Personal and Organizational Characteristics Impacting Employee Self-Efficacy

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PERSONAL AND ORGANIZATIONAL CHARACTERISTICS IMPACTING EMPLOYEE SELF-EFFICACY

by

Justin Lee Chandler

A Dissertation
Submitted to the Graduate School, the College of Business and Economic Development and the School of Leadership at The University of Southern Mississippi in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

Approved by:

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ABSTRACT

COVID-19 forced organizational shutdowns across the globe in 2020, sending unemployment levels in the United States to nearly 15%, with approximately 20.5 million Americans unemployed by May 2020 (Falk et al., 2021; Kochhar, 2020). Virtual business meetings became the norm, while some employees experienced job loss and salary cuts (Prochazka et al., 2020). Many employees worldwide became unsatisfied with their work situation and less confident of their capabilities (Ragheb et al., 2020) and have experienced career shock due to the pandemic. Career shock can lead to many adverse effects on individual employees and organizations, including low self-efficacy, and COVID-19 has amplified these effects (Carnevale & Hatak, 2020; Gewin, 2021; Kniffin et al., 2021; Tovmasyan & Minasyan, 2020; Venkatesh, 2020). Low employee self-efficacy impacts job performance and organizational outcomes (Horvitz et al., 2014; Tschannen-Moran et al., 1998).

This study focuses on employee self-efficacy and the characteristics of employees and the organizations they are employed. The purpose of this study was to identify the interaction between personal and organizational characteristics concerning employee self-efficacy. Study results revealed that the interactions analyzed were statistically significant for one set of characteristics and were not statistically significant for three pairs of characteristics. The research identified a statistically significant positive relationship between years of experience and organizational type. The interaction between years of experience and organizational category, education level and organizational type, and education level and organizational category did not identify statistically significant relationships.
As organizations seek to increase employee self-efficacy, results reveal that years of experience, organizational category, and organizational type cannot be viewed as significant factors in self-efficacy. Organizational leaders, human resources professionals, and managers should not focus on years of experience, organizational type, or organizational category when developing programs to impact employee self-efficacy levels. Instead, they should view an employee’s education level as a vital component of their self-efficacy. This study emphasizes the importance of higher education regarding self-efficacy for various organizational categories. Organizations should focus on the educational levels of their employees when addressing self-efficacy concerns and maintain regular self-efficacy assessments to determine the effectiveness of development programs.
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DEDICATION

A special thank you to my mom for the years of support and constantly asking, “How’s your doctorate?” Without your support, love, and patience since Day 1, I would never have achieved any of this. I can never thank you enough for all the sacrifices you have made for me.

Another special thank you to my partner, Jacob, for your unconditional love, patience, and commitment to me and my goals. Completing a Ph.D. is never an easy task and completing one during a global pandemic with a new partner, a new job, and a new state was certainly never the plan. You have supported me from the very beginning and pushed me to stay on track. I love you and am so glad you were part of this journey.
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<tr>
<td>GLM</td>
<td>General Linear Model</td>
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<tr>
<td>HERI</td>
<td>Higher Education Research Institute</td>
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<tr>
<td>HIT</td>
<td>Human Intelligence Task</td>
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<td>IBM</td>
<td>International Business Machines Corporation</td>
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<td>IPEDS</td>
<td>The Integrated Postsecondary Education Data System</td>
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<td>IRB</td>
<td>Institutional Review Board</td>
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<td>MTurk</td>
<td>Amazon Mechanical Turk</td>
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<td>SHRM</td>
<td>Society for Human Resource Management</td>
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<td>SPSS</td>
<td>Statistical Package for the Social Sciences</td>
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<td>TSES</td>
<td>Teacher Sense of Efficacy Scale</td>
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<td>USDOE</td>
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<td>WLS</td>
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CHAPTER I - INTRODUCTION

The immediate impacts of COVID-19 instilled fear and stress across the globe (Kniffin et al., 2021). The mental health, financial, economic, and personal impacts intensified the adverse effects of the pandemic. Pandemics such as COVID-19 also cause career shock, which can impact employees across all professions. According to Akkermans et al. (2018),

career shock is a disruptive and extraordinary event that is, at least to some degree, caused by factors outside the focal individual’s control, and that triggers a deliberate thought process concerning one’s career. The occurrence of a career shock can vary in terms of predictability and can be either positively or negatively valenced. (p. 4)

Employees working in public service often experience the worst impacts of career shock, including decreased self-efficacy (Kniffin et al., 2021; Makara-Studzinska et al., 2019; Schnitzer, 2019; Yu et al., 2014). Public service professions include careers in fields designed to maintain safe and productive communities and are typically not revenue driven (Lazzari, 2019). Decreased public service employee self-efficacy threatens organizations as it can lead to employee burnout, decreased performance, and decreased motivation (Flaherty, 2020; Kniffin et al., 2021; Kolomitro et al., 2019; McClure, 2020; Shoji et al., 2015).

Wiggert and Agrawal (2018) note that low self-efficacy costs organizations $125-190 billion annually in healthcare costs alone. Additionally, employees experiencing the effects of low self-efficacy waste 34% of annual salaries in lost productivity. Consequentially, employees experiencing low self-efficacy are 63% more likely to take a
sick day, 2.6 times more likely to leave their current employer, and 13% less confident in their performance (Waggart & Agrawal, 2018). From a human capital perspective, which focuses on an individual’s value or cost to an organization (Becker, 1993; Goldin, 2014), improving self-efficacy of employees increases the skills, knowledge, and experience within an organization while increasing value and decreasing costs to organizations (Waggart & Agrawal, 2018; Makara-Studzinska et al., 2019).

Self-efficacy represents employees' self-belief regarding their professional ability, which directly affects how employees choose activities and respond to specific activities' successes and failures (Yu et al., 2014). Self-efficacy lessens the relationship between perceived stress and components of professional burnout. In other words, self-efficacy changes the strength of the relationships between perceived stress, exhaustion, and sense of professional inefficacy (Makara-Studzinska et al., 2019). Self-efficacy can increase employees' sense of self-worth, allowing them to successfully cope with stressful work situations (Molero et al., 2018). Burnout, exhaustion, and dissatisfaction correlate negatively with self-efficacy. Higher self-efficacy serves as a buffer to the adverse effects of stressful work situations (Molero et al., 2018).

To alleviate the negative aspects of low self-efficacy, organizations should design and promote interventions aimed at employee development (Carter et al., 2016; Molero et al., 2018; Pati & Kumar, 2010; Samwel, 2018; Turay et al., 2019). The Society for Human Resource Management (SHRM) indicates that employee development can increase performance, satisfaction, and self-efficacy, indicating that organizations can play a crucial role in increasing self-efficacy (SHRM, 2019). Self-efficacy-based interventions positively affect individuals’ well-being and performance (Bresó et al.,
Even in interventions not explicitly focused on self-efficacy improvements, employers should consider perceived self-efficacy when developing intervention methods (Brouwers & Tomic, 2000). The remainder of this chapter focuses on the background of the study, problem statement, purpose of the study, research objectives, study significance, delimitations, assumptions, and term definitions.

### Background of the Study

Albert Bandura leads the research efforts on self-efficacy. He defines self-efficacy as “people’s belief about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives” (Bandura, 1994, p. 2). Through decades of research, Bandura determines processes and sources related to self-efficacy and its impacts on individual performance.

In his research, Bandura (1977, 1994) determines that people’s beliefs about efficacy develop through four primary sources of influence: (a) mastery experiences, (b) vicarious experiences, (c) social persuasion, and (d) emotional and psychological states. The first and most effective source is mastery experiences. Successes increase one’s efficacy beliefs, while failures decrease them (Bandura, 1977, 1994). The second source, vicarious experiences, increases efficacy by seeing people like oneself succeed by sustained effort and decreasing efficacy by seeing people like oneself fail despite sustained effort. The greater the perceived similarity between oneself and the vicarious model, the greater the impact on efficacy (Bandura, 1977, 1994). The third source, social persuasion, strengthens people’s beliefs by verbally persuading people that they possess the capabilities to succeed. Social persuasion more easily decreases efficacy than increases it (Bandura, 1977, 1994). The fourth and final source, emotional and
psychological states, involves interpreting mood, stress, tension, strength, stamina, and fatigue as signs of poor performance and physical frailty. A festive mood and a lack of stress, for example, increases efficacy. How one perceives and interprets reactions serves as the key to this source (Bandura, 1977, 1994).

Successes and failures shape one’s self-efficacy, but personal and organizational characteristics shape employee self-efficacy (Amiri et al., 2019; Ismayilova & Klassen, 2019; Ramey-Gassert et al., 1996; Tschannen-Moran et al., 1998). Personal characteristics refer to factors within the individual’s control, while organizational characteristics are outside the individual’s control (Guskey & Passaro, 1994; Ramey-Gassert et al., 1996; Tschannen-Moran et al., 1998). Combinations of personal and organizational characteristics may impact self-efficacy (Amiri et al., 2019; Ismayilova & Klassen, 2019; Ramey-Gassert et al., 1996; Tschannen-Moran et al., 1998). Employees with specific characteristics who work at one organization may have varying self-efficacy levels than similar employees at a different organization (Amiri et al., 2019; Ismayilova & Klassen, 2019; Ramey-Gassert et al., 1996; Tschannen-Moran et al., 1998). Studying these specific relationships allows organizations to devote specialized resources to improving self-efficacy based on personal and organizational characteristics.

Self-efficacy impacts individual employees' performance (Bandura, 1982; Lunenburg, 2011; Machmud, 2017; Mustafa et al., 2019). According to Bandura (1982), three areas of self-efficacy affect performance: (a) goals that employees choose for themselves, (b) the effort that people exert on the job, and (c) persistence with which people attempt new and challenging tasks. Other researchers also determine the impact of self-efficacy on work performance. Stajkovic and Luthans (1998) report self-efficacy
positively and strongly relates to work performance, confirming Bandura’s previous findings. Psychological capital, a combination of self-efficacy, hope, resilience, and optimism, relates to overall employee performance. Specifically, a positive relationship exists between psychological capital and desirable employee attitudes, and a negative relationship exists between psychological capital and undesirable employee attitudes (Avey et al., 2011).

Statement of the Problem

In late 2019 and early 2020, the COVID-19 pandemic impacted how individuals conduct their daily lives. Besides online shopping and wearing personal protective equipment in public, many employees across all continents experienced their work and workplaces drastically change (Prochazka et al., 2020). Due to these changes, along with the abrupt loss of jobs and mounting financial debts, many employees worldwide have become less confident in their professional capabilities (Elsafty & Ragheb, 2020). The editorial board of the Journal of Vocational Behavior (2020) categorizes COVID-19 as a career shock. Scholars define career shock as a disruptive and extraordinary event caused by factors outside the individual’s control (Akkermans et al., 2018). Career shock can lead to many adverse effects on individual employees and organizations, such as burnout, depression, decreased performance, decreased motivation, and decreased employee self-efficacy (Kniffin et al., 2021). COVID-19, specifically, causes loneliness, professional burnout, stress, depression, work/life balance strains, decreased motivation, and decreased self-efficacy (Carnevale & Hatak, 2020; Kniffin et al., 2021; Tovmasyan & Minasyan, 2020; Venkatesh, 2020). Without immediate action, self-efficacy will continue
to decrease due to the pandemic, and both employees and employers will suffer (Kniffin et al., 2021).

Purpose of the Study

The purpose of this quantitative study is to identify the interaction between personal and organizational characteristics concerning employee self-efficacy. As organizations increasingly focus on improving organizational outcomes and employee performance, leaders should strive to increase employee efficacy, particularly during times of career shock (Haddad & Taleb, 2015; Kniffin et al., 2021). Identifying these characteristics will allow organizations to assess employees' self-efficacy and develop plans to address areas that impact self-efficacy, impacting organizational outcomes and employee performance.

Research Objectives

The objectives of this study focus on personal and organizational characteristics impacting self-efficacy. The research question for this study asks whether interactions between personal and organizational characteristics impact self-efficacy. The research objectives (RO) below guide this study:

*RO1*- Describe the study participants in terms of education level and years of experience.

*RO2*- Describe the participants’ organizational characteristics in terms of type and category.

*RO3*- Determine the interaction between education level and organizational type concerning individual self-efficacy.
**RO4**- Determine the interaction between education level and organizational category concerning individual self-efficacy.

**RO5**- Determine the interaction between years of experience and organizational type concerning individual self-efficacy.

**RO6**- Determine the interaction between years of experience and organizational category concerning individual self-efficacy.

**Conceptual Framework**

Framing this study requires a focus on theories that explain the foundations of the research. Bandura’s social cognitive theory explains individual self-efficacy (Bandura, 1986, 1991, 1994). Social cognitive theory defines human functioning as the relationship between three factors: (a) behavior, (b) personal characteristics, and (c) environmental events, which connect as interacting determinants of each other (Bandura, 1986). Specifically, the interrelatedness between personal characteristics and environmental events impacts individuals' efficacy (Bandura, 1986). Additionally, human capital theory focuses on connecting investments in people and desired organizational outcomes and employee performance. Shultz (1961) defines human capital as knowledge and skills that people acquire through education and training. Becker (1993) defines human capital as a theory of investment in an individual’s education and training, similar to business investments in equipment. Becker states that the theory analyzes the economic effects of an investment in education on employment and earnings. The framework in Figure 1 displays social cognitive theory and human capital theory as the foundation for this research's three main areas of focus: personal characteristics, organizational
characteristics, and employee self-efficacy. Personal and organizational characteristics, as interrelated factors, impact self-efficacy (Bandura, 1986).

Employee self-efficacy impacts job performance (Horvitz et al., 2014). Employees with high self-efficacy levels are also more likely to positively impact organizational outcomes (Tschannen-Moran et al., 1998). This study focuses on employee self-efficacy and employees' characteristics and their organizations, thus providing avenues for improving employee self-efficacy to improve organizational outcomes and employee performance. Unique to this study is the analysis of the relationship between personal and organizational characteristics and the impact of those relationships on employee self-efficacy.
Organizational leaders could benefit from this study through an increased understanding of specific characteristics that impact employee self-efficacy. This study could provide organizational leaders with the ability to develop more effective and efficient employee development programs. By studying the collective impact of personal and organizational characteristics on employee self-efficacy, this study could provide a framework for employee development across organizations. Improved employee development within organizations could decrease employee turnover and organizational costs while improving organizational outcomes and employee performance. In addition to leaders, employees could also benefit from this study through increased self-efficacy, increased performance, and increased outcomes.

Delimitations

A delimitation is a factor that limits the scope and defines the study's boundaries and falls within the researcher’s control (Lunenburg & Irby, 2008). This study has three delimitations related to the study population and timeframe. First, researching employees at a limited number of institutions is a delimitation because it does not include the total national population of education employees. The researcher's choice could impact the generalizability of the study results. Study results may not apply to the entire population of higher education employees (Kukull & Ganguli, 2012). Second, not including public service employees outside of higher education is a delimitation because the research does not include the total national population of public service employees. Research results cannot be generally applied to the entire population of public service employees (Kukull & Ganguli, 2012). Finally, this cross-sectional study occurred during a single point in time and remained a delimitation because the research does not consider potential
changes in self-efficacy over time. This study's results are a snapshot dependent on conditions occurring at the time each response was received. Each of these delimitations is due to time and resource constraints.

Assumptions

Assumptions are premises and propositions accepted as operational for research purposes (Lunenburg & Irby, 2008). These assumptions are specific elements of the study accepted as true or plausible by peer researchers (Pyrczak & Kilb, 2016). This study has four assumptions. The first assumption is that the instrument used to collect data is valid and reliable in collecting participants' self-efficacy levels. Second, the researcher assumes that responses received from participants are an accurate representation of their professional opinions. Third, the researcher assumes that all participants understand the meaning of the survey questions and can fully answer all survey questions. Fourth, the researcher assumes that all participants in this study will answer all survey questions openly and honestly.

Definition of Terms

The terms in this research derive from the literature review and help provide understanding for this study.

1. Amazon Mechanical Turk (MTurk)- a virtual platform designed to complete tasks requiring human intelligence (Amazon Mechanical Turk, FAQs).

2. Career shock- a disruptive and extraordinary event that is, at least to some degree, caused by factors outside the focal individual’s control and triggers a deliberate thought process concerning one’s career. The occurrence of a career shock can
vary in terms of predictability and can be either positively or negatively valenced” (Akkermans et al., 2018, p. 4).

3. **Human capital**- the skills, knowledge, and qualifications of a person, group, or workforce considered as economic assets (Becker, 2009).

4. **Human Intelligence Tasks (HITs)**- virtual tasks that qualified workers can work on, submit an answer to, and receive a completion reward. Requestors create them, and workers complete them (Amazon Mechanical Turk, FAQs).

5. **Organizational characteristics**- organizational environment and characteristics, including employee population, customer population, and organizational classification (Dawson et al., 2017).

6. **Personal characteristics**- individual characteristics, including life experiences, education, and individual teaching efficacy (Ramey-Gassert et al., 1996).

7. **Public service professions**- Careers designed to maintain a safe and productive community, including teachers, police officers, and firefighters. Public service professions are not revenue-driven and are often funded by taxpayers (Lazzari, 2019).

8. **Self-efficacy**- people’s belief about their capabilities to produce designated performance levels that exercise influence over events that affect their lives (Bandura, 1994).

**Summary**

COVID-19 caused millions of workers to lose confidence in their professional abilities (Elsafty & Ragheb, 2020). The pandemic served as a career shock for workers. That shock has increased professional burnout and depression and decreased employee
performance, motivation, and self-efficacy (Kniffin et al., 2021). For organizations, increasing employees' self-efficacy is integral in improving employee performance and engagement and improving organizational outcomes and achievement (Haddad & Taleb, 2015; Kuusinen, 2016; Tschannen-Moran et al., 1998). With work environments constantly changing (Habib, 2017; Whitaker, 2018) and many organizations failing to achieve desired outcomes (Fishman et al., 2017; Tutak & Ludgate, 2019), leaders should focus on employee self-efficacy to meet changing needs, achieve organizational outcomes, and cope with pandemic stressors (Kniffin et al., 2021).

The purpose of this study is to identify the interaction between personal and organizational characteristics concerning employee self-efficacy. Researchers report that employee self-efficacy is a multidimensional construct, with most research focusing on two types of factors: personal and organizational (Ashton & Webb, 1986; Guskey & Passaro, 1994; Tschannen-Moran et al., 1998). This study, therefore, determines personal and organizational characteristics that impact employee self-efficacy. Identifying these characteristics and factors will allow organizations to assess individual employees' self-efficacy and develop plans to increase employee self-efficacy.

The remainder of this research is organized into four chapters. Chapter II reviews relevant literature to establish the history of self-efficacy, theoretical foundations, and the characteristics that impact self-efficacy. Chapter III presents the research design and methodology of the study. Chapter IV presents the results of the study. The final chapter, Chapter V, discusses the findings, conclusions, and recommendations.
CHAPTER II – LITERATURE REVIEW

The purpose of this study is to identify the interaction between personal and organizational characteristics concerning employee self-efficacy. Researcher Albert Bandura is a leader in linking self-efficacy to behavioral change (Vilkas, 2017). Literature from Bandura applies self-efficacy to behavioral change in multiple fields and distinctly focuses on employee performance and organizational outcomes. Additionally, education experts focus on the connection between teacher self-efficacy and student performance. While the existing literature analyzes the factors that impact teacher self-efficacy, little research has occurred on the factors that specifically impact educator self-efficacy across various educational organizations. This literature review will focus on COVID-19’s impact on employees, the foundations of self-efficacy, the impact of self-efficacy on employee and organizational performance, and public service employees' self-efficacy, specifically educator self-efficacy.

COVID-19 Impact on Employees

The COVID-19 pandemic has affected a large majority of the world’s workers, with a March 2020 survey showing that 80% of U.S.-based employees surveyed claim the pandemic affects their daily work lives (Parker et al., 2020). Researchers categorize the COVID-19 pandemic as a career shock (Kniffin et al., 2020). Carnevale and Hatak (2020) focus on the challenges facing human resources management during the COVID-19 pandemic and how organizations can help their workforce adjust to new work realities. Researchers point out that organizations have faced numerous significant challenges over the past decade, including climate change, economic turndowns, political instability, and the current global health crisis. COVID-19 forced many managers and
leaders to enter unchartered territory regarding daily work and employees' interactions. Researchers recommend that organizations gain insights from entrepreneurship regarding navigating the pandemic's current challenges, including increasing the value of autonomy, tolerating uncertainty, and openly and proactively approaching new and uncertain situations (Carnevale & Hatak, 2020).

Kniffin et al. (2021) focus on the impact of COVID-19 on workers and workplaces, specifically changes in work practices and changes for workers. Researchers include moderating factors, such as demographic characteristics, individual differences, and organizational norms, to measure any distinct effects of COVID-19 on individuals and organizations. Several implications emerge from this research (Kniffin et al., 2021).

The mandatory transition to work-from-home forced many employees into uncomfortable working conditions and overnight adaptation (Kniffin et al., 2021). Virtual teamwork introduces many direct and indirect conflicts that can lead to performance and productivity losses. Leadership and management must focus on organizational and project missions and goals while supervising and developing employees remotely. Working from home and maintaining social distance guidelines limits social connections and negatively affects employees' mental and physical health (Kniffin et al., 2021).

Kniffin et al. (2021) note that many of these effects impact individuals differently, including those in lower economic classes. Increases in inequality are expected and can lead to burnout and dissatisfaction. Older employees and racial and ethnic minorities face more significant health and economic risks. Extroverted employees struggle with loneliness, and employees who segment their personal lives from work lives struggle to
find the ideal work-life balance. Leaders and managers also struggle to manage each effect while simultaneously looking ahead (Kniffin et al., 2021).

The Editorial Board of the Journal of Vocational Behavior categorizes COVID-19 as a career shock to employees (Akkermans et al., 2020). Career shock is a disruptive and extraordinary event that is, at least to some degree, caused by factors outside the focal individual’s control and that triggers a deliberate thought process concerning one’s career. “The occurrence of a career shock can vary in terms of predictability and can be either positively or negatively valenced” (Akkermans et al., 2018, p. 4). Researchers provide two lessons from previous career shock studies to consider for COVID-19. The first lesson is that individual factors directly impact career shock. People’s dispositions and competencies directly impact their ability to manage a career shock. Researchers recommend that managers and leaders consider individual factors concerning the impact of COVID-19 on various employees (Akkermans et al., 2020).

The second lesson is that career shock can have different short-term and long-term impacts on employees in different career stages (Akkermans et al., 2020). Specific career shocks may impact career outcomes differently based on employees’ career stages. Younger and early-career employees affected by COVID-19 may have longer-term negative impacts since this is the first global crisis many have experienced. Additionally, an early career path disruption may have significant career consequences for younger adults. Mid-career employees may have additional stressors, such as work-family conflicts and financial debts. Later-career employees may experience stress related to individuals' death rates in their age range and the immediate financial impact on their pensions and retirement plans. Researchers recommend that managers and leaders use
multiple lenses for employees in varying career and life stages concerning the impact of COVID-19 (Akkermans et al., 2020).

Gewin (2021) studied the pandemic impact on employees in higher education. According to research, burnout indicators have steadily risen in higher education institutions since the start of the pandemic. A poll of over 1,100 U.S.-based faculty members shows that nearly 70% of respondents felt stressed during 2020, more than double the number in 2019. Respondents indicate higher fatigue, anger, stress, and mental health concerns during 2020 than in 2019. These increases are attributed to higher education institutions' economic ramifications and increased work hours due to virtual learning. Gewin notes the unlikelihood of workloads and stressors to ease as institutions may deal with the pandemic's negative consequences for years to come. The following section focuses on self-efficacy and the connection to employee performance (Gewin, 2021).

Self-Efficacy

The concept of self-efficacy is a relatively recent addition to psychology, with Albert Bandura introducing it in 1977 (Bandura, 1977; Kirsch, 2011). However, the foundations that led to Bandura’s introduction of the concept were laid in the 1930s. Early literature on the concept of self-efficacy shows that aspiration and expectancy for success were assessed simultaneously, sometimes without distinction (Frank, 1935; Lewin et al., 1944). Aspiration is an individual’s expectation regarding their future performance in a given task (Frank, 1935, 1941). These early studies determined several factors that may impact aspiration: success and failure in other tasks, age, gender, personalities, attitudes, and social and cultural factors (Frank, 1941). Influenced by Frank
(1935) and Lewin et al. (1944), Julian Rotter developed social learning theory, which focuses on expectancy and reinforcement as factors that predict individual behavior (Rotter, 1954). Successfully achieving a specific behavior requires the expectation of success or a high level of self-efficacy in performing that behavior (Kirsch, 2011; Rotter, 1954).

Influenced by Rotter’s social learning theory, J.W. Atkinson developed a theory of motivation (Atkinson, 1957; Kirsch, 2011). According to the theory of motivation, deciding to engage in a behavior is determined by expectancy for success, incentive for success, and motive (Atkinson, 1957). Atkinson’s expectancy and incentive constructs are comparable to Rotter’s expectancy and reinforcement constructs, while Bandura’s self-efficacy expectancies and outcome expectancies are comparable to Atkinson’s expectancy and incentive constructs (Kirsch, 2011). In *Self-efficacy: Toward a Unifying Theory of Behavioral Change*, Bandura (1977) hypothesizes that self-efficacy affects behavior, which in turn affects performance. Self-efficacy helps determine the amount of effort people are willing to expend in certain situations. People will exert more effort in situations in which they have high self-efficacy levels. While self-efficacy is not the sole influencing factor in persistence to a desired outcome, it remains a significant determinant in the equation.

*Foundations of Self-Efficacy*

Bandura’s work on self-efficacy serves as the primary foundation for all self-efficacy research for several decades (Vilkas, 2017). In his research, Bandura determined that people’s beliefs about their efficacy develop through four primary sources of influence: mastery experiences, vicarious experiences, social persuasion, and emotional
and psychological states (Bandura, 1977, 1986, 1994, 1997). While Bandura altered the names of sources over time through his research, each source's overall concepts remain the same. The first source, mastery experiences, refers to repeated successes or failures and the impact those experiences have on self-efficacy (Bandura, 1977). Bandura determined that successes help build self-efficacy, while failures tend to undermine it (Bandura, 1994). The more difficult the successful experiences were to achieve, the more likely an individual could develop a resilient sense of efficacy (Bandura, 1997). Individuals who overcome difficult obstacles develop higher self-efficacy levels than those who only experience easy successes (Bandura, 1994).

The second source, vicarious experience, refers to seeing others perform a task successfully and believe that one can also successfully perform that task oneself (Bandura, 1994). This source requires the individual to compare themselves to the successful individual. On the opposite spectrum, vicarious experiences also play a role in failing to perform a task (Bandura, 1997). The greater the individuals' similarity, the greater the impact of vicarious successes and failures on self-efficacy (Bandura, 1994).

The third source of self-efficacy is social persuasion (Bandura, 1994). This source relies on being verbally persuaded that an individual can accomplish a task. Through persuasion, individuals can increase their performance, promote necessary skills, and increase personal self-efficacy. In addition to persuasion increasing self-efficacy, verbal persuasion also can undermine self-efficacy (Bandura, 1997). Individuals persuaded that they lack capabilities are more likely to avoid challenging activities and easily give up when faced with a difficult task (Bandura, 1977, 1994).
The fourth and final source of self-efficacy is emotional and psychological states (Bandura, 1994). This source focuses on individuals’ emotional reactions and how those are interpreted internally. Anxiety, stress, and fatigue can cause individuals to perceive that they will perform poorly or are incapable of performing specific tasks. Bandura details explicitly that the actual emotional state is not what impacts self-efficacy; instead, it is the individual’s perceptions and interpretations of that state which has an impact (Bandura, 1977, 1994).

In addition to the four sources of self-efficacy, Bandura explores four psychological processes that explain how self-efficacy affects human functioning (Bandura, 1977, 1994, 1997). These processes include cognitive processes, motivational processes, affective processes, and selection processes. Cognitive processes refer to internal appraisals of abilities and capabilities. Essentially, individuals visualize either success or failure scenarios based on their sense of efficacy (Bandura, 1994). When faced with high demands and difficulties, we either cognitively believe we have the capabilities to succeed or to fail based on our level of self-efficacy (Bandura, 1997).

Motivational processes are impacted by self-efficacy through individual anticipation of outcomes (Bandura, 1997). Individuals form beliefs about their capabilities and set outcomes accordingly. Motivation occurs due to belief formation, indicating that individuals with positive beliefs about their capabilities have higher self-efficacy and motivation levels than individuals with negative beliefs about their capabilities (Bandura, 1994). Self-efficacy impacts motivation from several angles: how individuals determine the goals they set, how much effort individuals exert on outcome
achievement, how individuals overcome difficulties, and how resilient individuals face failure (Bandura, 1994).

Affective processes refer to self-efficacy’s impact on how individuals deal with stress and anxiety in relation to performance and outcomes (Bandura, 1997). Individuals with higher self-efficacy levels believe they can control potential threats and often experience lower stress and anxiety levels related to those threats. Individuals with lower self-efficacy do not believe they can manage potential threats and often have more stress and anxiety related to potential realistic and unrealistic threats (Bandura, 1994). Individuals with higher stress and anxiety levels are more likely to avoid tasks in which they believe they cannot control potential threats to their performance and the outcomes (Bandura, 1997).

Selection processes include how self-efficacy impacts the choices individuals make throughout their lives (Bandura, 1977). Self-efficacy beliefs influence the activities and environments individuals choose (Bandura, 1994). Based on their self-efficacy beliefs, individuals will choose to avoid or undertake challenging activities because they either do or do not believe they can cope with the challenges and threats that may arise (Bandura, 1997). Even small choices based on self-efficacy beliefs can have significant impacts on the life path of individuals. Choices based on self-efficacy can impact social development, career paths, and individual development (Bandura, 1994, 1997). The following section details the theoretical foundations of self-efficacy research.

**Theoretical Foundations**

Bandura’s research on self-efficacy stems from his social learning theory, later renamed social cognitive theory (Gibson, 2004). Bandura claims that human behavior is
controlled by self-regulation. Individuals' direct and vicarious experiences throughout their lives impact how they measure their performance and self-evaluate (Gibson, 2004). In addition to these internal performance standards, one’s perceived self-efficacy also influences human behavior. Self-efficacy directly relates to learning and performance, according to Bandura. Self-efficacy influences people’s motivation to pursue learning goals. Individuals with high perceived self-efficacy are more likely to persist in learning activities and overcome obstacles (Bandura, 1994, 1997; Gibson, 2004). When individuals undertake such learning activities, the outcome culminates as human capital (Nafukoh et al., 2004).

Human capital is a relatively recent term, entering the financial world in the early 1960s. Alongside financial capital, intellectual capital, and structural capital, human capital is a valued aspect of producing goods and services (Nafukoh et al., 2004; Sweetland, 1996). Investing in people through education and training is an investment in human resources. Thus, investment in education is a deliberate investment in the labor force. Such investments can lead to increased productivity of individuals and organizations and increase growth nationally and internationally. Human capital theory links to social cognitive theory by exploring the gains of education and training as investments instead of merely learning to increase performance (Nafukoh et al., 2004).

Employee Self-Efficacy

Self-efficacy directly impacts employee work performance and organizational performance (Song et al., 2018; Sadri, 2011; Stajkovic & Luthans, 1998). Additionally, self-efficacy impacts employee engagement, which plays a role in work and organizational performance (Muller et al., 2018). A 1998 study by Stajkovic and Luthans
examined the relationship between self-efficacy and work-related performance (Stajkovic & Luthans, 1998). Researchers used a meta-analysis of previous studies from the 1980s and 1990s to determine the magnitude of the relationship between self-efficacy and work-related performance. After analysis, results indicate that self-efficacy serves as a predictor of performance. Overall, self-efficacy positively and strongly relates to work-related performance. Additionally, research indicates task complexity and locus of performance negatively impact this relationship. These findings relate to workplace settings and show how task complexity and situational factors play a role in the relationship between self-efficacy and performance. Further research is needed to determine other factors that impact this relationship (Stajkovic & Luthans, 1998).

In Locke et al.’s (1982) research, *Effect of Self-Efficacy, Goals, and Task Strategies on Task Performance*, researchers note that self-efficacy in relation to task performance had not been sufficiently studied (Locke et al., 1982). They linked the concept of self-efficacy to expectancy theory, setting up their research to examine the effects of goals, task strategies, and self-efficacy on task performance. While they did not develop a hypothesis, they did expect that all three variables, including self-efficacy, would affect performance. They believed it “was conceivable that self-efficacy might affect performance through its effects on goal choice or through its direct effect on performance, or possibly both” (Locke et al., 1982, p. 242).

Locke et al. (1982) used an experimental method across repeated trials to study whether goals, task strategies, and self-efficacy affected performance. Their research subjects consisted of 209 undergraduates within an introductory management course. Their research was for students to assign uses for everyday objects, and each object was
of approximately equal difficulty (Locke et al., 1982, p. 242). Researchers discovered that self-efficacy affects goal level, task performance, goal commitment, and choosing to set a specific quantitative goal. They note that the “very powerful effect of self-efficacy was the most unexpected finding of this study” (Locke et al., 1982, p. 246). According to researchers, the results support Bandura’s claim that self-efficacy is a crucial variable in performance. The effect of self-efficacy on performance is direct and indirect, with self-efficacy strength relating more highly to goals and performance than self-efficacy magnitude. The results also support Bandura’s claim that past performance is a crucial determinant of self-efficacy, with self-efficacy even more related to past performance than future performance (Locke et al., 1982, p. 247). Self-efficacy and performance, therefore, are reciprocally related (Locke et al., 1982).

Pati and Kumar (2010) focused on the relationship between self-efficacy and employee engagement. Researchers studied the role of self-efficacy, organizational support, and supervisor support in relation to employee engagement within an IT organization. They contend that, when exposed to similar organization and task characteristics, the variation in engagement levels results from individual differences among the employees themselves (Pati & Kumar, 2010).

Pati and Kumar’s (2010) findings indicate a relationship between self-efficacy, perception of organizational support, and levels of engagement. Engagement results from the interaction between self-efficacy and perception of organizational support, which indicates the influence of workplace conditions on employee engagement. Both self-efficacy and organizational support remain necessary for engagement to occur, and the lack of one or the other will eventually lead to disengagement. Researchers note that
employees in other organizations should also be studied and that any influence of demographic variables was not measured (Pati & Kumar, 2010).

Yakin and Erdil (2012) researched the relationships between self-efficacy, work engagement, and job satisfaction of certified public accounts (CPAs). For this study, self-efficacy was defined as people’s judgment of their capabilities to organize and execute courses of action required to attain designated performance types (Niu, 2010). Yakin and Erdil (2012) point to previous studies reporting significant positive relationships between self-efficacy and motivational, affective, and behavioral outcomes in organizational settings, including job satisfaction. Researchers defined job satisfaction as the extent to which people like their jobs either overall or with respect to specific conditions or rewards, and defined work engagement as a positive, affective, and motivational state of fulfillment in employees. (Yakin & Erdil, 2012).

Results from Yakin and Erdil (2012) indicate that work engagement is positively and significantly related to job satisfaction. Additionally, research indicates that self-efficacy and job satisfaction are significantly related. The study determined that beliefs regarding one’s capabilities (self-efficacy) influence work-related attitudes and motivations, which then affect job performance and satisfaction. This research, along with previous findings, supports the importance of self-efficacy in relation to work engagement and job satisfaction. (Yakin & Erdil, 2012).

A 2016 study, “The Effects of Employee Engagement and Self-Efficacy on Job Performance: A Longitudinal Field Study,” expands self-efficacy research of Bandura and Stajkovic and Luthans (Carter et al., 2016). Carter and fellow researchers note the lack of rigorous individual studies focusing on job performance in organizational settings.
and linking employee engagement to organizational performance. To address those gaps, researchers conducted a longitudinal field study within a financial services firm in Australia (Carter et al., 2016).

Results from Carter et al. (2016) show that strong and positive relationships exist between self-efficacy and employee engagement, and job performance. Additionally, employee engagement independently influences job performance. Results suggest that raising self-efficacy beliefs on challenging tasks while concurrently lifting employee engagement is critical to improving job performance. Additionally, self-efficacy and employee engagement influence varied based on the task and the specific performance measure. Despite the limitations of the relatively low number of respondents, the use of the host organization’s customer relationship management system as the only performance measurement tool, and the study focusing on employees within financial services branches only, the study strongly suggests meaningful relationships among self-efficacy, employee engagement, and job performance. Researchers suggested further research on the variables within this study and individuals within different organizations and career fields, including those within public service professions (Carter et al., 2016).

Public Service Self-Efficacy

Employees working in public service often have the lowest self-efficacy levels and the highest burnout levels (Makara-Studzinska et al., 2019; Schnitzer, 2019; Yu et al., 2014). Employees within accommodation and food services average the highest burnout, with those in public administration, educational services, and transportation not far behind (Schnitzer, 2019). Williams et al. (2010) studied the impact of self-efficacy, job demands, and job resources on government employees’ psychological outcomes.
Results show that job demands, and self-efficacy predict psychological well-being. Additionally, job resources and self-efficacy predict engagement. Work context factors and self-efficacy explain the most considerable positive variance compared to other variables (Williams et al., 2010).

Sloan (2012) studied emotional labor and self-efficacy of public service professionals. Also called surface acting, emotional labor refers to workers suppressing their genuine emotions and creating a fake emotional display in the workplace (Sloan, 2012). Often taught to provide ‘service with a smile,’ public service workers often experience job dissatisfaction and other negative consequences (Hochschild, 1983). Self-efficacy mitigates emotional labor’s negative impact, specifically for employees with supervisory roles (Sloan, 2012). Workers who feel effective do not experience the same level of emotional labor’s negative consequences. Researchers suggest that employers develop ways to enhance employee self-efficacy to reduce emotional labor’s impacts (Sloan, 2012).

Jacobsen and Andersen (2016) studied employee self-efficacy and organizational performance from leaders' perspectives within public service organizations. Leaders within public service organizations employ transactional leadership, or rewards and sanctions, to improve employee self-efficacy and performance. Transactional leadership is a controversial leadership style, and researchers question its effectiveness. Jacobsen and Andersen’s study determines if transactional leadership can increase employee self-efficacy and ultimately organizational performance (Jacobsen & Andersen, 2016).

Jacobsen and Andersen’s (2016) results show that rewards positively impact self-efficacy and that sanctions do not negatively impact self-efficacy or performance. Results
did not show any significant relationship between rewards and organizational performance, but employee self-efficacy positively associates with rewards and organizational performance. Further research recommendations include focusing on employees from different organizations and transactional leadership due to conflicting results across studies (Jacobsen & Andersen, 2016).

Machmud (2017) studied the impact of government employee self-efficacy on work perception and job satisfaction. Work perception depends on the work environment, with improvement in work perception leading to increased job satisfaction. Using social cognitive theory as a foundation, Machmud’s research shows that self-efficacy influences work perception and job satisfaction significantly. Self-efficacy levels influence the behavior of employees and their contentment in completing job duties. When self-efficacy levels increase, employees work more effectively, efficiently, and productively (Machmud, 2017).

Mustafa et al. (2019) studied organizational structure impacts on public service employees' self-efficacy and performance. Few studies have attempted to link organizational structure to efficacy beliefs, and even fewer focus on linkages between organizational structure, efficacy beliefs, and employee performance. Organizational structure focuses on two dimensions: formalization and centralization. Formalization is the extent to which rules, policies, and procedures govern decision-making and working relationship within organizations. Centralization is how power is distributed within the organizational hierarchy (Mustafa et al., 2019).

Results from Mustafa et al. (2019) show that formalization positively impacts self-efficacy while centralization negatively impacts self-efficacy. Formalized sets of
practices positively impact self-efficacy through a clear understanding of performance expectations and task activities. Individual responsibility and authority over daily task performance and the ability to participate in decision-making positively impact self-efficacy. Self-efficacy partially explains the performance effects of the organizational structure, which differs from previous studies' results. This finding suggests that changes in self-efficacy levels do not solely impact performance, but organizational structure also plays a role. While public service professionals and their organizations are impacted by self-efficacy, self-efficacy of education professionals can also impact student outcomes and achievement (Mustafa et al., 2019).

Educator Self-Efficacy

Efficacy beliefs of educators not only impact their job performance and burnout levels but also impact their approach to the education process and instructional activities incorporated into the classroom (Bandura, 1997). Research indicates that self-efficacy accounts for variance among teaching aspects (Hardy et al., 2017). Specifically, self-efficacy positively relates to three categories of teaching factors. Additionally, research indicates that educator self-efficacy positively impacts student achievement and student learning outcomes (Goddard et al., 2015; Habib, 2017; Mojavezi & Tamiz, 2012; Tai et al., 2012; Tschannen-Moran & Hoy, 2001; Zee & Koomen, 2016).

Within education, educators play an integral part in ensuring students acquire the knowledge necessary for success in their chosen fields of study (Haddad & Taleb, 2015; Kezar & Maxey, 2014). Effective academic teaching involves the educator member having high self-efficacy levels and confidence in various teaching and education skills (Horvitz et al., 2014). With academic self-efficacy viewed as educator confidence in their
successful performance in academic teaching, specifically confidence in the ability to manage and facilitate the development of students’ knowledge, skills, and abilities, it is beneficial for institutions to focus on self-efficacy to ensure educators have a positive impact on student achievement and learning outcomes (Haddad & Taleb, 2015; Kuo, 2010; Tschannen-Moran et al., 1998).

While it is essential to understand how self-efficacy impacts employee performance and student outcomes, it is equally essential to understand the factors that impact employee self-efficacy. These factors are broadly categorized into personal and organizational characteristics (Ramey-Gassert et al., 1996; Tschannen-Moran et al., 1998). While self-efficacy research generally focuses on the impact of self-efficacy on performance and outcomes, research partially focuses on specific factors that impact self-efficacy. Personal characteristics refer to factors within the individual’s control, while organizational characteristics fall outside the individual’s control (Ramey-Gassert et al., 1996; Guskey & Passaro, 1994; Tschannen-Moran et al., 1998).

Ashton et al. (1984) of the University of Florida investigated whether teachers' sense of efficacy was a self-reference construct or a norm-referenced construct. This study extends the teacher sense of efficacy study in 1977 by the Rand Corporation. Rand discovered significant relationships between teacher efficacy and student standardized test scores. Still, more research was necessary to understand the construct of teacher efficacy and how to best measure it. Therefore, the purpose of their study was to determine if teachers evaluate their sense of teaching effectiveness in terms of “How effective am I?” or in terms of “Am I more or less effective than other teachers?” (Ashton et al., 1984).
Using descriptive statistics, Ashton et al. (1984) conclude that teachers view their
efficacy in norm-referencing terms. Teachers evaluate their effectiveness in terms of their
performance compared to other teachers' performance. Although teachers have very little
information regarding other teachers' performance, they base their self-evaluation on
others' limited and biased perceptions. Recommendations provided by researchers
include providing teachers with opportunities to share their feelings about their
effectiveness with other teachers and allow for opportunities to observe others' teaching
practices (Ashton et al., 1984).

Tschannen-Moran et al. (1998) studied various teacher efficacy constructs and
instruments to better understand and define the concept of teacher self-efficacy
(Tschannen-Moran et al., 1998). Using Rotter, Bandura, and the RAND Corporation's
foundational work, the researchers sought to answer several unanswered questions about
self-efficacy. Therefore, the study's purpose was to examine the concept of teacher
efficacy and the tools used to measure it. Specifically, researchers intended to clarify the
construct of teacher efficacy and improve its measurement by using Rotter’s and
Bandura’s research as guides for their study (Tschannen-Moran et al., 1998).

Tschannen-Moran et al. (1998) focused on previous studies of the RAND
Organization and Bandura to determine which would best define and measure teacher
self-efficacy. They specifically examined the distinction between Rotter’s internal-
external locus of control and Bandura’s self-efficacy theory. They distinguished the two
by stating that beliefs about whether one can produce specific actions (self-efficacy) are
not the same as beliefs about whether actions affect outcomes (locus of control). Locus of
control focuses on causal beliefs and not self-efficacy beliefs. Based on this distinction,
researchers in this study utilized Bandura’s four sources of efficacy expectations as a foundation to define and measure teacher self-efficacy (Tschannen-Moran et al., 1998).

Tschannen-Moran et al. (1998) used Bandura as their foundation and incorporated aspects of Rotter’s (1954) research. Although teacher efficacy may fall into Bandura's four categories, teacher efficacy is not equal within those categories across teaching situations. They determined that teacher efficacy is context-specific and must be viewed from an integrated model of teacher efficacy. For example, they hypothesized that a teacher might feel efficacious teaching middle school chemistry in an urban school but feel very inefficacious teaching the same subject at a rural school. The four sources of efficacy contribute to task-specific efficacy and overall perceptions of teaching competence (Tschannen-Moran et al., 1998).

Tschannen-Moran et al. (1998) noted a vital distinction relevant to teacher self-efficacy: self-efficacy measures self-perception of competence rather than actual competence levels in performing specific tasks. Researchers developed a teacher efficacy model that incorporates self-perception of teaching competencies as a part of teacher efficacy. Researchers then established their definition for teacher efficacy as the teacher’s belief in their capability to organize and execute courses of action required to accomplish a specific teaching task in a particular context. This definition and model imply that both self-perception of teaching competence and the beliefs about the requirements in a specific teaching situation contribute to self-efficacy and the outcomes resulting from those efficacy beliefs (Tschannen-Moran et al., 1998).

In the Impact of Teacher Self-efficacy on the Students’ Motivation and Achievement (Mojavezi & Tamiz, 2012), researchers studied eighty teachers and one
hundred and fifty senior high school students based on the teacher’s level of self-efficacy to investigate the impact of teacher self-efficacy on student motivation and achievement. The research concludes a significant positive correlation between teacher self-efficacy and student motivation. Therefore, higher teacher self-efficacy levels increase student motivation. The research also concludes a significant correlation exists between teacher self-efficacy and increased student achievement. Researchers noted that personality testing, or analyzing teachers' personal characteristics, is lacking compared to other disciplines. A call for further research focuses on the effects of teacher self-efficacy on job satisfaction and teacher burnout, and teacher self-efficacy levels based on teacher demographics (Mojavezi & Tamiz, 2012).

**Characteristics Impacting Self-Efficacy**

Research on the characteristics that impact self-efficacy generally falls into two categories: personal and organizational (Fives & Looney, 2009; Horvitz et al., 2014; Korgan, 2016; Major & Dolly, 2003; Perera et al., 2019; Ramey-Gassert et al., 1996; Raudenbush et al., 1996; Ross et al., 1996; v). While focusing on various characteristics is essential, current research lacks a key component: connecting personal and organizational characteristics. Table 1 provides an overview of the personal and organizational characteristics within current literature and serves as a foundational component of this study.
<table>
<thead>
<tr>
<th>Year</th>
<th>Researcher(s)</th>
<th>Level</th>
<th>Institutional Characteristics</th>
<th>Personal Characteristics</th>
<th>Organizational Characteristics</th>
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<td>Classroom climate</td>
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<td>Secondary</td>
<td>Experience</td>
<td>Previous preparation</td>
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<td>Specialization</td>
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<td></td>
<td>Ross et al.</td>
<td>Secondary</td>
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<td>Degree level</td>
<td>Organization learning</td>
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<td>Major &amp; Dolly</td>
<td>Postsecondary</td>
<td>Faculty Preparedness</td>
<td>Persona</td>
<td>Faculty mentoring</td>
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<td>Experience</td>
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<td>Academic domain</td>
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<td>2011</td>
<td>Shazadi et al.</td>
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<td>Gender</td>
<td>Degree level</td>
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<th>Year</th>
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<th>Organizational Characteristics</th>
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<td>Secondary</td>
<td>Gender, Experience, Professional needs, Mentoring experiences</td>
<td>Job satisfaction, Classroom climate, Teacher collaboration</td>
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</tbody>
</table>

**Personal Characteristics**

Researchers identify specific personal characteristics that impact the self-efficacy of educators. Within education, numerous factors impacting self-efficacy are common across types of educators. Factors impacting the self-efficacy of research-focused higher education faculty include years of experience, academic rank, college affiliation, gender, and graduate school experience (Pasupathy, 2010; Vasil, 1992). Gender, perception of student learning, semesters taught online, satisfaction with online teaching, and institutional affiliation impact educators' self-efficacy in teaching online courses (Horvitz et al., 2014). Educators have also reported that mentorships, experience teaching, and formal feedback contribute to their teaching self-efficacy (Major & Dolly, 2003).

In 1996, Ramey-Gassert et al. completed a qualitative study of the factors influencing elementary-level teachers' teaching self-efficacy. The purpose of their study was to examine factors that influence personal science teaching self-efficacy and science
teaching outcome expectancy beliefs in elementary school teachers. They utilized a 1988 study by Riggs to define science teaching efficacy as a teacher’s belief that they can teach science effectively and affect student achievement. Science teaching efficacy includes both personal science teaching self-efficacy, defined as a teacher’s belief in their ability to perform science teaching behaviors, and science teaching outcome expectancy, defined as a teacher’s belief that students can learn science given external factors such as family background, socioeconomic status, or school conditions (Ramey-Gassert et al., 1996).

After completing their literature review, Ramey-Gassert et al. (1996) determined several factors influencing teaching efficacy beliefs. These factors include teachers’ beliefs, attitudes and anxieties about science, personal teaching efficacy and outcome expectancy beliefs, and teacher preparation and professional development. Researchers determined that age and educational background were not pertinent to the study. Years of experience and teacher sense of efficacy both had substantial effects on project outcomes. Teacher’s sense of efficacy, or the belief that the teacher can help even the most difficult or unmotivated students, shows a strong positive relationship to all the dependent variables in their analysis. The regression coefficients for the sense of efficacy were the strongest relationships of the entire analysis. Teachers’ attitudes about their professional competence, according to their findings, have significant effects on what happens to projects and how effective they are (Ramey-Gassert et al., 1996).

Results from Ramey-Gassert et al. (1996). show that personal science teaching efficacy positively correlated with attitude toward science, educational degree level, choosing to teach science, and self-rated effectiveness in science teaching (Ramey-Gassert et al., 1996). Science teaching outcome expectancy positively and significantly
correlates with choosing to teach science and the number of college science courses teachers take. Factors influencing personal teaching efficacy were split into two categories: personal and organizational. For personal, a desire for change or improvement, a desire for collegiality, and image of self or role definition were the three themes about teacher characteristics (Ramey-Gassert et al., 1996).

Factors influencing science teaching outcome expectancy beliefs were also split into personal and organizational categories (Ramey-Gassert et al., 1996). For personal, data provided no information as to internal variables. Researchers recommended further research on gender differences within teaching self-efficacy and examining factors that influence teaching efficacy to develop effective professional development experiences (Ramey-Gassert et al., 1996).

Raudenbush et al. (1996) studied whether high school teachers' self-efficacy varies among teachers. Following the work of Bandura, researchers view self-efficacy as an individual variable rather than a global one. The study utilized several variables, including the level of teacher preparation and personal teacher backgrounds. It included a sample of 16 secondary schools with 315 teachers (Raudenbush et al., 1996).

Results of the Raudenbush et al. (1996) study confirm researcher expectations. Teacher preparation impacts teachers' efficacy to teach particular subjects, with teachers reporting higher efficacy levels in the disciplines they have previously prepared. In general, teachers' personal backgrounds did not impact self-efficacy, although slight differences exist between genders (Raudenbush et al., 1996).

Following the research of Raudenbush et al. (1996), Ross et al. (1996) developed a study to determine if teacher's performance expectancies differed among teaching
situations and, if so, did teacher variables impact that difference. Teacher variables refer to the demographics and characteristics of the teachers themselves. Variables of the study include subject specialization, teaching experience, degree level, organizational learning culture, teaching strategies, assessment strategies, and gender. Analysis of results shows that all variables significantly impact at least one aspect of teacher efficacy among participants. Researchers recommend future studies focus on even more variables, including student characteristics, resource levels, and district or state policies (Ross et al., 1996).

Major and Dolly (2003) from the University of Alabama conducted a study focused on faculty self-efficacy experiences for completing academic tasks (Major & Dolly, 2003). Researchers pointed out several issues that led to their study, including a shortage of professors, quality of education, faculty turnover, and faculty members unable to achieve tenure. Their research was to shed light on those areas so that policymakers and higher education administrators can better understand what factors influence faculty success. (Major & Dolly, 2003).

After reviewing the literature, Major and Dolly (2003) focused on two specific areas of concern regarding factors that influence faculty success: faculty preparation in graduate programs (anticipatory socialization) and faculty onboarding (orientation and induction). Regarding personal characteristics, new faculty members and graduate students have identified that graduate school preparation to teach is essential. Still, they also report a significant gap between preparation and their training level to support faculty roles. Researchers found a common theme that graduate programs fail to teach future faculty how to teach (Major & Dolly, 2003).
Participants in the Major and Dolly (2003) study indicated that their formal preparation for faculty academic tasks during graduate school was related to their confidence level for performing those tasks, though most reported a negative relationship. Participants with low to mid-self-efficacy did not believe their graduate programs adequately prepared them for higher education teaching. Faculty participants also believed that mentoring they received during graduate school influenced their confidence in teaching and that relationship was always positive. Finally, experience served as the primary source of teaching self-efficacy for participants. Faculty members with previous experience as teaching assistants who had sole responsibility for a course credited those experiences to increasing their teaching confidence. In contrast, participants with no previous experience rated their confidence lower because they felt they were still learning to become effective educators (Major & Dolly, 2003).

In summary, Major and Dolly (2003) note that faculty participants believe having specific experiences is essential to their academic self-efficacy. Researchers conclude that formal courses on college teaching and adult learning, working with master teachers, using teaching circles for peer interactions, and participating in actual teaching experiences, including formal feedback, be incorporated in graduate programs. Regarding further research, researchers recommended researching faculty at different types of organizations, on faculty within different teaching disciplines, and focusing more on gender differences (Major & Dolly, 2003).

In 2009, researchers Fives and Looney explored college-level instructors’ sense of teaching and collective efficacy (Fives & Looney, 2009). This study focused on two types of efficacies identified as critical to education: teacher-efficacy and collective-
efficacy. Researchers reviewed literature related to both types of efficacies to understand better the role of efficacy beliefs at the college level. Researchers also sought to understand the construct of self-efficacy in teaching among college educators. Although the researchers expected self-efficacy to differ between college-level instructors and primary/secondary teachers, they utilized previous research on teachers within primary and secondary schools to guide their research (Fives & Looney, 2009).

Fives and Looney’s (2009) review of teacher-efficacy focused on the research of Bandura along with Tschannen-Moran et al. (1998). This review highlights several vital facts integral to this study: teacher-self efficacy is highest among pre-service teachers and often drops during the first year of teaching. Self-efficacy typically increases with experience, but rarely to the pre-service levels. Regarding collective efficacy, their review also focuses on research by Bandura in addition to Goddard et al. (2015). Several facts were integral to this study: collective efficacy relates to student achievement differences as well as teachers’ sense of efficacy; that teachers’ personal sense of efficacy was higher in schools that were more collectively efficacious; and that student population characteristics were related to teachers’ sense of collective efficacy (Fives & Looney, 2009).

In addition to focusing on teacher-efficacy and collective-efficacy in primary and secondary schools, Fives and Looney’s (2009) literature review also focused on work related to efficacy at the college level. Researchers report that few studies examine teacher and collective-efficacy of college-level instructors. The few studies that examine this occurred during the 1980s and 1990s and focused on academic efficacy, which
includes teaching efficacy, rather than just teaching efficacy as a single construct (Fives & Looney, 2009).

Fives and Looney (2009) aim to determine if any relationship existed between college-level instructors’ sense of teacher efficacy and prior teaching experience, professional level, academic domain, and numerous demographic variables with previous teacher-efficacy studies serving as a foundation, including sex, age, and ethnicity. Additionally, this study explored collective efficacy within the university setting and any variations across academic departments. Lastly, this study examined the relationship between teacher-efficacy and collective-efficacy among college-level instructors (Fives & Looney, 2009).

Fives and Looney’s (2009) study found no difference between graduate students, graduate teaching assistants, non-tenured faculty, and tenured faculty regarding their efficacy beliefs. Regarding demographic variables, results showed that male and female faculty efficacy differ based on gender, with females reporting higher levels of efficacy. Analyses of ethnicity and age showed no significant differences in levels of self-efficacy regarding those demographic variables (Fives & Looney, 2009).

Shazadi et al. (2011) utilized Bandura’s self-efficacy scale to determine the effect of age, gender, qualifications, and teaching experience on secondary teachers' self-efficacy. Analysis of study results reveals that gender, qualifications, and experience significantly impact teacher self-efficacy. Female teachers have more self-efficacy than their male counterparts, primarily due to their comfort level in teaching (Shazadi et al., 2011). Teachers with higher academic qualifications report higher levels of self-efficacy and confidence in teaching. The research did not significantly impact age on self-
efficacy, but teachers more than 40 years old did show slightly higher self-efficacy levels. Finally, teachers with more experience showed higher levels of self-efficacy than their less experienced counterparts (Shazadi et al., 2011).

Horvitz et al. (2014) studied faculty self-efficacy. This study focused on professors’ online teaching self-efficacy to understand the challenges facing instructors transitioning to online teaching. In 2014, the growth rate for students taking online courses was many times larger than the overall student body's growth rate in higher education, emphasizing the importance of online education teaching efficacy within higher education organizations (Horvitz et al., 2014).

Horvitz et al.'s (2014) literature review focused on three main areas: barriers to online teaching, teaching self-efficacy, and online teaching-self efficacy. The top factors inhibiting teaching online were educational quality, lack of knowledge regarding online pedagogy, lack of face-to-face interaction, and inadequate online teaching training. All these factors led professors to report concerns related to their perceived ability to teach online successfully. Research points to several demographic characteristics that significantly impact faculty teaching self-efficacy, including teaching experience, discipline rank, and gender. Research related to online teaching self-efficacy focuses on the difference in pedagogical, social, managerial, and technical roles between traditional face-to-face instructors and online instructors. Research indicates that online instructors are more susceptible to burnout and that managing professors’ online teaching satisfaction can help alleviate those issues (Horvitz et al., 2014).

Results from Horvitz et al. (2014) show that two significant predictors of self-efficacy in online student engagement include perception of student learning and future
interest in teaching online. Perception of student learning is a significant predictor of three of the four sub-scales, all except computers. Future interest in teaching online is a significant predictor of overall self-efficacy in online student engagement. The significant predictors of self-efficacy in instructional strategies were gender and perception of student learning. The significant predictors of self-efficacy in online classroom management were semesters taught online and student learning perception. The significant predictors of self-efficacy in using computers include compensation and satisfaction with online teaching. Finally, the significant predictors of overall self-efficacy related to online teaching emerge as satisfaction with online teaching and student learning perception. Researchers conclude that while paths exist to increase online teaching self-efficacy, they do not follow traditional paths. This study indicates that focusing on students' benefits, best practices that lead to student interaction, and course management techniques should focus on early online-teaching faculty (Horvitz et al., 2014).

Haddad and Taleb (2015) studied the impact that self-efficacy had specifically on faculty members. The study's purpose was to identify the impact of self-efficacy on faculty members' performance and any differences in self-efficacy on faculty members' performance due to personal characteristics, including age, income, and academic rank. Researchers believe this study is valuable for higher education leaders during the faculty recruitment and training processes (Haddad & Taleb, 2015).

Using Bandura's four self-efficacy sources, Haddad and Taleb (2015) used each source as an independent variable and used specific teaching skills from Hildebrand’s performance variables as dependent variables. Results show a statistically significant
impact of self-efficacy on faculty member performance due to age but did not show an impact of self-efficacy on faculty member performance due to income or academic rank. Overall, the study shows a statistically significant impact of self-efficacy on the performance of faculty members. Study results also showed a statistically significant impact of self-efficacy on faculty performance. Specifically, research shows the existence of a statistically significant impact of self-efficacy on faculty member performance. Additionally, researchers found statistically significant impacts of past performance on faculty member performance, vicarious experiences on faculty member performance, and verbal persuasion on faculty member performance (Haddad & Taleb, 2015).

Korgan (2016) researched the comparisons between contingent (part-time) higher education faculty and full-time higher education faculty concerning educator effectiveness measures. The purpose of this study was to examine how part-time and full-time tenure ineligible faculty compare with their tenured and tenure-track colleagues on measures of educator effectiveness by using results from the 2010-2011 Higher Education Research Institute’s (HERI) Faculty Survey (Korgan, 2016).

According to Korgan (2016), the 2010-2011 HERI Faculty Survey included responses from nearly 38,000 faculty across approximately 500 organizations. Researchers merged data from the Integrated Postsecondary Education Data System (IPEDS) with faculty responses to inform the study regarding organizational characteristics. The sample for this study consisted of 18,591 tenured, 6,439 tenure-track, 4,527 non-tenure-track, and 3,891 faculty members. Tenured faculty identified as part-time were excluded from the sample, explaining the difference between the total responses and the sample size. Additional characteristics were also collected, including
race/ethnicity, gender, departmental affiliation, and organizational type (public or private) (Korgan, 2016).

Korgan’s (2016) research determines that, overall, part-time faculty scores are significantly higher across the study’s outcomes. Additionally, part-time, full-time non-tenure-track, and tenure-track faculty were more efficacious than their tenured colleagues. Part-time faculty, however, scored significantly higher than any other faculty subgroup. The study also found that differences in instructional practices were, in part, dependent upon faculty’s disciplinary affiliation. This study's overall findings suggest that part-time faculty are among the most efficacious instructors within higher education (Korgan, 2016).

Further research recommendations from Korgan’s (2016) study focused on the relationship between part-time faculty and student outcomes, specifically connecting student- and faculty-level data. Additionally, the researcher indicates that part-time faculty are often treated as one group in research. Future research should then compare part-time faculty across disciplines and organizations to discover more in-depth information about part-time faculty self-efficacy (Korgan, 2016).

Perera et al. (2019) studied self-efficacy among secondary school teachers to categorize each teacher within one of six self-efficacy profiles. Based on the profile outcome, researchers determine which variables impact the profile placement. This study challenged the notion that self-efficacy is a universal construct, instead focusing on the theory that individual teachers could have different levels of efficacy across domains and within environments. This study's variables include job satisfaction, classroom climate,
teacher collaboration, professional development needs, mentoring activities, and teacher demographics (Perera et al., 2019).

Study results show a significant association between mentoring involvement and profile placement (Perera et al., 2019). Teachers with assigned mentors were more likely to be placed in lower self-efficacy profiles, while teachers serving as mentors were more likely to be placed in higher self-efficacy profiles. Perceived professional development needs also impacted profile placement, with teachers needing classroom management and individualized learning professional development generally being placed in lower self-efficacy profiles. Additionally, gender plays a role in profile placement. Females were more likely to be placed in higher self-efficacy profiles than males. Finally, teaching experience also showed to impact profile placement, but a bit differently than previous variables. More experienced teachers are more likely to be placed in the highly inefficacious and highly efficacious profiles than others. Researchers hypothesized that this is due to teachers' two distinct populations: those with low self-efficacy preparing for retirement and those with high self-efficacy who seek mastery experiences (Perera et al., 2019). Not only do individual characteristics impact self-efficacy, but so do organizational characteristics (Guskey & Passaro, 1994).

Organizational Characteristics

Research indicates that teacher self-efficacy is a multidimensional construct (Ashton & Webb, 1986; Guskey & Passaro, 1994; Tschannen-Moran et al., 1998). Personal characteristics, for instance, impact teacher self-efficacy, but so do organizational characteristics. Organizational characteristics can include social, demographic, and economic conditions that affect students (Guskey & Passaro, 1994).
Additionally, school-level characteristics can also impact teaching self-efficacy. In primary and secondary schools, school climate, school location, principal behavior, sense of school community, and decision-making structures impact individual teachers’ self-efficacy (Tschannen-Moran et al., 1998).

Research suggests that organizational characteristics such as classification and type of organization impact faculty behaviors and attitudes within higher education. Faculty members at liberal arts colleges are more likely to engage in successful teaching behaviors, such as active and collaborative pedagogies, higher-order cognitive activities, and enrichment activities (Umbach & Wawrzynsk, 2005). Faculty at private organizations were also more likely to interact with their students and value educational experiences than faculty at public organizations (Umbach & Wawrzynsk, 2005).

The 1996 study by Ramey-Gassert et al. examined factors that influence teaching self-efficacy and teaching outcome expectancy beliefs in elementary school teachers. After completion of their literature review, researchers determined several characteristics that influenced science teaching efficacy beliefs. In addition to individual characteristics, these factors included organizational characteristics (Ramey-Gassert et al., 1996).

Organizational characteristics influencing personal teaching efficacy included school resources and supportive administrators and colleagues were the two themes about school/workplace environment (Ramey-Gassert et al., 1996). Organizational characteristics influencing science teaching outcome expectancy beliefs include student variables, parent/community variables, and school/workplace variables. Researchers recommend further research on gender differences within teaching self-efficacy and
examining factors that influence teaching efficacy to develop effective professional
development experiences (Ramey-Gassert et al., 1996).

The 1996 study by Raudenbush et al. studied whether high school teachers' self-
efficacy varied within and among teachers. The study utilized several variables: student
age, class size, student engagement, discipline taught, organizational environment,
classroom setting, and class type. A sample of 16 secondary schools was used, including
315 separate teachers (Raudenbush et al., 1996).

The results of the study confirmed several research hypotheses (Raudenbush et
al., 1996). Teachers of honors classes reported higher levels of self-efficacy than teachers
of vocational and general classes. This variable shows an even more significant impact
when considering the discipline taught, with math and science teachers reporting more
significant self-efficacy variation than English and social studies. Students' age also
impacted teacher efficacy, with lower grades reporting lower efficacy levels (Raudenbush
et al., 1996).

Following the research of Raudenbush et al. (1996), Ross et al. (1996) developed
a study to determine if teacher's performance expectancies differed from one teaching
situation to another. Researchers studied one organizational characteristic: organizational
learning culture. This variable includes teacher control over instructional conditions and
level of staff collaboration. Analysis of results shows that this variable impacts at least
one aspect of teacher efficacy among participants. Researchers recommend future studies
focus on even more variables, including student characteristics, resource levels, and
district or state policies (Ross et al., 1996).
The 2003 study by Major and Dolly focused on faculty self-efficacy experiences for completing academic tasks. After reviewing the literature, researchers focused on a specific area of concern regarding organizational factors that influence faculty success: faculty onboarding (orientation and induction). Researchers discovered that orientation and induction for new faculty lacked sufficient resources to develop faculty for successful careers related to organizational characteristics. While some activities such as orientation and mentoring take place, these are rare and are often ineffective. Instead, institutions expected faculty to hit the ground running and ensure their own success (Major & Dolly, 2003).

Fives and Looney (2009) explored college-level instructors’ sense of teaching and collective efficacy. They focused on two types of efficacies identified as critical to education: teacher-efficacy and collective-efficacy. Researchers reviewed literature related to both types of efficacies (Fives & Looney, 2009).

Fives and Looney (2009) aimed to determine if any relationship existed between college-level instructors’ sense of teacher efficacy and academic domain. Research revealed significantly different scores for the level of efficacy between the College of Behavioral and Social Sciences and the College of Education regarding the academic domain. Researchers measured collective efficacy in relation to academic department and the professional level of faculty. The research found no significant differences between departments or between professional levels (Fives & Looney, 2009).

Key points from the Fives and Looney study were that, unlike K-12 teachers, higher education faculty showed no significant differences in teacher-efficacy across the experience of professional levels (Fives & Looney, 2009). Researchers hypothesized that
this could have occurred because teaching is ranked moderately important at this research-intensive university, which would align with the moderate efficacy results. The results also indicated to researchers that higher education instructors are a distinct population of educators. Teaching within higher education is unique, often requiring autonomy and isolation different from educators in other levels. Additionally, this isolation and autonomy can also mean that faculty members can only compare their teaching to themselves, so they are sorely unaware of the collegiality typical within elementary and secondary education (Fives & Looney, 2009).

Shazadi et al. (2011) utilized Bandura’s self-efficacy scale to determine the effect of school location on secondary teachers' self-efficacy. Analysis of study results found that school location has a significant impact on teacher self-efficacy. Teachers in urban areas scored higher on the self-efficacy scale compared to their counterparts in rural areas. Researchers hypothesized that this is due to fewer incentives and more difficulties within rural schools (Shazadi et al., 2011).

A faculty self-efficacy study was conducted by Horvitz et al. (2014). This study's literature review focuses on three main areas: barriers to online teaching, teaching self-efficacy, and online teaching-self efficacy. Research indicates that online instructors are more susceptible to burnout and that managing professors’ online teaching satisfaction can help alleviate those issues. Results showed several significant organizational predictors of self-efficacy related to online teaching. The significant organizational predictors of self-efficacy are the category of professional schools and teaching in professional schools. Researchers concluded that while there are paths to increase online teaching self-efficacy, they do not follow traditional paths (Horvitz et al., 2014).
Perera et al. (2019) studied self-efficacy among secondary school teachers and placed each teacher within one of six self-efficacy profiles. Based on the profile outcome, researchers determined which variables impacted the profile placement. Organizational variables used for this study include job satisfaction, classroom climate, and teacher collaboration. All three variables showed a connection to self-efficacy, higher job satisfaction levels, classroom climate, and teacher collaboration seen in higher self-efficacy profiles (Perera et al., 2019).

Summary

Based on Albert Bandura's research and numerous researchers who have continued his work, self-efficacy directly impacts employee performance, engagement, and outcomes (Bandura, 1977, 1997; Stajkovic & Luthans, 1998). Additionally, self-efficacy can serve as a moderator between stress and professional burnout (Yu et al., 2014; Makara-Studzinska et al., 2019). Employees in public service professions, such as education, may benefit the most from increases in self-efficacy due to the higher-than-average burnout rates reported among those employees (Schnitzer, 2019). Within education, self-efficacy increases impact employee performance, outcomes, and burnout and impact student motivation and achievement (Tschannen-Moran et al., 1998).

Although research indicates that both personal and organizational characteristics impact educators’ sense of efficacy, research has not determined if there is a relationship between personal and organizational characteristics and the impact that potential relationship has on self-efficacy, although researchers have recommended it (Korgan, 2016; Major & Dolly, 2003; Ramey-Gassert et al., 1996). Specific combinations of personal and organizational characteristics may impact self-efficacy. Employees with
specific characteristics who work at organizations with specific characteristics may have lower self-efficacy and lower performance than employees at different organizations. Studying these specific relationships will allow organizations to devote specialized resources to improve self-efficacy based on personal and organizational characteristics. Chapter III will present the research design and methodology of the study. Chapter IV will present the results of the study. The final chapter, Chapter V, will discuss the findings, conclusions, and recommendations.
CHAPTER III - METHODOLOGY

The purpose of this quantitative study is to identify the interaction between personal and organizational characteristics concerning employee self-efficacy. This study determines which personal and organizational characteristics impact employee self-efficacy. The population used for this study is educators employed within primary, secondary, and post-secondary institutions. Identifying characteristics will provide institutions with the resources to determine individual employees' self-efficacy and develop plans to address areas that impact their self-efficacy based on personal and organizational characteristics.

This chapter focuses on the research methods utilized in this study. The first section of this chapter describes the research design and objectives. The second section describes the population and sample chosen for the study. The third section discusses the instrumentation used for this study. The final section describes the data collection and data analysis procedures.

Research Design

The research design is the researcher's overall strategy for a study and serves as a blueprint for data collection, measurement, and analysis (De Vaus, 2006). For this study, the researcher utilized an explanatory quantitative design. The use of quantitative methods allows for a broader study with more participants, which increases the generalizability, reliability, and validity of results (Babbie, 2010; Brians, 2011; McNabb, 2008; Singh, 2007). Quantitative methods collect data related to a problem from a specific population, often using survey research (Rahi, 2017). Surveys are pre-designed questionnaires administered to a specific population by a researcher (Rahi, 2017), making
survey research ideal for this study. Explanatory research focuses on gaining insight into a current situation or issue to build or test a theory. The primary purpose of explanatory research is to identify issues and determine critical variables related to those issues (Rahi, 2017).

Research Objectives

The objectives of this study focus on personal and organizational characteristics that impact employee self-efficacy. The research question for this study asks whether interactions between personal and organizational characteristics impact self-efficacy. Six research objectives (RO) form the basis of this study:

**RO1-** Describe the study participants in terms of education level and years of experience.

**RO2-** Describe the participants’ organizational characteristics in terms of type and category.

**RO3-** Determine the interaction between education level and organizational type concerning individual self-efficacy.

**RO4-** Determine the interaction between education level and organizational category concerning individual self-efficacy.

**RO5-** Determine the interaction between years of experience and organizational type concerning individual self-efficacy.

**RO6-** Determine the interaction between years of experience and organizational category concerning individual self-efficacy.
Population and Sample

A target population is a large set of individuals whose study results can be generalized (Banerjee & Chaudhury, 2010). The target population selected for this study consists of public-service employees within the United States, specifically educators employed in primary, secondary, and post-secondary institutions. The United States Department of Education (USDOE) defines public-service careers as those within government agencies, 501(c)(3) organizations, and any not-for-profit organizations providing a public service as its primary purpose, including most educational institutions (USDOE Federal Student Aid). A study population is a subset of the target population that a researcher intends to understand (Banerjee & Chaudhury, 2010; Rahi, 2017).

Population

This study's population includes all instructional staff employed in the following institutional categories: two-year/community colleges, four-year undergraduate colleges/universities, four-year undergraduate and graduate colleges/universities, primary schools, middle schools, and secondary schools within the United States. Performance within educational institutions impacts the employee and the organization, as well as students (Kuusinen, 2016). Within the United States, student achievement in education remains a critical issue. The United States ranks behind eleven other countries in postsecondary attainment (Desilver, 2017; Itzkowitz, 2019). Less than half (45%) of United States citizens between 25 and 34 currently seek a degree beyond a high school diploma. Adding to this issue, almost two-thirds of all jobs in the United States, including 18 of the 30 fastest-growing professions, require postsecondary education (Itzkowitz, 2019). Improving educator performance by improving self-efficacy increases their ability
to effectively teach students the knowledge and skills they need for success upon graduation. This improvement allows the United States to compete globally (Haddad & Taleb, 2016; Itzkowitz, 2019; Kezar & Maxey, 2014). With educational institutions across the country failing to meet many student achievement and outcome measures and the costs of education increasing each year, improving employee performance remains a necessary step for the future success of students, institutions, and the country (Fishman et al., 2017; Itzkowitz, 2019; Tutak & Ludgate, 2019).

**Sampling**

The sampling strategy for this study is non-random, convenience, and purposive. Sampling is the process of selecting a segment of the overall population for study purposes (Rahi, 2017). The selection of a sampling method depends on the purpose of the study and the study’s population. For this study, the researcher used non-probability sampling to select the sample. Non-probability sampling is a method in which the probability of selecting a specific person or item is unknown (Rahi, 2017). The specific non-probability sampling method used for this study is convenience sampling. Convenience sampling involves collecting data from a population that is easily accessible to the researcher and allows the researcher to gather information in a cost and time-effective manner (Rahi, 2017). Purposive samples possess specific qualities purposefully chosen by the research for inclusion in a study (Rahi, 2017). Sampling for this study is convenient because the researcher used educational participants, easily accessible through the survey system’s filtering procedures. This study’s sampling is purposive because participants must be an employee in an educational institution for inclusion.
To determine the necessary sample size, the researcher utilized an online sample size calculator, Intellectus Statistics. Intellectus Statistics is a tool that determines the sample size for data collection. To determine sample size, the researcher must calculate the statistical power of the statistical test (Brownlee, 2018; Cohen, 1992). Statistical power is the probability of detecting an effect when an actual effect is present (Brownlee, 2018; Cohen, 1992). To determine the size of the population, the researcher designated margin of error, determined confidence levels, and decided the statistical power (Brownlee, 2018; Cohen, 1992). With a population size greater than 5,000,000 educators (NCES), 385 participants are necessary to achieve a 95% confidence level, 5% margin of error, and 80% statistical power (Intellectus Statistics). A 95% confidence level is the most used level by social science researchers (Allen, 2017). Statistical power of 80% is standard for research design (Brownlee, 2018). The following section focuses on the validity of the research design for this study.

Validity of the Research Design

Validity ensures that research is credible and that researchers take proper actions during the research process (Shadish et al., 2002). There are four validity types relevant to this study: external validity, internal validity, construct validity, and statistical conclusion validity. External validity focuses on the generalizability of research outcomes to individuals not included in the study (Shadish et al., 2002). To control external validity threats, the study population includes employees across various institutions. For example, the study population includes primary, secondary, and post-secondary institutions and is not limited by location.
Internal validity focuses on the extent to which inferences can be made regarding causal relationships between variables. Internal validity emphasizes eliminating alternative explanations for a particular finding (Shadish et al., 2002). The instrument used for this study is a validated instrument that has been used in numerous self-efficacy studies. Additionally, each member of the total educator population in MTurk has an equal chance of participating in this study, and all participants complete the same survey instrument.

Construct validity focuses on how inferences can be made based on the study structure and measures. Construct validity ensures that a study measures what the researcher intends to measure (Shadish et al., 2002). The researcher used a reliable and valid instrument that measures what the researcher intends to measure to ensure construct validity. The reliability of the chosen instrument is .94 alpha, and the items within the instrument are positively correlated with items of three other instruments that measure teacher self-efficacy (Tschannen-Moran & Hoy, 2001). Chronbach’s Alpha is used to measure construct validity. Alpha scores closer to 1 are more reliable (Shadish et al., 2002). Additionally, the researcher required participants to complete the measurement instrument before completing personal characteristic questions to eliminate hypothesis guessing and research expectations.

According to Shadish et al. (2002), statistical conclusion validity focuses on whether variables covary and the significance of their covariation. Conclusion validity is integral in determining the relationship between variables, which is this study's intent. Two errors can occur related to conclusion validity: Type I and Type II. Type I error occurs when a researcher rejects a null hypothesis when it is true. Type II error occurs
when a researcher does not reject a null hypothesis when it is false. Participants in the study population were educators within an educational institution, limiting the threat of heterogeneity. To ensure statistical conclusion validity, the researcher set the statistical power of the study at 80%. To ensure statistical power of 80%, the researcher required 385 participants for this study (Shadish et al., 2002).

**Instrument**

Survey research is defined as the “collection of information from a sample of individuals through their responses to questions” (Check & Schutt, 2012, p. 160). Survey research is versatile, efficient, effective, and generalizable, making it appealing for research of large populations (Check & Schutt, 2012; Ponto, 2015). This study utilized survey research. The researcher administered a self-administered Qualtrics questionnaire via Amazon’s Mechanical Turk (MTurk) survey system. The researcher loaded the Qualtrics survey link to MTurk and set the survey criterion available only to those employees within the educational field. No identifiable information other than the required personal characteristic data were stored so that all responses remained confidential. Based on Amazon’s Support Team's response, MTurk has over 500,000 workers, although specific demographic information is unavailable (J. Chandler, personal communication, March 11, 2021). Samples of MTurk studies show that participants’ demographic characteristics are closely approximated to those of the general population (Burnham et al., 2018; Huff & Tingley, 2015). This generalizability has remained stable throughout the COVID-19 pandemic (Moss et al., 2020). Berinsky et al. (2012) conducted several studies using MTurk. The researchers report collecting 400 surveys from the overall United States population within one day with an incentive of $0.75 and
within three days with an incentive of $0.50. Using Berinsky et al. (2012) as an example, the researcher used these incentive strategies for the current study. The following section details the self-efficacy instrument used for this study.

Demographic Questionnaire

The researcher asked personal characteristic questions of each participant (Appendix A, Q4.1-4.2). Personal characteristics consisted of education level and years of experience. For institutional characteristics, participants selected their current institutions' characteristics. Institutional characteristics include the type of institution and category of institution. These characteristics derive from previous studies and all impact the self-efficacy of employees within education (Haddad & Taleb, 2015; Fives & Looney, 2009; Horvitz et al., 2014; Korgan, 2016; Major & Dolly, 2003; Perera et al., 2019; Ramey-Gassert et al., 1996; Raudenbush et al., 1996; Ross et al., 1996; Shazadi et al., 2011).

Teacher Self-Efficacy Scale

Educator-efficacy was measured using a 24-item Likert scale (Appendix A, Q2.1-3.1) adaptation of the Ohio State Teacher-Efficacy Scale (Tschannen-Moran & Hoy, 2000), now referred to as the Teacher Sense of Efficacy Scale, or TSES (Fives & Looney, 2009; Tschannen-Moran & Hoy, 2001). This measure was designed to assess efficacy for three aspects of teaching: student engagement, instructional practice, and classroom management (Tschannen-Moran & Hoy, 2001). The TSES is the instrument of choice due to its factor structure and assessment of a broad range of teacher capabilities (Tschannen-Moran & Hoy, 2001).
This study used two versions of the TSES for primary and secondary schools based on their initial characteristic selections and educators within postsecondary institutions. Based on participant answers to the institutional type question in the demographic questionnaire (Q1.1), the survey automatically sent each participant to the correct version of the TSES questions. Each item on the TSES is measured by choosing a level of nine choices: 1 for Nothing, 3 for Very Little, 5 for Some Influence, 7 for Quite a Bit, and 9 for A Great Deal. Researchers slightly modified individual items from the TSES to reflect university students and environment more accurately. Specifically, “schoolwork” was changed to “coursework”; “school/classroom rules” were changed to “course policies,” and references to “class” or “classroom” were changed to “course” (Fives & Looney, 2009). Researchers also altered the references between “students” and “undergraduates” (Fives & Looney, 2009). Items about all three aspects of teaching (i.e., student engagement, instructional practice, and classroom management) were maintained in the adapted scale since college-level instructors encounter challenges in each of these teaching domains (Fives & Looney, 2009). Researchers combined both versions for analysis, as the only differences are terminology and did not impact the instruments' overall content. For this study, the researcher also asked participants to provide information about their personal characteristics.

*Instrument Reliability and Validity*

The TSES has been used extensively in self-efficacy studies. These studies indicate significant relationships between teacher efficacy, commitment, job satisfaction, and classroom structures (Nie et al., 2012). Additionally, Tschannen-Moran and Hoy and numerous teacher-efficacy researchers have assessed the reliability and validity of TSES.
According to Statistics Solutions (2018), the TSES is reliable and valid (Bilali, 2015; Statistics Solutions, 2018; Tschannen-Moran & Hoy, 2001). The original OSTES instrument was developed and tested through a series of studies conducted by Tschannen-Moran and Hoy (2001). Through research and development, Tschannen-Moran and Hoy shortened the survey to its current 22-items (Woolfolk & Hoy, 1990).

Tschannen-Moran and Hoy’s findings demonstrate that the instrument has acceptable validity and that the factors are reliable representations of the various teaching tasks (Bilali, 2015; Tschannen-Moran & Hoy, 2001). The factorial analysis shows three factors that account for 54% variances for teachers in service and 57% variance for pre-service teachers: efficacy in student engagement, efficacy in instructional practices, and classroom management efficacy. The overall reliability of TSES was rated high, with Cronbach Alpha =.90 (Bilali, 2015; Tschannen-Moran & Hoy, 2001). The following section focuses on instrument scoring.

**Scoring**

Tschannen-Moran and Hoy (2001) recommend conducting a factor analysis for the 24-item survey (Appendix D). Researchers load unweighted means of the items on each factor in specific groupings: Items 1, 2, 4, 6, 9, 12, 14, and 22 for Student Engagement Efficacy; 7, 10, 11, 17, 18, 20, 23, and 24 for Instructional Strategies Efficacy; and 3, 5, 8, 13, 15, 16, 19, and 21 for Classroom Management Efficacy (Tschannen-Moran & Hoy, 2001). These measures ensured that each survey used for data analysis contained appropriate information for assessment. The information depicted in Table 2 details alignment between research objectives and survey questions.
Table 2

Survey Map Aligning Research Objectives and Survey Questions

<table>
<thead>
<tr>
<th>Research Objective</th>
<th>Research Objective</th>
<th>Survey Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>RO1</td>
<td>Describe the participants of the study in terms of highest degree and years of experience.</td>
<td>Q4.1-Q4.2</td>
</tr>
<tr>
<td>RO2</td>
<td>Describe the participants’ organizational characteristics in terms of type and category.</td>
<td>Q1.1-Q1.2</td>
</tr>
<tr>
<td>RO3</td>
<td>Determine the interaction between education level and organizational type concerning individual self-efficacy.</td>
<td>Q1.1 &amp; Q4.1</td>
</tr>
<tr>
<td>RO4</td>
<td>Determine the interaction between education level and organizational category concerning individual self-efficacy.</td>
<td>Q1.1 &amp; Q4.2</td>
</tr>
<tr>
<td>RO5</td>
<td>Determine the interaction between years of experience and organizational type concerning individual self-efficacy.</td>
<td>Q1.2 &amp; Q4.1</td>
</tr>
<tr>
<td>RO6</td>
<td>Determine the interaction between years of experience and organizational category concerning individual self-efficacy.</td>
<td>Q1.2 &amp; Q4.2</td>
</tr>
</tbody>
</table>

Institutional Review Board Approval

Before any data collection began, the researcher first requested approval through The University of Southern Mississippi’s Institutional Review Board (IRB; Appendix E). IRBs are committees that review research proposals involving human subjects (Roberts, 2010). An IRB intends to protect research participants from harm and ethical issues. Before data collection, researchers must submit a proposal to and receive approval from the IRB. A detailed explanation of the study, including procedures for consent,
participant recruitment, and protecting confidential information, was provided to the IRB for approval. IRBs have two types of reviews: full and expedited. Expedited reviews occur when there is minimal risk to participants, while full reviews occur when there is a greater than minimal risk (Roberts, 2010).

Consent to Participate

The researcher conducted survey research through Amazon’s MTurk system. The first page of the survey detailed the study’s purpose, participation requirements, the voluntary and confidential nature of participation, and the researcher’s contact information. Participants electronically confirmed consent to participate by clicking “YES, I consent” and then routed participants who provided consent to the survey’s first question. Participants who refused consent were sent to a screen thanking them for their time.

Confidentiality

According to Roberts (2010), both researchers and respondents expect confidentiality of survey data. Confidentiality refers to protecting the collected data and ensuring that participants are not identified without their explicit permission. It is the responsibility of researchers to ensure the confidentiality of participants. By using MTurk, the researcher creates a layer of anonymity between the participant and the researcher. Further, participant names were not collected, associated with any data, or used in any reporting.
Data Collection

The data collection section outlines the steps to obtain data from participants (Lunenberg & Irby, 2008). For this quantitative study, the researcher described the pilot study. Additionally, the researcher described the pilot survey, survey distribution, response rate, and the data collection plan. The survey remained open for a total of 14 days. Once all surveys were completed, all data were exported to SPSS for analysis. The procedures used to collect data occurred in two phases. Phase I included IRB Approval and pilot testing. Phase II included data collection using the survey instrument. Table 3 summarizes the data collection plan. The following section details the pilot survey.

For this study, the researcher loaded the Qualtrics survey link into Amazon Mechanical Turk (MTurk). One section was for participants employed at primary and secondary schools, and another was for postsecondary institutions. MTurk is a web-based research tool that increased in popularity over the last decade (Porter et al., 2018; Weinberg et al., 2019; Aguinis et al., 2020). MTurk’s popularity can be attributed to its large and diverse population pool, ease of access, data collection speed, low cost, and research design flexibility (Aguinis et al., 2020). MTurk has built-in filtering capabilities and an automated process to deliver payment to participants. MTurk enables the researcher to set the price per Human Intelligence Task (HIT), and the price includes the fee for using MTurk and the amount the researcher will pay the participants. A HIT represents a single virtual task that a participant can work on, submit an answer, and collect a reward for completing. MTurk transfers the HIT reward to the participants’ Amazon Payment account upon completion of each HIT. The researcher selected MTurk.
based on these aspects, particularly quickly reaching a large population pool, and limiting participants based on build-in criteria functionality.

The researcher specified criteria within MTurk to allow only individuals working in education to access and complete the survey. Only individuals within the population pool in MTurk were able to view the survey. The surveys first asked participants to provide institutional characteristics. Participants selected their current institutions’ characteristics, the type of institution, and category of institution. Based on the participant selection of institutional type, Qualtrics populated the correct survey to assess efficacy for three aspects of teaching: student engagement, instructional practice, and classroom management. The instrument also gathered personal characteristics. Before distributing the survey to the target population, the researcher conducted a pilot test for the survey instrument.

Pilot Study

Pilot studies are studies that test research procedures, instruments, response rates, and other research components. Pilot studies intend to simulate the data collection process in the intended setting and to adjust, as necessary, before launching the entire study (van Teijlingen & Hundley, 2002). The pilot study was active for three days and was limited to thirty participants. Each participant earned $.25 for completing the pilot study. Based on the pilot study, the researcher made necessary adjustments. The researcher then launched the adjusted survey the following day.

Survey Distribution

The researcher used Amazon MTurk to provide information about the study, including a confidentiality guarantee, the time required to complete the survey
instrument, and the intended use of study results. Potential participants must have met one criterion: currently teach in the field of education. Participants meeting the criteria were shown the study information and could select to participate in the study. MTurk automatically directed participants to the survey instrument that included the guarantee of confidentiality, the estimated time to complete the study, general information and directions, and the intended use of study results.

Maximizing Response Rate

Ensuring an adequate response rate is an essential component of survey research. Survey researchers often rely on incentives to increase response rates (Conn et al., 2019). An analysis of 32 surveys with over 200,000 respondents found that online surveys that offered incentives had 19% higher response rates than those without any incentive (Conn et al., 2019; Goritz, 2006). A key component of Amazon MTurk is providing monetary incentives in the form of Amazon credit to participants of HITs. For this study, the researcher provided an initial incentive of $.25, monitored response rates, and increased the reward to $.50 on day five and $.75 on day ten. MTurk automatically processed the HIT award to the participants within three days of survey completion.

Table 3

<table>
<thead>
<tr>
<th>Day</th>
<th>Phase</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>I</td>
<td>IRB Approval</td>
</tr>
<tr>
<td>1</td>
<td>I</td>
<td>Launched pilot survey in Amazon MTurk</td>
</tr>
</tbody>
</table>
Table 3 (continued)

<table>
<thead>
<tr>
<th>Day</th>
<th>Phase</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>I</td>
<td>Reviewed pilot survey</td>
</tr>
<tr>
<td>5</td>
<td>II</td>
<td>Launched survey in Amazon MTurk with $.25 reward</td>
</tr>
<tr>
<td>9</td>
<td>II</td>
<td>Increased reward to $.50</td>
</tr>
<tr>
<td>14</td>
<td>II</td>
<td>Increased reward to $.75</td>
</tr>
<tr>
<td>19</td>
<td>II</td>
<td>Began analyzing survey results</td>
</tr>
</tbody>
</table>

Data Analysis

Before data analysis, the researcher removed cases where participants did not complete each characteristic question. Second, the researcher calculated descriptive statistics to summarize the characteristics of participants and their organizations. Finally, the researcher used a factorial analysis of variance (ANOVA) to determine the interaction between the dependent and independent variables. ANOVAs test whether groups differ from each other based on characteristics (Statistics Solutions, 2020). Table 4 presents the data analysis plan.

Table 4

Data Analysis Plan

<table>
<thead>
<tr>
<th>Research Objective</th>
<th>Data</th>
<th>Instrument Item Number</th>
<th>Scale</th>
<th>Statistical Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>RO1</td>
<td>Education Level</td>
<td>Q4.1</td>
<td>Ordinal</td>
<td>Frequency Distribution</td>
</tr>
<tr>
<td></td>
<td>Years of Experience</td>
<td>Q4.2</td>
<td>Ordinal</td>
<td>Frequency Distribution</td>
</tr>
</tbody>
</table>
Table 4 (continued)

<table>
<thead>
<tr>
<th>Research Objective</th>
<th>Data</th>
<th>Instrument Item Number</th>
<th>Scale</th>
<th>Statistical Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>RO2</td>
<td>Organizational Type</td>
<td>Q1.1</td>
<td>Nominal</td>
<td>Frequency Distribution</td>
</tr>
<tr>
<td></td>
<td>Organizational Category</td>
<td>Q1.2</td>
<td>Nominal</td>
<td>Frequency Distribution</td>
</tr>
<tr>
<td>RO3</td>
<td>Overall Efficacy (DV)</td>
<td>Q2.1-3.1</td>
<td>Interval</td>
<td>ANOVA</td>
</tr>
<tr>
<td></td>
<td>Education Level (IV)</td>
<td>Q4.1</td>
<td>Ordinal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Organizational Type (IV)</td>
<td>Q1.1</td>
<td>Nominal</td>
<td></td>
</tr>
<tr>
<td>RO4</td>
<td>Overall Efficacy (DV)</td>
<td>Q2.1-3.1</td>
<td>Interval</td>
<td>ANOVA</td>
</tr>
<tr>
<td></td>
<td>Education Level (IV)</td>
<td>Q4.1</td>
<td>Ordinal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Organizational Category (IV)</td>
<td>Q1.2</td>
<td>Nominal</td>
<td></td>
</tr>
<tr>
<td>RO5</td>
<td>Overall Efficacy (DV)</td>
<td>Q2.1-3.1</td>
<td>Interval</td>
<td>ANOVA</td>
</tr>
<tr>
<td></td>
<td>Years of Experience (IV)</td>
<td>Q4.2</td>
<td>Ordinal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Organizational Type (IV)</td>
<td>Q1.1</td>
<td>Nominal</td>
<td></td>
</tr>
<tr>
<td>RO6</td>
<td>Overall Efficacy (DV)</td>
<td>Q2.1-3.1</td>
<td>Interval</td>
<td>ANOVA</td>
</tr>
<tr>
<td></td>
<td>Years of Experience (IV)</td>
<td>Q4.2</td>
<td>Ordinal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Organizational Category (IV)</td>
<td>Q1.2</td>
<td>Nominal</td>
<td></td>
</tr>
</tbody>
</table>

Statistical Tests

For this study, the researcher conducted two statistical tests to address the research objectives. Using descriptive statistics for Research Objectives One and Two,
the researcher determined the frequency and percent of each value of the independent variables. For Research Objectives Three, Four, Five, and Six, the researcher used factorial ANOVA to determine the interaction between the independent variables. Researchers use factorial ANOVAs to study the interaction between two or more independent variables in relation to one dependent variable (Statistics Solutions, 2020). An interaction effect is when the effect of one independent variable on the dependent variable is different based on different levels of other independent variables (Laerd Statistics, 2015). A factorial ANOVA reveals two types of effects: main effects and interactions (Blankenship, 2017). Main effects represent the influence of each independent variable independent of the other, while interactions represent the influence of combinations of independent variables (Blankenship, 2017). A researcher can measure both main effects and interactions within the same study design (Blankenship, 2017), which is integral to this study’s purpose.

To carry out a factorial ANOVA, the researcher used the GLM Univariate procedure in SPSS to determine whether there is an interaction effect between the independent and dependent variables. In the GLM procedure, the researcher specified the dependent variable as the dependent variable and the independent variables as fixed factors. The researcher used the Post Hoc tests dialog box to conduct a comparison between factor levels. Post hoc tests are helpful if any variables include more than two levels. A standard post hoc test is Student-Newman-Keuls (Statistics Solutions, 2020), and the researcher used this test for the study. The Options dialog box allows for additional output selections. The researcher selected estimates of effect size (Levene’s test) and homogeneity tests. This produced the Tests of Between-Subjects Effects table.
that provides a significance value for each independent variable and a combination of variables (Laerd Statistics, 2015). The significance column within that table produces a p-value. If this value is \( p < .05 \), there is a statistically significant interaction effect. If \( p > .05 \), there is no statistically significant interaction effect (Laerd Statistics, 2015). This procedure also produces Levene’s test for equality of variances, which the researcher will use to test an assumption of ANOVA (Laerd Statistics, 2015). The following section focuses on the assumptions of ANOVA tests.

Statistical Test Assumptions

A key research component involves checking to ensure the data collected can be analyzed using a specific statistical test (Laerd Statistics, 2015). Checking these statistical test assumptions is required to analyze data for Research Objectives Three, Four, Five, and Six. To do this, the researcher verified that the data met six assumptions for ANOVA tests (Laerd Statistics, 2015). The first assumption verifies that the dependent variable can be measured on a continuous scale. The dependent variable for this study is a continuous interval scale, so the first assumption is verified. The instrument provided an ordinal scale value for each self-efficacy question. The researcher added each self-efficacy question rating, calculated the total self-efficacy score, then divided the total by the number of questions. This value served as the continuous interval scale value suitable for ANOVA testing.

The second assumption verifies that the independent variables consist of two or more categorical, independent groups. The independent variables all contain two or more groups, so the second assumption is verified. The third assumption is that the study should have independence of observations. There is no relationship between the
participants in each group or between groups, so the third assumption is verified. The fourth assumption is that there are no significant outliers in any cell. Outliers are data points that do not follow the typical pattern of the dataset. Outliers can cause generalization issues and distort the differences between the cells of the design (Laerd Statistics, 2015). The researcher tested this assumption by conducting the Split File and Explore procedures in SPSS. Splitting the file prepares it to generate boxplots and tests for normality. SPSS produces boxplots for each cell of the design and are used to detect outliers. Two categories of outliers can be detected: outliers and extreme points. Data points more than 1.5 box lengths from the edge of their box are outliers, while data points more than three box lengths from the edge are extreme points (Laerd Statistics, 2015).

If the researcher discovers outliers, the next step is to determine the type of outlier. Generally, there are three reasons for outliers: data entry errors, measurement errors, and unusual values (Laerd Statistics, 2015). Data entry errors and measurement errors can typically be resolved by correcting and re-running all previous tests. Researchers have two options if an unusual value is discovered: to keep the outlier or remove it. Removing the outlier is considered as the last resort option. The researcher must explain why the outlier was removed and provide information about the data point (Laerd Statistics, 2015).

The fifth assumption is that the dependent variable should be approximately normally distributed for each design cell (Laerd Statistics, 2015). This is typically checked using tests and graphical methods, with the most common method being the Shapiro-Wilk test of normality. The Shapiro-Wilk test produces a Tests of Normality table, which includes a significance (p-value) column. If the assumption of normality has
been violated, the significance value will be $p < .05$. If the assumption of normality has not been violated, the significance value will be $p > .05$ (Laerd Statistics, 2015). If data is not normally distributed, the researcher has three options: transform the dependent variable, continue, or perform a robust analysis (Laerd Statistics, 2015).

The sixth and final assumption is that the dependent variable's variance is equal in each design cell, often referred to as homogeneity of variances (Laerd Statistics, 2015). If variances are unequal, it can lead the researcher to make incorrect statistical conclusions. This assumption is tested using Levene’s test of equality of variances. This test produces a table that includes a significance value column. As with previous significance values, if $p > .05$, the test is not statistically significant, the data has equal variances, and the data does not violate the assumption. If $p < .05$, the test is statistically significant, the data does not have equal variances, and the data violates the assumption of homogeneity of variances (Laerd Statistics, 2015). If data does not have homogeneous variances, the researcher has three options: transform the dependent variable, conduct a robust analysis, or perform weighted least squares (WLS) regression (Laerd Statistics, 2015).

*Research Objectives One and Two*

The researcher used frequency distribution to describe the participants in terms of highest degree earned and years of experience to address Research Objectives One and Two. Researchers use frequency distribution to summarize a dataset or population (Field, 2013). The researcher also used frequency distribution to describe the participant’s organizations regarding institutional category and institutional type. The researcher reports each characteristic by frequency and percent in Chapter IV.

*Research Objective Three*
To address Research Objective Three, the researcher used ANOVA to determine the interaction between each independent variable. Researchers use factorial ANOVA to measure the interaction between independent variables in relation to a dependent variable (Blankenship, 2017). This study has a total of four independent variables and one dependent variable. For Research Objective Three, the dependent variable is overall self-efficacy. The independent variables are education level and organizational type.

The researcher determined the interaction between the independent variables in relation to the dependent variable using the GLM Univariate procedure in SPSS and checking the p-values within the Tests of Between-Subjects Effects- Personal Characteristics table. The significance column within this table produces a significance value, and if this value is p < .05, there is a statistically significant interaction effect. If p > .05, there is no statistically significant interaction effect (Laerd Statistics, 2015). The researcher reports the output of each table in Chapter IV.

*Research Objective Four*

To address Research Objective Three, the researcher used ANOVA to determine the interaction between each independent variable. Researchers use factorial ANOVA to measure the interaction between independent variables in relation to a dependent variable (Blankenship, 2017). This study has a total of four independent variables and one dependent variable. For Research Objective Four, the dependent variable is overall self-efficacy. The independent variables are education level and organizational category.

The researcher determined the interaction between the independent variables in relation to the dependent variable using the GLM Univariate procedure in SPSS and checking the p-values within the Tests of Between-Subjects Effects- Personal Characteristics table.
Characteristics table. The significance column within this table produces a significance value, and if this value is $p < .05$, there is a statistically significant interaction effect. If $p > .05$, there is no statistically significant interaction effect (Laerd Statistics, 2015). The researcher reports the output of each table in Chapter IV.

Research Objective Five

To address Research Objective Five, the researcher used ANOVA to determine the interaction between each independent variable. Researchers use factorial ANOVA to measure the interaction between independent variables in relation to a dependent variable (Blankenship, 2017). This study has a total of four independent variables and one dependent variable. For Research Objective Five, the dependent variable is overall self-efficacy. The independent variables are years of experience and organizational type.

The researcher determined the interaction between the independent variables in relation to the dependent variable using the GLM Univariate procedure in SPSS and checking the p-values within the Tests of Between-Subjects Effects- Personal Characteristics table. The significance column within this table produces a significance value, and if this value is $p < .05$, there is a statistically significant interaction effect. If $p > .05$, there is no statistically significant interaction effect (Laerd Statistics, 2015). The researcher reports the Tests of Between-Subjects Effects table in Chapter IV.
Research Objective Six

To address Research Objective Five, the researcher used ANOVA to determine the interaction between each independent variable. Researchers use factorial ANOVA to measure the interaction between independent variables in relation to a dependent variable (Blankenship, 2017). This study has a total of four independent variables and one dependent variable. For Research Objective Five, the dependent variable is overall self-efficacy. The independent variables are years of experience and organizational category.

The researcher determined the interaction between the independent variables in relation to the dependent variable using the GLM Univariate procedure in SPSS and checking the p-values within the Tests of Between-Subjects Effects- Personal Characteristics table. The significance column within this table produces a significance value, and if this value is p < .05, there is a statistically significant interaction effect. If p > .05, there is no statistically significant interaction effect (Laerd Statistics, 2015). The researcher reports the Tests of Between-Subjects Effects table in Chapter IV.

Summary

Chapter III presents the research design, procedures, and methodology for this study. The researcher discusses the population and sample of the study and the survey instrument. Also discussed are the instrument's reliability and validity, the data collection procedures, and the data analysis plan. Chapter IV presents data analysis and results. Chapter V presents the study’s findings, conclusions, and recommendations.
CHAPTER IV – RESULTS OF THE STUDY

The purpose of this study was to identify the interaction between personal and organizational characteristics on employee self-efficacy to provide organizations with tools they can use to address self-efficacy concerns among their employees. This study determined which personal and organizational characteristics impact employee self-efficacy. The population used for this study was educators employed within primary, secondary, and post-secondary institutions. Identifying characteristics provides educational institutions with the resources to determine individual employees' self-efficacy and develop plans to address areas that impact their self-efficacy based on personal and organizational characteristics.

This chapter provides the results of the study. Within this chapter, the researcher explains each research objective. The researcher details the research findings in three sections. The first section, personal demographics, provides findings related to RO1. The second section, organizational demographics, provides findings related to RO2. The third section, self-efficacy results, provides findings related to RO3, RO4, RO5, and RO6. Each section describes the statistical analysis conducted and the criteria to meet the statistical test assumptions. The researcher utilizes tables and figures to provide a visual representation of the data results.

Personal Demographics

The personal demographics collected in RO1 directly align with the personal characteristics needed for RO3, RO4, RO5, and RO6. These characteristics include level of education and years of experience. RO1 analyzes the distribution of these characteristics.
Research Objective One:

Describe the study participants in terms of education level and years of experience.

The researcher utilized frequency distributions to analyze the personal demographic data for this study. The frequency distribution shows the frequency, percentage, and cumulative percent for each response. Researchers use frequency distribution to summarize a dataset or population (Field, 2013). The frequency distribution provides a breakdown of the personal demographic information, including education level and years of experience. Tables 5 and 6 display an analysis of results for personal demographics.

**Education level.** The education level ranged from high school graduate/some college to graduate/professional degree. The largest group concerning education level was educators with a graduate or professional degree, totaling 63.6% of participants. Of the 385 participants, 2.6% have a completed high school or some college. Approximately 33.8% earned an associate or bachelor’s degree.

<table>
<thead>
<tr>
<th>Education level</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>High school graduate / some college</td>
<td>10</td>
<td>2.6</td>
<td>2.6</td>
</tr>
<tr>
<td>Associate / Bachelor's degree</td>
<td>130</td>
<td>33.8</td>
<td>36.4</td>
</tr>
<tr>
<td>Graduate / professional degree</td>
<td>245</td>
<td>63.6</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>385</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

**Years of Experience in the Field.** The number of years in the field ranged from 1 year to more than ten years. The largest group of educators in the field had more than ten
years of experience, totaling 41% of participants. Of the 385 participants, 31.4% had 1-5 years of experience. Approximately 27.5% had 6-10 years of experience.

Table 6

*Years of Experience*

<table>
<thead>
<tr>
<th>Years of Experience</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5 years</td>
<td>121</td>
<td>31.4</td>
<td>31.4</td>
</tr>
<tr>
<td>6-10 years</td>
<td>106</td>
<td>27.5</td>
<td>58.9</td>
</tr>
<tr>
<td>More than 10</td>
<td>158</td>
<td>41</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>385</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Organizational Demographics

The organizational demographics collected in RO2 directly align with the organizational characteristics needed for RO3, RO4, RO5, and RO6. These characteristics include organizational type and organizational category. RO2 analyzes the distribution of these characteristics.

*Research Objective Two:*

Describe the participants’ organizational characteristics in terms of type and category.

The researcher utilized frequency distributions to analyze the organizational demographic data for this study. The frequency distribution shows the frequency, percentage, and cumulative percent for each response. Researchers use frequency distribution to summarize a dataset or population (Field, 2013). The frequency distribution provides a breakdown of the organizational demographic information,
including organizational type and organizational category. Tables 7 and 8 display an analysis of results for organizational demographics.

Organizational Type and Category. The organizational type categories were primary/secondary (1\textsuperscript{st}-12\textsuperscript{th} grades) and postsecondary (college/university). The largest group of educators worked in primary/secondary school environments, totaling 62.9\% of participants. Of the 385 participants, 37.1\% worked in postsecondary environments. Additionally, 71.2\% of participants reported working in a public institution. Approximately 28.8\% of participants worked in a private institution.

Table 7

<table>
<thead>
<tr>
<th>Organizational Type</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary / Secondary</td>
<td>242</td>
<td>62.9</td>
</tr>
<tr>
<td>Postsecondary</td>
<td>143</td>
<td>37.1</td>
</tr>
<tr>
<td>Total</td>
<td>385</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 8

<table>
<thead>
<tr>
<th>Organizational Category</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>274</td>
<td>71.2</td>
</tr>
<tr>
<td>Private</td>
<td>111</td>
<td>28.8</td>
</tr>
<tr>
<td>Total</td>
<td>385</td>
<td>100</td>
</tr>
</tbody>
</table>
Self-Efficacy

The purpose of this study was to identify the interaction between personal and organizational characteristics on employee self-efficacy. A statistical interaction occurs when the effect of one independent variable on the dependent variable changes significantly based on the level of a second independent variable (Blankenship, 2017). Researchers use factorial ANOVA to measure the interaction effects of independent variables (Blankenship, 2017). For Research Objective Three, the dependent variable is overall efficacy. The independent variables are years of experience and organizational category. The researcher determined the interaction effect between independent variables using the GLM Univariate procedure in SPSS and checking the p-values within the Tests of Between-Subjects Effects table (Laerd Statistics, 2015; Statistics Solutions, 2020).

Table 9 displays the results of the full ANOVA table. The researcher used results from this table for each research objective but only included the relevant variables for each objective analysis and discussion section.

Table 9

Self-Efficacy ANOVA

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational Type</td>
<td>2.955</td>
<td>1</td>
<td>2.955</td>
<td>2.668</td>
<td>0.103</td>
</tr>
<tr>
<td>Years of Experience</td>
<td>0.71</td>
<td>2</td>
<td>0.355</td>
<td>0.32</td>
<td>0.726</td>
</tr>
<tr>
<td>Organizational Category</td>
<td>0.503</td>
<td>1</td>
<td>0.503</td>
<td>0.454</td>
<td>0.501</td>
</tr>
<tr>
<td>Education Level</td>
<td>8.251</td>
<td>2</td>
<td>4.125</td>
<td>3.724</td>
<td>0.025</td>
</tr>
<tr>
<td>Organizational Type * Years of Experience</td>
<td>7.647</td>
<td>2</td>
<td>3.823</td>
<td>3.452</td>
<td>0.033</td>
</tr>
</tbody>
</table>
Before further analysis could be completed, the researcher tested the fourth, fifth, and sixth statistical test assumptions for ANOVAs. These tests cover all independent variables for each research objective. To test the fourth assumption that there are no significant outliers in any cell, the researcher conducted the Split File and Explore procedures in SPSS. Splitting the file prepares it to generate boxplots and tests for normality (Laerd Statistics, 2015; Statistics Solutions, 2020). Splitting the file is required because the dataset contains two or more independent variables. The split file function allows the researcher to group independent variables, ideal for this study. The research chose groupings that matched the groupings within each research objective. SPSS produces boxplots for each cell of the design and are used to detect outliers. Two categories of outliers can be detected: outliers and extreme points. Data points more than 1.5 box lengths from the edge of their box are outliers, while data points more than three

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational Type * Organizational Category</td>
<td>5.207</td>
<td>1</td>
<td>5.207</td>
<td>4.701</td>
<td>0.031</td>
</tr>
<tr>
<td>Organizational Type * Education Level</td>
<td>0.962</td>
<td>2</td>
<td>0.481</td>
<td>0.434</td>
<td>0.648</td>
</tr>
<tr>
<td>Years of Experience * Organizational Category</td>
<td>0.511</td>
<td>2</td>
<td>0.255</td>
<td>0.231</td>
<td>0.794</td>
</tr>
<tr>
<td>Years of Experience * Education Level</td>
<td>1.8</td>
<td>3</td>
<td>0.6</td>
<td>0.542</td>
<td>0.654</td>
</tr>
<tr>
<td>Organizational Category * Education Level</td>
<td>0.14</td>
<td>2</td>
<td>0.07</td>
<td>0.063</td>
<td>0.939</td>
</tr>
<tr>
<td>Error</td>
<td>394.346</td>
<td>356</td>
<td>1.108</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
box lengths from the edge are extreme points (Laerd Statistics, 2015; Statistics Solutions, 2020). A total of five outliers were present in the data.

The first outlier, case 227, is an employee of a private institution with 6-10 years of experience (Figure 2). The second outlier, case 210, is a primary/secondary institution employee with a graduate/professional degree (Figure 3). The third outlier, case 232, is a primary/secondary institution employee with more than ten years of experience (Figure 4). The fourth outlier, case 367, is an employee of a postsecondary institution with a graduate/professional degree (Figure 5). The fifth and final outlier, case 319, is a primary/secondary institution employee with more than ten years of experience and a graduate/professional degree (Figure 6). These values were considered unusual values. The researcher kept the outliers for this study because the analysis was not substantially affected when comparing ANOVA results with and without the outliers (Laerd Statistics, 2015).
Figure 2. First Extreme Outlier

Figure 3. Second Extreme Outlier
Figure 4. Third Extreme Outlier

Figure 5. Fourth Extreme Outlier
The fifth assumption is that the dependent variable should be approximately normally distributed for each design cell (Laerd Statistics, 2015). This is typically checked using tests and graphical methods, with the most common method being the Shapiro-Wilk test of normality (Laerd Statistics, 2015). The Shapiro-Wilk test produces a Tests of Normality table, which includes a significance (p-value) column. If the assumption of normality has been violated, the significance value will be p < .05. If the assumption of normality has not been violated, the significance value will be p > .05. If p < .05, the data statistically deviates from a normal distribution (Laerd Statistics, 2015). Of the possible survey result groupings, the Shapiro-Wilk Tests of Normality produced significance values of p > .05 for all but nine groupings. Table 10 displays the groupings with significance levels of p < .05. Therefore, the null hypothesis for these cases is
rejected (Laerd Statistics, 2015). The null hypothesis is that the variables are normally distributed.

Table 10

*Shapiro-Wilks Test of Normality*

<table>
<thead>
<tr>
<th>Groupings</th>
<th>Statistic</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary/Secondary, Associates/Bachelor’s Degree</td>
<td>0.965</td>
<td>91</td>
<td>.016</td>
</tr>
<tr>
<td>Primary/Secondary, Graduate/Professional Degree</td>
<td>.970</td>
<td>143</td>
<td>.003</td>
</tr>
<tr>
<td>Primary/Secondary, 6-10 Years Experience</td>
<td>.945</td>
<td>60</td>
<td>.009</td>
</tr>
<tr>
<td>Primary/Secondary, More than 10 Years Experience</td>
<td>.960</td>
<td>109</td>
<td>.002</td>
</tr>
<tr>
<td>Public, 6-10 Years of Experience</td>
<td>.952</td>
<td>73</td>
<td>.008</td>
</tr>
<tr>
<td>Public, More than 10 Years Experience</td>
<td>.972</td>
<td>122</td>
<td>.013</td>
</tr>
<tr>
<td>Public, Associate/Bachelor’s Degree</td>
<td>.974</td>
<td>97</td>
<td>.048</td>
</tr>
<tr>
<td>Public, Graduate/Professional Degree</td>
<td>.966</td>
<td>172</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Private, Graduate/Professional</td>
<td>.966</td>
<td>73</td>
<td>.049</td>
</tr>
</tbody>
</table>

Researchers must deal with the normality violation when the null hypothesis is rejected using the Shapiro-Wilk Tests of Normality (Field, 2009). Researchers have two options when dealing with normality violations (Laerd Statistics, 2015). These options
are to transform the dependent variable or carry on with the test. For this study, the researcher chose to proceed with transforming the dependent variable. There are seven commonly used procedures to transform the dependent variable: square root transformation, reflect and square root transformation, logarithmic transformation, reflect and logarithmic transformation, inverse transformation, and reflect and inverse transformation (Laerd Statistics, 2015). The researcher conducted each of these transformations; however, no transformation successfully created normally distributed variables. With no successful transformation process, the researcher continued with the original set of data. ANOVAs are considered robust concerning deviations from normality, particularly when sample size requirements are met (Maxwell & Delaney, 2004).

The sixth and final assumption is that the dependent variable's variance is equal in each design cell, often referred to as homogeneity of variances (Laerd Statistics, 2015). If variances are unequal, it can lead the researcher to make incorrect statistical conclusions. This assumption is tested using Levene’s test of equality of variances. This test produces a table that includes a significance value column. As with previous significance values, if \( p > .05 \), the test is not statistically significant, the data has equal variances, and the data does not violate the assumption. If \( p < .05 \), the test is statistically significant, the data does not have equal variances, and the data does violate the assumption of homogeneity of variances (Laerd Statistics, 2015). Levene’s test of equality of variances, as seen in Table 11, produced significance values \( p > .05 \), indicating that the data does not violate the sixth assumption.
<table>
<thead>
<tr>
<th></th>
<th>Levene Statistic</th>
<th>df1</th>
<th>df2</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Based on Mean</td>
<td>1.021</td>
<td>25</td>
<td>356</td>
<td>0.438</td>
</tr>
<tr>
<td>Based on Median</td>
<td>0.745</td>
<td>25</td>
<td>356</td>
<td>0.809</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>300.993</td>
<td>0.808</td>
</tr>
<tr>
<td>Based on Median and with</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>with adjusted df</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Based on trimmed mean</td>
<td>0.992</td>
<td>25</td>
<td>356</td>
<td>0.477</td>
</tr>
</tbody>
</table>

Research Objective Three:

Determine the interaction between education level and organizational type concerning individual self-efficacy.

The interaction between education level and organizational type reveals no significant interaction between the two variables, with a p-value of 0.648. This p-value indicates that the null hypothesis cannot be rejected. The null hypothesis for RO3 states that the interaction between education level and organizational type is not statistically different from zero, and no correlation exists between education level and organizational type. The alternate hypothesis states that the interaction between education level and organizational type is statistically different from zero, and that correlation between education level and organizational type exists (Field, 2009). Based on the results of the ANOVA analysis, the results fail to reject the null hypothesis. Table 12 provides a visual
depiction of the interaction between education level and organizational type data analysis results.

Table 12

*Interaction Effect Between Education Level and Organizational Type*

<table>
<thead>
<tr>
<th>Interaction</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education level * Organizational Type</td>
<td>0.962</td>
<td>2</td>
<td>0.481</td>
<td>0.434</td>
<td>0.648</td>
</tr>
</tbody>
</table>

*Research Objective Four:*

*Determine the interaction between education level and organizational category concerning individual self-efficacy.*

The interaction between education level and organizational category reveals no significant interaction between the two variables, with a p-value of 0.939. This p-value indicates that the null hypothesis cannot be rejected. The null hypothesis for RO4 states that the interaction between education level and organizational category is not statistically different from zero, and no correlation exists between education level and organizational category. The alternate hypothesis states that the interaction between education level and organizational category is statistically different from zero, and that correlation between education level and organizational category exists (Field, 2009). Based on the results of the ANOVA analysis, the results fail to reject the null hypothesis. Table 13 provides a visual depiction of the interaction between education level and organizational category data analysis results.
Table 13

*Interaction Effect Between Education Level and Organizational Category*

<table>
<thead>
<tr>
<th>Interaction</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education level * Organizational Category</td>
<td>0.14</td>
<td>2</td>
<td>0.07</td>
<td>0.063</td>
<td>0.939</td>
</tr>
</tbody>
</table>

*Research Objective Five:*

*Determine the interaction between years of experience and organizational type concerning individual self-efficacy.*

The interaction between years of experience and organizational type reveals a significant interaction between the two variables, with a p-value of 0.033. This p-value indicates that the null hypothesis can be rejected. The null hypothesis for RO5 states that the interaction between years of experience and organizational type is not statistically different from zero, and no correlation exists between years of experience and organizational type. The alternate hypothesis states that the interaction between years of experience and organizational type is statistically different from zero, and that correlation exists between years of experience and organizational type (Field, 2009). Based on the results of the ANOVA analysis, the results reject the null hypothesis. Table 14 provides a visual depiction of the interaction between years of experience and organizational type data analysis.
Table 14

*Interaction Effect Between Years of Experience and Organizational Type*

<table>
<thead>
<tr>
<th>Interaction</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years of Experience * Organizational Type</td>
<td>7.647</td>
<td>2</td>
<td>3.823</td>
<td>3.452</td>
<td>0.033</td>
</tr>
</tbody>
</table>

*Research Objective Six:*

*Determine the interaction between years of experience and organizational category concerning individual self-efficacy.*

The interaction between years of experience and organizational category reveals no significant interaction between the two variables, with a p-value of 0.794. This p-value indicates that the null hypothesis cannot be rejected. The null hypothesis for RO6 states that the interaction between years of experience and organizational category is not statistically different from zero, and no correlation exists between years of experience and organizational category. The alternate hypothesis states that the interaction between years of experience and organizational category is statistically different from zero, and that correlation exists between years of experience and organizational category. Based on the results of the ANOVA analysis, the results fail to reject the null hypothesis. Table 15 provides a visual depiction of the interaction between years of experience and organizational category data analysis results.
Table 15

Interaction Effect Between Years of Experience and Organizational Category

<table>
<thead>
<tr>
<th>Interaction</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years of Experience *</td>
<td>0.511</td>
<td>2</td>
<td>0.255</td>
<td>0.231</td>
<td>0.794</td>
</tr>
<tr>
<td>Organizational Category</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 7 provides a visual summary of the results for each research objective. The threshold line is set at $p = .05$, and the three variables with results above that threshold, RO1, RO2, and RO4, are not significant. The single variable below that threshold, RO3, is significant.

Figure 7. Interaction Significance Levels

Summary

The researcher used a total of 385 surveys to analyze data for the study. Results revealed that participants were educators in public, private, primary, secondary, and
postsecondary institutions and that participants were diverse in education level and years of experience in the field. Additionally, the interactions analyzed were statistically significant for one pair of characteristics and were not statistically significant for three pairs of characteristics. The research identified a statistically significant positive relationship between years of experience and organizational type. The interaction between years of experience and organizational category, education level and organizational type, and education level and organizational category did not identify statistically significant relationships.
CHAPTER V – FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Research suggests that self-efficacy impacts individual employees' performance and organizational outcomes. Beginning in early 2020, employees across the globe began experiencing career shock and low levels of self-efficacy due to COVID-19. This decrease in self-efficacy impacted job performance and organizational outcomes, which amplified the impact due to the pandemic. This study supports suggestions regarding self-efficacy as a contributing factor to individual employee self-efficacy. The purpose of this study was to identify the interaction between personal and organizational characteristics concerning employee self-efficacy. Personal characteristics used for this study included participant years of experience and level of education. Organizational characteristics used for this study included organizational type (primary/secondary or postsecondary) and organizational category (public or private).

This study implies that the interaction between years of experience in the field and the type of organization is statistically significant concerning self-efficacy. This study provides organizations with the resources to determine individual employees’ self-efficacy and develop plans to address areas that impact their self-efficacy based on personal and organizational characteristics. The remainder of this chapter provides findings, conclusions, recommendations, discussion, future research, and limitations.

Finding One

The interaction between employee education level and organizational type does not impact self-efficacy.

Analyzing the interaction between education level and organizational type concerning employee self-efficacy suggests that the interaction does not impact self-
efficacy. This result suggests that there is no difference between the effect of either independent variable on employee self-efficacy due to the level of the other independent variable. The effect of education level on employee self-efficacy did not change due to changes in organizational type. Conversely, the effect of organizational type on employee self-efficacy did not change due to changes in education level. Additionally, this study suggests that education level alone impacts self-efficacy, while organizational type does not.

**Conclusion One**

Further analysis of the results of this study suggests that education level as a single variable does impact employee self-efficacy, which aligns with prior research (Gassert et al., 1996; Ross et al., 1996; Shazadi et al., 2011). However, this study did not suggest an impact of organizational type on employee self-efficacy, which contradicts prior research (Fives & Looney, 2009; Horvitz et al., 2014; Korgan, 2016). This study concludes that there is no interaction between education level and organizational type on self-efficacy, suggesting that the effect of neither education level nor organizational type changes based on changes in the level of the other independent variable.

**Recommendation One**

As organizations seek to increase employee self-efficacy, results reveal that education level alone can be a significant factor concerning self-efficacy. Studies of employees in numerous fields and organizations indicate that their education level impacts their self-efficacy. Based on these results, organizational leaders, human resources professionals, and managers should view an employee’s education level as a critical component of that employee’s self-efficacy. If employee self-efficacy is low or
needs improvement, education level should be integral in determining the best professional development for each employee. This result also indicates the importance of higher education’s impact on self-efficacy for all types of organizations. Organizations should evaluate the inclusion of educational requirements in specific careers that struggle with low levels of employee self-efficacy, ensuring that future employees meet educational requirements to reduce the need for self-efficacy development programs. For current employees, institutions should focus on creating development programs for

Once development plans are in place, continuous focus on self-efficacy assessment is needed to evaluate if the development plans are effective. Leaders should focus on the education level of their employees to ensure that the needs of the employees are addressed. Institutions should utilize the strengths and expertise of professional staff within the organizations to support these development opportunities. Providing educators with this type of development may increase their self-efficacy, increase institutional outcomes, and increase student learning and achievement.

Finding Two

Employee education level and organizational category does not impact employee self-efficacy.

Analyzing the interaction between education level and organizational category concerning employee self-efficacy suggests that the interaction does not impact self-efficacy. This result suggests no difference between the paired set of variables compared to the variables individually concerning their impact on employee self-efficacy. This study also suggests that education level impacts self-efficacy, while organizational category does not.
Conclusion Two

According to the results, the interaction between education level and organizational category does not impact self-efficacy. Analysis of the results of this study also suggests that education level as a single variable impacts employee self-efficacy, which aligns with prior research (Gassert et al., 1996; Ross et al., 1996; Shazadi et al., 2011). However, this study did not reveal an impact of organizational category on employee self-efficacy. This study concludes that, although the interaction between education level and organizational category does not impact self-efficacy, education level does impact self-efficacy. The effect of education level on employee self-efficacy does not change due to changes in organizational type.

Recommendation Two

For organizations to increase employee self-efficacy, results suggest that focusing on organizational variables alone does not significantly impact employee self-efficacy levels. Organizational leaders, human resources professionals, and managers should not solely use organizational characteristics in employee self-efficacy development. Instead, they must view an employee’s education level as a vital component of their self-efficacy. This result also indicates the importance of higher education concerning self-efficacy for various organizational categories. Organizations should focus on the educational levels of their employees when addressing self-efficacy concerns and maintain regular self-efficacy assessments to determine the effectiveness of development programs.

Finding Three

Employee years of experience in the field and organizational type impacts employee self-efficacy.
According to the results, the interaction between years of experience and organizational type impacts self-efficacy. This result suggests that the impact of years of experience paired with organizational type differs from that of years of experience and organizational type individually on employee self-efficacy. Further, this study reveals that the self-efficacy score for primary and secondary educators increased with increases in years of experience. Additionally, postsecondary educators’ self-efficacy increased from 1-5 years of experience to 6-10 years of experience.

Interestingly, postsecondary educators with more than ten years of experience have lower self-efficacy than those with 6-10 years of experience. This finding suggests that self-efficacy increases as years of experience increase for primary and secondary educators, but that increases in years of experience for postsecondary educators causes a decrease in self-efficacy after 10 years of experience. Additional analysis suggests that years of experience and organizational type as individual variables do not significantly impact employee self-efficacy, contradicting previous studies.

Conclusion Three

Previous research suggests years of experience impacts self-efficacy and that the organization impacts self-efficacy. Results of this study do not support past research (Fives & Looney, 2009; Horvitz et al., 2014; Korgan, 2016; Major & Dolly, 2003; Perera et al., 2019; Raudenbush et al., 1996; Shazadi et al., 2011). Results suggest that neither years of experience or organizational type impact employee self-efficacy.

Recommendation Three

Based on the current study results, primary and secondary institutions should focus on employee self-efficacy development for employees with less experience.
Utilizing development plans for these employees may increase self-efficacy beyond the increases that come with increased experience in the classroom. These development plans could involve teacher mentorship programs, pairing a teacher with five or fewer years of experience with a teacher with ten or more years of experience. These more experienced mentors could be paired with incoming teachers when first hired at a school or district. The mentorship could last until the mentee reaches six years of experience or meets a specified self-efficacy level.

Postsecondary institutions should also initially focus on employee development for employees with less experience but should continue to focus on employee development throughout the employee's career. Utilizing development plans for these employees can also increase self-efficacy. Still, the development plan must be for the employee's professional life to ensure self-efficacy does not decrease due to years of experience. These development plans could involve professional development opportunities, both internally and externally. Supervisors and leadership could provide guidance on specific areas of development for individual employees. These professional development opportunities should continue annually, each year focusing on expanding the knowledge and abilities of employees. This type of continuous human capital development could increase self-efficacy of postsecondary educators during their entire careers.

Finding Four

*Employee years of experience in the field and organizational category do not impact employee self-efficacy.*
The interaction between years of experience and organizational category does not impact employee self-efficacy. Further analysis of the results of this study suggests that years of experience and organizational category as individual variables do not impact employee self-efficacy. These findings indicate that employee self-efficacy is not impacted by years of experience or organizational category. The effect of years of experience and organizational category as individual variables does not change due to a change in the other variable.

**Conclusion Four**

Previous research suggests years of experience significantly impacts self-efficacy and that the organizational type significantly impacts self-efficacy (Fives & Looney, 2009; Horvitz et al., 2014; Korgan, 2016; Major & Dolly, 2003; Perera et al., 2019; Raudenbush et al., 1996; Shazadi et al., 2011). This study concludes, however, that the interaction between the two does not impact self-efficacy. Additionally, years of experience and organizational type as individual factors do not impact employee self-efficacy. Differences in employee self-efficacy levels cannot be attributed to years of experience or organizational type.

**Recommendation Four**

As organizations seek to increase employee self-efficacy, results reveal that years of experience and organizational type cannot be viewed as significant factors in self-efficacy. Organizational leaders, human resources professionals, and managers should not focus on years of experience or organizational category when developing programs to impact employee self-efficacy levels. Organizations should focus on other factors, such as level of education, when developing programs to impact employee self-efficacy.
Regardless of the factors, regular self-efficacy assessment is essential for the long-term effectiveness of development plans.

Limitations

A study's limitations are not under the researcher's control and may impact applying the study results or interpreting study findings to the broader population (Lunenburg & Irby, 2008). This study has four main limitations. First, generalizability refers to applying study results to the entire population (Kukull & Ganguli, 2012). The sample of participants for this study is limited to employees at educational institutions within the United States. Results may not be generalizable to employees at other organizations or in other industries. Second, the study utilizes self-reported data that the researcher cannot verify. Self-reported data requires participants to respond to questions without researcher interference (Althubaiti, 2016). Third, confirmation bias based on professional experience and low self-efficacy perceptions may impact research objectives and study criteria. Confirmation bias refers to the researcher evaluating evidence that supports preconceived hypotheses differently from the evidence that does not support those hypotheses (Kaptchuk, 2003). Finally, the global COVID-19 pandemic has not only possibly impacted the day-to-day physical lives of participants but could impact the mental well-being of participants (Carnevale & Hatak, 2020; Kniffin et al., 2021; Tovmasyan & Minasyan, 2020; Venkatesh, 2020). Participants’ mental well-being may impact their responses to survey questions.
Discussion

The interconnectedness of individual personal characteristics and environmental characteristics impacts individuals’ self-efficacy (Bandura, 1986). Self-efficacy impacts individual employees’ performance (Bandura, 1982; Lunenburg, 2011; Machmud, 2017; Mustafa et al., 2019). Organizations focusing on improving employee performance will understand the personal and organizational characteristics that impact employee self-efficacy. Therefore, organizations should focus on the characteristics that impact self-efficacy and on self-efficacy development initiatives.

The purpose of this study was to identify the interaction between personal and organizational characteristics concerning employee self-efficacy. Previous studies reveal that multiple personal characteristics and organizational characteristics impact self-efficacy. This study expanded on the results of previous studies and focused on the interaction between personal and organizational characteristics concerning employee self-efficacy. The current study confirms previous findings that education level impacts employee self-efficacy. The current study results also reveal that the interaction between education level and organizational type is statistically significant, meaning that the effect of one variable changes based on the level of the other variable.

Educators in primary and secondary schools reported higher self-efficacy with each increase in years of experience. In comparison, postsecondary educators interestingly reported higher self-efficacy when increasing from 1-5 years of experience to 6-10 years of experience, but lower self-efficacy when increasing from 6-10 years of experience to 10 or more years of experience. From a practical perspective, these results suggest that it is crucial to view self-efficacy from various viewpoints and use multiple
factors. Organizational leaders and managers cannot assume that more experience translates to higher self-efficacy in all cases.

With COVID-19 continuing to impact the personal and professional lives of billions of employees across the globe, it is even more vital that organizations and human capital experts focus on ways to increase employee self-efficacy. Employee self-efficacy undoubtedly impacts job performance and organizational outcomes, and COVID-19 has lowered employees' self-efficacy globally. Action must be taken now to address this issue to decrease the long-term negative impacts that the pandemic has on the workforce.

Although the study was limited in its scope and only focused on four sets of variables, it is clear that employee self-efficacy is a complicated construct. Further expansion of this research is needed to determine the additional impacts of organizational and individual characteristics on employee self-efficacy.

Recommendations for Future Research

The researcher discusses three recommendations for future research around the topic of characteristics that impact employee self-efficacy. The first recommendation is to continue with the research of educator self-efficacy but focus more on the efficacy subscales identified by the developers of the Teachers’ Sense of Efficacy Scale. These three subscales are efficacy in student engagement, instructional strategies, and classroom management. The current study evaluated overall efficacy scores. A future study evaluating the efficacy subscores may reveal additional information to help institutions determine characteristics that impact specific areas of teacher self-efficacy.

The second recommendation is to evaluate different combinations of characteristics and include different characteristics in the study framework. The current
study evaluated two personal characteristics and two organizational characteristics. Due to this, the current study was limited to evaluating the interactions between four sets of characteristics. Future research could include additional characteristics, both at the personal and organizational levels. This focus would allow an expansion of research on the topic of characteristics that impact self-efficacy. Additionally, research should evaluate different combinations of characteristics to determine the interaction between various characteristics. For example, evaluating the interaction between organizational type and organizational category may reveal a significant interaction.

The third recommendation is to expand the study population to public service professionals in fields other than education and expand to professionals outside of public service. The current study evaluated only professionals in public service professions, explicitly focusing on the field of education. Future research could focus on public service employees in government agencies, for example. Another area of focus could be to study management staff at Fortune 500 companies. Either of these studies will provide meaningful insight into the self-efficacy of employees.

Summary

The current study assessed the interaction between personal and organizational characteristics concerning employee self-efficacy. The population used for this study was educators employed within primary, secondary, and post-secondary institutions. Results of the study reveal that years of experience in the field and organizational type impact employee self-efficacy. The study results also reveal that education level and organizational type, education level and organizational category, and years of experience and organizational category do not impact employee self-efficacy.
Conclusions from this study partly align with conclusions from previous research. Previous research implies that education level, organizational type, organizational category, and years of experience impact employee self-efficacy (Fives & Looney, 2009; Horvitz et al., 2014; Korgan, 2016; Major & Dolly, 2003; Perera et al., 2019; Raudenbush et al., 1996; Shazadi et al., 2011). The current study suggests that education level alone significantly impacts self-efficacy, which aligns with previous research. However, the current study suggests that organizational type, organizational category, and years of experience do not impact self-efficacy.

As organizations strive to improve employee performance and organizational outcomes, increasing employee self-efficacy should be vital for any long-term strategic plan. Self-efficacy impacts job performance and organizational outcomes, and the ongoing pandemic is only exacerbating these impacts. As this study reveals, however, employee self-efficacy can be a difficult concept to assess and to improve. Organizations should use the results of this current study as a first step on the path toward increased employee self-efficacy performance. When organizations focus on human capital development, additional research and analysis should be conducted to ensure success and sustainability.
APPENDIX A Researcher’s Instrument

Introduction and Confidentiality Agreement

Welcome! Thank you for participating in this study.

PURPOSE
The purpose of this study is to identify characteristics that impact individuals' beliefs about their teaching capabilities. Specifically, this study will determine the personal characteristics, organizational characteristics, and the collective effects of each that impact self-efficacy. This study is being conducted by Justin Lee Chandler, a doctoral candidate in Human Capital Development at The University of Southern Mississippi. This research is performed under the guidance of Dr. Heather M. Annulis, The University of Southern Mississippi.

STUDY DESCRIPTION
You will be asked to complete a questionnaire about your institutional characteristics, your perceived capabilities in specific areas of teaching and education, and your personal characteristics. The survey will take no more than 5 minutes to complete. The study's findings will be used to develop strategies for employee improvement and development.

BENEFITS
Participants completing the survey will earn a HIT reward in the amount displayed on MTurk at the time this survey was started. Participant responses will contribute to the knowledge of the education profession.

RISKS
This survey poses no known personal risks. You may choose to withdraw at any time by closing your browser.

CONFIDENTIALITY
All survey responses will remain confidential, and any data obtained will only be reported in aggregate. Your participation is voluntary and refusal to participate involves no penalty or adverse consequences. You may stop participation at any time, although only completed surveys will earn HIT rewards. Should you have questions, I can be reached at justin.l.chandler@usm.edu.

ASSURANCE
This project has been approved by the University of Southern Mississippi's Institutional Review Board (protocol #21-231), which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research
participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5125, Hattiesburg, MS 39406-0001, 601-266-5997.

HIT REWARD PROCESSING
In order to process your HIT reward in a timely manner, please provide your MTurk Worker ID in the text box below. Workers can generally find this on their Dashboard or in the upper left corner of the Worker website.

INFORMED CONSENT
I understand that participation in this project is completely voluntary, and I may withdraw at any time without penalty or prejudice. Unless described above, all personal information will be kept strictly confidential, including my name and other identifying information. All procedures to be followed and their purposes were explained to me. Information was given about all benefits, risks, inconveniences, or discomforts that might be expected. Any new information that develops during the project will be provided to me if that information may affect my willingness to continue participation in the project.

CONSENT TO PARTICIPATE
By clicking the “YES, I consent” box below, I give my consent to participate in this research project. Check this box if you consent to this study, and then click "NEXT." If you do not wish to consent to this study, please click the "NO, I do not consent" box below.

- YES, I consent.
- NO, I do not consent.

Institutional Characteristics
For the following set of questions, please provide responses based on the current institution you are employed.

Which type of institution do you currently work?
- Primary / Secondary (1st - 12th grades)
- Postsecondary (college / university)

Which category of institution do you currently work?
- Public
- Private
Primary/Secondary TSES

Please indicate your opinion about each of the following questions below by marking any one of the nine responses in the columns on the right side, ranging from (1) "None at all" to (9) "A Great Deal" as each represents a degree on the continuum. Respond to each of the questions by considering the combination of your current ability, resources, and opportunity to do each of the following in your present position.

<table>
<thead>
<tr>
<th>Question</th>
<th>(1) None at all</th>
<th>(2) Very Little</th>
<th>(3) Some Degree</th>
<th>(4) Quite A Bit</th>
<th>(5) A Great Deal</th>
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<td>How much can you do to get through to the most difficult student?</td>
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Postsecondary TSES

Please indicate your opinion about each of the following questions below by marking any one of the nine responses in the columns on the right side, ranging from (1) "None at all" to (9) "A Great Deal" as each represents a degree on the continuum. Respond to each of the questions by considering the combination of your current ability, resources, and opportunity to do each of the following in your present position.

How well can you provide appropriate challenges for very capable students?

(1) None at all  (2) Very Little  (3) Some Degree  (4) Quite A Bit  (5) A Great Deal

How much can you do to get through to the most difficult student?

(1) None at all  (2) Very Little  (3) Some Degree  (4) Quite A Bit  (5) A Great Deal

How much can you do to help your students think critically?

(1) None at all  (2) Very Little  (3) Some Degree  (4) Quite A Bit  (5) A Great Deal

How much can you do to control disruptive behavior in the course?

(1) None at all  (2) Very Little  (3) Some Degree  (4) Quite A Bit  (5) A Great Deal

How much can you do to motivate students who show low interest in coursework?

(1) None at all  (2) Very Little  (3) Some Degree  (4) Quite A Bit  (5) A Great Deal

To what extent can you make your expectations clear about student behavior?

(1) None at all  (2) Very Little  (3) Some Degree  (4) Quite A Bit  (5) A Great Deal

How much can you do to get students to believe they can do well in coursework?

(1) None at all  (2) Very Little  (3) Some Degree  (4) Quite A Bit  (5) A Great Deal

How well can you respond to difficult questions from your students?

(1) None at all  (2) Very Little  (3) Some Degree  (4) Quite A Bit  (5) A Great Deal

How well can you establish routines to keep activities running smoothly?

(1) None at all  (2) Very Little  (3) Some Degree  (4) Quite A Bit  (5) A Great Deal

How much can you do to help your students value learning?
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<tr>
<th>Question</th>
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How well can you provide appropriate challenges for very capable students?

(1) None at all (2) Very Little (3) Some Degree (4) Quite A Bit (5) A Great Deal

Personal Characteristics

For the following set of questions, please provide your personal characteristics. As a reminder, all responses will remain confidential.

What is the highest level of education you have completed or the highest degree you have received?

- High school graduate / some college
- Associate / Bachelor's degree
- Graduate / professional degree

How many years have you worked in education?

- 1-5
- 6-10
- More than 10

Powered by Qualtrics
## Teacher Beliefs - TSES

**Directions:** Please indicate your opinion about each of the questions below by marking any one of the nine responses in the columns on the right side, ranging from (1) "None at all" to (9) "A Great Deal" as each represents a degree on the continuum. Please respond to each of the questions by considering the combination of your current ability, resources, and opportunity to do each of the following in your present position.

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APPENDIX C Teachers’ Sense of Efficacy Scale Instrument Permission

Dear

You have my permission to use the Teachers’ Sense of Efficacy Scale in your research. A copy the scoring instructions can be found at:

http://u.osu.edu/hoy.17/research/instruments/

Best wishes in your work,

Anita Woolfolk Hoy, Ph.D.
Professor Emeritus
APPENDIX D Teachers’ Sense of Efficacy Scale Scoring Directions

Directions for Scoring the Teachers’ Sense of Efficacy Scale

Developers: Megan Tschanen-Moran, College of William and Mary
Anita Woolfolk Hoy, the Ohio State University.

Construct Validity

For information the construct validity of the Teachers’ Sense of Teacher efficacy Scale, see:


Factor Analysis

As we have used factor analysis to test this instrument, we have consistently found three moderately correlated factors: Efficacy in Student Engagement, Efficacy in Instructional Practices, and Efficacy in Classroom Management. At times, however, the make up of the scales may vary slightly. With preservice teachers we recommend that the full scale (either 24-item or 12-item short form) be used, because the factor structure often is less distinct for these respondents.

Subscale Scores

To determine the Efficacy in Student Engagement, Efficacy in Instructional Practices, and Efficacy in Classroom Management subscale scores, we compute unweighted means of the items that load on each factor. Generally these groupings are:

<table>
<thead>
<tr>
<th>Short Form</th>
<th>Items</th>
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<tbody>
<tr>
<td>Efficacy in Student Engagement</td>
<td>2, 4, 7, 11</td>
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<tr>
<td>Efficacy in Instructional Strategies</td>
<td>5, 9, 10, 12</td>
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<tr>
<td>Efficacy in Classroom Management</td>
<td>1, 3, 6, 8</td>
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<tr>
<th>Long Form</th>
<th>Items</th>
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<tr>
<td>Efficacy in Student Engagement</td>
<td>1, 2, 4, 6, 9, 12, 14, 22</td>
</tr>
<tr>
<td>Efficacy in Instructional Strategies</td>
<td>7, 10, 11, 17, 18, 20, 23, 24</td>
</tr>
<tr>
<td>Efficacy in Classroom Management</td>
<td>3, 5, 8, 13, 15, 16, 19, 21</td>
</tr>
</tbody>
</table>

Reliabilities

In the study reported in Tschanen-Moran & Woolfolk Hoy (2001) above the following reliabilities were found:

<table>
<thead>
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<th></th>
<th>Mean</th>
<th>SD</th>
<th>alpha</th>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>alpha</th>
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</thead>
<tbody>
<tr>
<td>TSES</td>
<td>7.1</td>
<td>.94</td>
<td>.94</td>
<td></td>
<td>7.1</td>
<td>.98</td>
<td>.90</td>
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<tr>
<td>Engagement</td>
<td>7.3</td>
<td>1.1</td>
<td>.87</td>
<td></td>
<td>7.2</td>
<td>1.2</td>
<td>.81</td>
</tr>
<tr>
<td>Instruction</td>
<td>7.3</td>
<td>1.1</td>
<td>.91</td>
<td></td>
<td>7.3</td>
<td>1.2</td>
<td>.86</td>
</tr>
<tr>
<td>Management</td>
<td>6.7</td>
<td>1.1</td>
<td>.90</td>
<td></td>
<td>6.7</td>
<td>1.2</td>
<td>.86</td>
</tr>
</tbody>
</table>

1 Because this instrument was developed at the Ohio State University, it is sometimes referred to as the Ohio State Teacher Efficacy Scale. We prefer the name, Teachers’ Sense of Efficacy Scale.
NOTICE OF INSTITUTIONAL REVIEW BOARD ACTION

The project below has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services regulations (45 CFR Part 46), and University Policy to ensure:

- The risks to subjects are minimized and reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered involving risks to subjects must be reported immediately. Problems should be reported to ORI via the Incident template on Cayuse IRB.
- The period of approval is twelve months. An application for renewal must be submitted for projects exceeding twelve months.

PROTOCOL NUMBER: IRB-21-231
PROJECT TITLE: Personal and Organizational Characteristics Impacting Employee Self-Efficacy
SCHOOL/PROGRAM: School of IAPD, Human Capital Development
RESEARCHER(S): Justin Chandler, Heather Annulis

IRB COMMITTEE ACTION: Approved
CATEGORY: Expedited

7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

PERIOD OF APPROVAL: May 25, 2021

Donald Sacco, Ph.D.
Institutional Review Board Chairperson
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