step in the research process involved the meticulous cleaning and transformation of collected data, as well as the effective management of missing values. This phase was indispensable to guarantee the accuracy, completeness, and integrity of the dataset, thereby safeguarding the validity and reliability of subsequent analyses. After taking the VSS, 51 participants dropped out of the survey. Therefore, those participants were eliminated for this study. After this deletion, there were no outliers in the data set. The missing values were less than 5%, therefore they were replaced with series mean. Throughout this process, a comprehensive record was meticulously maintained, documenting all alterations and decisions. This documentation served to enhance transparency and reproducibility, ensuring a thorough understanding and validation of the data-cleaning and missing value handling procedures.

In education, students, teachers, leaders exist within a hierarchical social structure that can include family, peer group, classroom, grade level, school, school district, state, and country. For this study, I employed Hierarchical Linear Modeling (HLM) analysis as the primary statistical technique to address the research questions. The basic concept behind hierarchical modeling is similar to that of Ordinary Least Squares regression: an outcome variable is predicted as a function of a linear combination of one or more Level 1 variables plus an intercept (Osborne, 2019). HLM is a statistical technique widely used in various fields such as education, psychology, and sociology to analyze data with nested structures or hierarchies. It allows researchers to investigate relationships between variables while accounting for the hierarchical nature of the data, such as students nested within classrooms which are in turn, nested within schools (Bryk & Raudenbush, 1992). As the data for this study exist at more than one level, both at individual level and school level, I used HLM. In explaining Vibrant School Climate, the

HLM model focused on the differences between groups (among the schools) in relation to the differences within groups (among teachers and leaders) about efficacy beliefs.

Since the unit of analysis for this study was the school, with some of the constructs under study conceptualized as school-level variables, it was necessary to justify the aggregation of individual data to the school level. When individual perceptions are used to assess aggregate constructs, demonstrating within-group agreement is essential (Klein & Kozlowski, 2000). To justify this aggregation and avoid aggregation bias (James, 1982), I first examined the extent to which the teachers' individual perceptions within each school were shared and could be aggregated to the school level before testing the hypotheses. ICCs were used for this purpose. ICC(1) measures the degree to which individuals' perceptions are related to their group membership, while ICC(2) indicates whether group means are reliably different from each other (Bliese, 2000).

Results

Aggregation Analysis

To justify aggregating individual-level data to the school-level, I calculated ICCs. For VSS, the ICC(1) was 0.31, the ICC(2) was 0.96; for TSE, the ICC(1) was 0.10, the ICC(2) was 0.89; for leader self-efficacy, the ICC(1) was 0.48, the ICC(2) was 0.88; for collective efficacy, the ICC(1) was 0.23, the ICC(2) was 0.93. ICC values below 0.5 suggest poor reliability, values ranging from 0.5 to 0.75 suggest moderate reliability, values between 0.75 and 0.9 indicate good reliability, and values above 0.90 represent excellent reliability (Cicchetti, 1994; Koo & Li, 2016). However, Lee (2000) determined 0.1 as the threshold value to support HLM. Collectively, these findings indicate sufficient within-school agreement and significant between-school variance, thus supporting the aggregation of individual responses to the school level (see Table 2.2).

Table 2.2

Aggregation Analysis of Variables

Variable	ICC1	ICC2	Fratio
Vibrant school	0.31	0.96	4.56*
Teacher Self-Efficacy	0.1	0.89	2.12*
Leader Self-efficacy	0.48	0.88	2.81*
Collective Efficacy	0.23	0.93	3.28*

Note. ICC = intraclass correlation coefficient
*p < 0.001

Descriptive Statistics and Bivariate Correlations

Descriptive statistics of the variables are shown in Table 2.3. There were statistically significant mean differences of the VSS between three school levels as determined by one-way ANOVA, $F(2,388) = 5.34$, $p < 0.01$. Vibrancy in middle school for each subscale was statistically lower than vibrancy in elementary and high schools, $M(\text{VSS})= 3.07$, $SD(\text{VSS}) = .83$. There were no statistically significant mean differences of other variables between the three school levels, $F_{lse}(2,47) = 2.88$, $p = 0.06$; $F_{tse}(2,388) = 2.42$, $p = 0.09$; $F_{fce}(2,388) = 3.19$, $p = 0.052$.

Table 2.3

Descriptive Statistics Based on School Level

School Level	n	VSS		LSE (n = 51)		TSE (n = 340)		CE	
		M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Elementary (12)	166	3.4	0.73	3.42	0.69	3.84	0.6	3.78	0.62
Middle (7)	75	3.07	0.83	3.66	0.85	3.67	0.71	3.53	0.81
High (9)	149	3.39	0.75	3.95	0.61	3.7	0.71	3.75	0.71
Total	391	3.34	0.77	3.7	0.72	3.75	0.68	3.71	0.71

Note. N = 28 schools, VSS = Vibrant School Scale, LSE = Leader Self-Efficacy, TSE = Teacher Self-Efficacy, CE = Collective Efficacy

Examination of the descriptive statistics results indicates that all variables have high internal consistency, as shown by Cronbach's alpha coefficients, ranging from 0.89 to 0.96 (see

Table 2.4). Table 2.4 also shows bivariate correlations among the variables at the three school levels. The VSS was positively correlated with teacher self-efficacy, leader self-efficacy, and collective efficacy. At the elementary school level, the bivariate correlation coefficients ranged from $r = 0.44$ ($p < 0.01$) to $r = 0.82$ ($p < 0.01$). At the middle school level, the bivariate correlation coefficients ranged from $r = 0.49$ ($p < 0.01$) to $r = 0.96$ ($p < 0.01$). At the high school level, the bivariate correlation coefficients ranged from $r = 0.31$ ($p < 0.01$) to $r = 0.90$ ($p < 0.01$). The strongest correlation was observed between the VSS and collective efficacy, ranging from $r = 0.82$ ($p < 0.01$) to $r = .96$ ($p < 0.01$), while the weakest correlation was observed between leader self-efficacy and teacher self-efficacy. This finding was consistent at all three school levels, ranging from $r = 0.31$ ($p < 0.01$) to $r = .44$ ($p < 0.01$).

Table 2.4

Reliability and Bivariate Correlations of Variables

Variable	a	Elementary			Middle			High		
		2	3	4	2	3	4	2	3	4
1. Vibrant School	0.96	.72**	.67**	.82**	.83**	.67**	.96**	.71**	.70**	.90**
2. Leader Self-Efficacy	0.89		.44**	.45**		.49**	.82**		.31**	.60**
3. Teacher Self-Efficacy	0.92			.73**			.79**			.78**
4. Collective Efficacy	0.93									

Regression Analysis

The ICC levels of the VSS suggested that the nested nature of the data for this analysis cannot be ignored. Therefore, to examine the collective predictive power of the self-efficacy of teachers and leaders, and collective efficacy on vibrant schools, multilevel regression was conducted. Table 2.5 presents between level results indicating that the collective efficacy and self-efficacy of teachers and leaders accounted for a significant amount of the variance in vibrant

school ($R^2 = 0.93$, $p < 0.001$, 95% CI [.77, .98]). Leader self-efficacy (βlse = .26, $p < .05$) and collective efficacy (β_{fce} = .67, $p < .001$) contributed independently to the model. There was no significant contribution of TSE at the school level even though it explained 27% of the vibrancy at the individual level, $R^2 = 0.27$, $p < 0.001$, 95% CI [0.20, 0.35].

Table 2.5

Multilevel Regression Analysis on VSS

Variable			95% CI				
	B	*SE*	LL	UL	β	*p*	R^2
Within							0.27
Teacher Self-Efficacy	0.56	*0.04*	0.45	0.59	0.52	*0*	
Between							0.93
Leader Self-efficacy	0.13	0.05	0.03	0.41	0.26	0.012	
Teacher Self-Efficacy	0.14	0.16	-0.09	0.36	0.12	0.33	
Collective Efficacy	0.89	0.19	0.38	0.89	0.67	0	

Note. Dependent Variable: Vibrant School, VSS = Vibrant School Scale
*$p < 0.05$

Discussion

The findings of this study provide significant insights into the variations in school vibrancy across different educational levels and the interrelationships between vibrant school climate and various forms of efficacy. The results indicate that vibrancy in the middle schools represented in this study was statistically lower than in the elementary and high schools. Additionally, the study revealed strong correlations between vibrant school climate, collective efficacy, leader self-efficacy, and TSE, with collective efficacy showing the strongest association with school vibrancy.

Adolescence introduces a dynamic period of human development, presenting both opportunities and challenges for positive physiological, psychological, social, and cognitive growth (Yeager et al., 2018). In addition, the physical transition from elementary to middle

school can exacerbate the stress and adversity experienced during this critical life stage of

students (Borman et al., 2019). Important mismatches exist between adolescents' developmental

needs and the social–organizational context of middle school (Eccles et al., 1993; Eccles &

Roeser, 2011). Teachers and leaders in middle schools are aware of the significant physical,

emotional, and social changes that students undergo during early adolescence. These changes can

create a more turbulent school environment, making it more difficult to maintain a vibrant school

climate. In addition, there are studies which highlight the tension for those in middle level

education of government policies such as the standardization of the curriculum, and the

imposition of standardized tests to measure achievement (Faulkner & Cook, 2006; Musoleno &

White, 2010; Smith & McEwin, 2011; Spires et al., 2012). In these studies, middle grades

teachers reported that their ability to enact best middle-level practices were hindered by

mandated tests and that they "felt restricted" by testing policies. The pressure to prepare students

well on standardized tests through a one-size-fits-all approach to curriculum design can reduce

opportunities for vibrant educational experiences. Although this issue affects all educational

levels, it is particularly pronounced in middle schools. Middle school performance can

significantly affect future academic opportunities and trajectories (ACT, 2008). Unlike

elementary school, where the emphasis is on building foundational skills, or high school, where

the focus shifts to college preparation, middle school is a crucial phase where students' academic

paths are shaped, intensifying the pressure to perform well on standardized assessments (Eccles

et al., 1993). As a result, middle school teachers and leaders may struggle to foster an engaging

and dynamic school environment under the constraints of mandatory testing. The effects of

standardized testing are compounded by the fact that many middle school students experienced

disruptions in their elementary education due to the COVID-19 pandemic, exacerbating the

challenge of meeting standardized benchmarks while addressing learning gaps and social-

emotional development (Dorn et al., 2020; Kuhfeld et al., 2020). A study on emotional resilience

and learning management found that the pandemic-induced shift to online learning significantly lowered emotional resilience and learning management skills among middle school students (Q. Zhang et al, 2020). These disruptions and challenging transitions in developmental needs and learning platforms during COVID-19 may affect the current level of vibrancy in middle schools.

I also found strong correlations between a vibrant school climate and various forms of efficacy, as perceived by teachers and leaders. Notably, the strongest correlation observed was between the VSS and collective efficacy. This suggests that fostering a sense of collective efficacy among educators is crucial for enhancing school vibrancy. When teachers and leaders believe in their collective ability to achieve educational goals, they are more likely to create a supportive and engaging school environment. On the other hand, the weakest correlation was found between leader self-efficacy and TSE, indicating that while both are important, they influence school vibrancy in different ways. Leader self-efficacy affects broader organizational aspects of schools (Goddard et al., 2021; Yada & Savolainen, 2023), while TSE is more closely linked to individual-level dynamics (Parhamnia et al., 2022; Sehgal et al., 2017; Tschannen-Moran & Woolfolk Hoy, 2001).

The regression results indicated that TSE significantly contributed to the model at the individual level but did not contribute at the school level. This suggests that although individual teachers' beliefs in their own abilities are crucial for their personal engagement and effectiveness within their classrooms, these individual perceptions do not translate into a broader impact on the overall school climate as they were overshadowed by collective efficacy and leader self-efficacy beliefs. The lack of a significant contribution of TSE at the school level suggests that individual self-efficacy alone is not enough to drive systemic change. This underscores the importance of fostering collective efficacy among teachers and strong, supportive leadership. This finding aligns with research literature that suggests that school leaders should focus on building a collaborative culture where collective efficacy is cultivated, and shared goals and responsibilities

are emphasized to contribute to openness to change and fostering conducive learning spaces (Ahn et al., 2023; Amels et al., 2021; Hallinger et al., 2018). In addition, this finding supports Bandura's (1997) distinction between collective efficacy and self- efficacy, providing empirical evidence for collective efficacy as an attribute inherent to the school community as opposed to the beliefs of individuals. Conversely, the significant impact of TSE at the individual level highlights the need for professional development programs that enhance teachers' self-efficacy beliefs. Empowering teachers individually can lead to more vibrant and engaging classroom environments, which are essential components of a positive school climate. Additionally, when teachers feel confident and capable, they are more likely feel comfortable sharing their opinions with a sense of community, and encouraging and nurturing students' voices, which fosters an environment where everyone feels heard and valued. This emphasis on emboldened voices further contributes to a vibrant school climate, as it cultivates a culture of mutual respect, collaboration, and active participation, thereby enhancing the overall educational experience for both teachers and students.

Another important aspect of this study was to draw attention to leader self-efficacy which has been an under-researched construct (Bellemans & Devos, 2023; Goddard et al., 2021; Versland & Erickson, 2017; Walker & Qian, 2015). The results of this study showed that leader self-efficacy plays a crucial role in creating vibrant schools. Previous studies underscored the importance of effective leadership in educational settings but often focused more broadly on leadership styles and behaviors rather than self-efficacy (Leithwood & Jantzi, 2006). This study adds to the growing body of literature that emphasizes the specific construct of leader self-efficacy and its direct impact on school outcomes. For instance, Versland and Erickson (2017) argued that leader self-efficacy is critical for successful leadership but remains under-examined. The findings of this study corroborate their assertion and demonstrate that enhancing leader self-efficacy can lead to more vibrant school climates. Furthermore, Goddard et al. (2021)

highlighted the need for more research into the mechanisms through which leaders' self-efficacy influences school performance. This study contributes to filling that gap by providing empirical evidence that leader self-efficacy is strongly associated with the vibrancy of the school environment, a key indicator of overall school performance.

Implications and Directions for Future Research

These findings have important implications for educational practice and policy. Interventions aimed at enhancing school vibrancy, particularly in middle schools, should consider strategies to boost collective efficacy and support school leaders in developing strong self-efficacy. Professional development programs that focus on building collaborative cultures and empowering school leaders could be beneficial. Enhancing a positive, student-friendly and holistic school climate can be effectively achieved by leveraging the four sources of efficacy beliefs: mastery experiences, vicarious experiences, verbal persuasion, and emotional and physiological states. For example, implementing professional development workshops and training sessions built on collaboration could provide opportunities for educators to execute new instructional strategies where they document their processes, and outcomes and share their experiences. Through these professional development sessions, where they experience and overcome challenges together, their efficacy beliefs could be reinforced; they would reflect on their successes and refine their skills. In addition, educators could start peer observation opportunities and establish mentorship programs which are followed by reflective discussions. Through these vicarious experiences, they would have access to exemplary teaching and leadership models and techniques. The discussions and conversational feedback offer encouragement and support, which convince them to continue with their successful work and strategies. Lastly, offering wellness programs and mindfulness sessions as part of professional development ensures that teachers and leaders feel valued and maintain their positive approach and outlook.

Future research should further explore the mechanisms through which collective efficacy and leader self-efficacy influence school vibrancy and investigate potential strategies to enhance teacher self-efficacy in ways that contribute to the broader school climate. Longitudinal studies and mixed method studies could provide deeper insights into how the dynamics of efficacy constructs and vibrant schools work together to impact student outcomes.

Conclusion

This study highlights the critical role of collective efficacy and leader self-efficacy in fostering a vibrant school climate, while also pointing to the need for targeted interventions to enhance TSE. It also raised concerns about the relatively lower perceptions among the middle schools in this study. These findings contribute to a deeper understanding of the complex interplay between individual and collective factors in shaping the vibrancy of educational environments.

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Chapter 4

Article 3-Examining the Relationship Between Faculty Wellbeing, Faculty Trust, and Vibrant Schools

Key Words: Faculty Wellbeing, Vibrant School Climate, Faculty Trust

Word Count: 9,115

Teaching has been characterized as a challenging and stressful profession that is high in emotional labor, requiring teachers to manage their own feelings as well as those of others (Brotheridge & Grandey, 2002; Isenbarger & Zembylas, 2006; Johnson et al., 2005; Liang et al., 2022). Moreover, at the same time teachers are expected to be proactive, resourceful, and responsible for their development, committed to high standard of performance (Bakker & Schaufeli, 2008; Hussain et al., 2022). Teachers have consistently been found to report worse wellbeing than the general population of working adults (Doan et al., 2023). Teacher wellbeing is a marker of teachers' positive evaluations of and healthy functioning in their work environment. Bolstering teacher wellbeing is beneficial not only to individual teachers but also to the education system as a whole (Collie et al., 2015; Lauermann & König, 2016). Adopting positive psychology and its interventions offers promising opportunities to enhance positive factors that enable teachers to flourish (Vo & Allen, 2022; Vo et al., 2022).

This current research aims to contribute to a new understanding of wellbeing by investigating a strengths-based approach for optimal functioning captured by the field of positive psychology. Previously, Hoy and Tarter (2011) argued that studying the wellbeing of school staff from a positive psychology perspective will add significantly to the literature, which traditionally has focused more on how to ameliorate negative states (e.g., reducing stress) rather than promote positive states (e.g., increasing PERMA: positive emotions, engagement, relationships, meaning,

and accomplishment). Recently, Vo and Allen (2022) explored that school-based positive psychology interventions foster teacher wellbeing. In this vein, I aim to understand the contribution of vibrant school atmosphere to the wellbeing of teachers and leaders, as Vibrant School Climate model fosters empathy and trust which guide school participants to celebrate differences (Tschannen-Moran, 2020). The advocates of vibrant schools hoped to spark invigorating, strengths-based conversations that invite educators and those they serve into inspiring conversations about how to make their communities of student and adult learners more vibrant (Clement et al., 2018; Clement et al; 2017; Tschannen-Moran, 2020; Tschannen-Moran & Clement, 2018). Furthermore, trust is one of the positive school characteristics that play a crucial role in explaining wellbeing (Berkovich, 2018; L. Liu et al., 2024). School climate and trust serve as fundamental components of the school environment, shaping the daily experiences of faculty members in areas such as collaboration, job satisfaction, stress, burnout, ultimately contributing to their overall wellbeing (Bottiani et al., 2014; Darling-Hammond & DePoali, 2020; Van Maele & Van Houtte, 2015). With a new perspective on wellbeing, it is of value to understand the predictive power of this newly emerging school climate model and faculty trust in students to the wellbeing of teachers and leaders. Therefore, the purpose of this study was to attempt to understand the predictive power of a vibrant school climate, an aspirational reconceptualization of school climate (Clement et al., 2018), and faculty trust in students (Tschannen-Moran, 2014) in explaining faculty wellbeing.

Faculty Wellbeing

Wellbeing is a construct best understood and measured by a combination of factors (Waters, 2011). For example, Diener's (1984) widely recognized theory of subjective wellbeing describes how people experience and evaluate the quality of their lives using emotions and cognition. The three components of subjective wellbeing in Diener's model include life satisfaction (global assessment of a person's life), positive affect, and negative affect. Individuals

who perceive themselves as experiencing life satisfaction have high levels of positive emotions (such as joy and optimism) and low levels of negative ones (such as anger and sadness). In addition, Seligman's (2011) multidimensional PERMA model has been prominent in the field of positive psychology. It is characterized by five elements, as suggested by the acronym: positive emotions (such as pleasure, comfort and warmth); engagement (an experience of *flow*, whereby someone fully uses their skills and attention for a challenging task); relationships (support from and connections with others); meaning (having a sense of purpose); and accomplishment (pursuing achievement and competence for its own sake) (Seligman, 2011). The PERMA model's comprehensive, empirically supported, and education-relevant framework provides a robust basis for examining well-being in vibrant schools. Its alignment with the goals of the study ensures that the findings will be meaningful and actionable, ultimately contributing to the enhancement of educational environments.

The majority of studies aimed to support teachers and leaders in recognizing their stressors and provide suggestions for minimizing their detrimental effects (e.g., Dicke et al., 2014; Parker et al., 2011; Richards, 2012) Understanding the wellbeing of faculty from this perspective suggests that by investigating the sources of stress, they can learn how to manage them. Although this focus is necessary, it presents an incomplete view of wellbeing. Therefore, researchers have recently started adopting a more comprehensive approach to supporting teacher wellbeing (McCallum, 2021; Wessels & Wood, 2019), moving away from a predominant focus solely on stress coping mechanisms (Dicke et al., 2014; Parker et al., 2011; Richards, 2012). The emerging approach to wellbeing necessitates researchers to explore the positive and aspirational aspects of schools and seek ways to enhance wellbeing through them.

Wellbeing has been shown to be correlated to several variables. Teacher wellbeing is positively and significantly correlated to job satisfaction (e.g., Heinla & Kuurme, 2022; Hussain et al., 2022; Kouhsari et al., 2023) and life satisfaction (Aldridge et al., 2016; Ho, 1996; Xu &

Yang, 2023). Conversely, it is negatively related to burnout and stress (Capone & Petrillo, 2016; Gregersen et al., 2023; Soykan et al., 2019; von der Embse & Mankin, 2021). Teachers' wellbeing is also closely linked to participation in meaningful work, such as effective and high-quality teaching practices (Turner & Thielking, 2019). In addition, higher wellbeing and lower stress levels of teachers predicted students learning motivation, which was in turn related to student reading levels (Pakarinen et al., 2010). Moreover, teacher wellbeing is positively related to supportive leadership (Ford et al., 2019; Hu et al., 2019; Tian et al., 2022; Xu & Yang, 2023). For example, principal collegial leadership significantly reduces stress among preschool teachers (Hu et al., 2019). Additionally, transformational leadership significantly predicts lower levels of job burnout among teachers (Tian et al., 2022). Understanding the individual correlates of wellbeing is helpful for tailoring interventions and policies that aim to enhance the quality of teachers' and leaders' professional lives.

A favorable school climate can engender a sense of psychological wellbeing, and consequently enhance teachers' enjoyment of their profession (Aldridge & Fraser, 2016; Collie et al., 2012). Furthermore, wellbeing is positively related to a positive and productive school climate (Dreer, 2022; Hu et al., 2019; Kouhsari et al., 2023; Wong & Zhang, 2014). In learning spaces where inclusive and positive school climate abounds, not only educators but also students experience elevated levels of wellbeing, contributing to a more vibrant and enriching educational experience (C. Gray et al., 2017; Yang et al., 2022). In addition, teachers' perceptions of the overall ambiance and ethos of the school exert an indirect influence on their enjoyment of teaching by shaping their psychological wellbeing (Zhang et al., 2023). Therefore, the present study attempted to understand the role of vibrant school climate in explaining faculty wellbeing.

Moreover, an environment with a strong sense of organizational trust is likely to bolster employee wellbeing (Rhee, 2010). Results from the World Values Survey found a strong connection between trust and wellbeing, suggesting that trust is helpful for increasing life

satisfaction (Churchill & Mishra, 2017). Trust has also been found to be related to teacher wellbeing in a school setting (Mascall et al., 2008). Moreover, trust is beneficial for promoting teachers' job satisfaction and organizational commitment, which are of vital importance to teacher wellbeing (Zheng et al., 2019; Zhu et al., 2011). Even though a wide range of studies were conducted about the roles of trust in teachers' work and life characteristics, L. Liu et al. (2024) argued that there had been a lack of empirical studies investigating the relationships between various dimensions of organizational trust and teacher wellbeing. Therefore, I also attempted to understand the role of faculty trust in students in explaining faculty wellbeing.

Vibrant Schools

Vibrant School Climate is a reconceptualized aspirational measure of organizational climate for educators who seek to improve their schools (Clement et al., 2017). Fostering curiosity, creativity, and critical thinking, honoring the voices of school community, and playful learning are the indicators of vibrant schools (Clement et al., 2018; Clement et al., 2017; Tschannen-Moran, 2020; Tschannen-Moran & Clement, 2018). Fostering sensitivity and appreciation of students' differences while inspiring individuality and reducing standardization, the Vibrant School Scale (VSS) includes three dimensions: enlivened minds, emboldened voice, and playful learning.

Enlivened Minds

The enlivened minds subscale addresses the characteristics of vibrant schools which nurture a passion for learning and imparting skills in creativity, curiosity, and critical analysis (Clement et al., 2018; Clement et al., 2017; Tschannen-Moran, 2020; Tschannen-Moran & Clement, 2018). These educational environments are structured to encourage continuous learning through self-directed activities and critical thinking exercises. Research indicates that schools with strong competencies in fostering independent inquiry and exploration can significantly

enhance students' lifelong learning capabilities (Darling-Hammond et al., 2019; Hockings et al., 2017).

Emboldened Voices

The emboldened voices subscale refers to vibrant schools as being open and responsive to the perspectives of the school community irrespective of their individual differences (Clement et al., 2018; Clement et al., 2017; Tschannen-Moran, 2020; Tschannen-Moran & Clement, 2018). With the assurance that each person's voice will be taken seriously and responded to with respect, vibrant schools have the potential to foster a sense of belonging, trust, and community (Tschannen-Moran & Clement, 2018).

Playful Learning

The playful learning subscale highlights vibrant schools as being filled with the hands-on, exploratory and experimental activities that cultivate a dynamic and joyful learning and teaching atmosphere (Clement et al., 2018; Clement et al., 2017; Tschannen-Moran, 2020; Tschannen-Moran & Clement, 2018). Thanks to this playful aspect of learning, school communities flourish and thrive. Researchers have highlighted the importance of play to cognitive development, as well as psychological and physical health of individuals (Brown & Vaughan, 2009; Elkind, 2007; P. Gray, 2013).

A Vibrant School Climate is one that fosters creativity, independent thinking, democratic processes and reflection, and playfulness (Clement et al., 2018; Clement et al., 2017 ; Tschannen-Moran, 2020; Tschannen-Moran & Clement, 2018). Rooting their perspectives in positive psychology, advocates of the vibrant school climate model have argued that it is an affirmation of student-centered practice and a starting point for school transformation through the identification of aspirational characteristics of schools that students, families, teachers, and leaders hope for in their schools (Clement et al., 2017; Tschannen-Moran, 2020). Aiming to explore and amplify strengths in the school, these researchers proposed to make use of the appreciative inquiry

process which was developed as a transformational and strengths- based change process for organizations and groups to host invigorating and inspiring conversations (Cooperrider & Whitney, 2012; Watkins et al., 2011; Whitney & Trosten-Bloom, 2010). In addition, a positive school climate such as a vibrant school has been shown to be a strong predictor of psychological, emotional, and behavioral outcomes like job satisfaction (Aldridge & Fraser 2016); motivation to build good relationships (Borkar, 2016); resilience (Benard, 2004); and wellbeing (Ruus et al. 2007). Therefore, in this study, I set out to examine the relationship between vibrant school and faculty wellbeing.

Faculty Trust in Students

Vibrant Schools are characterized by autonomy and innovation (Clement et al., 2017). They attest to the educative value of schools as centers of freedom to speak, collaborative decision-making, and shared ownership, which both bolster and depend upon trusting relationships (Clement et al., 2018; Clement et al., 2017). Considering that trust is key to interpersonal communication and collaboration, as well as organizational effectiveness (Bryk & Schneider, 2002; Hoy et al., 2006; Tschannen-Moran & Gareis, 2015a), faculty in vibrant schools will likely cultivate trusting relationships with students.

Similar to the school climate concept, the definition of trust lacks unanimity. Hoy and Tschannen-Moran (1999) undertook a meticulous and precise review of literature including over 150 articles about trust, covering various dimensions including individual, organizational, behavioral, and general trust. Through this comprehensive examination, they synthesized a definition of trust grounded in the common prerequisites or expectations essential for its establishment (Hoy & Tschannen-Moran, 1999). They defined trust as "an individual's or group's willingness to be vulnerable to another party based on the confidence that the latter party is benevolent, reliable, competent, honest, and open" (Hoy & Tschannen-Moran, 1999, p. 189). From a psychological viewpoint, trust encompasses a range of facets, including behavioral

manifestations such as actions contingent on another individual, the belief in the likelihood of a person's specific behaviors, an intangible mental stance regarding someone's reliability, and a sense of assurance and safety (Edmondson, 2004; Kramer, 2010; Sapp et al., 2019).

Organizational trust is a positive trait in schools, which has drawn interest in the field of educational administration since as early as 1989 (e.g., Bryk & Schneider, 2002; Forsyth et al., 2011; Hoy, 1992; Hoy & Tschannen-Moran, 1999; Tarter et al., 1989; Tschannen-Moran, 2004). Trust is a virtue among both individuals and organizations. It merits study, not only as a positive outcome but also as a positive dynamic process (Hoy & Tarter, 2011). It is a valuable end in itself as well as a means to student achievement (e.g., Bryk & Schneider, 2002; Dewulf et al., 2017; Goddard, 2003; Goddard et al., 2001; Hoy, 2002; Tschannen-Moran, 2004); healthier organizational dynamics (Hoy, 2012; Smith et al., 2001); and enabling school structures (Hoy et al., 2002).

Fostering trusting relationships within the school community cultivates a collaborative environment and professionalism primed for embracing change and innovation (J. A. Gray & Summers, 2015; Hallam et al., 2014; Tschannen-Moran, 2009). Research consistently has highlighted the vital link between trust among teachers and leaders, fostering open and accurate information exchange alongside transparent decision-making (Bryk & Schneider, 2002; Whitener et al., 1998). Trust among teachers and principals facilitates collaboration and healthy communication (Cosner, 2010; Hallam et al., 2014). Additionally, empirical evidence established the intricate interplay between trust and readiness for change and innovation, emphasizing the importance of intentional, emotional, and cognitive preparedness alongside perceived faculty trust (Louis, 2007; Schwabsky et al., 2020; Zayim & Kondakci, 2015).

Although faculty trust refers to the teachers' beliefs in four referent groups: the principal, their colleagues, the students, and their parents (Hoy & Tschannen-Moran, 2007), within the context of this study, I am interested in faculty trust in students because the most important

elements of school climate contributing to increased achievement were associated with teacher-student relationships (Darling-Hammond & Cook-Harvey, 2018). The level of trust exhibited by teachers towards students, parents, and school principals has been shown to surpass the influence of socioeconomic disadvantage (Goddard et al., 2001; Tschannen-Moran & Gareis, 2015b). Tschannen-Moran (2014) found that a set of trust variables explained 78% of the variance in student achievement, and teacher trust in students and student trust in teachers were the most powerful explanatory variables. Likewise, a recent study revealed that teacher trust in students and parents held greater significance in facilitating student learning compared to other dimensions of trust (Sun et al., 2023). Specifically, teachers' trust in their students has emerged as a significant factor associated with advancements in reading comprehension skills, serving as a mediator in the relationship between classroom ethnic diversity and learning progress (Dewulf et al., 2017). Moreover, children who experience trusting relationships with adults within an equitable environment are inclined to perceive agency over their cognitive development, a crucial element for fostering academic excellence (Cantor, 2021; Darling-Hamoond & Cook-Harvey, 2018; Niedlich et al., 2021; Thomas et al., 2019).

The research literature presented above has demonstrated trust as a key element in formulating and maintaining sound interdependent relationship, interpersonal communication and collaboration, and organizational effectiveness in schools. In addition, considering faculty trust in students is important in school innovation (Schwabsky et al., 2020) and self-regulatory school climate (Adams et al., 2016). It is important to explain the relationship between faculty trust and vibrant schools where the outcomes of the desires cannot be met without collaboration, and where participants experience a sense of belonging and safety. Examined from these perspectives, faculty trust in students is likely to correlate with vibrancy in schools and liberate students to innovate without fear of retribution if things do not go as planned, and to encourage collaboration among the faculty and students in vibrant schools. Moreover, teachers interact with

students daily, and the quality of these interactions can significantly influence their professional experiences. Trust in students can lead to more positive, fulfilling interactions, reducing stress and increasing job satisfaction (Van Maele & Van Houtte, 2012). Therefore, it is important to test whether positive interactions with students, fostered by trust, can enhance faculty's well-being.

Based on the urge to change perspective in explaining wellbeing, and the interconnectedness of faculty wellbeing, faculty trust, and positive school climate, it becomes essential to explore the combined predictive influence of faculty trust in students and the vibrant school climate on faculty wellbeing. For that purpose, the following research questions guided this study:

1. To what extent do vibrant school climate and faculty trust in students explain the variance in faculty wellbeing?

   a. What is the relationship between faculty wellbeing and a vibrant school?

   b. What is the relationship between faculty wellbeing and faculty trust?

   c. What is the relationship between faculty trust and a vibrant school?

As shown in Figure 3.1, even though the independent variables are school properties, the variables are depicted at the individual level as the outcome variable did not provide enough evidence for multilevel analysis. VSS is represented with its three subscales as the analysis is conducted at the individual level (Gurdal & Tschannen-Moran, 2024).

Figure 3.1

Conceptual Framework for Wellbeing
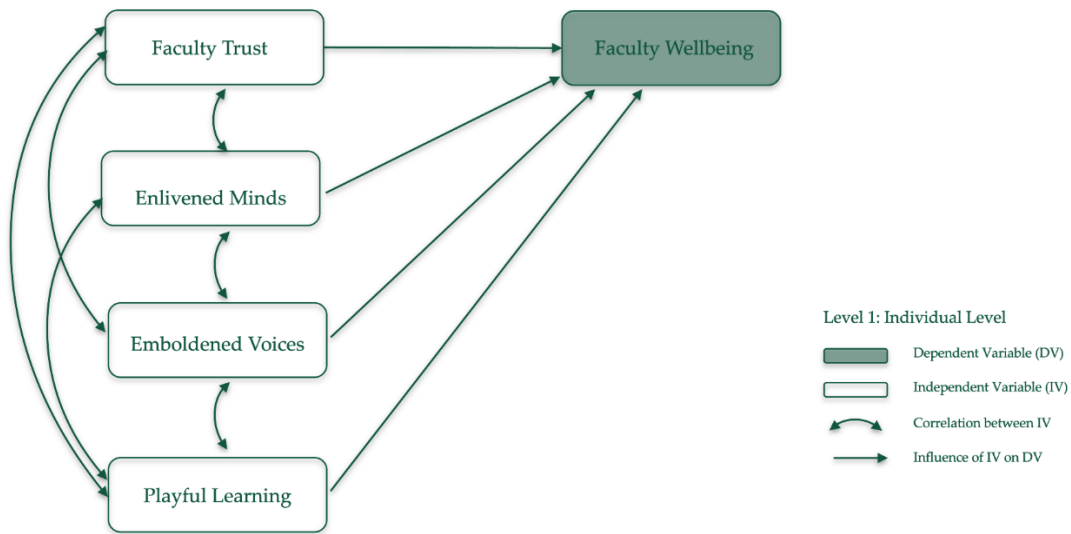
Methods

Participants

Using a multi-stage clustered sampling approach as advocated by Bryman and Bell (2019), I employed schools as the primary sampling units in the initial stage, with faculty constituting the secondary sampling stage. However, the analysis did not provide enough evidence for multilevel analysis; therefore, I opted to use data at the individual level. This decision affected the approach in sampling. As Table 3.1 shows, this study included 402 participants (12 leaders, 390 teachers) from 35 schools (18 elementary, 7 middle, 10 high schools) in total.

Table 3.1

Participant Demographics Based on School Level and Role in the School

		Leaders		Teachers		
Level	No. of Schools	f	%	f	%	Total
Elementary	18	3	1.4	206	98.6	209
Middle	7	2	3.3	59	96.7	61
High	10	7	5.3	125	94.7	132
Total	35	12	3	390	97	402

Data Sources

Teacher Wellbeing Scale

In this study, I used an adaptation of Kern et al.'s (2015) multidimensional application of PERMA framework. Seligman (2011) introduced the PERMA model with five core elements of psychological wellbeing: positive emotions, engagement, relationships, meaning, and accomplishment. Kern et al. (2015) reported Positive emotion (13 items, α = .92), Engagement (6 items, α = .70), Relationships (9 items, α = .82), and Accomplishment (6 items, α = .84). For this study, only five items were used. The reliability of the scale for this study was .90. Sample items include: "Taking all things together, how happy are you at school?", "To what extent do you feel that your work at school is worthwhile?", and "To what extent do you feel that school is contributing value to your life?"

Faculty Trust in Students Scale

I used an adapted version of the Omnibus Teacher Trust Scale (Tschannen-Moran, 2014) to assess educators' trust. Only the subscale that examined educator trust in students and their families was used. Educators rated their agreement on nine items for trust in students using a 5-point scale ranging from *strongly disagree* (1) to *strongly agree* (5). High reliability was observed for the scale (α = 0.91) for this study. Some sample items include "Teachers/Leaders in this school trust their students" and "Students in this school can be counted on to do their work."

VSS

In this study, I employed a modified version of the VSS (Gurdal & Tschannen-Moran, 2024) initially developed by Clement et al. (2017), to evaluate the aspirational facets of school climate. The measurement employs a five-item response scale with the following anchors: 1 = *not at all*, 2 = *very little*, 3 = *to some extent*, 4 = *quite a bit*, and 5 = *a great deal*. Since the analysis conducted at the individual level, vibrancy of schools was measured through the subscales of VSS. The alpha coefficients for the enlivened minds (5 items), emboldened voices (7 items) and playful learning (7 items) were 0.88. 0.93, and 0.91 respectively. Sample items include:

- Enlivened minds: "In this school, creativity abounds"

- Emboldened voice: "I feel I belong here," and

- Playful learning: "We engage in learning with a playful spirit."

Data Collection

This research adhered to ethical principles and follows the guidelines set by the Institutional Review Board (IRB) at William & Mary School of Education. Data collection began in May 2023 and lasted through Spring 2024. Upon securing approval to conduct research in six school districts, representatives from each school were invited to visit the Vibrant School Website (http://www.vibrantschools.info/) and register their school. Each school received a unique seven-digit code, and the representatives were equipped with a sample email to disseminate to their school's stakeholders, containing a link to an electronic survey hosted in Qualtrics. The platform remained open for three weeks before the results for each school became accessible. Participants were subsequently granted access to their school's results, presented in a visually engaging infographic as a gesture of appreciation for their invested time. Personal participant information was collected and securely stored in a password-protected account to ensure confidentiality and data security. Only myself and my advisor had authorized access to

this information, and stringent measures are in place to prevent any unauthorized access or disclosure of participant data.

Data Analysis

In the initial stages of data analysis, a rigorous process of data cleaning and transformation was undertaken, alongside meticulous management of missing values. Variables exhibited less than 5% missing data when I deleted the participants who dropped out after the VSS items. This phase was imperative to uphold the accuracy, comprehensiveness, and integrity of the dataset, thereby addressing concerns about the validity and reliability of subsequent analyses. Throughout these procedures, detailed documentation was maintained, meticulously recording all modifications and decisions made. This documentation played a crucial role in enhancing transparency and reproducibility, facilitating a thorough understanding and validation of the data cleaning and missing value handling processes.

The dataset for faculty wellbeing, VSS, and faculty trust in students do not inherently necessitate the application of multilevel modeling techniques, even though they are nested. When there is small variation in response variable scores among Level 2 units, such as schools, Ordinary Least Squares (OLS) multiple regression can effectively analyze the data. Therefore, prior to conducting data analysis, an assessment was made by calculating the intraclass correlation coefficient (ICC) and the design effect statistics. The ICC, ranging from 0 to 1, denotes the extent of variation across Level 2 units. A zero ICC signifies no mean variation across schools, indicating that all score variations occur at the individual level (Peugh, 2010). In such instances, traditional multiple linear regression can be employed for data analysis. Only when the ICC exceeds a trivial threshold, meaning it accounts for more than 10% of the total variance in the outcome, is the use of Hierarchical Linear Modeling (HLM) be warranted (Lee, 2000). Higher ICC values suggest larger proportions of between-level variance, making it biased to disregard the multilevel structure of the data (Dyer et al., 2005). For the analysis of this article,

the results did not support school-level analysis; therefore, I chose OLS to answer the research

questions.

Results

Descriptive Analysis for Nested Data

The descriptive analysis of the variables of this study showed that the outcome variable,

faculty wellbeing, did not provide enough evidence to support school-level analysis. Table 3.2

shows the descriptive findings for faculty wellbeing ($M = 3.77$, $SD = 0.59$, ICC= 0.08); faculty

trust in students ($M = 3.33$, $SD = 0.79$, ICC = 0.14); enlivened minds ($M = 3.40$, $SD = 0.75$,

ICC= 0.13); emboldened voices ($M = 3.42$, $SD = 0.87$, ICC= 0.24); and playful learning ($M =$

3.39, $SD = 0.80$, ICC= 0.19). The ICC for faculty wellbeing was less than 10%, suggesting that

grouping/clustering variable at Level 2 (the school level) does not significantly affect the mean

of the faculty wellbeing (Caprara et al., 2003; Hox et al., 2010). Therefore, instead of HLM, OLS

regression was chosen for further analysis in this study. In this case, OLS generated appropriate

coefficients since observations are independent not clustered, which supports the basic

assumption of OLS.

Table 3.2

Descriptive Statistics and ICC levels

Variable	*M*	*SD*	ICC
1. Faculty Wellbeing	3.77	0.59	0.08
2. Faculty Trust	3.33	0.79	0.14
3. Enlivened Minds	3.4	0.75	0.13
4. Emboldened Voices	3.42	0.87	0.24
5 Playful Learning	3.39	0.8	0.19

Note. N = 35 schools. Intraclass Correlation Coefficient = ICC

Correlation and Regression Analysis

The purpose of this study was to understand the collective predictive power of vibrant schools and faculty trust in students in explaining the faculty wellbeing. All of the variables met the assumptions of normality, homoscedasticity, multicollinearity, and linearity. As I decided to run the analysis at the individual level, the vibrant school dimension was tested with its three subscales. Examination of the descriptive statistics' results indicated that all variables had high internal consistency, as shown by Cronbach's alpha coefficients, ranging from 0.88 to 0.93 (Table 3.3). To answer the main research question of this study, I first ran Pearson correlations. Table 3.3 shows the bivariate correlations among the variables. The correlation coefficient values of faculty trust in students indicated moderate correlations with faculty wellbeing, enlivened minds, emboldened voices, playful learning ($r = .37$, $r = .38$, $r = .43$, $r = .46$, $p < 0.01$, respectively). The values for the other variables showed strong correlations. Faculty wellbeing was strongly correlated with enlivened minds, emboldened voices and playful learning ($r = .54$, $r = .73$, $r = .68$, $p < 0.01$, respectively). Enlivened minds had strong relationships with emboldened voices and playful learning ($r = .71$, $r = .79$, $p < 0.01$, respectively). Lastly, there was a strong correlation between emboldened voices and playful learning ($r = .81$, $p < 0.01$).

Table 3.3.

Reliability and Bivariate Correlations of Variables

Variable	1	2	3	4	5
1. Faculty Wellbeing	(0.9)	.37**	.54**	0.73**	0.68**
2. Faculty Trust		(0.91)	.38**	0.43**	0.46**
3. Enlivened Minds			(0.88)	0.71**	0.79**
4. Emboldened Voices				(0.93)	0.81**
5 Playful Learning					(0.91)

Note. Internal consistency reliability of the measures is reported within parentheses along the diagonal. All correlations are significant at the .01 level. Ratings for the scales based on 5-point scales.

Secondly, I ran multiple linear regression, which is an extension of OLS to examine the collective contribution of the variables on faculty wellbeing. Table 3.4 presents these results, indicating that the faculty trust in students, enlivened minds, emboldened voices, and playful learning accounted for a significant amount of the variance in faculty wellbeing, $R^2 = 0.56$, $p < 0.001$ 95%. Emboldened voices ($\beta_{ev} = .55$, $p < .001$) and playful learning ($\beta_{pl} = .30$, $p < .001$) each independently contributed significantly to the model. There was no significant independent contribution of faculty trust ($\beta_{ft} = .46$, $p = 0.22$) and enlivened minds ($\beta_{em} = .10$, $p = .053$).

Table 3.4

Multilevel Regression Analysis on Faculty Wellbeing

Variable	B	*SE*	95% CI LL	UL	β	*p*	R^2
Faculty Trust	0.06	0.5	-0.02	0.143	0.46	0.22	0.56
Enlivened Minds	0.11	0.05	-0.207	-0.018	0.1	0.053	
Emboldened Voices	0.5	0.05	0.415	0.587	0.55	0.00	
Playful Learning	0.29	0.06	0.185	0.402	0.3	0.00	

Note. Dependent Variable: Faculty Wellbeing
*$p < 0.05$

Discussion

The results of this study underscore the critical relationship between faculty wellbeing and the subscales of the VSS, enlivened minds, emboldened voices, and playful learning. Faculty wellbeing was closely correlated with these subscales as well as with faculty trust in students.

The enlivened minds subscale captures the essence of vibrant schools that nurture a passion for learning, creativity, curiosity, and critical analysis (Clement et al., 2018; Clement et al., 2017; Tschannen-Moran, 2020; Tschannen-Moran & Clement, 2018). The strong correlation found between the enlivened minds subscale and faculty wellbeing supports that teachers who experience positive emotions at work, such as joy and enthusiasm (the Positive Emotion aspect

of PERMA), are more likely to inspire and engage students (Auliah et al., 2021). When teachers are emotionally resilient and optimistic, they can effectively nurture students' curiosity and eagerness to learn, thus contributing to enlivened minds. Although this subscale is fundamental to fostering a dynamic learning environment, the regression analysis indicates that it did not make a significant independent contribution to explaining faculty wellbeing. This finding might seem counterintuitive given the emphasis on intellectual engagement in educational settings (Schroeders et al., 2015; Woo et al., 2007). However, it suggests that while enlivened minds is important, its effect is subsumed by the other elements of vibrant schools in explaining faculty wellbeing, which might have resulted from the close correlation among them. The psychological and emotional aspects encapsulated by emboldened voices and playful learning might play a more direct role in influencing how faculty perceive their work environment and overall wellbeing.

The emboldened voices subscale emphasizes the importance of schools being open and responsive to the perspectives of the school community, fostering a sense of belongingness, trust, and community (Clement et al., 2018; Clement et al., 2017; Tschannen-Moran, 2020; Tschannen-Moran & Clement, 2018). The definition and items of emboldened voices inherently foreshadow trust. The strong relationship between emboldened voices and faculty trust supports the claim that when faculty think their students are honest and can be counted on for their work, they are more likely to extend collaboration and foster a sense of community (Hallam et al., 2014). Faculty trust serves as a catalyst for creating supportive and healthy relationships (Cosner, 2010; Hallam et al., 2014) where students feel valued and respected. Moreover, the significant role of emboldened voices in explaining faculty wellbeing highlights the importance of inclusivity and respect within the school environment. When faculty members feel that their voices are heard and valued, it enhances their sense of belonging and trust, which are critical components of wellbeing. This finding aligns with Tschannen-Moran and Clement (2018), who

argued that trust and respect are fundamental to creating a vibrant school climate. Faculty members who feel respected and included with positive emotions (such as feeling comfortable and valued, sense belongingness and community in emboldened voices subscale) are more likely to experience higher levels of job satisfaction and emotional wellbeing (Diener, 1984; Dreer, 2021; Kern et al., 2015; Seligman, 2011), which may support their sense of recognition and achievement (the Accomplishment aspect of PERMA). In addition, the strong correlations among faculty wellbeing, faculty trust and emboldened voices suggests that faculty who have trusting relationships with their students (the Relationships aspect of PERMA) and feel a sense of purpose and fulfillment in their teaching and leadership role (the Meaning aspect of PERMA) are better equipped to create a supportive and inclusive learning environment. This environment encourages students to speak up, share their ideas, and engage actively in discussions, thereby fostering emboldened voices.

The playful learning subscale, which focuses on hands-on, exploratory, and experimental activities that create a joyful learning and teaching atmosphere, also plays a significant role in faculty wellbeing (Clement et al., 2018; Clement et al., 2017 ; Tschannen-Moran, 2020; Tschannen-Moran & Clement, 2018). This finding is supported by research indicating that play is crucial for cognitive development, psychological wellbeing, and physical health (Brown & Vaughan, 2010; Elkind, 2017; Gray, 2013). The inclusion of playful learning in the school environment not only benefits students but also positively affects faculty by creating a more enjoyable and less stressful workplace. Engaging in playful and creative activities can give new energy to teachers, reduce burnout, and enhance their overall sense of wellbeing. In addition, efficacious teachers who are engaged in their profession (the Engagement aspect of PERMA) and continually seek professional growth and development are more likely to incorporate innovative teaching methods and playful learning techniques in their classrooms (Z. Liu et al., 2024; Parhamnia et al., 2022; Sehgal et al., 2017).

Although faculty trust in students was closely correlated with the vibrant school subscales and wellbeing in the bivariate analyses, it did not make a significant independent contribution to the regression model explaining faculty wellbeing. The significant correlation between trust and the dimensions of vibrant schools suggests that trust is required to cultivate critical and creative thinking, and foster playfulness in a safe learning space. This supports that while trust in students is an important aspect of the school climate (Hoy, 2012; Smith et al., 2001), it may not directly influence faculty wellbeing to the same extent as emboldened voices and playful learning. Trust in students reflects a positive school climate, but the direct impacts on faculty well-being might be mediated by other factors, such as school leadership (Ford et al., 2019; Hu et al., 2019; Tian et al., 2022; Xu & Yang, 2023) and school support systems (Seligman, 2011).

Implications and Direction for Future Research

The findings of this study have several practical implications for school leadership and policy. First, fostering an inclusive environment where faculty feel their voices are heard and respected is crucial for enhancing faculty wellbeing. School leaders should prioritize creating channels for open communication and actively involve faculty in decision-making processes. Second, incorporating playful learning activities not only benefits students but also contributes significantly to faculty wellbeing. Schools should consider integrating more creative and hands-on activities into the curriculum and professional development programs to create a more engaging and enjoyable work environment for teachers. Further research should be conducted with a bigger data set so that the impact of faculty trust in students should be analyzed. The studies on the role of other potential mediators, such as school leadership styles, organizational support, and professional development opportunities, in enhancing faculty wellbeing can serve the understanding of the relationship between vibrant schools and wellbeing.

Conclusion

Children and adolescents spend a significant amount of time in school environments; therefore, schools play a crucial role in socializing them, instilling positive values, and enhancing the wellbeing of all participants. Although each variable—enlivened minds, emboldened voices, playful learning and faculty trust—individually contributes to faculty wellbeing, the combination of playful learning and empowering faculty voices proves to be the most influential, subsuming the effects of trust and enlivened minds. Fostering a school environment that encourages playful, innovative approaches to teaching and actively involves faculty in decision-making processes, valuing their input, can create a more supportive and fulfilling workplace. Consequently, while maintaining trust and nurturing curiosity, critical thinking, and creativity remain important, schools should prioritize creating a dynamic and inclusive atmosphere to maximize faculty wellbeing and engagement. These insights underscore the critical role of school climate in promoting a positive and thriving educational community.

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Chapter 5

Discussion

The purpose of this dissertation was to understand the psychometric properties of Vibrant School Scale (VSS), its antecedents, and its correlates. To meet this aim, this dissertation was composed of three complementary articles. With the first article, I validated and refined the VSS through multi-level analysis, to accurately capture the organizational climate of schools through multi-level analysis. With the second article, I examined the collective efficacy and self-efficacy beliefs of teachers and leaders as predictors of vibrant schools. With the third article, I addressed the role of faculty trust in students within the context of vibrant school environments in explaining faculty wellbeing. This chapter summarizes the findings of each article and discusses them in connection with each other and the existing literature. Next in this chapter, I will present delimitations and limitations, and directions for future research.

Summary of Major Findings

The findings for the first article yielded a shorter VSS, with 19 items, which has three subscales at the individual level but only one factor at the school level. Results confirmed high internal reliability at both within-school and between-school levels for all three dimensions of the VSS with 19 items. There were strong correlations among the subscales. The findings for the second article confirmed the strong correlation between collective efficacy, self-efficacy belief of leaders and teachers and vibrant schools. However, regression results showed that teacher self-efficacy did not make an independent contribution to explaining the variance in vibrant schools at the school level. The results of article three showed that in bivariate correlations, faculty wellbeing is highly correlated to all three of the subscales of VSS (enlivened minds, emboldened voices, playful learning) as well as to faculty trust in students. The regression analysis confirmed

that in explaining faculty wellbeing, only emboldened voices and playful learning dimensions of vibrant schools made significant independent contributions to the prediction of faculty wellbeing. Another important finding throughout the three articles was that the vibrancy of the middle schools in this study was significantly lower than elementary and high schools. In addition to this finding, the results across this dissertation showed that the schools in same educational level (elementary, middle, or high) that participated in this study did not vary significantly in terms of their vibrancy level. For instance, the vibrancy levels observed in elementary schools were similar to each other. As individual results of each article were discussed previously, the overall findings and common nuances across these three articles will be discussed in the next section.

Discussion of Findings Around School Participation and Homogeneity in Results

One of the major findings of my dissertation, even though it is not statistical, was the large number of schools that were not willing to participate in the research. Seventeen school districts that were invited to participate declined, and within the seven school districts in which permission was granted, 111 schools declined to participate. The reluctance of schools can be attributed to several factors. Schools in Virginia operate within a specific regulatory framework governed by the Virginia Department of Education. Compliance with state regulations, such as standards of learning assessments and accreditation requirements, may consume significant administrative attention and resources, potentially limiting capacity for research participation. Administrative burden can deter organizations from engaging in research partnerships, particularly if the perceived benefits do not outweigh the perceived costs (Rossoni et al., 2023). In addition to administrative workload, cultural factors play a significant role in shaping schools' attitudes towards research participation, underscoring the importance of fostering trust and communication (Rossoni et al., 2023). The culture of education in Virginia such as community engagement, traditions of local control, and perceptions of accountability may shape schools' willingness to participate in external research initiatives. Furthermore, in the U.S., including

Virginia, education policies often emphasize high-stakes accountability measures, such as standardized testing and school performance ratings (Edwards, 2003). Schools may perceive research participation as potentially exposing them to additional scrutiny or accountability pressures, particularly if the findings could be interpreted as reflecting negatively on their performance or practices (Ingram et al., 2004). Moreover, even when research findings offer valuable insights for school improvement, implementing evidence-based practices requires resources, capacity, and organizational readiness (Reeves, 2004). Schools may be hesitant to participate in research studies if they lack the capacity or support needed to effectively translate research findings into actionable strategies for change (Bryk et al., 2011; Splett et al., 2022).

The results of all three articles showed that the schools did not show much variability in their levels of vibrancy at their own educational level, which affected the statistical analyses. The homogeneity in vibrancy levels could reflect contextual factors such as district-level policies, socioeconomic factors, or cultural contexts influencing all the schools in the sample similarly. Understanding these contextual factors is crucial for interpreting findings. Bronfenbrenner's (1979) ecological systems theory supports the idea that multiple environmental layers influence school characteristics, necessitating consideration of broader contextual factors in research. One of the important contextual factors is that all data were collected from schools in Virginia. In 2017, the Virginia State Board of Education adopted the Profile of a Virginia Graduate (Virginia Department of Education, 2017) that identified the knowledge and skills that students should attain when graduating from any high school. Since that time, schools are held accountable to meet the criteria around the 5Cs: critical thinking, creative thinking, collaboration, communication and citizenship (Virginia Department of Education, 2022), all closely aligned with the vision of schools embodied in the VSS. However, the implementation of this new initiative was disrupted by the Covid-19 pandemic. These schools may have been reluctant to have their modest progress on these directives revealed. It could also explain the relative

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homogeneity in the levels of vibrancy. Further, schools with very low levels of vibrancy may have had a strong disincentive to participate, given the expectation from the state that they would be implementing the 5Cs.

In addition to contextual factors for lack of variability, the homogeneity observed in the vibrancy levels might indicate a potential sampling bias. Sampling bias can significantly affect research outcomes, leading to results that may not be applicable to all schools (Chen et al., 2022; Nielsen et al., 2017). The lack of variability in vibrancy levels can affect the statistical power of analyses. Restricted range in the dependent variable can reduce the ability to detect significant relationships or differences (Tabachnick & Fidell, 2019). A more varied sample might reveal different patterns and relationships, as suggested by Cohen et al. (2013), who emphasize the importance of variability for robust statistical analyses.

Discussion of Deeper Learning and Vibrant Schools

Vibrant Schools are schools that foster deeper learning. Deeper learning refers to the development of skills and knowledge that enable students to think critically, collaborate effectively, communicate clearly, and learn how to learn (Darling-Hammond & Cook-Harvey, 2018). Creating vibrant school communities is essential for promoting deeper learning, as it encourages students to engage with their developmental imperative to connect with others, learn, and grow. By fostering curiosity, critical and creative thinking, as well as communication and collaboration skills, educators can create an environment where students are motivated and engaged in their own learning process. This approach aligns with the principles of deeper learning by emphasizing the importance of student-centered instruction and active engagement in the learning process (Farrington, 2013). By explicitly defining the 5 Cs (critical thinking, creativity, collaboration, communication, and citizenship), the Profile of a Virginia Graduate offers educators a roadmap for curriculum design and instructional strategies that support deeper

learning objectives. Therefore, VSS can be an important tool for Virginia Schools in realizing and maintaining the 5 Cs.

The findings of this study highlight the significant relationships between collective efficacy and vibrant schools, as well as between trust in students and vibrant schools. Collective efficacy and trust in students are two of the three constructs that make up Academic Optimism. As an underlying property, Academic Optimism is a theoretical construct that combines three interrelated dimensions: academic emphasis, collective efficacy, and faculty trust in students and parents (Hoy et al., 2006). Schools characterized by high levels of academic optimism are more likely to promote a culture of high expectations, mutual support, and a shared commitment to student success (Ates & Unal, 2021). This positive educational climate not only contributes to improved student achievement but also encourages the development of deeper learning competencies. Mehta and Fine (2019) examines deeper learning environments which share several features such as a clear purpose, a sense of mastery, the development of student identity, and opportunities for creativity and student choice, and supportive community. Therefore, fostering academic optimism within schools can significantly enhance both the deeper learning environments and the overall student learning experience. The strong relationships among the variables in this study suggest that academic optimism for deeper learning might be a crucial construct to develop further. Instead of maintaining the traditional focus on academic emphasis inherent in the original concept of academic optimism (Hoy et al., 2006), the integration of the VSS offers a promising alternative for fostering deeper learning. This shift reorients the focus from merely achieving academic success and high grades to creating a holistic, student-centered learning environment. The vibrant school model prioritizes the establishment of a dynamic and engaging atmosphere where students feel supported, valued, and motivated to actively engage in their education.

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In this reconceptualized framework, academic optimism for deeper learning encourages the development of an educational environment that supports both teaching and learning through a multifaceted approach. This approach emphasizes nurturing student interests, promoting creativity, and fostering a strong sense of community and collaboration, all within a context that includes an element of playfulness. Such an environment does not undermine academic achievement; on the contrary, it enhances it by incorporating diverse interests, facilitating collaborative problem-solving, and embracing creativity as essential components of academic success (Eccles & Wang, 2016; Fredricks et al., 2004; Martin & Marsh, 2008). By integrating the vibrant school model into academic optimism, educators and administrators can create a more inclusive and supportive learning environment that not only meets academic standards but also cultivates a well-rounded and deeply engaged student body. This holistic approach ensures that academic excellence is achieved through the integration of diverse and innovative educational practices, ultimately contributing to the overall development and success of students.

Limitations and Directions for Future Research

Although this study provides valuable insights, it is worth noting that there are a number of limitations that should be acknowledged and potentially addressed in future research. Firstly, it is important to acknowledge that the studies relied solely on an electronic survey. Although this method of data collection can be efficient, it may not capture the full range of perspectives that could be obtained through a more nuanced approach such as in-person interviews or focus groups. Moreover, in this study I did not collect the perceptions of parents and students. Their views are highly important in educational studies. However, this study does not provide the insights of these important members of the school community. The lack of variability in vibrancy levels across the schools in this study highlights the importance of diverse and representative sampling in educational research. Although the findings provide valuable insights into vibrant schools, the homogeneity in the sample limits the generalizability and robustness of the

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conclusions. It would have been useful to include a sample of highly vibrant schools as well as schools that were deficient in their level of one or more of the aspects of vibrance. Future research should aim to include more diverse samples, employ longitudinal and mixed methods approaches, and conduct contextual analyses to capture the full spectrum of school vibrancy and its impact on educational outcomes. In addition to this, even though the number of schools taking part in this study was enough based on the literature for multilevel analysis (Bell et al., 2014; Ferron et al., 2009; McNeish & Stapleton, 2016), the results of the analysis suggested a larger sample would be better to examine the antecedents and correlates of vibrant schools. Moreover, it is important to note that the length of the survey including all the variables was apparently too long, because 50 participants exited right after the vibrant school survey. In addition, at the start of this study, to embrace a distributed leadership framework, we defined school leaders as considered principals, assistant/vice principals, and teacher leaders, such as the dean, department chair, instructional coaches. This may have confounded differences in perceptions between those in administrative roles, such as principals and assistant principals, and teacher leaders. In future studies, it would be good to distinguish between administrators, teacher leaders and teachers. Lastly, since the VSS was developed in the U.S. school context, I wanted to conduct the validation study in the U.S. context as well. Therefore, this study was limited to Virginia public elementary, middle, and high schools. Future research in other states and in other countries, as well as private and religious schools, charter schools, magnet or special interest schools, and award-winning schools would be valuable to understand the conditions conducive to deeper learning in other contexts. It would also be helpful to examine the invariance of measurement of the VSS across different cultural and linguistic contexts.

There are several avenues for future research that could further explain these relationships and contribute to a more comprehensive understanding of vibrant schools and their

relationship with deeper learning. The following research questions are suggested for future exploration:

1. What are the specific factors explaining vibrant schools through bi-factorial models?

2. To what extent does the variance in students' cognitive, behavioral, and emotional engagement relate to their perceptions of vibrant schools and its subscales?

3. What would be the factor structure of academic optimism for deeper learning?

   a. What are the correlations among collective efficacy, faculty trust, and vibrant schools?

   b. To what extent do variables -collective efficacy, faculty trust, and vibrant school- explain the variance in academic optimism for deeper learning?

With the first question, further research can dissect the multi-dimensional nature of vibrant schools by using bi-factorial models to pinpoint specific elements that contribute to the vibrancy and effectiveness of schools. The second question will be helpful to explore how different aspects of student engagement are correlated to vibrant schools by also identifying which subscale is more impactful in engagement. The last suggested question can identify and validate the underlying dimensions of academic optimism for deeper learning. By addressing these questions, future research can deepen our understanding of the dynamics at play in creating supportive and effective educational environments such as vibrant schools that promote deeper learning. These investigations will not only extend theoretical frameworks but also provide practical insights for educators and policymakers striving to enhance student holistic development.

Conclusion

Reimagining schools as playgrounds of minds, body, and spirit rather than factories surrounded by walls is the image that guides this set of studies. We should design schools which are characterized by dynamic, engaging environments that prioritize curiosity, creativity,

collaboration, autonomy and playfulness. Engaging in focused discussions and aspirational conversations about how to achieve these ideals is a crucial step forward. This study suggests a paradigm shift in our understanding of schooling by providing foundational insights into the relationship between efficacy beliefs and vibrant schools, and the correlation of faculty wellbeing to faculty trust and vibrant schools. Hinting at the relationship between the Profile of a Virginia Graduate and deeper learning through vibrant schools, and a new approach to understanding of academic optimism, this study leaves significant work to practitioners and researchers alike.

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Vibrant School Climate Research Survey and Consent Form

Response Scale:

    1- Not at all; 2- Very little; 3- To some extent; 4- Quite a bit; 5- A great deal

Role of Participant:

        1- Leader (principal, assistant/vice principal, dean, department chair, instructional coach, etc.)

        2- Teacher

Vibrant School Scale

Enlivened Minds

1. Students are supported to pursue their individual interests in school.
2. There are opportunities at this school for students to pursue topics they are curious about.
3. Curiosity is nurtured in our school.
4. Students here are taught to critique the status quo.
5. Students here are taught to question why things are the way they are.
6. In this school, creativity abounds.
7. In this school, controversial issues are openly explored.
8. Students apply what they learn to real world problems.
9. In this school, we prize outside-the-box thinking.

Emboldened Voice

1. Everyone has a voice in decisions that affect them.
2. People in this school feel comfortable sharing their opinions.
3. There is an abiding sense of community in this school.
4. In this school, my voice matters.
5. I feel that I belong here.
6. In this school, we value collaborative learning.
7. We talk about our differences.
8. Differing perspectives are valued in this school.
9. Families are meaningfully engaged in the life of the school.

Playful Learning

1. We engage in learning with a playful spirit.
2. We value movement and physical activity as essential to engaged learning.
3. We have a lot of fun together here.
4. We value and learn from our mistakes.
5. We take delight in our diversity.
6. In our school, learning is fun.
7. In our school, we feel empowered to take responsibility for our own learning.
8. Here we have chances for our imagination to take flight.
9. We approach complex challenges with flexible thinking.

Collective Efficacy

1. How much can teachers in your school do to produce meaningful student learning?
2. How much can your school do to get students to believe they can do well in schoolwork?
3. How much can teachers in your school do to help students master complex content?
4. How much can teachers in your school do to promote deep understanding of academic concepts?
5. How much can teachers in your school do to help students think critically?
6. How much can your school do to foster student creativity?

Leader Self-Efficacy

In your current role as principal, to what extent can you…

1 …facilitate student learning in your school?
2 …generate enthusiasm for a shared vision for the school?
3 …promote school spirit among a large majority of the student population?
4 …create a positive learning environment in your school?
5 …motivate teachers?
6 …promote acceptable behaviors among students?
7 …prioritize among competing demands of the job?

Teacher Self-Efficacy

1 How much can you do to help your students think critically?
2 How much can you do to motivate students who show low interest in school work?
3 How much can you do to help your students value learning?
4 To what extent can you craft good questions for your students?
5 How much can you do to foster student creativity?
6 How much can you do to adjust your lessons to the proper level for individual students?
7 How well can you implement alternative strategies in your classroom?
8 How well can you provide appropriate challenges for very capable students?

Faculty Trust in Students

1 Teachers in this school trust their students.
2 Students in this school are respectful.
3 Students in this school can be counted on to do their work.
4 Teachers here believe that students are competent learners.
5 Most students in this school are honest.

Faculty Wellbeing

1 Taking all things together, how happy would you say you are you at school?
2 To what extent do you feel that your work at school is valuable and worthwhile?
3 To what extent do you feel that school is contributing value to your life?
4 How well would you say your work at school aligns with what you feel is most important in your life?
5 In general, to what extent how positive are your relationships with people at school?
6 Are there people in your school who really care about you?

Consent Form

The consent form for "Vibrant School Climate" research is incorporated into the survey. By continuing the survey, the participants indicate informed consent.

Your school is participating in an exciting new study of school climate designed to explore what characteristics of schools contribute to a positive and productive atmosphere. Our goal is to understand the perceptions of school personnel, students, and families.

All responses are anonymous; no school officials or staff will ever see your answers. So please think about the questions and be as honest as possible.

Participation of students under age 18 requires parent consent. A separate form is required to be signed by a parent in order for students to participate.

By continuing with this survey, you indicate informed consent. Participation is not mandatory, and you may stop the survey at any time. We hope you choose to participate in our study!

Revised Vibrant School Scale with 19 Items

Enlivened Minds
1. Students are supported to pursue their individual interests in school.
2. There are opportunities at this school for students to pursue topics they are curious about.
3. Curiosity is nurtured in our school.
4. In this school, creativity abounds.
5. In this school, we prize outside-the-box thinking.

Emboldened Voice
1. Everyone has a voice in decisions that affect them.
2. People in this school feel comfortable sharing their opinions.
3. There is an abiding sense of community in this school.
4. In this school, my voice matters.
5. I feel that I belong here.
6. In this school, we value collaborative learning.
7. Differing perspectives are valued in this school.

Playful Learning
1. We engage in learning with a playful spirit.
2. We value movement and physical activity as essential to engaged learning.
3. We have a lot of fun together here.
4. We take delight in our diversity.
5. In our school, learning is fun.
6. Here we have chances for our imagination to take flight.
7. We approach complex challenges with flexible thinking.

Invitation Letter to School Leaders

Dear School Principal,

There is vibrance in every school! Join us in a study to highlight the ways that your school shines!

I am a Ph.D. student in the Educational Policy, Planning, and Leadership Department in the William & Mary School of Education. I, along with my professor Dr. Megan Tschannen-Moran, would like to invite you to participate in our study called The Vibrant School Study.

The Vibrant School Scale was conceived of as a way to capture our highest aspirations for deeper learning we hope for all of our students, lively learning spaces steeped in a sense of curiosity, comradery, and creativity. Through this research, we hope to foster learning that is engaging, relevant, and rigorous. The scale consists of three subscales: enlivened minds, emboldened voices, and playful learning.

In return, you will receive an attractive infographic of your schools' results on the three subscales, as well as a breakdown across the various constituent groups. I've included a sample with this email. Results will be available once your survey has been open for a window of three weeks.

To participate, all you would need to do is to visit our website and take two minutes to register your school. Your school will automatically be assigned a seven-digit code that you will then copy and paste into the sample email provided and forward it to members of your school community.

The survey takes just ten minutes to complete.

In addition to your teachers and school leaders, you may also forward the invitation to parents if you wish to assess their perceptions as well.
Students' voices may be included as well, but you would need to secure parent or guardian permission for any students under the age of 18.

Your school's results will come with an invitation for you to host strengths-based conversations about the findings, celebrating current areas of vibrance in your school and imagining how to build on those strengths to foster even greater levels of vibrance.

Please reach out to me (agurdal@wm.edu) or Dr. Tschannen-Moran (mxtsch@wm.edu) if you have any questions. If not, please navigate to http://www.vibrantschools.info/Sign-Up, register, and let's begin!

Ayse Nur Gurdal
William & Mary School of Education
Educational Policy, Planning, and Leadership PO 8795 Williamsburg, VA 23187-8795

Appendix D

Data Collection Sample Letter to School Principal

Dear Member of the _____ School Community,

Our school is participating in an exciting study to explore what makes schools positive and productive places to work and learn. This will help our school community learn more about its strengths and engage in a process to create a plan to flourish.

Through this research and movement, our goal is to create schools where students engage in playful learning, feel empowered to use their voices, and are richly engaged with their minds.

We invite you to share your perspective by following the link below to complete a short survey. The survey will take about 10 minutes to complete.

Here is the link to the Vibrant Schools Survey:

https://wmsas.qualtrics.com/jfe/form/SV_9tr4GrDH8IpFlqK

It is essential for you to include the following school code: _____

Thank you for your consideration in participating. This can help your school community thrive.

If you have any questions, please do not hesitate to reach out to me via email.

Thank you again,

_____

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      and Deniz Orucu   09/23/2019- 8/10/2021
Project Coordinator, EU Funded "Roots: Rooting for Democracy in Education"
      Project, Curious Cat Primary School, Ankara (Turkey)   04/10/2019– 09/02/19
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