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EXPLORING THE RELATIONSHIP BETWEEN WORK ENGAGEMENT, COLLECTIVE TEACHER EFFICACY AND TRANSFORMATIONAL LEADERSHIP IN TIMES OF CHANGE

Michelle Lynn Estrada Smith

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A Dissertation

Presented to the

Faculty of

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San Bernardino

In Partial Fulfillment

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in

Educational Leadership

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by

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ABSTRACT

Using the results from a 30-item survey taken by 292 K-12 teachers in six districts within a region of Southern California, this study analyzed the correlations among the constructs of work engagement (WE), collective teacher efficacy (CTE) and the degree of transformational leadership (TL) of the principal, during a time of rapid and necessary change in education brought on by the Covid-19 pandemic. Seven specific TL behaviors were studied for their impact on WE and CTE. CTE and WE were studied for their impact on one another. The findings revealed significant and strong positive correlations between each of the constructs as well as significant positive correlations amongst the subscale components of the constructs. These findings are supported by the research on change, motivation, leadership, work engagement, and collective teacher efficacy. Understandably during this time, the component of WE found to be the lowest was vigor. The component of CTE found to be the lowest was task analysis, specifically in the area of students' homes and community. The TL behavior found to be most lacking yet most desired was empowerment, to include trust, communication and autonomy. Recommendations for specific TL behaviors with the highest impact on WE and CTE have been identified in order to guide principals in leading during times of change.

ACKNOWLEDGEMENTS

My doctoral program pathway has been long, winding, and strewn with a few obstacles. It is through these such times that we learn who we really are and who we can truly count on. I am so appreciative of the doctoral program for all that I have learned and for what I believe to be the positive effects it has had on my leadership, my career, and my life. Those deserving of particular acknowledgement and appreciation are my dissertation committee: Dr. Schnorr, Dr. Wilson, and Dr. Buchanan. Dr. Schnorr has taught me to let go of my fears and believe in myself. Dr. Wilson has taught me the importance of clarity, strategic planning, and securing my own life vest before attempting to do any other good in the world. Dr. Buchanan was the friend and confidant that saw me through the hardest time of my life and gave me the finest example of selflessness and perseverance. I am also grateful for the help of the superintendents in my region who supported my work and helped me get the participation I needed. These amazing educational leaders, along with my cohort partners, have made this work possible.

DEDICATION

This work is dedicated to my four amazing children, who have been my constant light and finest role models; my husband, who has given me unfailing love, support and renewed purpose; and my parents, who have always believed in me.

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CHAPTER ONE

INTRODUCTION

As a 27-year veteran educator, having worked at several school sites with hundreds of fellow educators and thousands of students, the question of what makes some districts, schools, and individuals more open to adopting new reform measures and adapting to change than others led to this body of research. While the initial question was about what sets the adopters and innovators apart from the reluctant, the research has led to the connections between change, work engagement, collective teacher efficacy and transformational leadership. This study explores the connections between leadership styles and the social cognitive theories of motivation and work engagement along with collective teacher efficacy situated within the context of change in education. The path from motivation to work engagement is examined as related to educational change. The review of the literature revealed work engagement to be a viable lens through which to understand motivation as it pertains to change, leading to work engagement as a central construct for the study.

Furthermore, the importance of self-efficacy as a construct of both motivation and work engagement has led to analysis of efficacy as it relates to teaching. In the field of education, the role of the teacher is primary, but the leader is responsible for creating the conditions and environment for effective

teaching and learning (Taylor, 2010). Therefore, the role of the leader in contributing to teacher efficacy, and the most effective leadership style and behaviors, are central to the findings. Teachers do not work in isolation and therefore it is recommended to look beyond individual teacher efficacy to collective teacher efficacy (Bandura, 1993). The positive impact of teacher efficacy, and more importantly collective teacher efficacy, on student learning necessitates determining how leaders can influence work engagement and collective teacher efficacy in the school setting.

Problem Statement

The problem addressed in this study is that as the field of education changes, it is incumbent upon the leader to engage the staff in the change process. While changes in education can be mandated or even brought on by a crisis, such as the Covid-19 pandemic, you can't make people change. Motivation must come from within and the participants must see the positive results of the change (Fullan, 2011). For educational leaders, this means the focus needs to be not just on the change itself, but on the people being asked to bring about the change. While studies of motivation are plentiful, the more specific concept of work engagement is found to be contributive to change. Work engagement goes beyond being engaged in work and is defined and measured through the characteristics of vigor, dedication and absorption (Schaufeli & Bakker, 2004). Efficacy is a predictor of work engagement, and work engagement leads to organizational commitment, thus highlighting the need to

start with the people, or relationships, in an organization in order to affect change (Kravchenko, 2018).

Purpose Statement

The purpose of this study is to contribute to the work on preparing and guiding school leaders in having the greatest possible impact on student learning by examining the role that transformational leadership plays on work engagement and collective teacher efficacy within the context of change. This study provides information on the correlations between transformational leadership, work engagement, and collective teacher efficacy. Motivation of staff in implementing change is explored through the lens of work engagement. Additionally, with efficacy as a component of work engagement and collective teacher efficacy being connected to positive student outcomes, this study has the potential to positively impact student learning outcomes. Specific factors, characteristics, and behaviors of transformational leadership are identified that account for a greater degree of variance, thus providing a more detailed plan of action for existing or potential school leaders in impacting work engagement and collective teacher efficacy, and thereby impacting student learning.

Research Questions

The following question is researched in this study:

> What is the relationship between transformational leadership, work engagement and collective teacher efficacy within the context of

educational change?

In an effort to provide actionable results for school leaders, this study also addresses the following question:

How can an educational leader affect work engagement and collective teacher efficacy for their staff during times of educational change?

Significance of the Study

While there are studies on the relationship between work engagement and transformational leadership and the relationship between collective efficacy and transformational leadership, this study focuses on the relationship between work engagement, collective teacher efficacy, and transformational leadership. This study also attempts to provide actionable results for school leaders and determine whether there are specific behaviors, actions, or factors within transformational leadership that account for a greater degree of variance on collective teacher efficacy and work engagement. With the ongoing nature of change in education, this study specifically situates the relationship between work engagement, collective teacher efficacy, and transformational leadership within an environment of change. While change is often mandated for local or regional reform, this study is situated within change brought on by a crisis: school closures due to the Covid-19 pandemic. Given the current environment of moving an entire educational system from in-person to remote learning due to the Covid-19 pandemic, this study is of even greater significance and urgency than if it were addressing the ongoing nature of change in education.

Theoretical Underpinnings

The theoretical underpinnings upon which this work is based include the behavior theories of motivation, the social cognitive theories of motivation, the behavior and social cognitive theories of efficacy, and the social concept of leadership.

Assumptions

Change in education is intended to improve student outcomes. Education undergoes frequent periods of reform and constant change. The engagement and efficacy of teachers are components of the teaching and learning environment and an improved environment results in improved learning.

Delimitations

This study is conducted within a single region of California. It measures the correlations between collective teacher efficacy, work engagement, and transformational leadership within a particular context of educational change: the shift to distance learning due to the Covid-19 pandemic.

Definitions of Key Terms

Collective Teacher Efficacy

Collective teacher efficacy is the perception of teachers in a school that the efforts of the staff as a whole will have a positive effect on students (Goddard, Hoy, & Hoy, 2000).

Educational Change

Educational change is a new practice, program, or technique in education, often as a component of large-scale reform (Marzano et al, 1995).

Educational Reform

Educational reform is a planned, large-scale effort to change schools in order to correct social and educational problems (Tyack & Cuban, 1995).

Transformational Leadership

Transformational leadership involves a set of behaviors and characteristics which include displaying charisma, being inspirational, promoting intellectual stimulation, and giving individualized consideration (Bass, 1990).

Work Engagement

Work engagement is a persistent and pervasive positive and fulfilling state of mind in the workplace, characterized by vigor, dedication, and absorption (Schaufeli et al, 2002).

Vigor. Having high levels of energy and mental resilience while working (Schaufeli et al, 2002).

Dedication. Strong involvement in the workplace, consisting of a sense of significance, pride, and enthusiasm (Schaufeli et al, 2002).

Absorption. Being deeply engrossed and fully concentrated in the work at hand, characterized by time passing quickly and committing full attention to the work (Schaufeli et al, 2002).

Summary

As has been outlined, this study contributes to the work on work engagement, collective teacher efficacy, and transformational leadership by exploring the correlations of these constructs. In so doing, this study provides actionable insights for school leaders as they support staff during periods of change. In the following chapter, the research on change, motivation theories, work engagement, collective teacher efficacy and transformational leadership are reviewed and analyzed. The research is presented as evidence of the need for this study and the potential impact the findings will have for education.

CHAPTER TWO

LITERATURE REVIEW

Addressing Change in Public Education

Heraclitus, ancient Greek philosopher, is quoted as saying that change is the only constant. With public education often referred to as a microcosm of society, this phenomenon of constant change plays out in America's schools. This chapter will begin with the concept of change in education with the ultimate purpose of identifying the factors of successful change that can be influenced by a leader. Educational reform is a planned effort to change schools in order to correct social and educational problems (Tyack & Cuban, 1995). There are many theories as to the purpose of education and just as many driving forces behind reform. Horace Mann, referred to as the father of American public schools, saw a common education as the foundation of a society free from political and social strife. If all children, regardless of religion or economic status, attended a common, in other words identical in its teachings, school, they would hold the same political values and therefore be free from crime and mob rule (Spring, 2000, 7-9). In the 1983 seminal report, A Nation at Risk, education was connected to the economic health of the nation. Education had evolved from a place for children to become more alike and politically indoctrinated into an institution of ability sorting and college and career preparation, thus inextricably

linked to the economy. Without successful schools producing high performing students, how could America compete globally? A Nation at Risk signified the decline of opinion of public schools and thus spurred forward the quest for reforms, including the standards movement (Ravitch, 2010, 22-30). The battle for international dominance was to be played out in school rooms.

Educational reforms can be divided into three periods: optimism and innovation through the 1970s which brought diversity and social reform, complexity and contradiction through the 1990s which brought common standards and accountability, followed by standardization and marketization which brought high stakes testing and punitive controls under No Child Left Behind (NCLB) (Skerrett & Hargreaves, 2008). Reform of education in the United States can also be divided into three waves: intensification of the system in place through standards and regulations, broadened relationships with families along with improved teacher preparation, and now comprehensive reform which is school wide rather than in targeted areas (Desimone, 2002). The faith we have in the power of education has led to the most comprehensive educational system in the world, but has also led to disillusionment when the high expectations are not met (Tyack & Cuban, 1995).

It is important to note that no matter which wave of reform, no matter what the motivating factor is behind the particular educational reform, no matter what philosophy or theory is held as to the purpose of education, and no matter how success and academic achievement are measured, the goal of reform has

always been to improve student outcomes. This basic assumption arising from experience and research will be used as the foundational understanding of change in education: improved teaching and educational environments are expected to result in improved learning and opportunities for students. The link between reform movements, research-based practices, and successful implementation by teachers is therefore paramount to student achievement. Studies have indicated that teachers will be more effective at implementing change if they have had the opportunity to come to the conclusion that it is necessary (Rusaw, 2007). Additionally, a teacher's own personal dissatisfaction with their methods and goals of teaching, along with a disconnect between beliefs and actions are far more powerful factors in realizing change than threats of sanctions. The change that an individual teacher embraces is at the foundation of systemic change, but teachers do not work in isolation and therefore change occurs within the context of the physical and cultural school environment (Gess-Newsome et al, 2003). Therefore, change cannot be considered without considering the entire school environment, including the leader.

The Most Current Change in Education

In addition to major reform movements, education undergoes the constant ebb and flow of change. These changes may be minor, such as adopting a new textbook and curricular mapping, or major, such as a one-to-one device initiative. Currently, the change has been major. On March 12, 2020, the World Health

Organization (WHO) identified the coronavirus disease 2019 (COVID-19) outbreak as a pandemic. Schools in 107 countries closed, leaving 862 million students without in-person learning. The response to the closures varied, as those decisions can be national, state, or local decisions (Viner et al, 2020). In California, most districts provided distance, or remote, online learning. Online learning involves internet access and computer devices. It can be done synchronously or asynchronously (Dhawan, 2020). In order to provide in-person learning while reducing the number of students in a classroom or school at a time, some districts provided hybrid learning as well. Hybrid learning consists of having some students in person to learn while others are learning remotely through the use of an electronic device such as a computer. Of significance to this study is the fact that all teachers were forced to pivot from their previous modes of teaching and engage in device-based teaching and learning.

Motivation to Accept and Participate in Change Efforts

What motivates teachers to adapt to and embrace change in educational practices? From an education standpoint, the last major reform movement was high-stakes testing and accountability. Along the way there have been numerous other changes, such as adopting of the Common Core Standards and the Next Generation Science Standards. The process of adapting to the focus on testing and accountability was very controlled in most districts; a reflection of the fact that it was being controlled from the state and federal levels (Deci, 2009). This rollout was counterintuitive to motivation theories. While not all people in an

organization will initially support change efforts, giving opportunity for choice, creativity, flexibility and competence can expand the pool of joiners and motivate staff to adopt the changes. Optimally, participants should have an opportunity to help plan, develop, and implement the change (Deci, 2009). Teacher buy-in is critical to giving school reform the authority necessary to be sustained. Two methods of reform implementation are a programmed approach to instructional change which promotes conformity to a much prescribed set of practices and an adaptive approach which seeks to create instructional innovations that are appropriate to local settings. This second approach relies more on autonomy and motivation than the first, but the first was more prevalent under NCLB (Rowan & Miller, 2007). It is important not to wait for everyone to be in agreement, but to be aware of the tipping point toward successful implementation.

Motivation theories have existed for thousands of years, with Greek philosophers focusing on the hedonism approach of pleasure and pain to understand why people behave as they do (Steers, Mowday, & Shapiro, 2004). In modern psychology, there are several motivation theories that stand out and are often applied to education, although most work is in reference to motivating students, not teachers. In looking at motivation of teachers, the studies of interest in relation to this research are those that are associated with motivation to work, learn, and implement change. Maslow's needs-based theory of motivation is a behavioral theory and therefore focused on behavior but not

necessarily on learning, thus it is incomplete in its connection to the motivation of teachers in learning and applying new concepts. While in behavior theories motivation is based on needs and results in a change of actions, in social cognitive theories, motivation is based on beliefs, values, and goals and results in a change of cognition (Eccles & Wigfield, 2002). With that in mind, cognitivism is of more interest to this study than behaviorism. While there is much overlap and connectedness of the multitude of cognitive theories on motivation, three notable social cognitive theories were investigated for connection to this work: Bandura's Self-Efficacy Theory; Atkinson, Eccles, and Wigfield's Expectancy-Value Theory; and Ryan and Deci's Self-Determination Theory. A brief overview follows.

Self-Efficacy Theory

Proposed by Albert Bandura in 1977, the focus of Self-Efficacy Theory is on individuals' confidence in their ability to organize and execute a given course of action (Bandura, 1993). Self-efficacy is a belief in oneself as able to perform and to produce results. Through self-efficacy, a person feels agentic and able to do a task and attain mastery. One's perceived self-efficacy contributes to how one feels, thinks, is motivated, and behaves. According to Bandura, greater self-efficacy increases motivation and leads not only to setting of higher goals but also to a commitment to those goals, thus impacting the cognitive processes. Sense of efficacy leads to visualizing success, whereas doubt in efficacy leads to visualizing failure. Self-efficacy can promote success even more than actual

ability. Beyond actual ability, one's concept of ability, either as acquirable or as a finite inherent capacity, can expand or stifle competence and efficacy. Viewing ability as acquirable enhances competence and efficacy (Bandura, 1993). It is important at this point to note the similarity between competence and self-efficacy, as both terms are used throughout this work. While the two terms are used interchangeably in some studies, Ryan and Deci describe self-efficacy as *perceived* competence (2000). In other words, self-efficacy is belief in ability and competence is the actual ability; self-efficacy is cognitive and competence is behavioral. Self-efficacious teachers are more likely to take risks and try new teaching methodologies (Zakeri et al, 2016). This yields a direct connection between education reform and Self-Efficacy Theory. Comparison with others as either gaining mastery or being surpassed, can also increase or decrease self-efficacy, respectively (Bandura, 1993), which could explain why the NCLB era of test scores and comparison tactics did not yield the desired effects. Feedback for teachers should thus focus on progress rather than failures. In summary, when applied to change in education, Self-Efficacy Theory would indicate that leaders should emphasize ability as being acquirable, highlight progress rather than failures, and de-emphasize competitive comparison.

Expectancy-Value Theory

Expectancy-value theory expands on Self-Efficacy Theory, factoring in the value of the task to the level of motivation. According to Wigfield and Eccles (2000), the Expectancy-Value Theory of motivation includes ability beliefs,

expectancies for success, and the components of subjective task values. Expectancy-value theory is a process perspective on motivation which argues that choice, persistence and performance can be explained by a person's belief of how well they will do and how much the activity is valued. Beyond belief in one's abilities, the expected outcome and the value of the task are central to how motivated a person will be to complete it. Expectancies and values are influenced by competence, difficulty, individual goals, and self-schema. Also important is how useful, interesting, and important the task is. One starts out with broad beliefs such as they are capable or not, but then fine tune their beliefs to specific abilities. While task values are the strongest predictors of intentions to complete a task, belief in abilities and expectancies for positive outcomes are the strongest predictors of success (2000). Individuals seek the most desirable outcomes; a self-interest that can be capitalized on by leaders (Isaac et al, 2001). The effective leader will establish mutually valuable outcomes and pull followers along the path to those outcomes rather than push (2001). Other leadership behaviors related to expectancy-value theory include showing appreciation, establishing mutual respect, and increasing the skill sets and beliefs of followers (2001).

Self-Determination Theory

Self-determination Theory (SDT) is a social cognitive theory which applies the basic psychological needs of autonomy, competence, and relatedness to motivation. Whereas expectancy-value theory similarly focuses on competence,

it is connected to anticipated outcome of the tasks while SDT is connected strongly to autonomy. In a 2005 study on work motivation, Gagne and Deci compared the applicability of several theories of motivation to the motivation needed for the workplace. It was found that SDT, with its multi-layered approach to extrinsic motivation based upon degrees of autonomy, was the most applicable to the workplace. Autonomy is defined in SDT as the need to have control and choice; competence is the need to be capable and effective; and relatedness is the need to be connected to others. Ryan and Deci hypothesized that humans have these three basic needs and with those needs met they become intrinsically motivated to act. While intrinsic motivation is at the core of the theory, SDT also identifies a spectrum of motivation to include both extrinsic and intrinsic motivation, based upon degree of autonomy (Ryan & Deci, 2000). Ryan and Deci charted out the many levels of motivation, differentiating between autonomous motivation and controlled motivation. External rewards and expectations may lead to motivation, but it is controlled motivation because it is being externally controlled. Acting based upon a desire to do so for internal purposes is autonomous motivation and is the only path to intrinsic motivation. The full spectrum of motivation developed by Ryan and Deci includes amotivation, extrinsic motivation (further disaggregated into external regulation, introjection, identification, and integration), and intrinsic motivation. Amotivation is at the low end of the spectrum and is defined as having no intention to act (Ryan & Deci, 2000). According to Ryan and Deci, not seeing the value of a

task, not feeling capable of accomplishing a task, or not believing the task will lead to the desired outcome are all causes of being in a state of amotivation. Motivation for change is improved, therefore, when the change is seen as having value (Ryan & Deci, 2000) and when it is seen as necessary (Rusaw, 2007). When autonomy or self-determination is increased, individuals move into extrinsic motivation. Extrinsic motivation is defined by Ryan and Deci as task performance based upon an outcome that exists outside of the situation. While others have viewed extrinsic motivation as lacking any autonomy, Ryan and Deci identify degrees of autonomy that create degrees of motivation that are still extrinsic in nature. A teacher may implement an instructional strategy that has been recommended by the principal in order to receive a positive evaluation. Alternately, a teacher may implement a new instructional strategy he or she believes will improve student learning. The first situation is less autonomous, with a highly external locus of control. The latter exhibits a higher degree of choice and autonomy, but is still for an external purpose or outcome. Not until the decision is made based upon personal choice and interest is it truly intrinsic. Only the highest degree of autonomy can lead to intrinsic motivation. Internalization is the process through which motivation can change from amotivation to extrinsic motivation or passive compliance, to intrinsic motivation or active personal commitment (Vallerand & Bissonnette, 1992). Intrinsic motivation is defined by Ryan and Deci as performing a task or participating in an

activity purely for the personal interest and satisfaction it brings, not for any external reward.

A reward is an external incentive to complete a task. Rewards have been discouraged from the viewpoint of many motivational theories. While intrinsic motivation leads to sustained success and goal attainment, rewards have a diminishing effect on intrinsic motivation. Daniel Pink (2009) describes the carrot-stick method of motivation as having the potential to turn an interesting task into a drudge (35). Similarly, studies on merit pay, school accountability sanctions, and payment for grades all have come to the conclusion that external punishment and rewards are detrimental to interest, creativity, and success (Morris, 2008). In order to prevent this detriment to success and support teachers in improving student learning, there is a need to understand how to provide an environment for teachers that fosters intrinsic motivation.

In addition to autonomy, intrinsic motivation can be connected to the basic psychological needs of competence and relatedness (Ryan & Deci, 2000). Competence is not just the ability to perform a task, it is the ability to experience mastery of the task (Vansteenkiste et al, 2006). Competence is similar to the self-efficacy of the previous two theories. Feeling competent, or experiencing competence satisfaction, contributes to a greater degree of adaptability and acceptance of change (Deci, 2009). This is particularly important to note as we apply SDT to motivation for change in the form of educational reform. Lack of

competence, or competence frustration, has been found to lead to a sense of helplessness which deteriorates motivation to act (2009).

To have the need for competence filled, a teacher must feel effective, which can be difficult amidst reform due to the changing nature of expectations. It has been found that positive feedback can improve an employee's sense of competence and thereby improve motivation (Gagne & Deci, 2005). It is important to note that competence is improved only when the subject felt in control or autonomous of the outcome, further underlying the link between competence and autonomy. In the same study, negative feedback was found to diminish competence. This may be an indication of why the punitive approach of the standards and accountability movement did not succeed.

The third psychological need to be filled in improving motivation through the lens of SDT is relatedness. It should be noted that a sub theory to SDT is Cognitive Evaluation Theory or CET. CET focuses on autonomy and competence but does not include relatedness in the psychological needs that must be filled in order to motivate. Relatedness is the need to feel a close connection, be a part of the group, care and be cared for, and develop a sense of communion (Van den Broeck et al, 2010). A current trend in education is the implementation of Professional Learning Communities (PLCs) as a way to build a sense of connectedness between teachers in their efforts to improve student learning.

More on Autonomy. Promotion of teacher autonomy, according to research, is conducive to implementing reform. According to social constructionism, the individual psychologically constructs the experiential world, making teachers the most important agents in implementing change in their workplace: the school (Wrzesniewski & Dutton, 2001). Studies have shown that establishing a teachers' professional learning community (PLC) would assist teachers in improving professionally (Song, 2013). Teachers would be given power over curriculum development, a shared mission and vision, decision making, and collaboration of instructional practices. Teachers need to find personal value in any reform in addition to being provided support such as that found through working within a PLC. Professional growth, a focus on student development, and an environment of collaboration and trust are all conducive to being receptive of reform efforts (2013). Autonomy can be balanced by working within a team to relieve the anxiety and burden of change which makes teachers more willing to commit to be the agents of change. Commitment is a more important factor than control in improving teaching and learning (Henkin & Holliman, 2009). Management styles based upon commitment, collaborative efforts, and shared decision making will lead to improved teacher performance. In a 2009 study of middle school teachers in an urban setting, Henkin and Holliman found that strong teacher commitment leads to openness to innovation and a willingness to participate in extra assignments beyond the classroom (2009).

Table 1

Motivation Theories and Associated Focus

Theory	Focus
Self-Efficacy Theory	Confidence in ability. Belief in oneself to perform a task and produce results. Concept of ability as acquirable. Agentic.
Expectancy-Value Theory	Belief in one's ability. Expectancy for success. Value of task.
Self-Determination Theory	Autonomy, control and choice. Competent, capable, effective. Relatedness and need to be part of a group.

(Bandura, 1993; Eccles & Wigfield, 2002; Ryan & Deci, 2000)

From Motivation to Engagement

Motivation in the Workplace

The workplace has a need to motivate, energize, channel, and sustain the behavior of employees and yet holds many barriers to facilitating intrinsic motivation (Steers et al., 2004). Most employees are given external rewards and punishments for their performance. Tasks are completed because they have to be, not out of choice or interest. The elements of relatedness, competence, and autonomy are important to be addressed, but are not easy to implement. Models of motivation can be integrated into a focus on needs, values and motives, goal-

choice, and self-efficacy while acknowledging the role of volition on work motivation (Locke & Latham, 2004). Motivation within contexts is another focus that could assist in an understanding of work motivation (Latham & Pinder, 2005). Because the workplace has evolved, the theories of motivation applied must evolve as well.

Pink outlined the seven flaws of extrinsic motivation, or carrots and sticks as he called them. The flaw most pertinent to educational reform is that external motivation can diminish performance (Pink, 2009). While Tyack, as previously noted, defined educational reform as changing schools to correct societal and educational problems, Fullan (2001) provides context and purpose for reform:

> Let me be very clear about this fundamental point. First, the primary goal of school reform is not to adopt or even internalize a valuable external model. The primary goal is to alter the *capacity* of the school to engage in improvement. Second, sustainable reform of this kind can only be achieved when working with *whole systems* (p.4-5).

In researching educational reforms and the environments in which they have taken place in an effort to identify successful methods of motivating staff members, several subcomponents emerged. While much has been written about the general concepts of reform, autonomy, and motivation, very little could be found on specific methods for autonomy-building and motivation of teachers in educational reform, change, or innovation. West defines innovation as the outcome in the application of creative ideas to make improvements (as cited in

Koch et al, 2015). While reform measures are the driving force of what is to be done in schools, and the leader is responsible for navigating how it is to be done, the work of the staff will determine the degree to which the reform is implemented successfully. In education, school and student success has been linked to teacher efficacy (Pas et al, 2012). Teacher efficacy is a teacher's own belief in being able to positively impact student learning (Tschannen-Moran & Hoy, 2001). It is impossible to deny that effective teaching results in greater learning. The Partnership for 21st Century Skills identified four skills imperative to college and career ready success: creativity, critical thinking, collaboration, and communication (Kivunja, 2015). This shift to 4Cs, as commonly referred to, requires teachers to be more innovative in their lesson design.

A 2014 study by Koch, Binnewies, and Dormann of 83 German schools sought to determine the role of the principal in bringing about innovation across the organization, which in this case was a school. The purpose of the study was to determine what the precursors to innovation were in a school setting. The study hypothesized that the principal's work engagement would increase teacher creativity and that teacher creativity would directly impact the organizational innovation, with teacher creativity as a mediator between principal work engagement and innovation. In their study, work engagement was regarded as the input, teacher creativity the process, and innovation the output. The study involved 87 principals and 902 teachers across 83 schools in Germany, utilizing a multisource design which included the Utrecht Work Engagement Scale,

teachers' ratings on idea generation and idea implementation, as well as measures of creativity based upon school websites and measured by an outside agency. The study revealed, through multilevel structural equation modeling, that the work engagement of principals had a direct impact on teacher creativity which in turn had a positive impact on the level of innovation of the entire organization (Koch et al, 2015).

This study delineated the importance of a culture of innovation and emphasized the need for schools to be innovative in order to face the various reform efforts expected of them (Koch et al, 2015). All reforms rely on teachers to make changes in how they approach their work. Reforms, as with any change, are dependent upon participants to feel self-efficacious. Teacher efficacy relies on competence, as stated earlier, which is difficult to achieve when the work is unfamiliar. The current challenge is to help teachers be motivated for new challenges and be fully engaged in the work of teaching and learning.

The tenets of self-determination theory, self-efficacy, and expectancy-value can all be directly applied and facilitated in schools in order to successfully transition and be positioned for reform. In order to keep up with the changes, teachers and leaders must engage in continuous learning through professional development. Machiavelli cautioned that "it must be considered that there is nothing more difficult to carry out, nor more doubtful of success, nor more dangerous to handle, than to initiate a new order of things" (page 22, 1903). Educational reform is a "new order of things" and is deserving of careful and

particular attention. Coupled with Machiavelli's assertion that men "do not readily believe in new things until they have a long experience of them", this makes new reform measures difficult to initiate and perhaps even more difficult to fully embrace (1903).

Professional development is a process used in education to encourage educators to embrace a reform. In order for change to take place, there must be a shared understanding and competence, for which professional development is often the tool. Within the field of education, motivation has been defined as the incentives and disincentives that influence participation in professional development (Hynds & McDonald, 2010). From 2006 to 2008, the Quality Teaching Research and Development in Practice Project (QTR&D) was initiated in a New Zealand school. The project was a partnership between universities, the Ministry of Education, researchers, and teachers which focused on teacher inquiry as a contributing factor in improving learning outcomes for diverse and underachieving learners. As a follow up to this study, in 2009 Hynds and McDonald set out to identify the factors that led to teachers being involved in and sustaining participation in QTR&D. In their study through interviews and questionnaires they found that many intrinsic and extrinsic motivation factors influenced teacher participation in QTR&D. Furthermore, the study found that while there were both intrinsic and extrinsic motivating factors for participation, the lens of motivation was inadequate in explaining the intricacies of engagement. They defined engagement in the professional development as

persistent and sustained dedication to the university partnership (Hynds & McDonald, 2010). While many were motivated by personal, professional, social justice, and monetary reasons, thus encompassing both extrinsic and intrinsic motivation, it was apparent that no one incentive led to participation; rather a purposeful varied approach to motivation. However, of most interest to this current study was the inability of the Hynds and McDonald study to identify the individual factors that led not only to initial participation, but to fully sustained engagement.

Work Engagement

It is important at this point to differentiate between motivation and engagement. "Motivation is an internal state that instigates, directs, and maintains behavior" (Lee et al, 2010, p. 264). According to the Oxford Dictionary, motivation is the desire or willingness to do something. Engagement, on the other hand, is a positive work experience, characterized by vigor, dedication, and absorption (Schaufeli et al, 2002). These three characteristics of work engagement result in employees who act with high levels of energy, intrinsic motivation, and positive emotions (Bakker et al 2008). An engaged employee is one with sustained dedication and deep absorption into the work. While the Hynds & McDonald study (2010) did not produce a simple or specific incentive for motivation, the factors that immersed included similarities to the vigor, dedication and absorption of work engagement. A motivated employee will act and an engaged employee will act with sustained purpose. Motivating a team of

employees, in this case teachers, is a worthy endeavor and is not to be dismissed. However, having that same team of teachers not only motivated, but exhibiting the energy and resilience of vigor, the enthusiasm and pride of dedication, and the concentration and full immersion of absorption has the potential of improving the learning environment for students.

While studies on motivation have flooded the field of education, the concept of work engagement is a fairly recent development. Work engagement as a psychological condition of role performance in the workplace was first introduced by Kahn in 1990. Kahn described employee engagement as "harnessing of organization members' to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances" (Kahn, 1990). He cited three antecedents to work engagement: feeling psychologically safe (safety), having personal resources (availability), and finding the work to be meaningful (meaningfulness). He proposed that this psychological and emotional connection to work would result in improved productivity, and improved well-being of the employees and the organization. The study of engagement connects to and extends the study of motivation, with the concepts extending beyond cognition and behavior into a complete psychological commitment. A comparison of the elements of engagement and motivation is outlined in Table 2 below.

Table 2

Comparison of Motivation and Employee Engagement

	Motivation	Employee Engagement
Antecedents	Self-efficacy, relatedness, connectedness	Safety, relationships, efficacy, absorption.
	Competence, task-value, mastery expectation.	Availability, energy, vigor, confidence.
	Autonomy, choice, agency	Meaningfulness, dedication, autonomy
Resultant	Involvement	Productivity
	Participation	Deep commitment

(Compiled from the following works: Bandura, 1993; Eccles & Wigfield, 2002; Ryan & Deci, 2000; Kahn, 1990; Schaufeli & Bakker, 2003; Maslach & Leiter, 1997)

While employee engagement was introduced as a construct and theoretically discussed by Kahn in 1990, it needed to be operationalized. One method of measuring and analyzing employee engagement was to compare it to burnout; essentially viewing it as the opposite psychological state to burnout. Psychology had been focused on the negative rather than the positive, making the use of burnout as the metric for measuring engagement understandable at the time (Maslach et al, 2001). Three tenets of employee burnout are exhaustion, cynicism and ineffectiveness or lack of efficacy (2001). From a positive psychology perspective, engaged employees are energetic, or the opposite of exhausted, involved in the workplace, or the opposite of cynicism,

and are efficacious, or the opposite of ineffective (Maslach & Leiter, 1997). This view of engagement as the opposite of burnout led to the application of the Maslach-Burnout Inventory (MBI), developed by Maslach and Jackson in 1981 for measuring burnout, as a tool of measurement for both engagement and burnout (Maslach et al, 2001). Maslach and Leiter, through the presentation of case studies, outline the six sources of burnout and corresponding paths to engagement as shown in Table 3 below.

Table 3

From Burnout to Engagement

	Burnout	Employee Engagement
Sources	Work overload	Sustainable workload
	Lack of control	Choice and control
	Insufficient reward	Recognition and reward
	Unfairness	Fairness, respect and justice
	Breakdown of community	Sense of community
	Value conflict	Meaningful and valued work
Characteristics	Exhaustion	Energy
	Cynicism	Involvement
	Ineffectiveness	Efficacy

(Maslach & Leiter, 1997, p.24-26)

Several of the cases provided involved teachers and their paths from engagement to burnout. Through the use of the MBI along with the complementary staff survey, a clear path for righting the organization through management processes and structures is outlined, concluding that engagement and burnout are largely influenced by the leaders of the organization. Burnout was found to be connected to the social environment, and thus an organizational issue, not a personal issue (Maslach & Leiter, 1997).

Schaufeli and Bakker continued this research with a slightly different perspective. Dissatisfied with the view of engagement and burnout as simple opposites, they developed the Utrecht Work Engagement Scale in 2001. While they concurred that engagement and burnout were at times related, they defined them as two concepts needing to be measured in distinct ways (Schaufeli & Bakker, 2003). While Kahn represented engagement through the concepts of meaningfulness, safety, and availability, and Maslach and Leiter defined it as the opposite of burnout with low cynicism, high energy, and high efficacy, Schaufeli and Bakker identified it through the concepts of vigor, dedication, and absorption. Vigor is comprised of both energy and a willingness to invest of oneself in the organization. Dedication goes beyond involvement to include emotive aspects such as inspiration and pride. Absorption is the dimension of engagement that is not a direct opposite of any of the dimensions of burnout. Absorption is the state of being fully engrossed with full mind and body attention to the work (Schaufeli & Bakker, 2003). This latter representation of engagement was operationalized

directly through the Utrecht Work Engagement Scale (UWES) which measures vigor, dedication, and absorption of employees in the performance of their work.

In extending the shift from the negative pole to the positive pole in the study of engagement, it was further developed and operationalized in 2002 by Schaufeli, Salanova, Gonzales-Roma, and Bakker in a study to test the validity of the newly developed UWES and to compare results from the negative lens of burnout side by side with the positive lens of engagement. To verify validity of the UWES, Schaufeli et al utilized both instruments and tested the results in several ways. Using confirmatory factor analysis, it was found that the three factor burnout scale was corroborated as was the newly developed UWES. The combination of the two scales did not connect to one construct, such as well-being, but they also did not indicate two discrete constructs: burnout and engagement. Instead, it was found that two of the factors of burnout, (exhaustion and cynicism), coupled with the three factors of engagement, (dedication, absorption and vigor), along with efficacy, fit the data best. These six factors created the best fit (2002). This finding demonstrates a clear connection between motivation and work engagement, as well as the significance of efficacy as a construct.

With motivation being a concept nested within engagement, the two are inextricably connected. In a 2008 longitudinal study conducted in an electrical engineering and electronics company in the Netherlands on the relationships between job resources, personal resources, and work engagement,

Xanthopoulou, Bakker, Demerouti, and Schuafeli hypothesized that personal and job resources and work engagement were reciprocally related. The findings gathered from the 540 employees at T1 and 469 employees at T2 supported that availability of job resources increased work engagement. It was also found that personal resources led to greater work engagement. And finally, it was found that work engagement fostered both job and personal resources, thus establishing a reciprocal relationship between job resources, personal resources, and work engagement (Xanthopoulou et al, 2009).

For the study, work engagement was defined based upon the work of Schaufeli and Bakker as "an affective-motivational, work-related state of fulfillment in employees that is characterized by vigor, dedication and absorption" (2004). Work engagement was differentiated from other work related psychological states such as workaholism, involvement, and commitment (as reviewed by Hallberg & Schaufeli, 2006). Interested in all aspects of the workplace, the five types of job resources examined in the study were autonomy, social support, supervisory coaching, performance feedback, and opportunities for professional development (Xanthopoulou et al, 2009). The connection between these five job resources and SDT is clear, with autonomy being a factor of both, relatedness being similar to social support, and competence being developed through supervisory coaching, performance feedback and professional development. Based upon several previous studies that recognized these elements as integral to both general and work-related well-being, the three

types of personal resources examined in the study were self-efficacy, organizational-based self-esteem, and optimism (Xanthopoulou et al, 2009). Using a survey compiled from various sources with seventeen items total for job resources and ten items for each of the three personal resources, all self-reported on a five-point scale, along with the nine-item version of the Utrecht Work Engagement Scale, the following three hypotheses were tested: 1) Job and personal resources relate positively to work engagement; 2) Work engagement relates positively to job and personal resources; and 3) Job resources, personal resources, and work engagement relate reciprocally. After using item-level confirmatory factor analysis to validate the use of the results for the multiple items as three single scores for job resources, personal resources, and work engagement, the data were analyzed through structural equation modeling, Correlations were determined to support all three hypotheses. This finding of a connectedness between job resources, personal resources, and work engagement is of great interest for this current study and for leaders interested in positively impacting the work engagement of their employees.

Efficacy Revisited. Self-efficacy has been shown above to be an important construct of motivation and employee engagement. Bandura noted that teaching is not done in isolation, with a moderate level of interdependence between teachers (1993). He therefore included in his work a comparison of self-efficacy and collective efficacy. According to Bandura,

> Teachers' beliefs in their personal efficacy to motivate and promote learning affect the types of learning environments they create and the level of academic progress their students achieve. Faculties' beliefs in their collective instructional efficacy contribute significantly to their schools' level of academic achievement (117).

Collective Teacher Efficacy

Collective teacher efficacy is defined in the research as the collective belief of the staff in their collective ability to impact student learning. Bandura conducted research on collective teacher efficacy and found that it had a strong enough impact on student achievement to overcome the negative effects of low socio-economic status (SES) (1993). Furthermore, in a meta-analysis on the relationship between collective teacher efficacy and student achievement, collective teacher efficacy was found to mitigate the potential negative impact of poverty (Eells, 2011). In Hattie's meta-analysis, updated in 2018, of impacts on student learning, collective teacher efficacy exhibited one of the highest Cohen's d effect sizes at 1.57, which is described as having the potential to considerably accelerate student achievement. The principal has only a 0.32 effect size, which while still positive, is not enough alone to address gaps in achievement (Corwin, 2018).

With collective teacher efficacy gaining recognition as having such a positive effect on student achievement, Goddard, Hoy and Hoy (2000) set out to clearly define collective teacher efficacy, develop a reliable method to measure

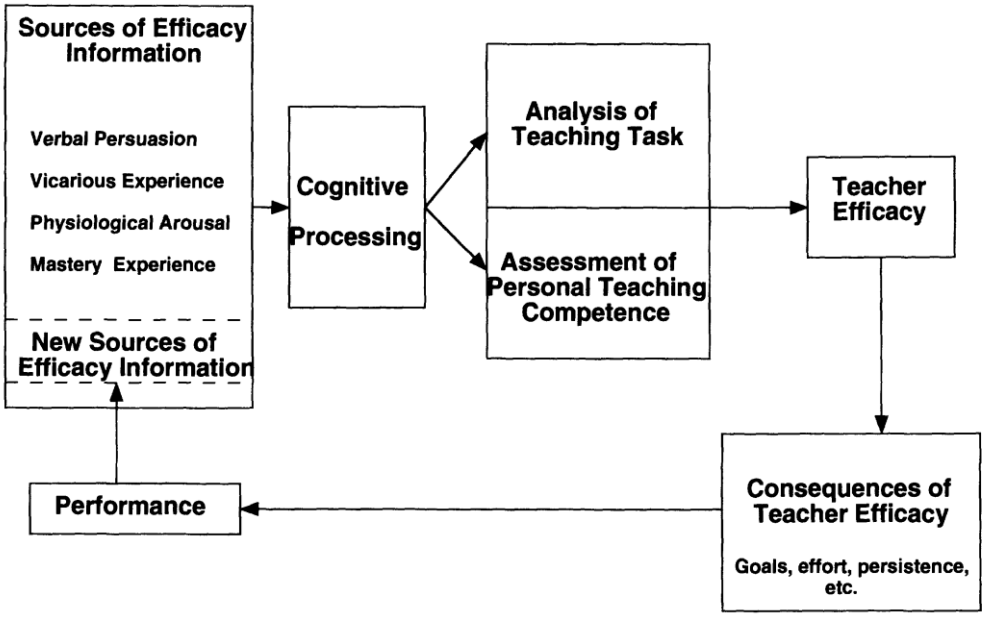
collective teacher efficacy and validate its impact on student achievement. Teacher self- efficacy had been defined by Rotter in 1966 through a locus of control theory as a belief on the part of teachers that they could influence student motivation and achievement, which are sources of reinforcement of their actions. It was later defined by Bandura through social cognitive theory as a teacher's belief in their own competence; belief in ability to perform the actions needed for the desired results (Goddard et al, 2000). The first definition is outcome based while the second is process based. Tschannen-Moran et al (1998) described the Rotter definition as one not of self-efficacy but of the relationship between actions and outcomes. They set out to develop an integrated model of teacher efficacy, which would later serve as a major contribution to the work of Goddard et al (2000) in developing a model for collective teacher efficacy.

According to the research, Bandura identified four sources of efficacy beliefs for individuals: mastery experience, physiological and emotional cues, vicarious experiences, and verbal persuasion. Tschannen-Moran et al (1998) recognized the need to situate self-efficacy more specifically in the teaching environment in order to define teacher efficacy. The rationale was that teachers feel more or less efficacious given different content to teach, different resources, and different students. In light of these nuances to efficacy for teachers, they included the task and the context in the following definition of teacher self-efficacy:

Teacher efficacy is the teacher's belief in his or her capability to organize and execute courses of action required to successfully accomplish a specific teaching task in a particular context (233).

Viewing teacher efficacy as cyclical, with outcomes informing and influencing future efficacy beliefs, Tschannen-Moran et al (1998) developed the following model:

Figure 1. Teacher efficacy

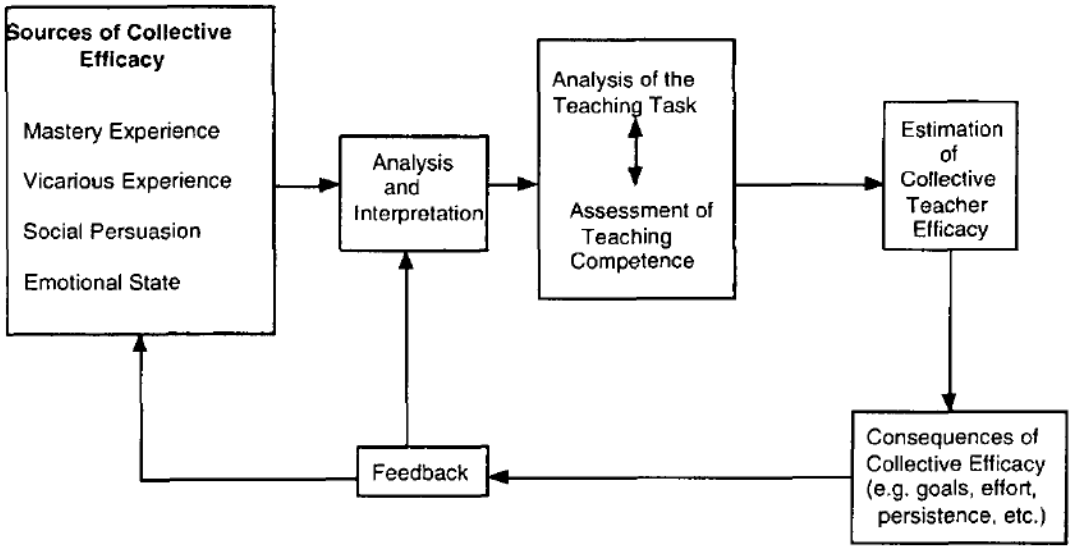


(Tschannen-Moran, Hoy & Hoy, 1998, p. 228)

Building on this model of teacher self-efficacy, Goddard et al identified the four sources integral to the development of collective teacher efficacy as mastery experience, vicarious experience, social persuasion, and affective states (2000).

Also included were analysis of task within the context, but as related to the group or organization, not just the individual. Finally, assessment of the teaching competence of the faculty as a whole was included and the resultant model of collective teacher efficacy follows, with clear similarities to the Tschannen-Moran et al model of teacher efficacy. Like teacher efficacy, collective teacher efficacy was described as cyclical, with positive outcomes leading to higher collective teacher efficacy (2000).

Figure 2. Collective teacher efficacy



(Goddard, Hoy & Hoy, 2000, p. 486)

With the model developed, an instrument to measure collective teacher efficacy was then created through an iterative process. The instrument was based on a 16-item version of the Gibson and Dembo teacher efficacy instrument. The instrument was revised to reflect the group rather than the

individual as well as to balance the positively and negatively phrased items. The instrument was reviewed, revised, field tested, and then further revised into a 21-item collective teacher efficacy instrument. The accuracy of the instrument in measuring collective teacher efficacy as well as the impact of collective teacher efficacy on student achievement were then measured and analyzed. Data were collected from 47 elementary schools to include the newly developed collective teacher efficacy teacher survey, student demographic data, achievement data from the Metropolitan Achievement Test in math and reading, and socio-economic status indicators. To validate the survey, half of the faculty at each school received a different survey which included a measure of institutional integrity (2000).

The model for collective teacher efficacy was found to be accurate and the survey was found to be valid in measuring collective teacher efficacy. In addition, for each unit increase of collective efficacy, there was an increase of more than 40% of a standard deviation in student achievement. The hypothesis that collective teacher efficacy was strongly associated with student achievement was affirmed, with a greater impact on achievement than any of the demographic variables (2000). This study confirmed the work of Bandura. The results indicate that the efficacy beliefs of the organization are an important area of focus and emphasis for the school leader.

The Leadership Connection

The above findings validate the importance of focusing on employee work engagement and collective teacher efficacy. It can be assumed that leaders have a direct impact on the job resources of autonomy, social support, supervisory coaching, performance feedback, and opportunities for professional development which taken together were found to have a positive impact on work engagement and personal resources. This has been validated by Carasco-Saul, et al, who state that "the way leaders view and are viewed by followers, the degree they influence followers' perceptions, and the quality of the work environment they cultivate can all impact the effectiveness of leadership and enhancement of employee engagement." (2015, 58). It has also been validated that leaders have an impact on the mastery experience, vicarious experience, social persuasion, and affective states of teachers, which are the four sources of collective teacher efficacy. Through this impact, leadership has been found to be a critical variable in both self and collective efficacy (Ross and Gray, 2006). Leadership methods and styles thus have an impact on the level of employee engagement and both self and collective efficacy of significance to this study.

While leadership as a term did not appear until early in the nineteenth century, leaders have been the focus of study and debate since the rise of civilization (Bass & Bass, 2009). From the strength and independence of the hunter/gatherer to the heroic acts of the conqueror, leaders have been at the center of historical studies. We organize our study of and fascination with history

into eras of rulers and leaders, and have done so for thousands of years (2009). Some of the earliest writings on the principles of leadership can be found in Egypt in the *Instruction of Ptahhotep* from 2300 B.C.E. and the responsibilities of leaders were discussed in 600 B.C.E by Confucius and Lao-tzu (2009). A leader of a nation was historically seen as effective if he or she brought back something of value to the people, much like the leader of an organization today is expected to add measurable value and make improvements (2009).

The study of leadership is as old as civilization, as evidenced in the writings of Greek philosophers, Egyptian rulers, and biblical patriarchs (Stone & Patterson, 2005). The study and application of different leadership styles was accelerated by the industrial revolution and the work of sociologists such as Max Weber and scientists such as Frederick Taylor. Today, leadership continues to be a focus of research as evidenced by the prolific writings and seminars on the subject. Leadership styles have been described from social, behavioral, political, psychological, scientific, and emotional perspectives. Commonly referenced leadership styles include servant leadership, transactional leadership, transformational leadership, and more recently, authentic leadership. For the purpose of this study, it is important to identify the leadership style found to be most effective in an environment of change, as well as having a positive impact on engagement and efficacy. In a comparative analysis of servant and transformational leadership, Smith et al (2004) found that transformational leadership is more appropriate for dynamic environments and servant leadership

is more applicable to static environments. They also found that transformational leadership develops excellence in the whole organization and organizational outputs, whereas servant leadership is primarily aimed at developing individuals (2004). These findings rule out servant leadership as the leadership style most applicable for this study.

The root of transactional leadership can be traced back to Weber, but it was named and further developed by Burns (McCleksey, 2014). Both Burns (1978), and Bass (1990), have done comparisons of transactional and transformational leadership. As compared to organizations under transactional leadership, an organization under transformational leadership will thrive and reach high levels of performance (Bass, 1990). Transactional leadership is a contingency based style, with followers motivated extrinsically and leader and follower engaging in an exchange out of individual self-interest. Transformational leadership moves beyond self-interest into inspiration and intellectual stimulation. This results in more intrinsically motivated followers and a practice more applicable to an environment of change (Bass, 1999).

It is important to point out the ongoing discourse over the distinction, if any, between transformational leadership and authentic leadership. Self-awareness, relational transparency, balanced processing which considers others' opinions yet maintains an objective lens, and an internalized moral perspective are the four central components of authentic leadership (Banks, et al 2016). Thus, the central focus of authentic leadership is attention to morals and ethics.

The four dimensions of transformational leadership are the four I's: idealized influence, inspirational motivation, intellectual stimulation, and individual consideration (2016). The central focus of transformational leadership is visionary motivation. Both authentic and transformational styles require a positive and supportive leader, which accounts for the discussion of overlap or redundancy of theories.

As first introduced by Burns in 1978 and further developed by Bass, transformational leadership results in getting an extra effort out of employees. The transformational leader has charisma, is inspirational, promotes intellectual stimulation, and gives individualized consideration (Bass, 1990). It is defined and identified through the behaviors and practices of the leader. Transformational leadership is effective at creating an inspiring vision and changing or modifying the system (Lee, 2014). Alternately, it has been criticized for its capacity to exploit followers, with comparisons to Hitler as a transformational leader who used his emotional appeal in a negative way (2014). Bass counters this argument by distinguishing between a transformational leader and a pseudo-transformational leader. A truly transformational leader is ethical and has strong moral development (2014). Burns also counters this criticism by differentiating between a leader and a tyrant (1978).

Authentic leadership has been described as a root construct of other positive leadership styles, going so far as to state that one cannot be a transformational leader without being an authentic leader (Avolio & Gardner,

2005). In their psychometric meta-analysis, Banks, McCauley, Gardner, and Guler (2016) set out to determine whether authentic leadership and transformational leadership are distinct theories or empirically redundant constructs. In analyzing the literature and conducting the meta-analysis, it was found that the correlation of .72 between authentic leadership and transformational leadership suggested empirical redundancy, with neither adding incremental validity over the other. While strongly correlated, transformational leadership outperformed authentic leadership in four of the six measured outcomes. Authentic leadership outperformed in the areas of organizational citizenship behavior and group performance. Transformational leadership outperformed in the areas of task performance, leader effectiveness, follower satisfaction with the leader and job satisfaction. In reviewing the literature, it was determined that while transformational leadership has been noted as having potential misuse, the underlying construct of authenticity had been implicit in the design by both its seminal author, Burns, and its later champion, Bass, who noted that authenticity is a necessary component of “true” or “genuine” transformational leadership (2016). This, along with the results of the meta-analysis, suggest that authentic leadership is a nested construct within other positive leadership styles. In a meta-analysis of 79 studies on transformational school leadership and its impact on teachers, the school, and student success, eleven practices were identified that represent transformational school leadership. In this analysis, it was found that transformational school leadership

has a strong positive affect on teacher behaviors and the collective teacher experience (Leithwood and Sun, 2012). As a meta-analysis, many compositions of transformational leadership practices were reviewed but providing individualized support, developing and sharing a clear vision, and building a collaborative structure were common to the lists of transformational practices (2012). Given the connections between transformational leadership and job satisfaction, teacher behaviors, and change as noted above, transformational leadership is the best fit for this study and will be investigated in relation to work engagement and collective teacher efficacy in an environment of educational change.

Leaders' Impact on Followers

As previously noted, the principal alone does not have a highly significant impact on student achievement. Teachers' estimates of achievement for students, teacher credibility, and collective teacher efficacy, however, all have potential to considerably accelerate student learning, with Cohen's d effect sizes of 1.62, 1.09, and 1.57 respectively (Corwin, 2018). Teacher estimates of achievement involves commitment to knowing the abilities of each student and holding high expectations for learning. Teacher credibility is how the teacher is viewed by the student with trust, competence, dynamism or energy, and immediacy or relatability. It is worth noting the connections between work engagement and these first two contributors to student achievement. Teacher estimates of student achievement is a deep commitment which is closely aligned

with the dedication element of work engagement. Teacher credibility includes energy and relatability, which are elements of vigor and absorption respectively. And while efficacy was replaced with absorption in defining work engagement, it is considered an interwoven concept (Schaufeli et al, 2002). Collective teacher efficacy, as has previously been defined, is the belief of the staff as a whole that they can impact learning (Corwin, 2018). These recurring concepts of trust, competence, energy, commitment, and efficacy are all elements of motivation, work engagement and/or leadership that have been described within this study. It is therefore an important area of research to identify how a principal can impact any or all of these teacher traits.

There has been research supporting transformational leadership as having a positive impact on teacher outcomes, but more research was needed to determine the factors that mediated this impact. Through structural equation modeling, Ross and Gray proposed that leadership indirectly effects professional commitment, being fully mediated by collective teacher efficacy (2006). In so doing, specific principal behaviors could be identified that would ultimately improve teacher outcomes. Two models of the relationships between transformational leadership, collective teacher efficacy, and commitment to school mission, professional community, and community partnerships were proposed based upon the theoretical frameworks of transformational leadership, organizational commitment, collective teacher efficacy and teacher commitment. Model A hypothesized that transformational leadership would directly impact

collective efficacy which would then connect to commitment to school mission, commitment to professional community, and commitment to community partnerships. This model hypothesized that commitment would be fully mediated by efficacy. Model B hypothesized that transformational leadership would have both a direct and an indirect effect on commitment through efficacy. Responses from 3,074 teachers from 218 schools in Ontario, Canada were collected. The instrument consisted of 12 items measuring transformational leadership, 14 items measuring collective teacher efficacy, and 21 items measuring the three aspects of commitment. Model B was found to be a better fit, with teacher efficacy identified as only a partial mediator of transformational leadership on commitment to organizational values rather than a complete mediator. Transformational leadership had direct effects on collective teacher efficacy and on teacher commitment, leading to the conclusion that principals should support teachers through goal setting, professional development, and identifying cause-effect relationships between their actions and student achievement (2006). This actionable result is an example of how research into relationships between leadership and teacher outcomes can potentially improve student outcomes.

In an effort to not only identify the direct relationship between transformational leadership and collective efficacy, but to also identify the specific mechanisms through which the influence occurs, Demir conducted a study of 66 elementary schools and 218 teachers in Turkey (2008). The study recognized that education undergoes rapid periods of change and that leadership plays a

strong role in implementing and managing change. The four constructs investigated were transformational leadership, collective efficacy, self-efficacy, and collaborative culture. Using structural equation modeling and a 32 item survey, the study confirmed the direct impact of transformational leadership on collective efficacy, with a .42 path coefficient. Transformational leadership was also found to have a positive impact on both self-efficacy and collaborative culture, both of which had a positive impact on collective efficacy. Transformational leadership was therefore affirmed as having a direct impact, accounting for 35% of the variance, and found to have an indirect impact on collective teacher efficacy through self-efficacy and collaborative culture, accounting for 49% and 58% of the variance respectively (2008). The study concluded that there is a need for leaders to develop collective efficacy through collaborative opportunities as well as attention to the cultivation of each teacher's self-efficacy (Demir, 2008).

Recent studies have begun to examine the connection between the leadership styles of the managers of organizations with the level of engagement of the employees. In a 2009 study of 22 schools in a Southeastern United States school district, Bird, Wang, Watson, and Murray examined the relationship among authentic leadership of the principal and teacher trust and engagement levels (Bird et al., 2009). Recognizing the need for educational leaders to maintain the trust of the community amidst outcries of the failure of the educational system, they sought to determine whether authentic leadership could

replicate the improved organizational outcomes in education that studies reported it having in business. Looking for a correlation between authentic leadership of the principal and trust and engagement of the teachers and using the results to inform university preparation programs as well as hiring practices for school leaders was the purpose of the study. Given the null hypotheses of there being no relationship between a principal's authentic leadership and teachers' trust levels and no relationship between a principal's authentic leadership and teachers' engagement levels, the study employed a survey design. Participants included 156 teachers and 22 principals all voluntarily responding to a survey consisting of three instruments: the 16-item Authentic Leadership Questionnaire developed by Walumbwa, Avolio, Gardner, Wernsing, and Peterson; the 32-item Workplace Trust Survey developed by Ferres and Travaglione; and the 12-item Gallup Organization's Q12 Survey of employee engagement. Through the use of Pearson correlation coefficients, they found that while the principal's self-perception of authentic leadership was less reliable an indicator of trust and engagement levels of teachers, the teachers' perception of the principals' levels of authentic leadership was positively related to both engagement and trust. The study concluded that authenticity, which is an attribute of transformational leadership, should be a priority topic in leadership development programs and should be a highly sought out attribute in hiring of leaders in education. Further studies were recommended in order to elicit greater participation. It was recognized that the instrument used may have

resulted in reduced participation due to its cumbersome nature. Additionally, it was recommended that further studies consider the relationships between authentic leadership and student achievement as well as authentic leadership and teacher retention (2009).

In an effort to bring more attention to the role of the leader in increasing the level of work engagement of employees, Tims, Bakker, and Xanthopoulou (2011) conducted a study on the relationship between transformational leadership and work engagement through the enhancement of employees' personal resources of self-efficacy and optimism. They based their work on the research demonstrating a connection between work engagement and job performance. It was recognized that previous studies had examined other antecedents to work engagement, such as job resources and personal resources, but had neglected to determine how a leader can foster work engagement. The hypotheses of the study were that daily transformational leadership has a positive relationship with daily work engagement and that daily self-efficacy and optimism would mediate the relationship between transformational leadership and work engagement. The 45 participants worked at either a temporary work agency or an industrial consultancy agency, both in the Netherlands. They filled out an initial questionnaire consisting of the UWES and a Dutch version of the Multifactor Leadership Questionnaire as well as questions related to the job resources of self-efficacy and optimism. On each of the following five days they filled out confidential daily surveys of day-level work

engagement, transformational leadership, self-efficacy, optimism, and overall job resources. Through a diary design, it was found that daily transformational leadership had a positive effect on daily work engagement. It was also supported that day-level optimism fully mediated the relationship between day-level transformational leadership and work engagement but that day-level self-efficacy did not. The leader's transformational leadership enhanced the employee's level of optimism which in turn had a positive effect on work engagement. However, the day-level transformational leadership did not show evidence of enhancing self-efficacy, but self-efficacy was correlated to work engagement. These results indicate that transformational leaders can successfully improve optimism and work engagement and therefore training in transformational leadership is recommended for leaders (2011).

Carasco-Saul, Kim and Kim (2015) recognized a knowledge gap in the field of human resource development in terms of the relationship between leadership style and work engagement. They set out to analyze the existing studies connecting leadership to work engagement, synthesize and critique the existing research, and propose an agenda for future research. They identified the study as a literature review that would summarize and synthesize the current body of research. The result was a compilation of research consisting of twenty articles from 2008 to 2012 on many leadership theories and the subsequent relationship between several leadership styles and employee engagement (2015). The leadership theories included in the study were trait theories,

behavioral theories, contingency theories, leader-member exchange, charismatic leadership, and transformational leadership theory. Specific leadership styles such as charismatic leadership, ethical leadership, authentic leadership, and transformational leadership were reviewed in terms of how they are connected to employee outcomes and engagement. Ultimately, the Carasco-Saul, Kim and Kim review of the literature indicates that transformational leadership has a significant positive correlation with work engagement. Transformational leadership, as measured by followers, has been found to be significantly related to an increase in the work engagement of followers. Furthermore, transformational leadership was the only leadership style with a strong research basis of this correlation. Authentic leadership was found to have an indirect effect on work engagement and work engagement was found to have a mediating effect on employee initiative and ethical leadership, as well as on organizational citizenship behavior and charismatic leadership. These results further support the emphasis on transformational leadership in relation to work engagement (Carasco-Saul, et al., 2015).

In light of the synthesis of the research, this study furthers the investigation into transformational leadership and its impact on work engagement and collective teacher efficacy, specifically in the environments of change in a K-12 education setting.

Reform in education must begin with a grand vision and must be led by a transformational leader (Shamir et al, 1993). Whether for ethical or unethical

purpose, transformational leadership has at its core the ability to transform both followers and the organization. In the field of education, with the seemingly constant state of change, it is evident that a study into the effects of transformational leadership on work engagement collective teacher efficacy, and motivation for change is a worthy endeavor.

According to an historical perspective, the principal of a school was seen as the determining factor in whether a school was effective. The principal is held accountable for being the instructional leader because strong instructional leaders have been identified as the most effective principals. There is a need to identify the specific leadership practices that positively impact the school environment (Leithwood & Sun, 2012). Three specific components of instructional leadership are: Defining the school's mission, managing the instructional program, and promoting a positive school learning climate (Hallinger & Lee, 2013). Additionally, three key roles of the school principal are: Political, managerial, and instructional (Tyack & Cuban, 1995). While the profession is espoused as holding instructional leadership in the highest regard, balance is necessary between all roles. The purpose of a leader is to go beyond managing and motivating to inspire, develop, support, and guide his or her followers. Leadership should create conditions for innovation and change, and must involve personal transformation in order to be distinguished from being just management (Workman & Cleveland-Innes, 2012). How a leader transforms a group, given that motivational theories rely on the self, is an important consideration. As

previously noted, teachers work interdependently and the motivation of the group, and more specifically, the collective teacher efficacy at a school, is of particular interest. (Bandura, 1993). This study will seek to determine how a transformational leader can impact work engagement and collective teacher efficacy in an environment of change with the intention of developing methods to ultimately improve student achievement.

Summary

Education undergoes constant change, yet no change can impact student learning if it is not carried out at the classroom level. Motivating staff is a necessary component of any change. Motivation theories, specifically Self-Efficacy Theory, Expectancy-Value Theory, and Self-Determination Theory, include the concepts of self-efficacy, competence, expectations for success, task that are of value, autonomy, and relatedness. While motivation is necessary to participate in any particular change or reform effort, it takes a deeper connection for an employee to go from motivated to engaged. Building from motivation theories, work engagement is achieved when the employee also has a deep connection to the work, is full of energy and vigor, feels emotionally and psychologically safe, has healthy relationships and is dedicated to the meaningful work at hand. This progression into engagement results in greater productivity and deeper commitment. It is clear that in a school setting, work engagement has the potential to impact adoption of change efforts and therefore student learning.

At the core of each motivation theory as well as work engagement is a sense of efficacy. Self-efficacy is believing in oneself and one's ability to accomplish a task and achieve goals. Because teachers are members of a team and an organization, developing not only individual efficacy but also organizational, or collective efficacy is associated with strong organizational outcomes. This is particularly true in the school setting, where collective teacher efficacy has been shown to have an especially strong effect on student learning. It is evident that, taken together, the constructs of employee engagement and collective teacher efficacy have the potential to have a positive impact on learning and therefore are important for a leader to pursue for the staff. Leadership is the subject of extensive research. In the changing environment of schools, research supports transformational leadership as being an effective leadership style. Transformational leadership has been shown to be positively related to employee engagement. Transformational leadership has also been shown to be positively related to collective teacher efficacy. In an effort to maximize positive outcomes within the demanding environment of change in K-12 education, this study explores the impact of transformational leadership on work engagement and collective teacher efficacy, and the relationship of these constructs in an environment of change.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

This chapter will present the research design, setting, sample, and data collection techniques of this study. The validity of the data collection instruments in relation to the constructs and research hypothesis will be provided. The data analysis technique will be described as it pertains to the constructs and instruments of this study in exploring the following research questions:

What is the relationship between transformational leadership, work engagement and collective teacher efficacy within the context of educational change?

How can an educational leader affect work engagement and collective teacher efficacy for their staff during times of educational change?

Within the current context of change, in the midst of distance learning in response to the Covid-19 pandemic, there is a need to examine ways that educational leaders can positively impact learning. Fully engaged employees have been found to be more productive and more committed to the organization than their disengaged or burned out counterparts. Collective teacher efficacy has been found to have one of the highest influences on student learning. Taken together, these two constructs have the potential to positively impact learning, thus proving to be recommended areas of focus for school leaders. Transformational leaders have been found to be more effective at leading an

organization through change and garnering employee support and satisfaction. Given the potential impact of transformational leadership on employee engagement and collective teacher efficacy, this study explored the following hypotheses:

H1: There will be a significantly positive relationship between transformational leadership and work engagement of teachers.

H2: There will be a significantly positive relationship between transformational leadership and collective teacher efficacy.

H3: There will be a significantly positive relationship between work engagement of teachers and collective teacher efficacy.

The findings provide leaders with multiple entry points to improving learning, given the many factors of both work engagement and collective teacher efficacy. The findings also provide leaders with insight into which factors of transformational leadership are most strongly related to either collective teacher efficacy or work engagement, and which are most strongly related to both. This information can guide school leaders in how to actuate their leadership behaviors into student achievement.

Research Design

This study has explored the construct of work engagement through the lens of motivation and change. This study has explored the construct of collective teacher efficacy through the lens of impact on student learning. And finally, this study has explored the construct of transformational leadership as applicable to

periods of change in education. The review of the literature has indicated that each of these three constructs has a positive impact on the organization. Furthermore, these constructs have each been directly or indirectly connected to improved student learning. Through hypothesis driven correlational research, this study tested the strength of the relationships between each of the constructs. The purpose of this study was to inform school leaders on how to have a positive impact on student learning within the ever changing environment of public education. This non-experimental design provides information on the correlation between transformational leadership, work engagement, and collective teacher efficacy. Specific factors, characteristics, and behaviors of transformational leadership have been identified that account for a greater degree of variance, and two qualitative questions have been asked of participants regarding leader behaviors, thus providing a more detailed plan of action for existing or potential school leaders in impacting work engagement and collective teacher efficacy, and thereby impacting student learning.

Research Setting

The 30-Item survey of collective teacher efficacy, work engagement, and transformational leadership was developed through Qualtrics and sent through email to six public school district superintendents in the High Desert region of San Bernardino County in Southern California. Each school district superintendent forwarded the survey to their respective teaching staff. These school districts are in close proximity to the researcher and have all undergone

recent change, specifically in the transition to distance learning, hybrid learning, and in-person learning and combinations of those teaching and learning models in response to the Covid-19 pandemic. This context of change in the school setting is appropriate for and connected to this study.

Research Sample

Participants were teachers from local public school districts. Approximately 3498 teachers from six districts in the High Desert region of San Bernardino County in Southern California were invited to participate in this study. This is a convenience sampling in that it includes TK-12 teachers from districts geographically local to the researcher. The invited participant demographics are 28% male and 72% female, 64% white, 19.3% Hispanic, and 5.2% black, as outlined in Table 4 below.

Table 4

Participating Districts Overview

		Total	Male	Female	White	Hispanic	Black	Other or not reported	SED	English Learner
District 1	TCH	282	72	210	52.8%	11%	4.3%	31.9%		
	STU	6,344			19.4%	52.6%	19.1%	8.9%	78.9%	10.1%
District 2	TCH	1,123	317	806	68.1%	23.5%	4.3%	4.1%		
	STU	24,132			20.3%	67.5%	7%	5.2%	69.1%	19.1%

District 3	TCH	113	27	86	77%	8.8%	1.8%	12.4%		
	STU	2,167			41.4%	35.1%	8.6%	14.9%	56%	5.4%
District 4	TCH	316	89	227	63.3%	6%	1.3%	29.4%		
	STU	7,439			34.3%	49.4%	4.9%	11.4%	67.1%	9.1%
District 5	TCH	562	93	469	64.2%	24.2%	7.7%	3.9%		
	STU	12,772			13.6%	61.6%	18.8%	6%	81.8%	17.2%
District 6	TCH	439	196	243	57.4%	19.6%	8.7%	14.3%		
	STU	11,327			8.6%	63.7%	18.3%	9.4%	84%	10.9%
Total	TCH	2835	794 28.0%	2041 72.0%	64.0%	19 .3%	5.2%	11.5%		
	STU	78824			19.1%	61.0%	12.3%	7.7%	74.6%	14.8%

(CDE: Ed-data.org, 2018-2019 CBEDS)

Research Data

To test the strength of the relationships between the constructs of collective teacher efficacy, work engagement, and transformational leadership, this study employed the use of a combined questionnaire that was developed based upon the 12-Item Collective Efficacy Scale (Goddard, 2002); the 9-Item short form Utrecht Work Engagement Scale (UWES-9) (Schaufeli & Bakker, 2003); and the 7-Item Global Transformational Leadership Scale (GTL) (Carless, Wearing & Mann, 2000), along with two open-ended questions regarding leader behaviors. The data collected was primarily numerical based upon a Likert scale, with the collective teacher efficacy section based on a 1-6 point Likert scale, the work engagement section based on a 0-6 point Likert scale, and the transformational

leadership section based on a 1-5 point Likert scale. The two open-ended questions were analyzed for trends and patterns. Permission for use of the surveys can be found in Appendix A.

Collective Teacher Efficacy

The 12-Item Collective Efficacy Scale measures teachers' perceptions of the faculty's capability as a group to meet the educational needs of the students (Goddard, 2002). It is based upon the previously validated 21-Item Collective Efficacy Scale and collective efficacy work of Tshannen-Moran, Woolfolk Hoy, and Hoy (1998), with the intent of being both shorter and more balanced between concepts than the longer version. The balance sought was between negatively worded and positively worded questions and across the concepts of group competence (GC) and task analysis (TA). The 21 items of the original CE Scale were reduced to 12 items by selecting 3 items from each of the four categories of GC+, GC-, TA+, and TA-, thus balancing the positive and negative wording as well as group competence and task analysis. Group competence is an individual teacher's assessment of the faculty's abilities as a whole in the areas of teaching expertise and training. Task analysis places these competencies within a context, taking into consideration the specific students, supports, resources, and community. There had been no previous evidence that any of the four categories was more significant than the others. The twelve items were selected based upon those with the largest structure coefficients. Also considered was the time tested historical significance of items that originated with the RAND teacher

efficacy items upon which the CE Scale is based (2002).

The relationship between the 21-Item Collective Efficacy Scale and the 12-Item Collective Efficacy Scale was tested using a Pearson product-moment correlation. The validity of the original Collective Efficacy Scale had been previously measured in part by its predictive relationship with student achievement, therefore the short form was also tested for validity in predicting student achievement using hierarchical linear modeling. The balanced and shortened 12-item scale showed correlation of r=.983 to the 21-item scale. The 12-Item Collective Efficacy Scale thus effectively and parsimoniously measures collective teacher efficacy.

Work Engagement

The Utrecht Work Engagement Scale (UWES) was originally developed as a 24-item questionnaire based upon the Maslach-Burnout Inventory (MBI) (Schaufeli et al, 2002). In measuring burnout, the MBI is comprised of questions related to exhaustion, cynicism, and lack of professional efficacy. The UWES was designed to measure engagement which had previously been defined as the opposite of burnout, and consists of some of the same questions as the MBI, but in a positively worded format. Questions of vigor replaced questions of exhaustion, dedication replaced cynicism, and absorption questions replaced questions of professional inefficacy. This final replacement, absorption for professional inefficacy, is not a simple substitution of positive wording for negative wording. Lack of efficacy had not appeared in the original measures of

burnout, but was added when it appeared as an additional factor in a factor analysis of the original version and it was asked in the form of efficacy with the scales then reversed to measure inefficacy. The result of analyzing an engagement scale led to the addition of absorption rather than efficacy as a measure of engagement. This was based upon interviews that demonstrated engagement as being related to being absorbed in ones work more so than with feeling efficacious (Schaufeli et al, 2002). Sample comparison of the questions on the MBI to those on the UWES can be found in Table 5.

Table 5

Comparison of Burnout Scale to Engagement Scale

Burnout: MBI	Employee Engagement: UWES
Exhaustion: I feel tired when I get up in the morning and have to face another day on the job.	Vigor: When I get up in the morning, I feel like going to work.
Cynicism: I have become less enthusiastic about my work.	Dedication: I am enthusiastic about my job.
Professional Inefficacy: In my opinion, I am good at my job. (scores reversed)	Absorption: I feel happy when I am working intensely.

(Schaufeli & Bakker, 2003; MBI: mindgarden.com)

Many iterations of the UWES have been developed and validated through numerous studies (Schaufeli & Bakker, 2003). In a 2006 study, Schaufeli, Bakker, and Salanova developed a shortened version of the UWES in the

interest of pragmatics as well as participation, with shorter instruments experiencing less attrition of participants. While the most recent version of the UWES was comprised of 17 items, the researchers tested a nine-item scale, with three items for each vigor, dedication, and absorption. The study included 14,521 participants from 10 countries and validated through confirmatory factor analyses that the UWES-9 was highly correlated to the UWES-17, with the scales sharing 80% of their variances. The shortened version also demonstrated negative correlation to burnout (2006). The UWES-9 thus presents as a viable, well-validated instrument for measuring employee engagement.

Transformational Leadership

The Global Transformational Leadership scale (GTL) was developed to capture a global measure of transformational leadership in a short, approachable, easily scored and reliable instrument (Carless, Wearing & Mann, 2000). It is based on previous studies and scales of transformational leadership, including the Leadership Practices Inventory (LPI; Kouzes & Posner, 1990), the Multifactor Leadership Questionnaire (MLQ; Avolio, Bass, & Jung, 1995), and the Conger-Kanungo scale (Conger & Kanungo, 1994). The previous research and scales led the authors to seven dimensions of transformational leadership upon which the questionnaire was built: vision, staff development, supportive leadership, empowerment, innovative thinking, leading by example, and charisma (2000).

To validate the newly developed seven-item scale, it was administered to

66 branch managers and 1440 subordinates of a bank in Australia. The participants were also given the LPI and the MLQ. Convergent validity was measured by identifying the correlations between the seven behaviors of the GTL to the most similar sub-scales of each the LPI and the MLQ. The total scores of each scale were also measured for correlation. The sub-scale correlations ranged from .71 to .87and the total scores correlations ranged from .76 to .88. These high correlations demonstrated that the seven items of the GTL correspond well with the previously identified subscales of transformational leadership and that the GTL has strong convergent validity as a global or overall measure of transformational leadership (2000).

Discriminant validity of the GTL was tested by comparing results for specific groups of participants based upon the categories of responses using t-test analyses. T-values ranged from 5.47 to 7.57, demonstrating a high confidence in the discriminant validity of the GTL (2000). The final test in validating the GTL was performed by examining the scores, which have a possible range of 7 to 35. The mean score (25.00) and the standard deviation (6.76) indicated expected dispersion. The Cronbach's alpha of .93 was well above the generally accepted standard of .80 (Henson, 2001). The above tests for validity supported the hypothesis of GTL being a valid, parsimonious and highly reliable global measure of transformational leadership.

In an effort to allow for further reflection on the part of teachers of leader behaviors associated with response to change, the following questions were

asked:

1. As you reflect back on being tasked with transitioning from in-person to distance learning, what is one thing you wish your principal had done to support you in this change?
2. As you reflect back on the past year and the change that was required of you, what is the most helpful thing your principal did that supported you in the transition?

Data Collection

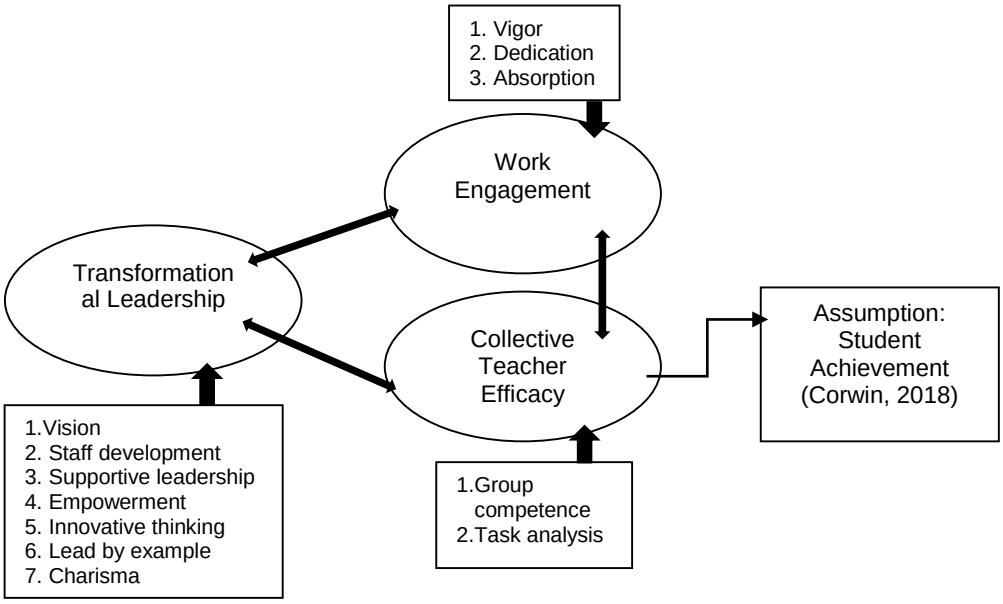
The 30-Item survey of collective teacher efficacy, work engagement, and transformational leadership was developed through Qualtrics and sent through email to each school district superintendent, who then sent it to every teacher respectively in the seven districts represented. The informed consent was included with the survey and there was no identifying information collected. All responses were collected electronically and stored within Qualtrics.

Data Analysis

Data were analyzed quantitatively using descriptive statistics, exploratory analysis, reliability tests and Pearson correlations within the SPSS software. The data were analyzed for correlation amongst the constructs and subscales of collective teacher efficacy, work engagement, and transformational leadership, as shown in Figure 3. The two qualitative questions were analyzed by the researcher for trends and nuances first in relation to the GTL and then for other

notable categories of responses. The responses were categorized and analyzed in conjunction with the quantitative data.

Figure 3. Hypothesized correlations



Validity and Trustworthiness

The data collected in this study is assumed to be valid and trustworthy, as there is no reason to assume that the participants were anything other than honest and forthright in their responses. The anonymity of the participants was clearly conveyed in an effort to maintain the validity and trustworthiness of the results.

Positionality of the Researcher

It is the position of the researcher that the collective teacher efficacy and work engagement of the staff are important components of the teaching and learning environment. It is also the position of the researcher that by improving the teaching and learning environment, improved learning outcomes will be attained. Finally, it is the position of the researcher that in times of rapid change in education such as has been caused by the Covid-19 pandemic, leadership as it relates to the teaching and learning environment is of utmost significance.

Summary

The four-part questionnaire was created and administered to teachers within the six participating school districts of the high desert region of Southern California through the use of Qualtrics. Three parts of the survey were responded to through a Likert-scale and were verbatim reprints of the UWES-9, the 12-item CE Scale, and the GTL, all used with permission. The final section consisted of two open-ended questions created by the researcher in an effort to identify specific leadership behaviors experienced or needed during a time of change. There were four demographic questions to determine gender,grade level, district, and experience level of the participants. In addition to the four demographic questions, there were 30 items total in the questionnaire. The complete survey can be found in Appendix B. All data were collected electronically. The numeric data were screened and analyzed through the use of SPSS, while the open-ended responses were categorized and analyzed by the

researcher. The following chapter will provide the descriptive analysis, data screening, reliability tests, and correlations of the data.

CHAPTER FOUR

RESULTS

This chapter will begin with a brief introduction and then a presentation of the demographic and descriptive data. Next the data screening and reliability tests will be presented. The analysis for normality, linearity and inter-item correlation of the constructs and subscales will then be described. Tests for significant differences between participant groups will also be presented. Finally, the correlational analysis of the three constructs of collective teacher efficacy, work engagement, and transformational leadership will be presented.

Introduction

The survey instrument consisted of three sections: collective teacher efficacy (CTE), work engagement (WE) and transformational leadership (TL), each scored on a Likert scale, along with two open-ended questions. The survey was open to teachers in the six participating school districts for three weeks. A total of 388 participants accessed the survey, however, 96 respondents left one or more of the quantitative sections blank, thus rendering those responses inadequate for an analysis of the correlations. Thus, the study yielded 292 teachers, of the 2835 teachers invited to participate, fully participating in the study and completing all three sections of the questionnaire; approximately 10%. Of those participating, 233 responded to at least one of the two qualitative questions.

Demographic Data

Of the 292 participants completing all sections of the instrument, 70 (24.0%) were males, 221 (75.7%) were females, and one (0.3%) preferred to self-describe. This is similar to the demographics of the participating districts. Also closely representative of the population sample was the district distribution of the participants as shown in Table 6, Participation Demographics. The participants represented a range of teaching experience, with the greatest participation coming from teachers with more than 16 years of experience (42.8%). The participants were from all grade levels, with the largest group of participants from elementary schools (44.9%). However, high school was well represented (39.7%), which is significant considering that high school only represents four of the thirteen grade levels of public school.

Figure 4. Grade level distribution.

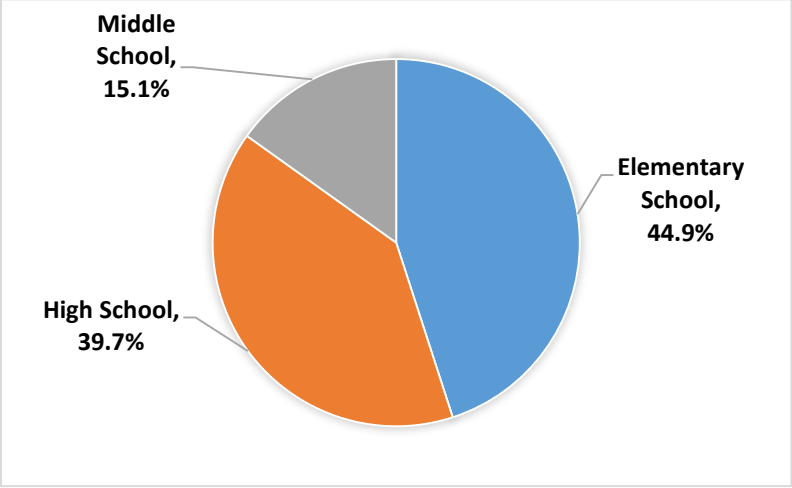


Figure 5. Time teaching distribution.

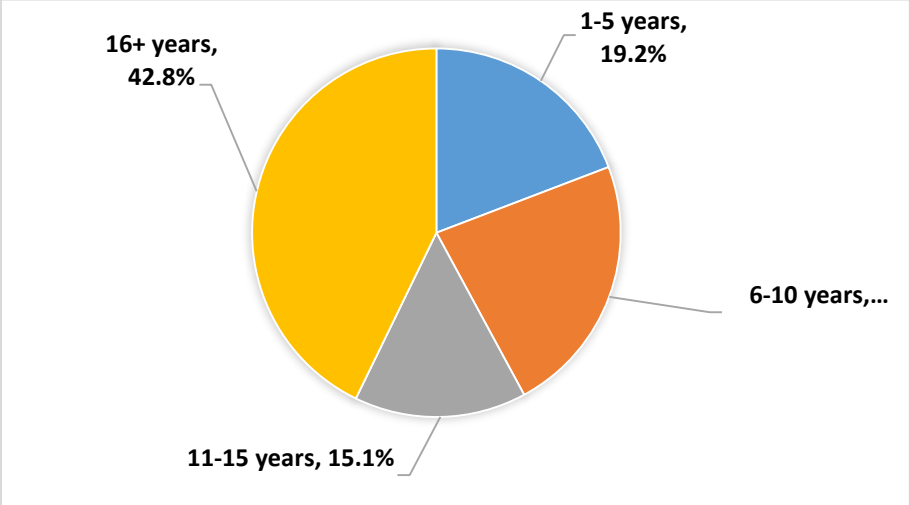


Table 6

Participant Demographics

Characteristic	Frequency	Percent	Percent of Population*
Gender			
Male	70	24.0	28.0
Female	221	75.7	72.0
Prefer to self-describe	1	0.3	
District			
District 1	27	9.2	9.9
District 2	123	42.1	39.6
District 3	15	5.1	4.0
District 4	56	19.2	11.1
District 5	41	14.0	19.8
District 6	30	10.3	15.5
Grade Level			
Elementary	131	44.9	
Middle School	44	15.1	
High School	116	39.7	
Time Teaching			
1-5 years	56	19.2	

6-10 years	67	22.9
11-15 years	44	15.1
16+ years	125	42.8

Note: N = 292 **If available*

Descriptive Data

The data will be considered first within each construct (work engagement, collective teacher efficacy, and transformational leadership) and then will be analyzed further for correlations amongst the constructs and the subscales within the constructs. The reliability of each construct was analyzed, with Cronbach alpha coefficients, as shown in Table 7, of each scale above .7, which is demonstrative of reliability of scale (Pallant, 2020).

Table 7

Construct Scale Reliability

	Cronbach's Alpha	N of Items
Work Engagement	.84	9
Collective Teacher Efficacy	.84	12
Transformational Leadership	.96	7

Work Engagement

While only 292 respondent data sets were complete across all three constructs, 315 participants responded to the nine questions on the work engagement scale from the UWES-9. The response options for the nine work engagement items were never, almost never, rarely, sometimes, often, very often, and always. The scale was further defined within the survey instrument as follows: almost never = a few times a year or less; rarely = once a month or less; sometimes = a few times a month; often = once a week; very often = a few times a week; always = every day. The statement *"I am proud of the work I do"* yielded the strongest response, with 97.46% reporting feeling proud once a week or more. None of the participants responded to this statement with rarely, almost never or never. Another item yielding a strong positive response was *"I am enthusiastic about teaching*", with 92.04% of participants reporting feeling this way once a week or more and none of the participants reporting feeling enthusiastic rarely or never. It is important to note, as will be discussed further under subscales, that both of these statements represent dedication on the instrument. The statement "*while working, I feel bursting with energy"* yielded the weakest response, with only 58.10% feeling energetic once a week or more and 9.85% feeling energetic once a month or less. Another statement that yielded a low positive response was *"while teaching, I feel strong and vigorous"*, with only 60.64% reporting feeling this way often or more frequently. The full results for the work engagement items can be found in Table 8.

Table 8

Summary of Responses to Work Engagement Items

Question	Never	Almost Never	Rarely	Sometimes	Often	Very Often	Always
While working, I feel bursting with energy *(VI)*	0.32%	0.32%	9.21%	32.06%	29.84%	24.13%	4.13%
While teaching, I feel strong and vigorous *(VI)*	0.00%	1.27%	5.08%	33.02%	31.11%	24.13%	5.40%
I am enthusiastic about teaching *(DE)*	0.00%	0.00%	1.27%	6.69%	29.30%	38.54%	24.20%
My job inspires me *(DE)*	0.00%	0.32%	2.54%	12.38%	24.76%	39.37%	20.63%
When I get up in the morning, I feel like going to work *(VI)*	0.96%	2.23%	4.78%	19.75%	29.62%	29.62%	13.06%
I feel happy when I am working intensely *(AB)*	0.32%	0.95%	2.22%	13.65%	30.16%	34.60%	18.10%
I am proud of the work that I do *(DE)*	0.00%	0.00%	0.00%	2.54%	14.92%	38.41%	44.13%
I am immersed in my work *(AB)*	0.00%	0.32%	1.27%	8.57%	27.62%	34.92%	27.30%
I get carried away when I am working *(AB)*	0.63%	1.27%	5.71%	22.86%	23.49%	30.48%	15.56%

Note: N = 315 VI=Vigor DE=Dedication AB=Absorption

The UWES-9 is comprised of three items related to the subscale of vigor (VI), three items from the subscale of dedication (DE), and three from absorption (AB), as noted in Table 8. It was decided to construct a composite score for

each, vigor, dedication and absorption, based upon these subscales. A reliability analysis was conducted for each subscale with the results found in Tables 9 and 10. The two highest items, *I feel proud of the work that I do*, and *I am enthusiastic about teaching* are from the dedication subscale as previously noted and the lowest two items, *while working, I feel bursting with energy,* and *while teaching I feel strong and vigorous,* are from the vigor subscale. In comparing the results across subscales, it was found that the mean response to the vigor composite was 3.95 as shown in Table 9, which according to the UWES manual translates to at least a couple of times a month (Schaufeli & Bakker, 2003). The highest composite subscale, with a mean of 4.88, was dedication. This translates to at least once a week. The results for the composite subscale of absorption indicate a statistical mean of 4.47, which is closer to at most once a week (2003). It is evident from the summary of responses as well as from the analysis of the composite subscale means that the participating teachers felt dedicated to their work on a regular basis while facing the challenges of the Covid-19 pandemic, absorbed in their work weekly, but only felt energetic about their work a couple of times a month. The skewness and kurtosis are both between -1 and +1, demonstrating a normal distribution of results. The standard deviation of <1 demonstrates that the data is clustered around the mean and is therefore reliable.

Table 9

Work Engagement Subscale Descriptives

Subscale	Minimum	Maximum	Mean Statistic	Std. Deviation	Skewness	Kurtosis
Vigor	1.33	6.00	3.95	0.93	-0.13	-0.15
Dedication	1.67	6.00	4.88	0.81	-0.68	0.53
Absorption	1.67	6.00	4.47	0.92	-0.51	0.15

Note: Item response scale of 0-6

Table 10

Work Engagement Subscale Reliability

Construct	Subscale	# of Items	Cronbach's Alpha
Work Engagement	VI	3	.78
	DE	3	.80
	AB	3	.68

Collective Teacher Efficacy

As the second section of the survey, the number of respondents for the CTE items was fewer than for the WE items, with 296 participants completing this portion. The percent responding to each item in the categories of strongly disagree, disagree, slightly disagree, slightly agree, agree, and strongly agree can be found in Table 11. It is important to note that one-half of the CTE items are negatively worded statements. Prior to analyzing the data further, these responses were reverse-coded.

Table 11

Summary of Responses to Collective Teacher Efficacy Items

Item	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
Teachers in this school are able to get through to difficult students. *GC*	0.00%	2.71%	9.49%	35.25%	42.03%	10.51%
Teachers here are confident they will be able to motivate their students. *GC*	0.00%	3.04%	6.08%	35.81%	43.92%	11.15%
Teachers in this school really believe every child can learn. *GC*	1.69%	2.36%	9.12%	26.69%	38.85%	21.28%
If a child doesn't want to learn, teachers here give up. *GC*	23.05%	39.66%	17.29%	12.88%	6.78%	0.34%
Teachers here don't have the skills needed to produce meaningful learning. *GC*	39.46%	35.37%	10.54%	9.52%	3.40%	1.70%
These students come to school ready to learn. *TA*	3.39%	12.20%	25.76%	36.61%	20.00%	2.03%
Home provides so many advantages the students here are bound to learn. *TA*	23.89%	36.52%	20.82%	13.65%	4.44%	0.68%
Students here just aren't motivated to learn. *TA*	9.83%	29.15%	25.76%	25.08%	8.47%	1.69%
The opportunities in this community help ensure that these students will learn. *TA*	13.61%	26.19%	22.79%	23.47%	11.56%	2.38%
Learning is more difficult in this school because students are worried about their safety. *TA*	33.33%	27.55%	18.03%	15.31%	3.06%	2.72%
Drug and alcohol abuse in the community make learning difficult for students here. *TA*	17.01%	19.73%	15.99%	26.19%	16.33%	4.76%

Teachers in this school do not have the skills to deal with student disciplinary problems. *GC*	24.41%	31.53%	16.61%	19.66%	5.08%	2.71%

Note N=296 *GC=Group Competence* *TA=Task Analysis*

Descriptive statistics were performed on the CTE items once the negatively worded statements were reverse coded. The mean of the responses therefore represents the degree or level of collective efficacy as measured by that particular item. As can be seen in Table 12, the three items with lowest level of agreement were *home provides so many advantages the students here are bound to learn*, *the opportunities in this community help ensure that these students will learn,* and *these students come to school ready to learn*. Only four items yielded a mean of less than 4.0 and one item yielded a mean of 4.03. All other items had a mean response of higher than slightly agree (4).

Table 12

Collective Teacher Efficacy Item Descriptives

	Minimum	Maximum	Mean	Std. Deviation
Teachers in this school are able to get through to difficult students. *GC*	2	6	4.48	.907
Teachers here are confident they will be able to motivate their students. *GC*	2	6	4.54	.886
Teachers in this school really believe every child can learn. *GC*	1	6	4.62	1.092
If a child doesn't want to learn, teachers here give up. *GC*	1	6	4.59	1.184

Teachers here don't have the skills needed to produce meaningful learning. *GC*	1	6	4.93	1.191
These students come to school ready to learn. *TA*	1	6	3.65	1.090
Home provides so many advantages the students here are bound to learn. *TA*	1	6	2.41	1.161
Students here just aren't motivated to learn. *TA*	1	6	4.03	1.191
The opportunities in this community help ensure that these students will learn. *TA*	1	6	3.02	1.309
Learning is more difficult in this school because students are worried about their safety. *TA*	1	6	4.64	1.313
Drug and alcohol abuse in the community make learning difficult for students here. *TA*	1	6	3.81	1.466
Teachers in this school do not have the skills to deal with student disciplinary problems. *GC*	1	6	4.44	1.323

Note: N=292 *GC=Group Competence* *TA=Task Analysis*

To determine the overall CTE of the participants, the data was first analyzed for normality. The total score was used to represent overall level of CTE. The skewness and kurtosis were both found to be between -1 and +1, demonstrating a normal distribution of results as seen in Table 13. A histogram was performed by the researcher to determine normality. The histogram of the distribution of total scores on the CTE scale approximated a bell curve, demonstrating a normal distribution as well. Given the normal distribution, and the fact that approximately half of the scores fell to each side of the mean, an analysis of the scores as below average, average, and above average was made as follows. The score totals were divided by 12 (the number of items in the scale) and the scores from 1 to 3.5 (total of 26-42) were considered to demonstrate below average CTE, scores from 3.51 to 4.5 (total of 43-54) were

considered to demonstrate average CTE, and scores of 4.51 and above (total of 55-67) were considered to demonstrate above average CTE. This aligns with the Likert scale responses, with below average signifying strongly to slightly disagree, average signifying slightly agree to agree, and above average signifying agree to strongly agree. Given this configuration, 22.6% of participants demonstrate low efficacy, 51% demonstrate average efficacy, and 26.4 % demonstrate high efficacy.

Table 13

Collective Teacher Efficacy Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
CTE Total Score	26.00	67.00	48.9623	8.612	-0.153	-0.467

Note: N=292

The construct of collective teacher efficacy, as previously described, consists of two subscales: group competence and task analysis. While group competence is the teacher's perception of the staff's abilities and expertise, the task analysis places the staff within a particular context. Task analysis assesses the staff's ability given a particular challenge, such as a student's readiness to learn. The subscales were analyzed for normality and reliability as shown in Tables 14 and 15. The skewness and kurtosis were found to be between -1 and +1 for each subscale, and the standard deviation for each was found to be less

than 1, demonstrating normality. The Cronbach's alpha of each subscale is greater than .7, demonstrating reliability of the subscales (Pallant, 2020). As seen in Table 14, the mean for GC (4.59) is much higher than the mean for TA (3.57). The lowest perceived efficacy by item involved task analysis statements about students' homes (2.41) and the community (3.02). The statement with the highest perceived efficacy was a group competence item in regards to teachers' skills (4.93). The teachers believe they have the skills required to produce meaningful learning, but they do not believe the homes of the students provide the advantages that will ensure learning occurs.

Table 14

Collective Teacher Efficacy Subscales Descriptives

	Minimum	Maximum	Mean Statistic	Std. Deviation	Skewness	Kurtosis
Group Competence	1.67	6.00	4.59	0.837	-0.600	0.207
Task Analysis	1.17	5.33	3.57	0.813	0.061	-0.531

Note: Item response scale of 1-6

Table 15

Collective Teacher Efficacy Subscale Reliability

Construct	Subscale	# of Items	Cronbach's Alpha
Collective Teacher Efficacy	Group Competence	6	.84
	Task Analysis	6	.71

Transformational Leadership

Transformational leadership (TL) items made up the third section of the instrument and yielded 292 respondents. It is evident that participation waned slightly at each section, indicating that the length of the survey may have been a deterrent to greater levels of participation and completion. The items in this portion of the instrument were scored on a scale of 1 to 5, with 1 representing rarely or never and 5 representing very frequently or always. Participants were prompted to consider the principal's behavior over the past year. A summary of responses can be found in Table 16. Each statement represents a subscale of leadership across seven different leader behaviors as defined by Carless, Wearing, and Mann (2000). The behavior reported by participants as being evident most frequently was staff development and the behavior reported as being evident least frequently was charismatic leadership.

Table 16

Summary of Responses to Transformational Leadership Items

Leader Behavior	Item Statement	Rarely or Never	Once in a While	Sometimes	Fairly Often	Very Frequently or Always
Vision	Communicates a clear and positive vision of the future	5.14%	4.11%	13.36%	31.51%	45.89%
Staff Development	Treats staff as individuals, supports and encourages their development	4.47%	1.72%	17.18%	24.40%	52.23%

Supportive Leadership	Gives encouragement and recognition to staff	3.78%	2.75%	16.49%	26.46%	50.52%
Empowerment	Fosters trust, involvement and cooperation amongst team members	6.19%	5.50%	20.27%	27.49%	40.55%
Innovative Thinking	Encourages thinking about problems in new ways and questions assumptions	6.19%	4.81%	17.87%	28.52%	42.61%
Lead by Example	Is clear about his/her values and practices what he/she preaches	4.47%	4.47%	16.15%	26.12%	48.80%
Charismatic Leadership	Instills pride and respect in others and inspires me by being highly competent	6.85%	5.48%	17.47%	20.21%	50.00%

Note: N=292

In order to better understand the responses, rarely and once in a while were combined into a composite score of at most once in a while and fairly often and frequently were combined into a composite score of at least fairly often. This enabled the researcher to better analyze the distribution of responses. Table 17 displays the combined percentages. This indicates that at least 70% of the participants reported experiencing six of the seven behaviors of TL at least fairly often. The most frequently reported behavior was vision which includes goal setting and having a clear plan (Carless et al, 2000). Conversely, the behaviors reported by at least 10% of the participants as being engaged in by the principal at most once in a while were empowerment, innovative thinking and charismatic

leadership. Empowerment was the lowest scoring behavior, and includes sharing of information, autonomy, and respect (2000).

Table 17

Transformational Leadership With Combined Scores

Behavior	Statement	At least fairly often	At most once in a while
Vision	Communicates a clear and positive vision of the future	77.40%	9.25%
Staff Development	Treats staff as individuals, supports and encourages their development	76.63%	6.19%
Supportive Leadership	Gives encouragement and recognition to staff	76.98%	6.53%
Empowerment	Fosters trust, involvement and cooperation amongst team members	68.04%	11.68%
Innovative Thinking	Encourages thinking about problems in new ways and questions assumptions	71.13%	11.00%
Lead by Example	Is clear about his/her values and practices what he/she preaches	74.91%	8.93%
Charismatic Leadership	Instills pride and respect in others and inspires me by being highly competent	70.21%	12.33%

Note: N=292

The TL data were examined for normality in preparation of analyzing for correlations. The skewness for total TL along with the skewness of each item was -1 as shown in Tables 18 and 19, indicating a right-skewed distribution which needed further analysis for normality. Further analysis demonstrated a Normal Q-Q Plot with the points approximating a line and therefore

demonstrating a normal distribution as shown in Figure 6. Each construct and each subscale had therefore shown the normality necessary for performing correlational analysis.

Table 18

Transformational Leadership Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
TL	7	35	28.36	7.103	-1.039	.278

Note: Item response scale of 1-5

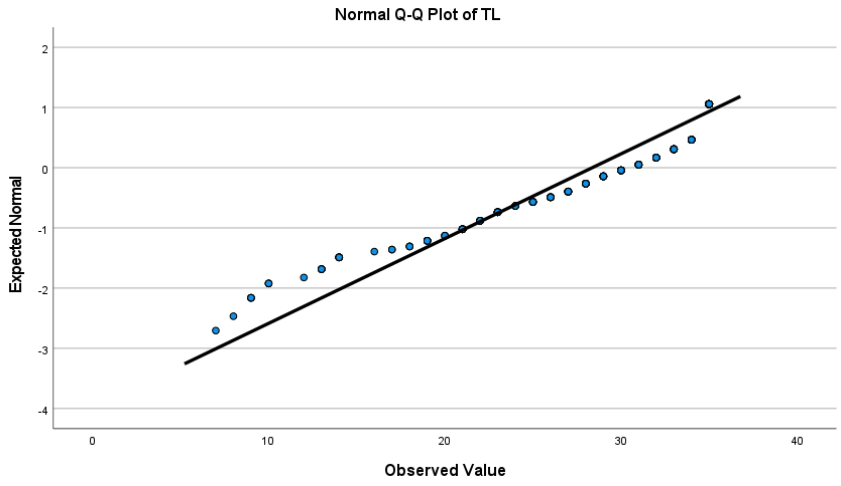
Table 19

Transformational Leadership Subscale Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Vision	1	5	4.09	1.102	-1.293	1.104
Staff Development	1	5	4.18	1.066	-1.350	1.369
Supportive Leadership	1	5	4.17	1.046	-1.295	1.233
Empowerment	1	5	3.91	1.175	-0.948	0.117
Innovative Thinking	1	5	3.97	1.165	-1.066	0.386
Leads By Example	1	5	4.10	1.106	-1.206	0.779
Charismatic Leadership	1	5	4.01	1.231	-1.088	0.172

Note: Item response scale of 1-5

Figure 6. Normal Q-Q plot of transformational leadership



Qualitative Data

The final section of the survey consisted of two free response questions and yielded the fewest responses with 236 respondents answering at least one question. The following questions regarding leadership in times of change were asked of the participants:

1. As you reflect back on being tasked with transitioning from in-person to distance and/or hybrid learning, what is one thing you wish your principal had done to support you in this change?
2. As you reflect back on the past year and the change that was required of you, what is the most helpful thing your principal did that supported you in the transition?

Responses were first coded in alignment with the seven leadership behaviors identified on the GTL: Vision, staff development, supportive leadership,

empowerment, innovative thinking, leading by example, and charismatic leadership. The researcher used the definitions of these seven behaviors as found in Table 20. For the “wished for” question, there were 64 participants who expressed that there was nothing more the principal could have done, indicating a high sense of satisfaction with the support they had been given. For the “most helpful” question, there were 21 participants responding that there was nothing the principal had done to be helpful, indicating a very low level of satisfaction with the support they had been given. These were coded as “nothing”. There were 13 responses for the first question and 18 responses for the second question that did not align with the coding structure and were labeled as “other”. The distribution of responses can be found in Table 21. Given this coding structure, nearly 15% of participating teachers wished the principal would have displayed vision and nearly 15% wished the principal would have provided staff development. These were the behaviors most frequently desired, according to the responses. When asked what had been most helpful, nearly 30% of participating teachers appreciated empowerment from their principal. The next most helpful behavior exhibited by principals was supportive leadership, with approximately 18% of teachers appreciating this behavior. It is important to note that under this coding structure, participants referring to communication in terms of clarity of a plan were coded as vision, while participants referring to ongoing communication and information were coded as empowerment. While both are communication, in order to align to the definitions of the behaviors, it was

necessary to interpret the specific kind of communication. The communication most frequently noted as being needed from the principal was ongoing information, not communication of vision.

Table 20

Seven Transformational Leadership Behaviors

Behavior	Corresponding GTL Statement	Definition
Vision	Communicates a clear and positive vision of the future	Creates and communicates a vision, common purpose, goals
Staff Development	Treats staff as individuals, supports and encourages their development	Encourages individual development of staff, diagnoses their needs, delegates tasks
Supportive Leadership	Gives encouragement and recognition to staff	Gives positive feedback, recognizes achievements of team and individuals, supports staff through difficult goals
Empowerment	Fosters trust, involvement and cooperation amongst team members	Involves team in decision making and problem solving, shares information, encourages autonomy, creates a climate of trust and respect
Innovative Thinking	Encourages thinking about problems in new ways and questions assumptions	Uses innovative or unconventional methods to achieve goals, takes and allows staff to take risks, sees mistakes as opportunities to learn
Leading by Example	Is clear about his/her values and practices what he/she preaches	Behaviors match views and values, communicates values to staff, is an ideal to follow, and displays self-confidence
Charismatic Leadership	Instills pride and respect in others and inspires me by being highly competent	Is trustworthy, highly competent, and deserving of respect, inspires and motivates staff

Carless, Wearing, & Mann, 2000

Table 21

Distribution of Leadership Responses

	Wished principal had done		Most helpful thing principal did		Combined frequency of behavior
	frequency	% of responses	frequency	% of responses	
Vision	33	14.6	4	1.8	37
Staff Development	33	14.6	24	10.7	57
Supportive Leadership	22	9.7	40	17.9	62
Empowerment	21	9.3	66	29.5	87
Innovative Thinking	8	3.5	26	11.6	34
Leading by Example	15	6.6	18	8.0	33
Charismatic Leadership	17	7.5	7	3.1	24
Other	13	5.8	18	8.0	31
Nothing	64	28.3	21	9.4	85
Total	226		224		

Once coded according to the seven behaviors of transformational leadership, the researcher re-examined the responses for other possible structures. The following themes emerged from the second analysis: communicating, allowing autonomy, providing clarity, holding accountable, being emotionally supportive, displaying competence, providing resources, reducing workload, and being present. Providing resources includes physical resources, such as the technology to support distance learning, along with the training necessary for the transition. Holding accountable includes staff, students and parents. As previously noted, communication was differentiated in the original coding as either vision or empowerment. This second structure combined all

references to communication into one category. The frequency with which each of these themes emerged, along with the GTL behavior(s) to which it most closely aligns, can be found in Table 22. Of these themes, the three behaviors most frequently found to be desired by teachers were providing resources, communicating, and providing clarity. The three behaviors they found most helpful through the period of rapid change brought on by the pandemic included allowing autonomy, being emotionally supportive, and providing resources. To examine the overall emphasis on each of the themes, the behavior wished for and the experienced behavior frequencies were combined into a total frequency of response across the two questions under both coding methods. Providing resources, being emotionally supportive, allowing autonomy, and communicating were the most prevalent behaviors identified by teachers as being either needed or having been most helpful as they worked through the rapid change brought on by the Covid-19 pandemic under the themes identified by the researcher. This finding coincides with empowerment, supportive leadership, and staff development being the three most frequently identified behaviors when coded according to GTL. It is clear from the responses that during this time of rapid change, teachers valued frequent communication, being given the professional freedom to address teaching and learning in ways they saw fit, being given the resources they needed, and having their principal provide encouragement and personal check-ins. In short, “tell me what needs to be done, give me what I need in order to do it, leave me alone to do it, and let me know you are there for me”.

It is important to note that this particular time of change led to working in isolation due to the requirements set forth in preventing the spread of Covid-19. That isolation may be a contributing factor to the prevalence of autonomy and lack of collaboration in the responses.

Table 22

Other Leadership Themes

	Most closely aligns with	Wished principal had done	Most helpful thing principal did	Combined frequency of theme
		frequency	*frequency*	*frequency*
Communicating	Empowerment/vision	29	28	57
Allowing autonomy	Empowerment	8	51	59
Providing clarity	Vision	25	2	27
Holding accountable	Lead by example/ supportive leadership	17	2	19
Being emotionally supportive	Supportive leadership	20	41	61
Displaying competence	Charismatic leadership	22	8	30
Providing resources	Staff development	31	38	69
Reducing workload	Innovative thinking	13	22	35
Being present	Lead by example	11	33	44

Correlations

Once each data set was analyzed, the data was examined for correlations. The relationships between WE, CTE, and TL were investigated using a Pearson correlation coefficient, with results shown in Table 23. Preliminary analysis for appropriateness of Pearson correlation was performed to

include first determining the data displayed normal distribution through a Histogram and then a Normal Q-Q plot. All data sets demonstrated normality as has been previously noted. A preliminary check for correlation was performed using a scatterplot. The results from the preliminary analyses confirmed that Pearson correlation was appropriate for the data, showing a positive linearity. There was a significant positive correlation found between TL and CTE, with r=. 42, n=292, p< .001. There was a significant positive correlation found between TL and WE, with r=.33, n=292, p<.001. A smaller yet significant positive correlation between CTE and WE was also found, with r=.29, n=292, and p<.001. Transformational leadership behaviors were found to have greater correlation with CTE than with WE. Additionally, CTE and WE were found to be less strongly correlated with each other than each was with TL. At this point the researcher ran split data analyses to identify whether the results varied greatly by gender, grade level, or time teaching. While the correlation coefficients differed by as much as .22 (for the correlation between TL and CE across grade levels) using an online calculator to compute the Fisher r to z transformation, the differences did not show significance. Thus the results are given for the entire set of participants.

Table 23

Pearson Correlations Between Transformational Leadership, Collective Teacher Efficacy, and Work Engagement

		TL	CTE	WE
TL	Pearson Correlation	1		
CTE	Pearson Correlation	.42**	1	
WE	Pearson Correlation	.33**	.29**	1

*Note: N=292, **Correlation is significant at the p< 0.01 level (2-tailed).*

To analyze further, Pearson correlation was performed between TL and the subscales of CTE and WE as shown in Table 24 and the subscales of CTE and WE as shown in Table 25. Transformational leadership behaviors were found to be significantly correlated to all CTE and WE subscales, with highest correlations found between TL and GC (r=.45) and TL and DE (r=.33). While less strong, a significant positive correlation was also found between the subscales of CTE and WE, with GC and DE (r=.32), TA and DE (r=.29) and TA and VI (r=.21) exhibiting the strongest correlations. The absorption subscale demonstrated the lowest correlation with task analysis, with r=.13 and correlation significant only at the p=.05 (two-tailed) level. Being immersed in and happy about the work, as measured by absorption, is connected to personal efficacy which may explain why it is less correlated with task analysis, which is a belief in the competence of the group to be successful in a given context.

Table 24

Pearson Correlations Between Transformational Leadership and Collective Teacher Efficacy and Work Engagement Subscales

	GC	TA	VI	DE	AB
TL	.48**	.28**	.28**	.33**	.21**

*Note: N=292, ** Correlation is significant at the 0.01 level (2-tailed).*

Table 25

Pearson Correlations Between Collective Teacher Efficacy and Work Engagement Subscales

	GC	TA
VI	.16**	.21**
DE	.32**	.29**
AB	.17**	.13*

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

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

Of interest to the study was whether there were specific leader behaviors that showed stronger correlation to CTE and WE than others. Pearson correlation was performed between the seven TL subscale behaviors and CTE and WE and then between the seven TL subscales and the subscales of CTE and WE as shown in Tables 26 and 27. Significant positive correlation was found between each behavior and CTE and WE. Empowerment was found to have the highest correlation with both CTE (r=.39) and WE (r=.35). For CTE, all

TL behaviors showed correlations above r=.30 and therefore strong. For WE, empowerment, staff development, supportive leadership, and innovative leadership were all strong positive correlations, with the other three behaviors demonstrating positive but less strong correlation. The subscale correlations identified innovative thinking to be the strongest correlation with GC (r=.42) and AB (r=.22), supportive leadership with TA (r=.28), and empowerment with VI (r=.31) and DE (r=.35). This analysis made clear the need for different leadership behaviors dependent upon what specifically the principal is trying to strengthen amongst the staff.

Table 26

Pearson Correlations Between Transformational Leadership Subscales and Collective Teacher Efficacy and Work Engagement

	CTE	WE
Vision	.35**	.29**
Staff Development	.37**	.32**
Supportive Leadership	.39**	.31**
Empowerment	.39**	.35**
Innovative Thinking	.37**	.32**
Leading By Example	.38**	.26**
Charismatic Leadership	.33**	.30**

*Note: N=292, ** Correlation is significant at the 0.01 level (2-tailed).*

Table 27

Pearson Correlations Between Transformational Leadership, Collective Teacher Efficacy and Work Engagement Subscales

	GC	TA	VI	DE	AB
Vision	.39**	.22**	.26**	.29**	.18**
Staff Development	.38**	.26**	.27**	.33**	.20**
Supportive Leadership	.39**	.28**	.30**	.30**	.17**
Empowerment	.42**	.26**	.31**	.35**	.21**
Innovative Thinking	.42**	.23**	.27**	.32**	.22**
Leading By Example	.39**	.27**	.24**	.26**	.16**
Charismatic Leadership	.35**	.23**	.25**	.29**	.20**

*Note: N=292 ** Correlation is significant at the 0.01 level (2-tailed).*

Summary

In an effort to answer the research question *"What is the relationship between transformational leadership, work engagement and collective teacher efficacy within the context of educational change?"*, data from a survey of TL, WE, and CTE were collected and analyzed first for descriptive statistics and then for correlation. Preliminary tests were performed to ensure there was no violation of the assumptions of normality and linearity. It was found that TL and CTE (r=.42), TL and WE (r=.33), and CTE and WE (r=.29) all demonstrate significant positive correlation. The correlations were analyzed further between TL and the subscales of CTE and WE. The strongest correlation was found to be between TL and GC (r=.48). Finally, the subscales of TL were analyzed for correlation with the subscales of CTE and WE. All subscales displayed

significant positive correlation.

In an effort to answer the question *"How can an educational leader affect work engagement and collective teacher efficacy for their staff during times of educational change?"*, each subscale of TL was analyzed for correlation with CTE and WE as well as their respective subscales. Each subscale of the TL instrument represented a specific leader behavior. The Pearson correlation results revealed that the leader behavior of empowerment, which involves autonomy, trust, respect, and involvement of staff, had the strongest correlation with CTE (r=.39) and WE (r=.35). Furthermore, leader behaviors showed strong correlation with CTE and WE subscales, with innovative thinking demonstrating high correlation with GC (r=.42) and empowerment demonstrating high correlation with DE (r=.35), as a few examples. These results provide specific leadership behaviors principals can engage in during times of change to have potential positive impact on specific staff outcomes.

The first hypothesis, *there will be a significantly positive relationship between transformational leadership and work engagement of teachers*, was supported. Transformational leadership and work engagement had a significantly positive correlation with r=.33, n=292, and p<.001. The second hypothesis, *there will be a significantly positive relationship between transformational leadership and collective teacher efficacy*, was also supported. Transformational leadership and collective teacher efficacy had a significantly positive correlation with r=.42, n=292, and p<.001. And finally, the third

hypothesis, *there will be a significantly positive relationship between work engagement of teachers and collective teacher efficacy*, was also supported. Work engagement and collective teacher efficacy demonstrated a significantly positive correlation with $r=.29$, $n=292$, and $p<.001$.

To further inform principals of ways to support teachers in times of change, the qualitative data was analyzed under two different coding structures. The findings indicated that teachers experiencing times of change need frequent communication, autonomy, necessary resources, and emotional support from their principals. These four behaviors coincide with empowerment, supportive leadership, and staff development as found in the GTL.

In the next chapter, conclusions from the data will be situated within the research. Recommendations will be given for principals as well as for future research.

CHAPTER FIVE

RECOMMENDATIONS AND CONCLUSIONS

This chapter will begin with a brief overview of the findings and then provide recommendations for practitioners as well as for future research. Finally, conclusions from the study will be provided.

Overview

The three hypotheses of this study were supported by the findings as follows:

1) There is a significant positive relationship between transformational leadership and work engagement of teachers.

2) There is a significant positive relationship between transformational leadership and collective teacher efficacy.

3) There is a significant positive relationship between work engagement of teachers and collective teacher efficacy.

The findings provide a clear response to the first research question. There is a significant positive relationship between work engagement, collective teacher efficacy and transformational leadership. With 292 fully participating teachers from various grade levels, school districts, and lengths of time teaching, surveyed during the educational response to the Covid-19 pandemic, the results were tested for validity and therefore can be applied in the K-12 educational setting, specifically during times of change.

To answer the second research question, the sub scales of TL, each representing a leader behavior, were tested for correlation with WE, CTE, and each subscale of WE and CTE. The results of the Pearson correlation along with the analysis of the qualitative data, provide insight into not only which leader behavior teachers experience in times of change, but also which behaviors they would like to see and which behaviors have a significant positive relationship with WE and CTE. By engaging in the seven transformational leadership behaviors of interest to this study, a school leader can positively affect the work engagement and collective teacher efficacy of their teachers.

Connecting the Findings to the Research

The sudden and involuntary environment of the change to education brought on by the Covid-19 pandemic could result in passive compliance rather than fully intrinsic motivation due to the lack of opportunity for personal choice and interest (Vallerand & Bissonnette, 1992). Alternately, teachers embrace change they have come to the conclusion is necessary, which in the case of a worldwide crisis could be a contributing factor to higher levels of work engagement and collective teacher efficacy than expected (Rusaw, 2007). The three lowest reported subscales within the constructs of WE, CTE and TL were vigor, task analysis, and empowerment, respectively. As shown previously in Table 2, the motivation components related to vigor are competence, task-value, and mastery expectation. The findings of this study support the research, with teachers demonstrating low vigor and expressing a need for staff development

(competence) and supportive leadership (mastery expectation). Supportive leadership in the form of positive feedback can improve competence, which during a period of sudden change about which little is known or prepared for has been observed in this study to be one of the highest needs. The previously reported job resources needed for work engagement include autonomy, social support, supervisory coaching, performance feedback, and professional development (Xanthopoulou et al, 2009). The findings of this study clearly support that research. As previously noted, the sources of collective teacher efficacy are mastery experience, vicarious experience, social persuasion, and emotional state (Goddard, Hoy & Hoy, 2000). The correlations between CTE and TL, specifically the subscales of staff development, supportive leadership, empowerment, and leading by example clearly support that research.

Previous studies have emphasized the need to focus not just on leadership styles but on specific leadership practices (Leithwood & Sun, 2012). This current study confirms that behaviors and actions have a stronger correlation to the outcomes of CTE and WE than do styles or attributes. One of the lowest reported leader behaviors on the GTL portion of the survey with lower correlation to CTE and WE than many of the other behaviors, was charismatic leadership. However, it was also the lowest reported experienced or *desired* behavior in the qualitative analysis. The absence of the mention of charismatic leadership could be indicative of the need for action oriented responses from a leader during a time of change, such as communication, rather than an idealistic or inspirational

attribute such as charisma. The accompanying statement for charismatic leadership in the survey instrument was “instills pride and respect and inspires me by being highly competent”. This attribute can be seen as much more passive than the others from the instrument. The higher scores and correlations were found in empowerment, supportive leadership and staff development, which are all identifiable as action oriented leader behaviors, not merely attributes of a leadership style.

Recommendations for Educational Leaders

The results of this study can be examined and applied by principals and other school leaders as they seek to support the engagement and efficacy of their staff. For example, of the three sub scales of WE, vigor was the lowest scoring amongst teachers at the time of this study. Vigor is defined as having high levels of energy while working (Schaufeli et al, 2002). While there was a positive correlation between vigor and all sub scales of TL, the strongest of these correlations was found between empowerment and vigor. For this study, the statement classified as a measure of empowerment was *fosters trust, involvement and cooperation amongst team members.* Making an effort to model this behavior through frequent communication and shared decision making could positively impact the vigor of the staff. Empowerment also demonstrated strong correlations with dedication and with the CTE subscale of group competence. Hence, focusing on demonstrating empowerment could positively impact staff along multiple constructs. While all TL behaviors exhibited strong positive

correlations with CTE, in addition to empowerment, of particular strength were supportive leadership and leading by example. As can be seen by the respective statements from the TL instrument, educational leaders need to give encouragement to their staff as a potential means of demonstrating supportive leadership and impacting CTE. Other actions of supportive leadership include giving positive feedback and recognizing individual and team accomplishments. Leading by example involves clearly exhibiting their values, practicing what they preach, and being a role model for teachers to follow.

Another recommendation for leaders is to examine the results for areas of particular interest in their particular settings. As has been noted, teachers exhibited higher CTE in the area of group competence than in task analysis at the time of this study. Task analysis involves believing the staff can have a positive impact given the particular context, to include the students and the content. Task analysis contextualizes collective teacher efficacy. Having high GC and lower TA means the teachers believe they collectively could have positive learning outcomes, however, their students and the students' homes make it less likely. To increase the TA of staff, in addition to being supportive and leading by example, the principal should increase the staff development being provided for teachers around the concept of family and community partnerships, striving to increase the teachers' opinions of families and the community. See Table 28 for full results and an opportunity to align behaviors with intended outcomes. The instruments used in this study were relatively short

and could be easily administered to staff in order to align leadership behaviors with the particular areas of need. Being acutely aware of the strengths and struggles of the staff in the areas of WE and CTE will provide an opportunity to intentionally focus on the behaviors that will support them.

The two open-ended questions found in the survey provide even further guidance for educational leaders. Teachers reported having a need for a clear vision, communication, and staff development. Participants also reported having appreciated autonomy, ongoing communication, and emotional support. These findings highlight the need to first provide teachers with clear communication and the resources they need and then give them some autonomy to determine how best to meet the needs of students and give them emotional support along the way. Participants reported a desire for autonomy but still wanted to be connected, supported, and encouraged. This finding is supported by the research on motivation, specifically SDT with the needs of autonomy, relatedness, and competence (Deci, 2009). As has been noted, the communication identified most frequently in the responses as being appreciated or desired was the ongoing communication such as used in providing of information. A question as the result of this study is whether lack of information in this time of uncertainty contributed to the lower scores on vigor or task analysis. Would better communication have resulted in higher levels of CTE and/or WE? With the correlations having been established in this study, it is quite possible that it would.

While this study was focused on correlations and there were no significant differences of correlations amongst constructs for different groups of participants, it should be noted that teachers with 6-10 years of experience reported lower CTE and WE than their less and more experienced counterparts. This middle level experience group should receive particular focus from the principal, especially considering the research on burnout and attrition amongst this group. According to Ingersoll et al, 41% of teachers leave the profession within five years (2014).

Next Steps for Educational Reform

Programs designed to prepare educators to become leaders would benefit from focusing on the behaviors of transformational leadership. Specific focus on how to lead through a time of change may improve principals' capacities for meeting the needs of their teachers and thus indirectly the needs of their students. A focus on specific practices that support the work engagement and collective efficacy of staff could prove beneficial in leader preparation programs. Are aspiring school leaders given a background in change leadership, work engagement, or collective teacher efficacy? Additionally, educational leaders would benefit from being keenly aware of the WE and CTE of their staff on a regular basis, perhaps through the use of the 12-Item CE Scale and the UWES-9.

A potential professional learning opportunity for leaders could be designed with a pre-assessment of CTE and WE at a school site followed by building the

capacity of the principal to engage in the behaviors of empowerment, including frequent communication and autonomy. The principal would then go back to the site and engage in the TL behaviors with focused intention, followed by a post-assessment of CTE and WE. This action and research oriented professional learning opportunity would then provide immediate feedback to the principal of the effectiveness of their efforts to engage in TL behaviors. Establishing the trust and openness to feedback and then building a system in which these particular tools could be used can help inform school leaders of the needs of the teachers at their schools as well as the effectiveness of their leadership actions and attributes.

Recommendations for Future Research

This study established strong correlations between TL, WE and CTE, with each construct accounting for 29% or more variance for each of the other constructs and nearly all subscale correlations demonstrating at least 20% of the variances between them. Of interest for future research would be further analyzing and identifying of more specific behaviors and their impact on CTE and WE. This study utilized the GTL, which included seven TL behaviors, however it may be of interest to break the behaviors down even further. Empowerment, according to this study, included both autonomy and regular communication. It would be interesting to determine what specific forms of communication had the greatest impact, or what degree of autonomy is most beneficial to CTE and WE. Separating these two behaviors may provide greater insight into the behaviors

most needed by teachers in times of change.

The impact on student learning in this study is based solely upon the research of CTE and student outcomes (Corwin, 2018). It may be of interest to recreate this study and include measures of student achievement in order to verify that assumed impact. Furthermore, recreating this study in another region or under a different type of change could provide insight as to whether the results are generalizable.

Limitations of Study

There are potential limitations to this study in three areas: length of survey, context of survey administration, and distribution of survey. The number of participants for each section of the survey was slightly lower than the previous section, indicating that the length of the survey may have resulted in some survey fatigue. The context of the survey administration was at the start of the school year following a year of mostly distance learning brought on by the Covid-19 pandemic. The findings of this study may be unique to the particular environment of change experienced by teachers during the Covid-19 pandemic. While the findings support the research on motivation and change, they may not be applicable to all forms of change in education. Additionally, the start of the new school year may have been filled with a hope for returning to normal which may have contributed to the positive skew seen in the results, specifically in TL. Finally, the survey was distributed through the superintendent. While there was assurance of total anonymity, the results could be more positive than if

distributed in a manner disconnected from any district leader.

Conclusion

Participating in a mandated change brought on by a crisis could arguably be one of the most difficult situations in which to build work engagement and collective teacher efficacy. The most significant finding of this study is that the seven behaviors of TL are strongly correlated with both WE and CTE during this time of change brought on by the Covid-19 pandemic. Work engagement and collective teacher efficacy were shown in this study to have a significant positive correlation with one another. It is therefore evident from this research that as a leader focuses on either CTE or WE, the other will also be positively impacted. Collective teacher efficacy has been shown through research to have a strong effect on student learning. Work engagement has been shown through research to result in increased productivity and decreased burnout. For those reasons, it is clear that school leaders need to find ways to improve both CTE and WE, and this research provides specific behaviors through which school leaders can accomplish this. Of those behaviors, empowerment was the lowest reported and most desired behavior, and was also the behavior most highly correlated with both CTE and WE. Specifically, the most significant elements of empowerment are ongoing communication and autonomy, as those were clearly identified by participants as being needed and/or appreciated from the principal. In a time of abrupt change, taking the time to communicate clearly, share decision making, and give ongoing feedback and support appear to be the most important

behaviors a principal can engage in to improve the work engagement and collective efficacy of their teachers in an effort to provide the best learning environment possible for their students.

APPENDIX A

PERSMISSION TO USE INSTRUMENTS

HUSD

Michelle Smith <michelle.smith@hesperiausd.org>

Permission to use GTL

1 message

Michelle Smith <Michelle.Smith@hesperiausd.org> Sat, Mar 6, 2021 at 3:48 PM
To: leonm@unimelb.edu.au
Bcc: Michelle Estrada <michelle.smith@hesperiausd.org>

Dr. Mann,

I am seeking permission to use the Global Transformational Leadership Scale you presented with Dr. Carless in your 2000 study. I have been unable to reach Dr. Carless through the email address listed on the study. I am a doctoral student in the Educational Leadership program at California State University, San Bernardino. For my dissertation, I am researching the correlation between transformational leadership, employee engagement and collective teacher efficacy and I would like to incorporate the items from your questionnaire into the survey I am creating. My research will be conducted in the school districts in my local region of Southern California. Please let me know the procedure for using your survey for my study. Thank you in advance for your reply.

With Appreciation,

Michelle Estrada Smith
Director, Secondary Education
Hesperia Unified School District

HUSD

Michelle Smith <michelle.smith@hesperiausd.org>

Global Transformational Leadership Scale: Permission to use GTL

Leon Mann <leonm@unimelb.edu.au> Sat, Mar 13, 2021 at 5:51 PM
To: "Michelle.Smith@hesperiausd.org" <Michelle.Smith@hesperiausd.org>
Cc: Rosemary Wearing <rosemarywearing@gmail.com>

Dear Michelle,

You have permission to use the Global Transformational Leadership scale (GTL) in your Doctoral Dissertation. A study of transformational leadership, employee engagement, and collective teacher efficacy is a worthwhile project. I have attached a copy of the GTL Scale and the Carless et al (2000) journal article.

I'm interested in who will be in your sample of educational leaders, and how you define and will measure *collective* teacher efficacy.

As you know the GTL is completed by the teacher about their supervisor/manager/leader/ principal/superintendent (whoever!)

You might consider including a few qualitative questions asking the respondents to give an example or two of what impresses them most about their supervisor.

The seven GTL scale items are in the article in Table 1 on page 396 with each item identified by leadership dimension (e.g. item 1 = Vision).

When administering the GTL, you should include an introduction:

"Rate your leader/manager/supervisor in terms of how frequently he or she engages in the practice described. In selecting your answer, be realistic; answer in terms of how the person typically behaves".

Also include: "Use a 5-point Likert scale ranging from "Rarely or never" to "Very frequently, if not always".

(You then score the responses 1, 2, 3, 4, 5.)

Michelle , keep in touch and I would welcome a brief report on what you find in your study.

My best wishes to you, your PhD supervisor, and colleagues in the Educational Leadership program at California State University.

Regards

Leon

Professor Leon Mann AO, PhD (Yale), Hon DSc (Melb), FASSA, Hon Life Governor Hebrew University of Jerusalem

Co-Coordinator of the University of Melbourne Research Mentors Program

Melbourne School of Psychological Sciences, University of Melbourne

leonm@unimelb.edu.au iPhone : 0418 172596

HUSD

Michelle Smith <michelle.smith@hesperiausd.org>

Permission to use CE-Scale

Michelle Smith <Michelle.Smith@hesperiausd.org> Sun, Feb 28, 2021 at 5:22 PM
To: dr.roger.goddard@gmail.com, goddard.9@osu.edu
Bcc: Michelle Estrada <michelle.smith@hesperiausd.org>

Dr. Goddard,

I am writing to request permission to use the 12-item collective teacher efficacy short form you developed. I am a doctoral student in the Educational Leadership program at California State University, San Bernardino. For my dissertation, I am researching the correlation between transformational leadership, employee engagement and collective teacher efficacy and I would like to incorporate the items from your short form questionnaire into the survey I am creating. My research will be conducted in the school districts in my local region of Southern California. Please let me know the procedure for using your survey for my study. Thank you in advance for your reply.

With Appreciation,

Michelle Estrada Smith
Director, Secondary Education
Hesperia Unified School District

HUSD

Michelle Smith <michelle.smith@hesperiausd.org>

Permission to use CE-Scale

Goddard, Roger D. <goddard.9@osu.edu> Mon, Mar 1, 2021 at 12:37 PM
To: Michelle Smith <Michelle.Smith@hesperiausd.org>

Hello Michelle:

You have my permission to use the scale. It's use is described in a 2000 AERJ paper and a 2001 Educational and Psychological Measurement paper. Be sure to account for the negatively worded items by reversing them (1->6, 2->5, 3->4, 4->3, 5->, 6->1).

Good luck with your study.

Sincerely,

Roger Goddard

THE OHIO STATE UNIVERSITY

Roger Goddard, Ph.D.

Novice G. Fawcett Endowed Chair and Professor

Department of Educational Studies

The Ohio State University

29 W. Woodruff Ave., 325C

Columbus, OH 43210

Tel. 614-688-4102

Email: goddard.9@osu.edu

[Quoted text hidden]

English version

Work & Well-being Survey (UWES) ©

The following 17 statements are about how you feel at work. Please read each statement carefully and decide if you ever feel this way about your job. If you have never had this feeling, cross the '0' (zero) in the space after the statement. If you have had this feeling, indicate how often you feel it by crossing the number (from 1 to 6) that best describes how frequently you feel that way.

	Almost never	Rarely	Sometimes	Often	Very often	Always
0	1	2	3	4	5	6
Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day

1. _____ At my work, I feel bursting with energy* *(VI1)*
2. _____ I find the work that I do full of meaning and purpose *(DE1)*
3. _____ Time flies when I'm working *(AB1)*
4. _____ At my job, I feel strong and vigorous *(VI2)**
5. _____ I am enthusiastic about my job *(DE2)**
6. _____ When I am working, I forget everything else around me *(AB2)*
7. _____ My job inspires me *(DE3)**
8. _____ When I get up in the morning, I feel like going to work *(VI3)**
9. _____ I feel happy when I am working intensely *(AB3)**
10. _____ I am proud on the work that I do *(DE4)**
11. _____ I am immersed in my work *(AB4)**
12. _____ I can continue working for very long periods at a time *(VI4)*
13. _____ To me, my job is challenging *(DE5)*
14. _____ I get carried away when I'm working *(AB5)**
15. _____ At my job, I am very resilient, mentally *(VI5)*
16. _____ It is difficult to detach myself from my job *(AB6)*
17. _____ At my work I always persevere, even when things do not go well *(VI6)*

* Shortened version (UWES-9); VI= vigor; DE = dedication; AB = absorption

APPENDIX B

SURVEY INSTRUMENTS

Exploring The Relationship Between Work Engagement, Collective Teacher Efficacy and Transformational Leadership

Please respond to the following.

How do you describe yourself?

- ○ Male (1)
- ○ Female (2)
- ○ Non-binary / third gender (3)
- ○ Prefer to self-describe (4) _____
- ○ Prefer not to say (5)

What grade level do you teach?

- ○ Elementary School (1)
- ○ Middle School (2)
- ○ High School (3)

In which district do you teach?

- ○ Apple Valley Unified (1)
- ○ Barstow Unified (2)
- ○ Hesperia Unified (3)
- ○ Silver Valley Unified (4)
- ○ Snowline Joint Unified (5)
- ○ Victor Elementary (6)
- ○ Victor Valley Union (7)

How many years have you been teaching?

- ○ 1-5 years (1)
- ○ 6-10 years (2)
- ○ 11-15 years (3)
- ○ 16+ years (4)

As you think about the changes that you have undergone in your teaching practices over the past year in education, please respond to the questions below.

Please respond to each of the following on a scale of 0-6 as follows:

0-never
1-almost never (a few times a year or less)
2-rarely (a few times a month)
3-sometimes (a few times a month)
4-often (once a week)
5-very often (a few times a week)
6-always (every day)

	0-Never	1-Almost Never	2-Rarely	3-Sometimes	4-Often	5-Very Often	6-Always
While working, I feel bursting with energy	○	○	○	○	○	○	○
While teaching, I feel strong and vigorous	○	○	○	○	○	○	○
I am enthusiastic about teaching	○	○	○	○	○	○	○
My job inspires me	○	○	○	○	○	○	○
When I get up in the morning, I feel like going to work	○	○	○	○	○	○	○
I feel happy when I am working intensely	○	○	○	○	○	○	○
I am proud of the work that I do	○	○	○	○	○	○	○
I am immersed in my work	○	○	○	○	○	○	○
I get carried away when I am working (9)	○	○	○	○	○	○	○

Please respond to each of the following statements on a scale of 1-6 as follows:

1-strongly disagree
2-disagree
3-slightly disagree
4-slightly agree
5-agree
6-strongly agree

	1-Strongly Disagree	2-Disagree	3-Slightly Disagree	4-Slightly Agree	5-Agree	6-Strongly Agree
Teachers in this school are able to get through to difficult students.	○	○	○	○	○	○
Teachers here are confident they will be able to motivate their students.	○	○	○	○	○	○
Teachers in this school really believe every child can learn.	○	○	○	○	○	○
If a child doesn't want to learn, teachers here give up.	○	○	○	○	○	○
Teachers here don't have the skills needed to produce meaningful learning.	○	○	○	○	○	○
These students come to school ready to learn.	○	○	○	○	○	○
Home provides so many advantages the students here are bound to learn.	○	○	○	○	○	○
Students here just aren't	○	○	○	○	○	○

motivated to learn.						
The opportunities in this community help ensure that these students will learn.	○	○	○	○	○	○
Learning is more difficult in this school because students are worried about their safety.	○	○	○	○	○	○
Drug and alcohol abuse in the community make learning difficult for students here.	○	○	○	○	○	○
Teachers in this school do not have the skills to deal with student disciplinary problems.	○	○	○	○	○	○

Please read each statement carefully, then rate your principal in terms of how frequently they engage in the behavior described. In selecting your answer, be realistic: answer in terms of how the person has behaved over the past year. Respond on a scale of 1-5 as follows:

1-rarely or never
2-once in a while
3-sometime
4-fairly often
5-very frequently or always.

	1-Rarely	2-Never	3-Sometimes	4-Fairly Often	5-Very Frequently or Always
Communicates a clear and positive vision of the future	○	○	○	○	○
Treats staff as individuals, supports and encourages their development	○	○	○	○	○
Gives encouragement and recognition to staff	○	○	○	○	○
Fosters trust, involvement and cooperation amongst team members	○	○	○	○	○
Encourages thinking about problems in new ways and questions assumptions	○	○	○	○	○
Is clear about his/her values and practices what he/she preaches	○	○	○	○	○
Instills pride and respect in others and inspires me by being highly competent	○	○	○	○	○

APPENDIX C

IRB APPROVAL LETTER

Gmail Michelle Estrada <mshummingbird14@gmail.com>

IRB-FY2022-5 - Initial: IRB Expedited Review Approval Letter

1 message

do-not-reply@cayuse.com <do-not-reply@cayuse.com> Mon, Aug 16, 2021 at 4:43 PM
To: 001169141@coyote.csusb.edu, DSchnorr@csusb.edu

CALIFORNIA STATE UNIVERSITY
SAN BERNARDINO

August 16, 2021

CSUSB INSTITUTIONAL REVIEW BOARD
Expedited Review
IRB-FY2022-5
Status: Approved

Prof. Donna Schnorr and Ms. Michelle Smith
COE - Educ Leadership&Tech ELT
California State University, San Bernardino
5500 University Parkway
San Bernardino, California 92407

Dear Prof. Donna Schnorr and Ms. Michelle Smith:

Your application to use human subjects, titled "Exploring The Relationship Between Work Engagement, Collective Teacher Efficacy and Transformational Leadership" has been reviewed and approved by the Institutional Review Board (IRB) of CSU, San Bernardino. The CSUSB IRB has not evaluated your proposal for scientific merit, except to weigh the risk and benefits of the study to ensure the protection of human participants. The study is approved as of August 16, 2021. The study will require an annual administrative check-in (annual report) on the current status of the study on August 15, 2022. Please use the renewal form to complete the annual report.

This approval notice does not replace any departmental or additional campus approvals which may be required including access to CSUSB campus facilities and affiliate campuses. Investigators should consider the changing COVID-19 circumstances based on current CDC, California Department of Public Health, and campus guidance and submit appropriate protocol modifications to the IRB as needed. CSUSB campus and affiliate health screenings should be completed for all campus human research related activities. Human research activities conducted at off-campus sites should follow CDC, California Department of Public Health, and local guidance. See CSUSB's COVID-19 Prevention Plan for more information regarding campus requirements.

If your study is closed to enrollment, the data has been de-identified, and you're only analyzing the data - you may close the study by submitting the Closure Application Form through the Cayuse Human Ethics (IRB) system. The Cayuse system automatically reminders you at 90, 60, and 30 days before the study is due for renewal or submission of your annual report (administrative check-in). The modification, renewal, study closure, and unanticipated/adverse event forms are located in the Cayuse system with instructions provided on the IRB Applications, Forms, and Submission Webpage. Failure to notify the IRB of the following requirements may result in disciplinary action. Please note a lapse in your approval may result in your not being able to use the data collected during the lapse in the application's approval period.

You are required to notify the IRB of the following as mandated by the Office of Human Research Protections (OHRP) federal regulations 45 CFR 46 and CSUSB IRB policy.

- **Ensure your CITI Human Subjects Training is kept up-to-date and current throughout the study.**
- **Submit a protocol modification (change) if any changes (no matter how minor) are proposed in your study for review and approval by the IRB before being implemented in your study.**
- **Notify the IRB within 5 days of any unanticipated or adverse events are experienced by subjects during your research.**
- **Submit a study closure through the Cayuse IRB submission system once your study has ended.**

The CSUSB IRB has not evaluated your proposal for scientific merit, except to weigh the risks and benefits to the human participants in your IRB application. If you have any questions about the IRBs decision please contact Michael Gillespie, the IRB Compliance Officer. Mr. Michael Gillespie can be reached by phone at (909) 537-7588, by fax at (909) 537-7028, or by email at mgillesp@csusb.edu. Please include your application approval number IRB-FY2022-5 in all correspondence. Any complaints you receive regarding your research from participants or others should be directed to Mr. Gillespie.

Best of luck with your research.

Sincerely,

Nicole Dabbs

Nicole Dabbs, Ph.D., IRB Chair
CSUSB Institutional Review Board

ND/MG

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