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THE RELATIONSHIP BETWEEN SAUDI PRE-SERVICE TEACHERS'

PERCEPTIONS OF PREPARATION AND THEIR TEACHING SELF-EFFICACY

A Dissertation in

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by

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ABSTRACT

This study investigates the relationship between Saudi pre-service teachers' perceptions of preparation and their teaching self-efficacy. The study is based on Bandura's social cognitive learning theory for self-efficacy to describe human behavior in which personal determinants, environmental influences, and behavioral factors interact continually. This quantitative study is based on data from a measurement instrument comprised of two surveys adopted from previous research studies to measure pre-service teachers' preparation and self-efficacy. Based on data collected from 198 pre-service teachers in Saudi Arabia, the results show that the correlation between the participant's average self-efficacy score and the teacher preparation quality score is the largest. At the same time, the correlation between the participant's average self-efficacy and average opportunity is also quite significant. Thus, there is a linear relationship in the analysis. When a participant's gender and year in college were controlled, these correlation values changed slightly. The results also show that the average score of the preparation quality component has the most predictive power.

Moreover, the participant's average learning opportunity score, the level of college education, and the interaction between the participant's average quality and opportunity scores are still significant in the model. This finding suggests that the Ministry of Education should work with the universities to improve and support the teacher education programs by providing them with all materials and resources they need to prepare pre-service teachers to be successful teachers in the future. Another critical research implication relates to this study's translated instruments for data collection. The North Carolina New Teacher Preparation Survey (NTPS) has 40 items, and researchers can use the Arabic version used in this study to evaluate the quality of the teacher education program.

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DEDICATION

I am pleased to dedicate this dissertation to my parents, Ahmed and Haleemah, for their support, wishes, encouragement, and continuous prayers to Allah to help me finish this journey successfully.

I also dedicate this work and express my gratitude to my life partner, my wife, Tulua Al Munamis, for her boundless encouragement, love, patience, and support throughout my study and while working on my dissertation, as she has been throughout my whole life.

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Lastly, to my sister Fatimah, who used to support and encourage me before she left our world. I dedicate this dissertation to you. Insha'Allah, I will never forget your great words.

<div align="center">**Chapter 1**</div>

<div align="center">**Introduction**</div>

Background

The first year of teaching will be challenging for those who have not taught before (Hudson & Hudson, 2006). Preparing them to transfer their knowledge and skills to their classrooms can help them face this challenge. Darling-Hammond (2000) said, "teachers who have had more preparation for teaching are more confident and successful with students than those who have had little or none" (p. 166). Therefore, teacher education programs are supposed to provide significant sources and tools to build a professional knowledge base and promote the growth of learners' understanding of how they had been taught and prepared to teach (Choy et al., 2011).

It is also well-established that teachers' self-efficacy impacts their instructional decisions, teacher behaviors, and teacher effectiveness (Walsh et al., 2006; Berg & Smith, 2014). Teacher self-efficacy is an essential motivational construct that develops teacher performance and impacts student learning and achievement. Pendergast et al. (2011) believe that teachers with a high level of teacher self-efficacy beliefs have shown more resilience in their teaching and tried harder to help students reach their potential and accomplish their learning goals. On the other hand, the authors found that teachers with a low level of self-efficacy do not put more effort into teaching" students to reach their learning needs. Tschannen-Moran and Hoy (2001) mentioned that supporting the growth of teachers' self-efficacy is crucial for producing competent, devoted, and ambitious teachers.

Accordingly, teacher education programs should prepare pre-service teachers to develop their self-efficacy toward the teaching profession. Hence, people who are working on teacher

education programs should ensure sufficient preparation of professionals in education. My teaching experience makes me feel that teacher preparation is a vital stage in a teacher's life before getting into the field. It also leads me to think about how pre-service teachers' preparations affect their teaching self-efficacy.

Duffin et al. (2012) revealed that teacher education programs had faced increased pressure to positively prepare teachers who are profoundly capable and qualified to lead K-12 Students' Achievement. Therefore, teacher preparation programs have focused on the concept of teacher self-efficacy, which has been studied for about four decades by educational researchers and teacher preparation programs (Berg & Smith, 2014). The concept of self-efficacy is grounded in the social cognitive theory structure, which features the exercise of human capacity (Bandura, 2006). The social cognitive learning theory studies the human potential to practice power over the quality of one's life during intentional and deliberate actions (Bandura, 1977a). He explained that four sources could impact teacher self-efficacy: mastery experience, vicarious experience, social persuasion, and physiological reactions.

Tschannen-Moran et al. (1998) drew on Bandura (1997) to define teacher self-efficacy as a sort of self-efficacy that "influenced how much effort people put forth, how long they will persist in the face of obstacles, how resilient they are in dealing with failures, and how much stress or depression they experience in coping with demanding situations" (p. 203). Bandura (1997) described teacher efficacy as "outcomes of cognitive process in which people construct beliefs about their capacity to perform at a given level of competence" (p. 80) and as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (p. 3). He explained how peoples' beliefs affect their efforts, especially their determination or flexibility when confronting problems and overcoming tension and fear in dealing with

challenging circumstances. Moreover, Bandura (1993) suggested that teachers' beliefs in their ability to support and improve learning influence the learning environments they design, and the achieved K-12 students' academic progress of their students. While Bandura (1977a) suggested that teacher efficacy consists of personal teaching efficacy and professional teaching efficacy, Gibson and Dembo (1984) revealed that teacher efficacy includes personal teaching efficacy and general teaching efficacy (as cited in Cheung, 2008).

Saudi Vision 2030

Saudi Vision 2030 (2019) is a national initiative to reform the Saudi Arabian economy by reducing reliance on oil, enhancing the quality of life, and establishing the kingdom's perspective as a regional power. According to Saudi Vision 2030, the large-scale initiative was created to prepare Saudi citizens to experience and participate in a more adaptable, stable, and sustainable economy. According to Saudi Vision 2030 (2019), the Crown Prince said:

> Our ambition is for the long term. It goes beyond replenishing sources of income that have weakened or preserving what we have already achieved. We are determined to build a thriving country in which all citizens can fulfill their dreams, hopes, and ambitions. Therefore, we will not rest until our nation is a leader in providing opportunities for all through education and training and high-quality services such as employment initiatives, health, housing, and entertainment.

As indicated in this quote, Vision 2030 focuses on long-term growth and development opportunities in Saudi Arabia. The Saudi government has focused on education as an essential tool to implement reforms that can build a lasting transformation of every aspect of the economy, and

accordingly, education reforms should be considered part of that transformation. With this transition under the Vision 2030 scheme, it is critical to consider the teachers' perceptions of the implementation's success.

Saudi Vision 2030 outlines even more routes to improve teacher preparation programs, teachers' skills, curriculum, administration, and goals, which leads to improving the education system. With this transition under the Vision 2030 scheme, it is critical to consider the teachers' perceptions of the implementation's success.

Problem Statement

I am a former schoolteacher who has allowed my self-efficacy beliefs to influence my teaching skills. At the college level, I have taught and supervised pre-service teachers who had a chance to practice teaching in schools, and I realized how their beliefs in their abilities might affect their teaching performance. A teacher education program plays a significant role in the progression of self-efficacy beliefs. Hence, teacher preparation programs are required to meet the demand for highly effective teachers. Tschannen-Moran and Hoy (2007) stated that if teachers believe their work has been done successfully, teacher self-efficacy is higher. This belief can lead them to future achievements. In contrast, when teachers consider their work to be less than successful, their self-efficacy becomes lower, which will negatively contribute to their planned activities. In both situations, K-12 students' achievement will be impacted.

The Ministry of Education in the Kingdom of Saudi Arabia is making efforts to improve all K-12 students' skills and knowledge to help them face modern life requirements and enable them to gain specialized skills for future professions. Preparing highly skilled teachers is one of the successful tools to help those students achieve their learning goals. Hence, the Saudi Vision 2030 focuses on improving teacher education programs to prepare pre-service teachers to be

productive and successful teachers. The Ministry of Education established a new committee to improve teacher education programs in colleges of education at Saudi universities. The Ministry of Education aims to keep pace with Saudi Arabia's National Transformation Program 2020 to pave a successful path for Saudi Vision 2030. Additionally, the ministry is working with Saudi universities to build new curricula, policies, and goals for teacher education programs. The project's supervisory committees collaborate to find and apply practical strategies to implement on the ground to achieve Saudi Vision 2030's educational goals.

Despite all the efforts made, the Ministry of Education should have considered the pre-service teachers' perceptions regarding the roles of teacher education programs in preparing them and enhancing their teaching self-efficacy. Pre-service teachers play a significant role as the central part and future outcomes that can be affected by any change in the teacher education programs. Therefore, their perceptions have to be considered when any improvement has been planned. Therefore, I have decided to study the relationship between Saudi pre-service teachers' perceptions of preparation and their teaching self-efficacy**.**

Purpose Statement and Research Question

This quantitative study aims to examine the relationships between Saudi pre-service teachers' perceptions of preparation and their teaching self-efficacy. The following research question framed the design of the study, data collection, and data analysis:

What relationships exist between Saudi pre-service teachers' perceptions of preparation and their teaching self-efficacy?

By answering this question, I will determine the relationships between Saudi pre-service teachers' perceptions of preparation and their teaching self-efficacy. Hence, the current study was designed in order to achieve the following:

1. To suggest strengths and weaknesses of Saudi teacher education programs through the lens of perceptions of preparedness and teacher self-efficacy.

2. To help the Saudi Ministry of Education (n.d.) and universities in their efforts to reform teacher education programs to meet the goals of Saudi Vision 2030.

This study of a specific teacher education contexts intends to contribute to the growing body of research on teacher education, which can lead to the design and implementation of more effective teacher education programs and a more comprehensive understanding of teacher education programs' role in preparing pre-service teachers with high levels of self-efficacy.

Theoretical Foundations of Teacher Self-Efficacy

Self-efficacy is grounded in social cognitive theory, which indicates the evolution and exercise of human behavior. Depending on this study's goal of investigating the impact of pre-service teachers' preparation on their teaching self-efficacy, the study is based on a social cognitive theory.

Social Cognitive Theory (SCT)

Social Cognitive Theory plays an essential role in education and learning. According to Luszczynska and Schwarzer (2005), Albert Bandura introduced this theory as a Social Learning Theory. Bandura (1977a, 1986) explained the importance of the social learning theory to describe human behavior in which personal determinants, environmental influences, and behavioral factors interact continually. Bandura (1986) showed that the Social Learning Theory (SLT) was developed into the Social Cognitive Theory (SCT) and stated that learning happens in a social context with a reciprocal interaction of the individual, behavior, and environment. This interaction was represented by Bandura's (1986) triadic reciprocal causation, shown in Figure 1-1 below. Bandura described the process within this model by saying that "internal personal factors in the form of

cognitive, affective, and biological events, behavioral patterns, and environmental influences all operate as interacting determinants that influence one another bidirectionally."(Bandura, 2001, p. 14).

Figure 1-1

Bandura's (1986) model of triadic reciprocal causation.
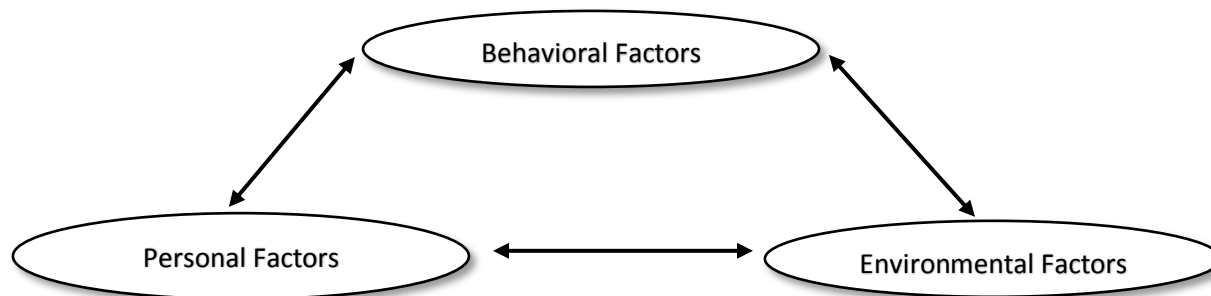
SCT's essential feature is the emphasis on social impact and its relation to external and internal social support. It highlights the approaches in which people can learn and manage specific behavior alongside the environment where others perform the learned behavior. Bandura (1977b) explained that an individual's preference for behavior depends on two kinds of expectations: efficacy expectations and outcome expectations. Bandura said, "An outcome expectancy is defined as a person's estimate that a given behavior will lead to certain desired outcomes. An efficacy expectation is the conviction that one can successfully execute the behavior required to produce the outcomes." (p. 193)

Social Cognitive Theory and Teacher Self-efficacy

Tschannen-Moran and McMaster (2009) argued the importance of understanding how teachers can make efforts to develop their own self-efficacy beliefs. They can reach one or more of the self-efficacy sources, and these components help people decide if they can fulfill particular tasks. The social cognitive theory emphasizes that human adaptation and change depend on

cognitive, vicarious, self-regulatory, and self-reflective processes (Bandura, 1977b). Williams and Williams (2010) assumed that individuals who have high self-efficacy levels deal with complicated tasks as faced challenges instead of risks avoided. Bandura (1977a, 1997) outlined four potential sources of information that may impact self-efficacy: 1) enactive mastery experiences, 2) vicarious experiences, 3) physiological and emotional states, and 4) verbal persuasion.

Enactive Mastery Experience

According to Bandura (1986), mastery experience is considered the most potent source that contributes to pre-service teacher self-efficacy. This experience is a hands-on teaching opportunity for a pre-service teacher, varying from teaching an individual student lesson to teaching the entire class. Bandura (1997) described mastery experiences as the most significant source for building self-efficacy because they can provide successful self-experiences. Nothing is more valuable than having a personal mastery experience to enhance self-efficacy. Direct experiences that provide challenges have the most significant possibility of creating a feeling of being able to accomplish planned goals.

According to Bandura (1997), mastery experiences help individuals make decisions and choose good behaviors to progress toward goal fulfillment. These experiences can be guided instead of being invented. Bandura said, "Building a sense of personal efficacy through mastery experiences is not a matter of programming ready-made behavior." (p.80). Therefore, mastery experience should help people use their thinking to apply self-regulation. Individuals with high self-efficacy can deal with challenging tasks and spend more time and effort under pressure situations. Besides, when they fail, they can immediately improve their sense of self-efficacy. Bandura (1988) asserted a relationship between high self-efficacy and a high level of achievement.

Therefore, high levels of self-efficacy lead to high levels of attainment. Also, prior experiences and successes, mostly successful attempts, significantly impact people's self-efficacy. Hence, when people perform successfully, they increase their self-efficacy, and conversely, failed performance can negatively affect individuals' self-efficacy.

Vicarious Experience

It is the second source from which people develop their self-efficacy beliefs. Bandura (1997) confirmed that observing another person experiencing success is the next most effective source of building self-efficacy when related to a similar performance. In this indirect experience, individuals consider others as role models to believe they possess the skills and abilities to perceive and perform the required activities for success. These experiences allow individuals to learn by observing their models and using their observations to determine their self-efficacies. Watching those models complete a challenging task creates the reason for assessing the task as manageable. However, when the role model fails at the task, the opportunities are that self-efficacy beliefs will be constant or decreased. According to Bandura (1997), people assess their abilities compared to others.

Verbal Persuasion

It is also known as social persuasion, which happens when other people talk about their prior experiences to influence an individual to attempt similar activities (Bandura, 1997). Verbal persuasion is used by people who believe in their abilities and accomplishments (Bandura, 1995). Also, there is a balance between verbal persuasion and successful performance in building individuals' self-efficacy. Social persuasion can be used to support and encourage individuals. For example, teachers can verbally persuade learners about their capabilities for achievement. According to Bandura (1986), social persuasion may include feedback about skills in the form of

a disparity between goal and performance. If social persuasion influences an individual to apply different strategies or increase attempts to succeed, then the persuasion is within practical bounds. Nevertheless, the "raising of unrealistic beliefs of personal competence only invites failures that will discredit the persuaders and will further undermine the recipient's perceived self-efficacy" (Bandura, 1986, p. 400).

Physiological and Emotional States

Bandura (1997) described physiological reactions as internal factors that can determine an individual's capacity to succeed with consideration of external factors such as the model's suitability and the required assistance and encouragement. Bandura (1977a) explained that anxiety is a substantial factor that can affect self-efficacy. They have a reciprocal relationship, which means that when the level of anxiety increases, the level of self-efficacy decreases.

Bandura (1986) said, "perceived self-efficacy results from these various sources of information conveyed vicariously and through social evaluation, as well as through direct experience" (p. 411). He claimed that people evaluate their self-efficacy levels based on information from these four sources. Besides, people's self-awareness can be improved depending on the reliability of these sources. Bandura also explained that these sources change over time and are associated with individuals' evaluations of their capabilities.

The Social Cognitive Theory and Teachers' Self- Efficacy Beliefs

According to Bandura (1997), individuals' self-efficacy is grounded in the social cognitive theory that claims individuals can practice some control over their progress and life circumstances. It is a cognitive process when people create beliefs about their ability to achieve their goals. These beliefs determine how much effort people put in to face their obstacles or deal with failures and how much stress they encounter in difficult situations (Bandura, 1997). In their research study,

Goddard et al. (2000) explained how Bandura (1997) emphasized the distinctions between his theory and that of Rotter (1966) when he implied that individuals trust themselves to perform some activities as perceived self-efficacy which differs from the "beliefs about whether actions affect outcomes (locus of control)" (p. 481).

Teachers' self-efficacy can be defined as teachers' beliefs that can help them determine how well K-12 students learn, even those who may face learning difficulties (Guskey & Passaro, 1994). Tschannen-Moran et al. (1998) explained that the importance of teacher self-efficacy arises from its impact on their performance and their students' learning, enabling them to improve more powerful efficacy beliefs.

Pre-Service Teacher Self-Efficacy Beliefs

Bandura (1997) defines self-efficacy beliefs as "beliefs in one's capabilities to organize and execute the course of action required to produce given attainments." (p. 3). He described self-efficacy as people's beliefs in their ability to accomplish proposed goals and produce effects. These beliefs impact their capabilities, motivation, performance, and how they can reach their desired goals. In his book, Bandura (1997, p.37) stated:

> Efficacy beliefs operate as a key factor in a generative system of human competence. Hence, different people with similar skills, or the same person under different circumstances, may perform poorly, adequately, or extraordinarily, depending on fluctuations in their beliefs of personal efficacy.

So that if individuals believe they will perform on any provided task, that can immediately influence their performance.

Teacher efficacy was developed by Bandura and found its origin in Bandura's (1997) theory of self-efficacy. According to Hoy (2000), the concept of self-efficacy is widely

affirmed as the belief held by a teacher that an individual teacher can significantly influence a student's behavior, performance, and learning despite external conditions. Woolfolk (2008) defines teacher self-efficacy as a "teacher's belief that he or she can reach even difficult students to help them learn" (p. 361).

In this chapter, I presented an argument for the need for this study and the theory that guides my study. In the following chapter, I will present a literature review on teacher education and pre-Service teachers' self-efficacy and their perceptions of preparation. I will also present several studies about Saudi pre-service teachers' self-efficacy and teacher perceptions of preparation. The literature review provides the background to situate my research within the field. Chapter 3 describes my research methodology in detail, including the study's purpose, research design, population and sample, survey instrument, and analysis techniques.

Chapter 2

Review of the Literature

In this chapter, I present a review of empirical studies that have been carried out in the areas of teacher education, pre-Service teachers' self-efficacy, pre-service teachers' perceptions of preparation, Saudi pre-service teachers' self-efficacy, and Saudi pre-service teachers' perceptions of preparation. I conducted this literature review by first focusing on peer-reviewed empirical studies published between 2000 and 2020. I have searched using ERIC (ProQuest), Education Database (ProQuest), Google Scholar, and Saudi Digital Library (SDL) to find related studies. I have used different search terms to determine how many articles I could find. The search terms included "pre-service teachers' perceptions of preparation," "pre-service teachers' self-efficacy," "Saudi pre-service teachers' perceptions of preparation," and "Saudi pre-service teachers' self-efficacy. Since I was focusing on empirical studies, I ended up with thirty-five studies that examined those terms.

For research inclusion criteria, I included only empirical studies published in English and focused on pre-service teachers. The empirical studies can help me compare data and results among those studies. The study should talk about pre-service teachers' perception of preparation or pre-service teachers' self-efficacy. The time frame was one of my search criteria, so I focused on the last two decades.

To meet my exclusion criteria, I do not consider studies investigating in-service teachers' self-efficacy and preparation perceptions. Despite my interest in elementary education, I do not consider any specific school grade level for this review because the grade level is not an essential factor regarding my research topic. I also will not limit my search to a specific gender. Even if I want to use this study to apply my research findings in Saudi Arabia, I do not think gender will

make a difference in those findings because there is no difference in benefits between male and female teachers. Moreover, I have excluded articles published in Arabic or other languages besides English.

What is Teacher Education?

Teacher education refers to plans, procedures, policies, and provisions designed to provide preservice teachers with the knowledge, skills, behaviors, and attitudes they need to effectively accomplish their teaching tasks in classrooms, schools, and more extended communities. Darling-Hammond (2010) represented teacher education as a program associated with the growth of teachers' knowledge and capability, which can equip and enable them to meet the teaching profession's requirements and face its challenges. The National Council for Accreditation of Teacher Education (NCATE) (2008) defined a teacher education program as "a planned sequence of courses and experiences for the purpose of preparing teachers and other school professionals to work in pre-kindergarten through twelfth-grade settings" (p.90). According to the Goods Dictionary of Education, "Teacher education means all the formal and non-formal activities and experiences that help qualify a person to assume responsibilities of a member of the educational profession or to discharge his responsibilities more effectively. (as cited in Carr, 2013, p. 12).

Effectiveness of a Teacher Education Program

The Teacher Education Program aims to integrate coursework and fieldwork to examine the intense bond between schooling and classroom teaching to learn how to apply subject matter into curriculum and teaching that supports students' learning, to improve knowledge and skills to meet principles and standards of teaching and to enhance the ability to maintain and develop teachers' practice during their teaching profession. ("Harvard Graduate School of Education,"

n.d.). Hence, the program should prepare qualified teachers who can contribute to the field, positively influence students' achievement and meet their learning needs.

To help K-12 students become more competent learners, professionals responsible for designing teacher education programs should clearly understand what teachers need to know to be successful in the classroom. At the same time, it is essential to consider what the students need to learn, and the prevailing instructional modes used in their educational environment. Overall, given the importance of sound pedagogical practice to student success, it is necessary to ensure that teachers are trained to a high standard. In short, graduates from teacher-training programs largely determine the quality of teaching in schools (Flores, 2015).

The overarching purpose of a teacher education program is to prepare pre-service teachers to meet teaching goals, design and implement curricula, be competent in the realm of assessment, and meet their student's educational needs. According to Darling-Hammond and Bransford (2005), any given teacher education program should proceed through clearly identified stages, including the articulation of theories and their practical application, each of which should include knowledge and skills that the pre-service teachers are required to acquire.

For a teacher education program to be effective, it must be consistent and unified. The program's professionals, such as educators, curriculum designers, policymakers, and administration staff, must work together to create and organize the program's components based on a deep understanding of what leads to effective teaching and how to explain its principles to pre-service teachers. For example, one practical principle in teaching practice is aligning coursework with clinical experiences (Henning et al., 2016). Following this principle, the program should offer multiple courses to strengthen the ties between theory and practice and build on each other's ideas instead of offering multiple courses that students can select randomly. Hence, a

teacher education program plays an essential role in preparing a person to be a teacher for different education levels by providing adequate and appropriate education and practice.

Teacher Education and Self-Efficacy

Qualified teachers and the skills they are required to possess may be the most potent factors in the learners' success (Bandura, 1997; Goddard et al., 2000). Confidence in an individual's ability to be a skillful, competent, and qualified teacher is crucial because this confidence can become a motivational factor for reaching these expectations. According to Knobloch (2006), self-efficacy becomes an essential component of pre-service teachers' preparation to succeed in their new teaching experience.

According to Darling-Hammond et al. (2002), pre-service teachers' self-efficacy may be significantly impacted by their teacher preparation program and field experiences. Self-efficacy in pre-service teachers may increase from the beginning of the year to the end if involved in various learning experiences linked with continuous support from teacher preparation professors and mentor teachers in field experiences but weakened as they progressed through their education to become in-service teachers (Barnes,2000). The author attributes the decrease in self-efficacy to the teaching experience complexity by the end of the preparation program. Similarly, Hoy and Spero (2005) explained that pre-service teachers' self-efficacy increased from the beginning to the end of their preparation program and then decreased at the end of the first year of in-service experience. The authors assume that the decrease resulted from the waning support received in the teacher preparation program compared to the first year of teaching.

Nevertheless, not all studies confirmed an increase in self-efficacy by the influence of the preparation program. For instance, Plourde (2002) determined that student teaching experienced notable negative changes in pre-service teachers' beliefs, maybe due to influences causing a lack

of confidence during student teaching practice. Besides, Aydin and Hoy (2005) noticed that taking extra teacher education courses in the teacher preparation program did not significantly increase pre-service teachers' self-efficacy beliefs.

Research studies have investigated self-efficacy through different aspects of particular teacher preparation coursework and practice. For example, Moseley et al. (2002) confirmed that pre-service teachers' self-efficacy remained stable during teaching practice in an outdoor environmental program but decreased significantly some weeks after teaching. However, the expected result indicated no meaningful change due to participation.

Improving cultural competence in pre-service teachers promotes their ability to provide fair access to students' diverse learning. Lastrapes and Negishi (2012) determined that pre-service teachers' teaching efficacy developed due to their capacity to establish relationships between instructional practices and cultural competence. This study proved that pre-service teachers experienced cultural sensitivity and increased self-efficacy due to culturally diverse students' tutoring experiences.

Pre-Service Teachers' Self-Efficacy Believes

Field-based Experience and Pre-Service Teachers' Self-Efficacy Beliefs

According to Ben-Peretz (1995), field-based experience is essential in developing teaching skills. Field experience precedes student teaching and varies in the extent to which students are engaged in the classroom. Tang (2003) found that quality field-based experiences depended on students' and preservice teachers' ability to connect what they learn on the field with what they learn in the classroom.

Bernadowski et al. (2013) studied pre-service teachers' self-efficacy as they are involved in teaching situations as a course requirement (course connected) and self-selected situations

(managed choice) based on Bandura's self-efficacy work. The research question of this study was:" Does course connected service learning better prepare students and help them understand the factors impacting student achievement" (p. 68). The authors used a pre- and post-ten-question survey with a Likert Scale to collect data. Results show that students' self-efficacy improved when service-learning was combined or embedded in the context of learning and connected to a course. These findings also indicate that course-connected service-learning significantly impacts pre-service teachers' perceptions of their ability to be effective and productive future classroom teachers. Hence, the course connected service learning is the most effective practice in pre-service teaching instruction.

Flores (2015) investigated the impact of a field-based science methods course with embedded teaching practice on elementary pre-service teachers' self-efficacy. The study was defined by three research questions: Does a field-based science methods course with embedded teaching practice impact elementary pre-service teachers' general science teaching efficacy? 2. Does a field-based science methods course with embedded teaching practice impact elementary pre-service teachers' personal science teaching efficacy? 3. Does a field-based science methods course with embedded teaching practice impact pre-service teachers' science teaching outcome expectancy? The study was a quantitative investigation with 30 undergraduate teacher education candidates who were enrolled in a multiple subject teacher preparation program. Flores used the Science Teaching Efficacy Belief Instrument-Preservice (STEBI-B), which consists of 23 items in a five-point Likert-type scale.

The findings indicate an essential improvement in teacher candidates' general efficacy from the beginning to the end of the science methods course. The course requirements include planning and implementing science teaching practice that affected the participants' overall

confidence positively. Regarding the second research question, pre-service teachers' personal science teaching efficacy (PSTE) increased significantly from the beginning to the end of the science methods course. Besides planning, designing, and teaching lessons to peers, individual aspects of the course have contributed to personal efficacy beliefs. For instance, content knowledge was improved through several learning experiences. The findings concerning the third research question showed that science teaching outcome expectancy increased significantly after teaching practice had happened by the end of the methods course.

Trauth-Nare (2015) studied the influence that an intensive field-based life science course and service learning has on pre-service teachers' self-efficacy for environmental teaching and to decide which aspects of the combined field-based course/service learning pre-service teachers perceived as helpful for improving their self-efficacy. The researcher used two questions to guide the study: 1. What changes to pre-service teacher environmental teaching self-efficacy, if any, occurred during the field-based course and service-learning experience? 2. Which aspects of the field-based course and service-learning experience were reported by pre-service teachers as most effective for enhancing their environmental teaching self-efficacy? A total of 38 pre-service teachers participated in the study. The researcher used a qualitative approach, which included pre-service teachers' course documents. These documents included written reports from field projects, reading responses, service-learning thoughts and reflections, and curriculum development designs. To collect quantitative data, PSTs completed the Environmental Education Efficacy Belief Instrument (EEEBI)at the beginning and end of the semester.

The findings showed that the course's three viewpoints were essential for improving PSTs' self-efficacy: learning about environmental concepts within place-based issues, service learning among K-5 students, and environmental education (EE) curriculum development. In addition to

practical experiences with students, learning environmental concepts and theories in field-based activities performed in the local landscape also positively affected PSTs' self-efficacy.

Norris et al. (2018) studied the learner type and factors that influence pre-service teachers' self-efficacy in teaching science in an Australian Graduate Diploma of Education Primary (GDEP). The following research questions guided the study: "1) Who are our postgraduate primary science pre-service teachers in terms of 'types of learners'? 2) Does the type of science learner impact pre-service teachers' science teaching self-efficacy?" (p. 2293). The researchers collected data from 371 participants using a modified STEBI-B questionnaire and focus group discussions that presented a more in-depth insight within the survey data. The study identified five types of science learners: fearful of science, disinterested in learning science, successful in science, enthusiastic about science, and the fifth category was classified and named as not clearly identifiable.

The findings showed that fearful learners were least confident in their ability to learn science. The study also found the disinterested learners to be both involved and enthused during the learning experiences. Moreover, the results indicate no statistical significance between successful and enthusiastic science learners according to their survey response. It was apparent that successful and enthusiastic groups have higher efficacy than the fearful and disinterested groups. Many GDEP participants identified as not clearly identifiable wanted to be students who had life experience exceeding their undergraduate degree to shape their self-efficacy further.

Inquiry-Based Teaching and Pre-Service Teachers' Self-Efficacy Beliefs

Inquiry-based instruction is widely acknowledged in education. Teaching with inquiry is challenging, and Pre-service teachers are still developing the competencies to teach via inquiry. Part of the challenge in accomplishing so is feeling convinced about one's capacity to add this

teaching approach to one's teaching skills, which is known as self-efficacy. According to Chichekian and Shore (2016), self-efficacy for inquiry teaching is an essential part of inquiring happens in classrooms and schools.

Narayan and Lamp (2010) studied factors that affected elementary pre-service teachers' self-efficacy in a constructivist, inquiry-based physics class. The research question that guided the study was: "What factors influence the EC-4 pre-service teachers' self-efficacy during participation in PHYS 3400, a constructivist, inquiry-based physics class?" (p. 750). Six female students who enrolled in PHYS 3400 were interviewed and videotaped during the semester through class time. The researchers used a semi-structured interview and open-ended questions to collect data.

The results indicate that the participatory nature of the inquiry-based activities and mentor modeling of practice are two factors that influence our elementary pre-service teachers' self-efficacy. Besides, the results show that several factors could influence pre-service teachers' self-efficacy, such as mastery experiences, content mastery, pedagogical mastery, and Enactive mastery.

Seung et al. (2019) investigated the effect of a summer camp-based science methods course on elementary pre-service teachers' self-efficacy in teaching science as inquiry. Research questions that guided this study are: "(1) How does an inquiry-based science methods course combined with a summer camp influence elementary pre-service teachers' self-efficacy in teaching science as inquiry? (2) What are the experiences from the course identified as sources of their self-efficacy? (3) What experiences from the course are perceived to be more significant sources of self-efficacy?" (p. 874). This research was performed through a summer camp-based science methods course for elementary pre-service teachers. To address the first research question, the

authors conducted a survey, and they used interviews to address the second and third research questions. There was a total of 55 pre-service teachers who participated in all pre- and post-surveys and interviews.

The findings showed that the course positively impacted the pre-service teachers' self-efficacy by giving them opportunities to teach and design hands-on activities and inquiry-based lessons. It reduced pressure to and prepared K-12 students for high-stakes standardized tests and cover curriculum. The findings also indicate eight self-efficacy sources, and every participant mentioned some of them. Three of those sources were perceived as the most significant self-efficacy sources. They include successful experience of developing and teaching inquiry-based lessons, successful experience of developing and teaching fun and hands-on science activities, and camp participants' positive reactions to their lessons and activities. The other sources include improving understanding of science instructional models and strategies, observation of others' successful teaching, overcoming fear of science and/or science teaching, improving understanding of science content knowledge, and experience of reflection and mentoring.

McLaughlin (2015) studied the impact of pre-service teachers' participation in an informal, family-oriented science program known as Saturday Science on their self-efficacy. describe their confidence in four areas concerning their inquiry activity: (a) knowledge of science content, (b) knowledge of materials and procedures, (c) working with children, and (d) working with adults. McLaughlin's study addresses two research questions: "(a) How do pre-service teachers' self-efficacy for learning and teaching science compare pre- and post-participation in the program? and (b) How do students feel their participation in Saturday Science helps prepare them for future classroom teaching?" (p. 78). To collect data, McLaughlin used surveys and semi-structured focus group discussions. The surveys were formed after the Science Teaching Efficacy Beliefs

Instrument (STEBI) to indicate observed successes and challenges represented through improvised conversations with pre-service teachers in past years.

The results showed that both instruments, pre- and post-participation surveys and focus group discussions, showed that Saturday Science involvement was correlated with positive self-efficacy changes in four different study areas. Those areas are (a) knowledge of science content, (b) knowledge of materials and procedures, (c) working with children, and (d) working with adults. When the participants considered the effort and amount of time they needed to design and facilitate each activity successfully, few of them believed that Saturday Science was associated with decreased self-efficacy for teaching science in the future. The participants' experiences with the program were individualized because of changes in particular contextual factors such as variation of activities that participants facilitated, the process they used, the complexity of materials, and the number of families attended Saturday Science.

Practice-Based Teaching and Pre-Service Teachers' Self-Efficacy Beliefs

Hauser and Kavanagh (2019) described practice-based teacher education (PBTE) as an approach to preparing pre-service teachers that focuses on developing their ability to enact teaching practices. It is understood as professional preparation focusing on pre-service teachers' learning how to teach, and its curricula are designed mainly for teaching practices as central components of course content. (Forzani, 2014; McDonald et al., 2013)

The study by Tindall et al. (2016) investigated the effects of adapted physical activity (APA) program and a 10-week practice-based experience on the pre-service teachers' self-efficacy toward teaching children with disabilities. The participants were 64 third-year pre-service teachers who were required to 10-week adapted physical activity (APA) program to facilitating a practical teaching experience. The researchers used a mixed-method approach to collect data. For the

quantitative approach, they used a pre- and post-program questionnaire, and for the qualitative one, a focus group interview was applied to the participants. The results enhanced the effectiveness of practical and disability-orientated teaching experiences, which positively increased pre-service teachers' self-efficacy and confidence in teaching these students.

Teaching Science and Mathematics and Pre-Service Teachers' Self-Efficacy Beliefs

Giles et al. (2016) studied elementary pre-service teachers' self-efficacy beliefs related to teaching mathematics. This study's objective was to gather and measure elementary pre-service teachers' self-efficacy beliefs concerning mathematics instruction. There were 41 participants, and the researchers used the Mathematics Teaching Efficacy Beliefs Instrument (MTEBI), which measures pre-service teachers' self-efficacy beliefs in teaching mathematics. The study's findings show that pre-service teachers had high levels of perceived self-efficacy levels regarding their mathematics teaching skills and positive levels of outcome expectancy for their students. The findings also indicate that methods courses may be essential for developing teacher self-efficacy, mainly when structured and well-support field experiences are embedded in such courses.

Bergman and Morphew (2015) investigated the effects of a science content course on elementary pre-service teachers' self-efficacy of teaching science. They build their work on two research questions: "(a) What impact does an elementary science content course have on participants' self-efficacy of teaching science? and (b) What do participants perceive to be the most significant concepts or skills learned in the course?" (p. 75). The researchers used the Science Teaching Efficacy Belief Instrument for pre-service teachers (STEBI-B). The researchers also used an open-ended question in the post-assessment to ask participants to share what they believed were the most significant concepts or skills or they learned in the Physical Science in the Elementary Classroom (PSEC) course.

After one semester of experiences and learning in a science content class planned for elementary pre-service teachers, participants showed statistically notable progress in their self-efficacy and result expectancy of teaching science. There were 91 out of 172 total participants who responded to the open-ended questions. About 79% of the respondents said that something related to teaching was the most significant concept or skill they learned in the PSEC course. For example, connecting science to real-life and balancing between minds-on and hands-on. In comparison, 31% of those respondents showed a science concept or skill as the most important item they learned in the class. For instance, they learned about Archimedes' principle, Newton's laws, and energy and simple machines.

The study results indicate that participants revealed statistically essential improvement in their self-efficacy and science teaching outcome expectancy. The findings also indicate that out of those who responded to the question, more than three-fourths of the participants said the most important concept or skill they learned in the PSEC course was linked to teaching.

Inclusive Education and Pre-Service Teachers' Self-Efficacy Beliefs

Peebles and Mendaglio (2014) investigated the impact of field experience and an inclusion course on pre-service teachers' self-efficacy for teaching in inclusive classrooms. The study was guided by three research questions: "1. What is the effect of an inclusion course and a field experience on pre-service teachers' self-efficacy for teaching in inclusive classrooms? 2. Do pre-service teachers with prior experience with individuals with exceptional needs have higher levels of self-efficacy compared to pre-service teachers without prior experience? 3. What type of experience, if any, during the field experience (observation, whole class instruction, small-group instruction, and individual instruction) is the strongest predictor of self-efficacy gains of pre-service teachers?" (p. 1324). The authors used the Teacher Efficacy for Inclusive Practice (TEIP)

scale to measure self-efficacy for 141 participants. The TEIP scale includes statements related to the respondents' perceptions of their ability to perform inclusive practices.

The study findings showed that participants experienced notable increases in self-efficacy after the field experience and after the inclusion course. Although the coursework itself was influential in developing participants' self-efficacy, the combination of the coursework and the field experience help them get substantial increases in their self-efficacy. The results also showed that prior experience with individuals with exceptional needs was linked to higher levels of self-efficacy. However, the effect of the coursework and field experience on self-efficacy was similar for the participants with prior experience and those without prior experience. To answer the third research question, the findings indicate that the strongest predictor of pre-service teachers' self-efficacy gains was individual instruction, followed by small-group instruction. On the other hand, whole-class instruction and observation were associated with self-efficacy gains negatively.

Weber and Greiner (2019) Investigated pre-service teachers' self-efficacy beliefs and attitudes toward inclusive education within first teaching experiences throughout a 4-week practicum. The study has four research questions: "How do pre-service teachers evaluate their first teaching experiences in inclusive classrooms and what kind of challenging tasks do they report? 2. How do pre-service teachers' self-efficacy beliefs and attitudes towards inclusive education change through their first teaching experiences? 3. How are pre-service teachers' attitudes towards teaching in inclusive settings related to their self-efficacy beliefs and their satisfaction of career choice and job-related exhaustion? 4. Which factors during the practicum (e.g., positive experiences, competence support) predict pre-service teachers' self-efficacy beliefs and attitudes towards inclusive education?" (p. 75). One hundred seventy-nine participants in their fourth semester of teacher education at a German University participate in a 4-week teaching practicum.

The researchers conducted the first survey as a paper-pencil test as part of the teaching practicum beginning event a week before starting. The post-test was administered online in the week after the practicum was done.

The results indicate that pre-service teachers in this study reported mostly positive or at least indifferent mastery and vicarious experiences in inclusive classrooms, which can be described as a sign for the successful implementation of inclusive teaching in most practicum schools. Regarding the second question, the researchers supposed that the pre-service teachers in the study experienced a positive change in their self-efficacy beliefs and attitudes toward inclusive education. Concerning the third research question, the results proved that positive attitudes toward inclusive education are related to positive self-efficacy beliefs toward inclusive education. As the answer to the fourth question, the findings showed that inclusive classrooms' positive experiences predict pre-service teachers' self-efficacy.

Teaching of Literacy and Pre-Service Teachers' Self-Efficacy Beliefs

Reading acquisition progresses from a speech-to-print process requiring that educators begin instruction with attention to speech sounds and progress to teaching students to map those sounds to letters and letter combinations (Mazzye et al., 2023). Teacher preparation programs should provide opportunities for pre-service teachers to practice their learned pedagogical knowledge in literacy. Preparation programs that provide a combination of literacy coursework and opportunities for mastery experiences tend to result in increased levels of pre-service teacher self-efficacy for teaching reading ((Helfrich & Clark, 2016).

In their study, Mazzye et al. (2023) explored self-efficacy and ability for scientifically-based literacy instruction between a traditional and residency model of teacher preparation. The study has three research questions: (1) Do student teachers' perceptions about their ability to teach

literacy have different rates of change across the student teaching quarter when comparing the residency model (RM) to the traditional model ™? (2) Do mentor teachers rate student teachers as more effective at teaching literacy in the RM or TM? (3) What alignment exists among mentor teachers' and student teachers' perceptions of student teachers' ability to teach literacy in each model (RM and TM)? The participants were 53 student teachers and 49 teachers. The researchers used the Teachers' Sense of Efficacy for Literacy Scale to collected data.

Results showed that participants in RM carried more increased levels of self-efficacy for literacy instruction than in the TM. Mentor teachers rated student teachers in the RM as more capable of teaching literacy than those in the TM. There was alignment between the mentor rating and the resident perception of ability. In the TM, the mentor and student teacher needed to be more aligned in their perspectives of the student teacher's ability to teach literacy. Teacher preparation programs should consider the possibility of teacher Residency Models to train pre-service teachers to use the Science of Reading to teach literacy.

Ciampa and Gallagher (2018) examined American and Canadian pre-service elementary teachers' self-efficacy beliefs for literacy instruction, as well as the contextual factors that enhance self-efficacy beliefs. Two research questions guided the study: (1) How do literacy teaching self-efficacy beliefs of pre-service elementary teachers in Canada and the USA change over the duration of a literacy methods course? (2) What is the relationship between contextual classroom-level factors (i.e., literacy-related university coursework, volunteer and fieldwork experience) and self-efficacy beliefs among Canadian and American pre-service teachers? The total sample of 173 pre-service teachers participated in the study. They came from two universities: 127 students came from Canada, and 47 came from the USA. The researchers used a mixed-method approach to collect their data. For quantitative data, the Teachers' Sense of Efficacy for Literacy Instruction

(TSELI) was given to the participants at the beginning and end of an elementary literacy methods course. The researchers also used content analysis to study the elementary literacy methods course syllabi from Canada and the USA.

The study findings indicate that throughout a one-semester literacy methods course with field experience, there was no significant change in literacy teaching self-efficacy beliefs of pre-service elementary teachers in Canada and the USA. Remarkably, pre-service teachers' literacy efficacy beliefs related to reading increased from the beginning to the end of the course. Concerning the second research question, the relationship between associated factors and self-efficacy beliefs among Canadian and American pre-service teachers differed significantly. The Canadian pre-service teachers had an increased sense of language instruction self-efficacy about the classroom-based teaching experience. For Canadians, the more field experiences (volunteer and work), the higher the self-efficacy related to involving students and differentiating for their demands.

Rogers-Haverback and Mee (2015) conducted mixed-methods research to investigate middle-level pre-service teachers' self-efficacy beliefs in general and in the reading domain. In this study, both general teacher self-efficacy and pre-service teachers' reading teacher self-efficacy were measured on various reading instruction tasks associated with student teaching and a field-based reading course. The study was guided by four questions: "(1) How did pre-service teachers' reading self-efficacy and general self-efficacy change at the conclusion of a field-based reading course and student teaching? (2) Was there a significant difference in pre-service teachers' reading and general self-efficacy from time one to time three? (3) Did pre-service teachers report that the field-based reading course impacted their reading teacher self-efficacy and ability to teach reading in the future? (4) Did pre-service teachers report that student teaching impacted their reading

teacher self-efficacy and their ability to teach reading in the future?" (p. 21). The participants were eight middle grades pre-service teachers. They completed the Teacher Sense of Efficacy Scale (TSES) at three-time points: the beginning of the year, the middle, and the end. The participants also completed the Reading Teacher Sense of Efficacy scale (RTSES) at the same points of time. Moreover, they completed hand-written reflection logs, which provide them with an opportunity to reflect on their field-based experiences.

The findings confirmed that the participants' self-efficacy increased progressively over the year concerning reading and general self-efficacy. Therefore, there was no significant development in pre-service teachers' reading and general self-efficacy from time one to time two. Participants indicated that the mastery experience positively affected their future reading self-efficacy and teaching using classroom-based procedures and strategies. Being in the classroom for the field-based reading course helped the pre-service teachers have a sense of availability of reading resources and the ability to use specific reading strategies. During student teaching, participants were able to identify not only K-12 students' personal needs in their classes, but they also understood the significance of motivating the middle-level students to read.

Knowledge and Pre-Service Teachers' Self-Efficacy Beliefs

Shillingford and Karlin (2014) examined the impact of pre-service teachers' emotional and behavioral knowledge on their self-efficacy. The sample included 230 pre-service teachers in Elementary and Secondary general education and special education programs. They responded to both instruments, The Teacher Self Efficacy Scale (TSES) (long form) and Knowledge of Emotional and Behavioural Disorders questionnaire. The researchers conducted this study to answer the following research questions: "1) To what extent does personal experience, field experience, coursework, and knowledge of EBD predict pre-service teachers' self-efficacy? 2) Are

there any differences among the special education and general education teacher programs regarding knowledge of emotional and behavioral disorders? 3) Are there any differences in the pre-service teachers' knowledge of EBD and self-efficacy across the different teacher education programs? 4) Does practicum experience and exposure to a student diagnosed with EBD during the practicum experience influence pre-service teachers' efficacy in student engagement?" (p.5).

The study's results showed that additional coursework, field experiences, knowledge of EBD, and awareness with a child with EBD did not affect the pre-service teachers' self-efficacy. Furthermore, there were essential differences in self-efficacy in instructional strategies across teacher education programs, particularly among juniors and graduates. There was a difference in EBD knowledge across the teacher education programs, especially between general and special education programs. This difference across teacher education programs indicates the need to enhance the knowledge of emotional and behavioral disorders in general education programs, especially in the elementary and secondary programs. Additionally, the study's findings demonstrate that practicum experience and having a child diagnosed with EBD in the classroom did not influence the pre-service teachers' self-efficacy in student engagement.

Culture and Pre-Service Teachers' Self-Efficacy Beliefs

Siwatu and Starker (2010) investigated pre-service teachers' (1) self-efficacy to resolve a cultural conflict involving African American students, (2) sense of preparedness to manage cultural conflicts effectively, and (3) culturally responsive teaching self-efficacy beliefs. The authors designed this study to answer the following research questions: 1) What is the nature of pre-service teachers' (a) sense of efficacy to resolve a cultural conflict involving an African American student, (b) sense of preparedness to handle cultural conflicts effectively, and (c) culturally responsive teaching self-efficacy (CRTSE) beliefs? 2) What is the relationship between

pre-service teachers' sense of efficacy to resolve a cultural conflict involving an African American student, sense of preparedness to effectively handle problems, CRTSE beliefs, number of teacher education courses taken that addressed issues of cultural diversity in the classroom, and perceptions of the effectiveness of coursework to prepare them to teach students from culturally diverse backgrounds? 3) What factors contribute to predicting pre-service teachers' sense of efficacy to resolve a cultural conflict involving an African American student? The number of participants was 84 pre-service teachers. They were provided with two questionnaires: Academic and Demographic Background Questionnaire and Culturally Responsive Teaching Self-Efficacy Scale. They were also given a case study to read and rate their ability to resolve cultural conflict and their preparedness to handle problems.

The study's findings indicate that pre-service teachers felt moderately effective in their capability to resolve cultural conflict. This relationship between teachers' case study self-efficacy and CRTSE beliefs implies that when the strength of pre-service teachers' CRTSE beliefs improves, their sense of efficacy to resolve a cultural conflict involving an African American student improves too. The relationship also shows that pre-service teachers' perceptions of preparedness to manage cultural conflicts efficiently were not associated with the number of teacher education courses taken that discussed cultural diversity issues in the classroom. Considering self-efficacy beliefs are influential predictors of how people behave, the study results encourage those who believe that performing culturally responsive teaching practices may reduce cultural conflicts in the classroom. The results also suggest that the number of courses taken was not related to any other key variables in this study, such as ratings of coursework effectiveness, CRTSE strength index, case study self-efficacy, and sense of preparedness.

Technology and Pre-Service Teachers' Self-Efficacy Beliefs

The presence of educational technologies and social digital, as well as their vast influence on individuals' daily lives, lead to essential changes in all education aspects, including teaching and learning. The presence of educational technologies and social digital, as well as their vast influence on individuals' daily lives, lead to essential changes in all education aspects, including teaching and learning. Prensky (2001) described the current generation of learners as digital natives who prefer digital materials and content as appropriate educational aids to support their learning procedures.

Moreover, studies by Bennett et al., 2008 and Brown & Czerniewicz (2010) emphasized that digital natives are good at using new technologies and have enriched information-seeking and analyzing skills. Prensky (2001) considered teachers as digital immigrants who have to meet their learners' demands. Thus, Caner et al. (2021) mentioned that researchers commonly agree that pre-service teachers should have specific skills and knowledge to successfully integrate educational technologies into their lessons.

Song (2018) studied service-learning influence in authentic school environments on pre-service teachers' beliefs toward technology integration. There were two aspects of pre-service teachers' technology integration practice: 1) learning technology integration within service learning, and 2) improving pre-service teachers' knowledge of technology integration during participation at the school maker-space lab. There were 12 pre-service teachers participated in this study. The participants were asked to reflect upon their service-learning visits to the elementary school.

The study results showed that the pre-service teachers revealed an improved understanding of the importance of using technology in education in their future classroom instruction during the

service-learning experience. The participants also informed enhanced self-efficacy in their reflection journals due to their service-learning experiences by working with K-12 students and observing teachers' technology integration practices in the real classroom.

In their study, Han et al. (2017) explored the impact of technology-centered student teaching experiences on pre-service teachers with different teaching beliefs concerning self-efficacy and intention to apply technology. The researchers used two research questions to guide their study: "(1) Does the student teaching experience have a different effect on the self-efficacy of pre-service teachers with different teacher beliefs? (2) Does the student teaching experience have a different effect on the intention to use technology in pre-service teachers with different teacher beliefs?" (p. 832). Participants were 55 senior university students recruited from the College of Education at a university in Seoul, South Korea. They were registered for a student teaching practicum and participated in pre- and post-survey. The authors used Teaching Belief Survey (TBS) to collect data.

This study reported that student teaching experiences increased pre-service teachers' self-efficacy despite their teacher beliefs. The study also showed that the student teaching experience could be a distinctive approach to exercise and observe subject-specific pedagogical technology uses, which can probably change pre-service teachers' practice by enhancing the self-efficacy of technology use in the classroom. Regarding the intention to use technology, student teaching experiences depend on pre-service teachers' pedagogical beliefs. Pre-service teachers with constructivist teacher beliefs showed a constant and higher level of intention for using technology. Moreover, the result indicates that student teachers with traditional teacher beliefs certainly benefit from technology-centered student teaching experiences by increasing their intention and self-efficacy.

Shittu et al. (2016) studied a specified information technology (IT) preparation model as an antecedent of mathematics pre-service teachers' self-efficacy, perceived usefulness, and intention to use IT for teaching in Nigeria. The study used a survey approach to collect data. The study's targeted population was Mathematics pre-service teachers at one of the Universities in Nigeria, and there were 200 participants. The study stated that pre-service teacher professional training in using IT for teaching would have a constant and essential effect on their self-efficacy, perceived usefulness, and intention to use IT in future practices.

The results highlighted the importance of participants' IT preparedness while training as a precondition and antecedent to their self-efficacy and perceived IT usefulness in the classroom in the future. The study's findings also showed the importance of self-efficacy's primary role on perceived usefulness, which stands as an antecedent and a result of how pre-service mathematics students are prepared to use IT to teach and learn. Besides, IT preparedness also influences pre-service teachers' intentions. The study's results also confirmed the significance of training program effectiveness as a precondition for pre-service teacher self-efficacy in content, technology knowledge, and pedagogy. Moreover, the findings revealed the impact of professional training on Mathematics pre-service teachers' belief, perceived usefulness, and efficiency of using technology in teaching. The results revealed that pre-service teacher belief and integration of technology is a function of earlier technological abilities, which they have obtained throughout professional training.

Teaching Practice and Pre-Service Teachers' Self-Efficacy Beliefs

Many researchers have identified and highlighted the significance of a structured teacher practicum in improving pre-service teachers' self-efficacy beliefs (Fives et al., 2007). They said, "student-teacher experience proves a prolonged mastery experience, with opportunities for

both vicarious experiences and verbal persuasion, which serve to facilitate the development of the pre-service teachers' teaching efficacy beliefs" (p. 917). Knoblauch and Hoy (2008) also reached similar results by stating that a challenging teaching environment provides pre-service teachers with a chance to master challenging tasks and enriches pre-service teachers' self-efficacy.

However, some researchers claimed that teaching practicum might cause work-related stress (Klassen & Durksen, 2014). The authors explained that teacher practicum creates unusual difficulties for pre-service teachers, including preparing, teaching, building connections with colleagues and students, and understanding and practicing school policies and procedures. One of the challenges for pre-service teachers is transforming from being a student to a teacher (Caires et al.,2009; Klassen and Durksen, 2014). However, Caires et al. (2009) claimed that pre-service teachers could face and overcome these challenges, and their sense of becoming teachers helps them improve their self-efficacy, confidence, and attitude toward teaching

Ma and Cavanagh (2018) investigated the teacher self-efficacy level for 90 secondary pre-service teachers (PSTs) before their first teaching practice, and the factors which affected their ratings. Participants were 90 pre-service teachers who were preparing to be secondary school teachers. To collect data, the researchers used a survey based on the Scale for Teacher Self-Efficacy (STSE) which is a lately modified version of the Teachers' Sense of Efficacy Scale (TSES). Also, they used open-ended survey questions to help participants can give information about their ratings on the TSE scales.

The study's findings revealed that unreliable optimism was not apparent in the quantitative data. There are two potential reasons for this result in the study. First, many PSTs had obtained various informal teaching experiences, such as individual tutoring. This type of experience might help form a rational self-evaluation of TSE because it may have let the PSTs think about classroom

teaching challenges and led to a lower expectation of their teaching success. Second, PSTs were concerned about the upcoming practicum when they responded to the survey, so it is understandable that many participants reported anxious feelings about teaching. Moreover, the findings explain that the most important factor that impacted pre-service teachers' self-efficacy was their lack of classroom teaching experience, which left them without the knowledge to use when rating their TSE. This outcome proves that mastery experience is the most potent source for building self-efficacy.

Martins et al. (2015) explored physical education pre-service teachers' self-efficacy and practicum experiences as self-efficacy sources using a mixed-method research method. Two questions guided the study: "What is the nature of physical education pre-service teachers' self-efficacy? What kind of practicum training experiences is mentioned by pre-service teachers as sources that contribute to their self-efficacy perception?" (p. 266). The participants of the first phase were 141 pre-service teachers. During the first stage, the researchers collected quantitative data using a self-efficacy questionnaire to examine physical education pre-service teachers' self-efficacy characteristics. Qualitative data helped the researchers to recognize and understand the form and content of teacher education experiences connected to higher and lower self-efficacy.

According to the study's results pre-service teachers reported stronger self-efficacy on teachers–students' relationship tasks and discipline progression. The results also showed that pre-service teachers revealed lower self-efficacy about instructional strategies. Regarding the second research question, the qualitative data demonstrated that pre-service teachers' practicum training experiences as sources supported their perception of self-efficacy. The pre-service teachers described two different settings of mastery experience in their training. They indicated that professional teaching experiences before their teacher education program expedited their gain of

instruction and classroom management skills, which prevented them from shocking when they start teaching in a real class.

The research study by Lentfer and Franks (2015) represented the Redirect Behavior Model (RBM) implementation with pre-service teachers during a five-week practicum. The research questions were: "1. Does RBM training affect pre-service teachers' knowledge of effective classroom management elements? 2. Does RBM training affect pre-service teachers' self-efficacy beliefs regarding their own classroom management skills?" (p. 82). The participants were 31 pre-service teachers enrolled in a secondary education program. The participants responded to a survey that was adapted from the Attitudes Towards Science Inventory (ATSI) to explore pre-service teachers' self-efficacy about their knowledge of managing the classroom and students' behavior, both before and after taking the classroom management course. The survey includes two sorts of items: 1) knowledge of effective classroom management elements and 2) personal self-efficacy about classroom management. The survey followed by reflective journals that allowed participants to examine their progress and difficulties using the RBM.

The findings demonstrate that RBM training, followed by the opportunity for practice in actual classrooms, is one effective strategy for increasing education students' confidence because they have learned beneficial information concerning classroom management, and they have the needed skills to handle disruptive behavior in a classroom. The findings also explain that RBM training was a useful way to develop pre-service teachers' self-efficacy and increase their knowledge, proficiency, and confidence to manage classroom behavior.

Research by Berg and Smith (2018) examined the effect of the capstone practicum experience on pre-service teachers' self-efficacy beliefs. The study was guided by two research questions: "1. How does a capstone (final) practicum affect pre-service teachers' teaching self-

efficacy? 2. How do the TSES (long form; Tschannen-Moran & Hoy, 2001) and the NTSES (Skaalvik & Skaalvik, 2007) compare for measuring pre-service teachers' teaching self-efficacy?" (p. 534). The authors used the English translation of the Norwegian Teacher Self-Efficacy Scale (NTSES) and the Teachers Sense of Efficacy Scale (TSES).

Results explained that participants showed more powerful self-efficacy beliefs after they had completed their final school-based experience. The results also emphasized that pre-service teachers need to have more experience to help their beliefs be improved. Moreover, the study's findings suggested that the capstone practicum provides various opportunities and allows pre-service teachers to integrate their university-based classroom experience and prior practicum experiences in a new experiential learning environment. Regarding the second research question, this study's findings indicated that both the NTSES and the TSES are beneficial in evaluating pre-service teachers' self-efficacy in the context of the capstone practicum experience. Each tool has strengths and weaknesses, and those who try to measure teacher self-efficacy beliefs should consider the differences.

Physical Education and Pre-Service Teachers' Self-Efficacy Beliefs

Stapp et al. (2019) studied the relationship between pre-service teachers' self-efficacy and wellness and physical activity integration. The following question guided the study: "How do pre-service teachers who have taken a wellness and physical activity course perceive their self-efficacy of content knowledge, pedagogical knowledge, and pedagogical content knowledge in wellness and physical activity integration, compared to students who have not taken a wellness and physical activity integration course?" (p. 252). Participants were 148 junior students from elementary and special education majors. The researchers used the adapted Technological pedagogical content knowledge (TPACK) survey, which covers three sections: content knowledge (CK), pedagogical

 knowledge (PK), and pedagogical content knowledge (PCK).

Results indicated that pre-service teachers who have taken a wellness and physical activity course (EDWP) agreed that they have adequate knowledge about movement concepts and children's skills. In contrast, students who have not taken a wellness and physical activity integration course (non-EDWP) indicated that they were between 'disagree' and 'neutral.' Regarding pedagogical knowledge, findings showed that both EDWP and non-EDWP students gave themselves high scores in measuring their ability to modify their teaching to meet students' understanding needs. The most substantial difference between EDWP and non-EDWP students' scores across all categories was pedagogical content knowledge. While EDWP students' survey scores were laid within the 'agree' point of the scale, Non-EDWP students' mean scores were close to 'disagree' range.

Banas (2014) studied the impact of authentic learning exercises on health education pre-service teachers' self-efficacy to implement bullying prevention activities. The study has two research questions: "Do authentic learning exercises increase health education pre-service teachers' self-efficacy to perform bullying prevention activities aligned with standards? 2. Can professional preparation standards serve as pillars for the design of authentic learning exercises?" (p.241). There was not a control group and participants were not selected randomly, so the researcher used a quasi-experimental design. To collect data, Banas used an electronic survey during the second and last week of the semester. The survey consists of 28 items with four demographic questions and 24 items to assess participants' self-efficacy. The study's results show that authentic learning exercises have positive impact on pre-service teachers' self-efficacy to perform bullying prevention activities. Also, the results illustrate that authentic learning exercises

are an efficient instructional strategy in promoting learners' self-efficacy to achieve the professional preparation standards.

Saudi Pre-service Teachers' Self-Efficacy Believes

I have found three studies that talk about Saudi pre-service teachers' self-efficacy such as Alhumaid, Khoo, and Bastos (2020), AlGarni (2015), and Robertson and Al-Zahrani (2012). The research study by Alhumaid, Khoo, and Bastos (2020) intends to determine the differences in Saudi pre-service teachers' self-efficacy levels toward inclusion in physical education (PE) classes. It also aims to evaluate the effect of independent variables with the covariate of attitude scores on participants' self-efficacy toward including students with visual impairments (VI), physical disabilities (PD), and intellectual disabilities (ID). The participants were 260 pre-service PE teachers enrolled in the physical education (PE) program at one of the Saudi Arabia universities. The researchers used The Arabic version of the self-efficacy scale for physical education teacher education majors toward K-12 students with disabilities (SE-PETE-D) to measure participants' self-efficacy levels toward including students with disabilities. The researchers also conducted The Arabic version of the Attitudes Toward Inclusion in Physical Education (ATIPE) to evaluate participants' attitudes toward inclusion in PE.

The study results reveal that participants had the highest self-efficacy level toward including students with intellectual disabilities and the lowest self-efficacy level toward including students with physical disabilities. The results also showed that pre-service PE teachers have an average self-efficacy level toward teaching visual impairments students. Moreover, the study's findings indicate that the relationships between all of the SE-PETE-D subscales and ATIPE were weak and small.

AlGarni (2015) investigated pre-service teachers' perceived ability to perform differentiation to meet the gifted students' academic needs within various classrooms. The following question guided the study: "To what extent does participating in a gifted education course would impact on future teachers' self-efficacy toward differentiation?" (p.3). The participants were Special Education pre-service teachers. There were 90 participants, and most of them were between 20-24 years old. The researcher conducted a questionnaire and semi-structured interviews before and after the participants' enrolment in the gifted course.

The study results showed that participants had low improvement in their self-efficacy about differentiation. Before starting the course, most of them had low self-efficacy because of either the skills needed or the allocated time to teach the gifted students. After completing the course, many participants did not show a significant change in their self-efficacy toward differentiation, while others showed more awareness of the gifted students' curiosity and challenging questions.

The study by Robertson and Al-Zahrani (2012) aimed to answer two research questions: "How do pre-service teachers perceive their general self-efficacy in regard to the integration of ICTs into their current and prospective pedagogical approaches? Is their perceived self-efficacy associated with computer access at the university and with their computer expertise in terms of prior computer experience and computer qualifications" (p. 1139). Participants were 325 Saudi pre-service teachers from the College of Education at King Abdulaziz University. The researchers used a survey that included two main parts: the first asked about the participants' background, including responses for computer experience, computer access at university, and other computer skills, while the second asked about general self-efficacy. They also conducted semi-structured interviews to understand findings from the survey questionnaires better.

The study results showed that participants had an outstanding self-efficacy level. This level

was associated positively with computer access at university, computer experience, and computer qualifications. The results also indicate high levels of trust in participants' abilities to integrate ICTs into the curriculum.

Pre-Service Teachers' Perceptions of Preparation

Pre-Service Teachers' Perceptions of Preparation to Teach Physical Education.

Freak and Miller (2017) studied pre-service teachers' perceptions of preparedness to teach elementary school physical education (PE) that informs continuous considerations for how pre-service generalist teachers may be prepared and produce new thoughts for teacher education (TE) research, practice, and pedagogy. Participants were four hundred pre-service generalist teachers finishing parts of study in PE within several elementary teaching programs at one Australian university. The researchers collected data by surveying the participants with items that used Likert scales and free-response questions related to learning-to-teach PE and school-based PE experiences. Afterward, nineteen participants with various specialization levels were interviewed to investigate (a) conceptions of elementary PE, (b) beliefs, feelings, and thoughts related to teaching PE conception, and (c) future plans. This research study aimed to provide an empirical explanation of pre-service teachers' perceptions of preparation to teach elementary school physical education. The study also aimed to provide an ideal tool in the form of a triple folding lens.

The findings showed that participants' perceptions of their preparation to teach elementary PE were supported by Transformative Learning Theory. The participants interpreted meaning for their preparation to teach primary school PE. The concept of a triple-folding lens was used to describe participants' conceptions, roles, and responsibilities of elementary school PE. The pre-service teachers described teaching roles and responsibilities as Habit of Mind (HoM) in the Transformative Learning Theory, while beliefs, expectations, attitudes, feelings, and judgments as

Point of View (PoV).

Pre-Service Teachers' Perceptions of Preparation to Teach Reading

Leland (2013) conducted a study to explore the influence of teacher preparation literacy course on pre-service teachers' perceptions of teaching children how to read. The research question guiding this study was: "How do pre-service teachers describe the impact of the early literacy course on their perceptions of emergent literacy?" (p. 66). The participants in this study were 106 pre-service teachers enrolled in an early literacy course for elementary majors attending a southern state university. The researcher used the open-ended survey question, "As you reflect on the information acquired in the course, what has made a significant impact on your perception of emergent literacy?" (p.66) to collect data.

The study results showed that 96% of the participants believed the course influenced their perceptions. A small percentage of the participants (2%) revealed that they found some difficulties in learning the course information but did not address whether or not the information impacted their perceptions. The remaining 2% of participants said that none of the information given in the course affected their perceptions.

Pre-Service Teachers' Perceptions of Preparation for Teaching Practicum

In their study, Qin and Villarreal (2018) focused on the pre-service teachers' perceptions of teaching practicum and how well the program had prepared them to teach in rural schools. The participants were pre-service teachers enrolled in the Free Teacher Education Program (FTEP) at one of China's most prominent teacher education universities. Seven hundred thirty-two pre-service teachers participated in the survey at the end of their teaching practicum, and 701 participants completed the survey. Participants were asked to respond to the questionnaire showing their agreement and disagreement on a four-point Likert scale.

The study's findings indicate that pre-service teachers who taught in urban schools showed higher teaching commitment and more practical field experiences than those who had practiced teaching in rural areas. The participants who taught in rural schools have reported less connection between their program courses and teaching practice and more hesitation for teaching than their urban peers. The study's results also explained that pre-service teachers received less mentor and school support at rural schools than the urban ones. In contrast to the pre-service teachers taught in urban schools, their rural peers showed lower teaching commitment levels.

Pre-Service Teachers' Perceptions of Preparation for Teaching Inclusive Classroom

The research study by Stites, Rakes, Noggle, and Shah (2018) investigated pre-service teachers'(PSTs') perceptions in early childhood and elementary general and special education about their preparation to teach in an inclusive environment. The study also aimed to compare perceptions between grade levels and general and special education. The research questions were: "1. Across teacher education preparation programs (Early Childhood, Early Childhood Special Education, Elementary Education, and Elementary Special Education), is there a difference in pre-service teachers' perceived level of preparedness to work in an inclusive setting? 2. Is there a difference in the perceived level of special education pre-service teachers to teach general education students and the perceived level of general education pre-service teachers to special education students? 3. How can preparation programs more effectively develop pre-service teachers' levels of self-efficacy related to inclusion?" (p. 22). Participants were 120 general and special education PSTs prepared to teach early childhood and elementary in two public universities in the United States' middle Atlantic region. Of those participants, 65 had completed the data-collection instruments. The researchers conducted a mixed-method approach to collect their research data. They applied a survey that used the Likert scale and open-ended questions. They

also interviewed the participants to answer some questions about participants' understanding and previous knowledge to give a consistent response.

The study findings showed that the PSTs might not have a firm base to increase their preparedness perceptions. Hence, teacher education programs may need to consider various approaches to integrate preparation for inclusion settings using both coursework and field experiences. The study's results suggest that the program educators should be responsible for expediting inclusion associated with high teaching self-efficacy for inclusive education. The study's results also suggest that more internships in inclusive environments with many opportunities to differentiate instruction for different learners are required and more effective for PSTs' preparation. Moreover, the findings indicate that pre-service teachers in general and special education programs need rich teaching experience in inclusive settings and more preparation to practice differentiation.

Saudi Pre-Service Teachers' Perceptions of Preparation

Gashan (2015) conducted a study to examine Saudi pre-service teachers' knowledge about critical thinking concepts and skills. The study also investigated pre-service teachers' perceptions of critical thinking and its teaching strategies to improve learning and teaching methods. This study aimed to answer the following questions: "1. What is pre-service Saudi teachers' knowledge regarding critical thinking skills? 2.What are the perceptions of pre-service male Saudi teachers, enrolled in the College of Education, regarding critical thinking skills?" (p. 27). Twenty-nine pre-service teachers were randomly selected to participate in the study. The researcher used a quantitative method to collect participants' responses. The survey questionnaires were given to the classroom participants after class during the first semester of the 2014/2015 school year. The findings indicate that although the participants revealed positive opinions about the importance of

teaching critical thinking skills, they have insufficient knowledge about teaching those skills to their students. The findings also explained that the participants showed that they were unsure if they possessed the skills required to develop students' critical thinking skills.

Alsaleh & Anthony (2018) studied Saudi pre-service teachers' perceptions about their preparation to teach mathematics in middle or secondary schools using an interview-based investigation. Two research questions guided the study: (1) How do PSTs define or describe being prepared to teach? (2) How do PSTs perceive their level of preparedness to teach mathematics? (p. 114). The participants were sixteen female mathematics pre-service teachers. They were interviewed after they completed their practicum.

The study's key findings show that pre-service teachers believed that they were prepared in teaching methods and procedures. The findings also indicate that the participants felt less prepared in lesson preparation, content knowledge, and classroom management. Regarding the second research question, the participants believed that they were not sufficiently prepared to connect mathematics to real-life situations or integrating technology in teaching mathematics. Furthermore, although pre-service teachers had obtained their pedagogical knowledge through their teacher education program, they faced difficulties applying this knowledge in real mathematics teaching scenarios, making practicum more essential to help them feel more confident and prepared.

The current study will be the first study situated in Saudi Arabia that looks at the intersection of pre-service teachers' perceptions of their preparedness and self-efficacy. Unlike the study's purpose, the other Saudi studies have investigated either perception of preparation or teaching self-efficacy. Moreover, the Arabic translation of the two instruments will be a valuable contribution to the field. By doing this research, I hoped to contribute to the current movement to

refine teacher preparation programs and provide insight into how we can increase efficacy and readiness in future teachers entering the teaching profession.

Conclusion

This study is critical because it exposes significant concerns about pre-service teachers' preparation that influence their teaching self-efficacy. To address these concerns appropriately, educators must develop a better understanding of and insights into the relationship between teacher preparation and self-efficacy sources. Once this relationship is identified, teacher education program designers can develop new strategies to design more effective programs that foster high self-efficacy levels.

Based on the quantitative research approach, this study will contribute to the literature on pre-service teacher education by producing findings that inform teacher preparation programs about the relationship between pre-service teachers' preparation and teaching self-efficacy. The findings can also help the Saudi Ministry of Education officials address the teacher preparation issues by considering pre-service teachers' perceptions of their preparation. It can also help them design teacher education programs to meet pre-service teachers' learning needs, leading to more effective and productive outcomes.

Chapter 3

Methodology

This chapter shows the study's methodology, particularly the statement of purpose, research questions, research design, and participants. Furthermore, it includes a description of the data collection instruments and procedures and data analysis procedures.

Purpose of the Study

The purpose of this quantitative study is to examine relationships that exist between Saudi pre-service teachers' perceptions of teacher preparation and their teaching self-efficacy. As such, this study seeks to address the following research question:

What relationships exist between Saudi pre-service teachers' perceptions of preparation and their teaching self-efficacy?

Research Design

To answer the research question in this study, I have used a quantitative research methodology. According to Plano Clark and Creswell (2010), survey research is suitable when a researcher:

(1) investigates the beliefs, perceptions, or behaviors of a large group;

(2) uses random selection to manages many participants; and

(3) collects information and illustrates trends in the data. Moreover, a survey questionnaire will be used because it "provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population" (Creswell, 2014, p. 155).

Population and Sample

This study's population included Saudi pre-service teachers in their study's third and fourth years. Among this population, the study's questionnaire was sent by email to 250 students who are studying in the College of Education at King Saud University, which resulted in 198 responses after removing two outliers. Ninety-seven of the participants are females, and 101 are males.

Data Collection

The pre-service teachers completed survey questionnaire (see appendix). The questionnaire was conducted electronically. The participants were told that their participation in this survey questionnaire is entirely voluntary, and that all of their responses are anonymous and confidential. None of the responses will be connected to participants' identifying information.

To collect the data, I used Penn State Qualtrics with electronic consent forms and questionnaires. Electronic distribution of the questionnaire was used for two reasons. First, it is more convenient for participants to respond precisely without a rush that may affect the responses. Second, the physical distribution of the questionnaire makes reaching participants more difficult. According to Evans and Mathur (2005), the electronic survey has benefits over other ways of distributing surveys. Mehta and Sivadas (1995) did a research study to compare e-mail and mail surveys. They found that e-mail surveys have a higher response rate and can be conducted more quickly at a lower cost.

The Qualtrics platform allows users to post their questionnaires online and create electronic links to share with the proposed participants. I used this tool to post the Arabic version of the questionnaire online and created a survey link where pre-service teachers could respond. I also shared this link with a professor from the College of Education at King Saud University in Saudi Arabia, who directly connected with pre-service teachers through E-mail. Participation was

voluntary and confidential. The participants' responses were analyzed using statistical software called SPSS.

Survey Instrument

The study is carried out to examine the relationship between Saudi pre-service teachers' perceptions on their preparation and their self-efficacy. Based on this study, the researcher came up with some suggestions that could improve teacher education programs in Saudi Arabia. The instrument contains three parts:

Part 1: This part represents general information so that participants can respond to questions about demographics.

Part 2: This part has a 40-item questionnaire and two sections: Perceptions of Teacher Preparation Quality and Opportunities to Learn. The Perceptions of Teacher Preparation Quality section includes 26 items detailing preservice teachers' perceptions of how well their TPP prepared them to carry out significant teaching tasks. The Opportunities to Learn section has 14 items capturing pre-service teachers' perceptions of how many opportunities they had to obtain and develop essential knowledge and skills through their teacher preparation program.

Part3: This part has 31 items , and focus on pre-service teachers' perceptions of their teaching self-efficacy by asking them about their ability to teach highly able students, manage the classroom, provide guidance and counseling, accommodate diversity, enrich learning, and work with colleagues and parents.

This quantitative study is based on data from an instrument that included two adopted surveys from previous research studies, which can help me answer my research questions. According to Bastian et al. (2021), the 40-item survey questionnaire has been called the North

Carolina New Teacher Preparation Survey (NTPS), which was designed throughout the 2013-14 academic year by a team of teacher education faculty, education researchers, and state education officials to meet two objectives: "(1) as a source of data for teacher preparation program (TPP) accountability reporting and (2) as evidence for nine program improvement efforts." (p. 13). The team had improved the questionnaire items during the fall and winter of 2013-14 and piloted them with a set of beginning teachers in spring 2014. The survey also has been used by different universities and departments of education such as University of North Carolina, the Illinois State Board of Education, and Greenville University. The survey questionnaire focused on two sections to ask the participants about their perceptions of their teacher education program's quality and how many opportunities they were provided to develop different strategies to meet students' learning needs.

The survey used in part 3 has been adapted from Chan (2008) to investigate pre-service teachers' perceptions of their teaching self-efficacy using "seven domain-specific teacher self-efficacy reflecting seven areas of teacher functioning." (p. 1061). The domains are: 1) Teaching highly able learners; 2) Classroom management; 3) Guidance and counseling; 4) Student engagement; 5) Teaching to accommodate diversity; 6) Teaching for enriched learning; and 7) Working with colleagues and parents.

According to Chan (2008), the 21-item version used in this study is a revised version of the original 18-item Domain-specific teacher self-efficacy scale (DSTSES) with the addition of three items to assess teachers' working with colleagues and parents. The positive psychometric properties of the scale 18-item have been confirmed, including high reliability (Cronbach is a value ranging from .79 to .91), construct validity by confirmatory item factor analysis, convergent validity with General teacher self-efficacy scale (GTSES)(.50–.63), positive and significant

Correlation (.28 –.41, po.001) with the personal accomplishment component of the Maslach Burnout Inventory (Maslach et al., 1996).

To translate these two questionnaires to the Arabic language, I have contacted Dr. Basim Alamri, Ph.D., the Writing Center director in the English Language Institute at King Abdulaziz University in Saudi Arabia. Dr. Alamri has verified the translation and sent me some suggestions to be applied (Figure 2-1).

Figure 2-1

The Verification of Translation

To Whom It May Concern

May 21st, 2020
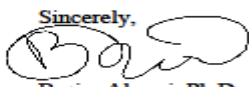
Subject: Verification of Translation

Re: Abdulrahman Alasmari

Abdulrahman Alasmari, a doctoral candidate in the Department of Curriculum and Instruction at Pennsylvania State University, has asked me to review the translation of the questionnaire from English into Arabic.

Having carefully examined the mentioned document and recommending few changes, I confirmed that the Arabic translation of the English questionnaire contains the same content as the English version. The content is accurately and precisely conveyed in the Arabic language.

Should you have any questions, please don't hesitate to contact me at bmalamri@kau.edu.sa

Sincerely,

Basim Alamri, Ph.D.
Assistant Professor
Director, Writing Center
English Language Institute
King Abdulaziz University
Bldg # 534, Room 364
Jeddah, Saudi Arabia

The collected data are labeled and coded according to the questionnaire's Likert Scale. According to Malhotra (2006), the Likert scale was named after the psychologist Rensis Likert, who developed it in 1932 as a psychologic concept measurement scale, and it is one of the most widely used itemized scales. Suresh (2014) defined the Likert scale as a "composite measurement scale used to measure attitude, values, and feelings of the people that involve summation of scores on the set of positive or negative declarative statements regarding measuring variables to which respondents are asked to indicate their degree of agreement or disagreement." (p. 262). Suresh also mentioned five main characteristics of the scale: "psychologic measurement tool, illustrative in nature, neutral statements, bipolar scaling method, and measurement of the specific number of scaling categories." (p.262). Suresh also talked about some advantages of the Likert scale. He considers the Likert scale as an easy one to be constructed and administered. It is also a less time-consuming scale, which can save a researcher's time.

The Questionnaire's Instrument Reliability and Validity

Validity and reliability are the most critical components in evaluating any measurement instrument. Therefore, the first draft of the survey questionnaire was used to evaluate the validity and reliability of the questionnaire. Validity refers to whether the research instrument measures what it is designed to measure and how truthful the study findings are. (Joppe, 2000). Creswell (2014) explains that content validity establishes how well the items, or survey questions, represent the entire range of possible subjects the survey should cover. The instrument's content validity in the present study was established by asking a panel of three Saudi professors at King Saud University, King Abdulaziz University, and Qassim University to assess the questionnaire's content. The content validity was measured depending on the knowledge of the reviewers who are familiar with the topic. Based on their comments, the necessary changes were made to assist me

in measuring the data precisely.

To investigate the instrument's reliability, I conducted a pilot study with a sample of 20 pre-service teachers, and Cronbach's Alpha was used to assess internal consistency. The results of Cronbach's alpha were 0.711 and 0.726 for the preparedness self-efficacy section, respectively. The overall reliability reached 0.814, which indicates satisfactory reliability (Table 3-1)

Table 3-1

Cronbach's Alpha Values

Dimensions	Number of Statements	Cronbach's Alpha
The Program's Preparedness	40	0.711
The Program's Quality	21	0.726
Overall Reliability	61	0.814

Teacher Education Program in the College of Education at King Saud University

According to the College of Education (n.d.-a), the college was established in 1966, according to the agreement between the Ministry of Education and the United Nations Development Program. In 1967, the College of Education was integrated into King Saud University. The College of Education is working to meet the community's educational needs by offering effective educator preparation programs that improve teaching methods and raises educational awareness among citizens.

In addition, the college has a leadership role in developing the cooperation between the Kingdom and the educational institutions at regional and national levels. The college works with

the Ministry to improve 1) the teacher ed program and 2) the academic standing of educators, principals, and leaders at various levels of education through ongoing programs, training courses, conferences, lectures, and seminars. In conclusion, the college is working to serve as a center of educational research and contributes to finding appropriate solutions to teaching problems using various scientific research methods. The Teacher Education Program is described in the College of Education (2018) as follows:

Vision

The program focuses on leadership and educational excellence to build a vibrant community. Also, the teacher education program aspires to play a pioneering role in curricula and teaching studies and to be distinguished in teacher preparation regionally and globally.

Mission

The College of Education at King Saud University is one of the Saudi universities' largest Colleges of Education. Its mission is to develop the existing academic and scientific teacher education programs periodically; to improve teaching and learning locally, regionally, and globally; and to mobilize the level of students in its postgraduate programs to carry out ongoing research studies. The College of Education also provides training programs for educational leaders to direct education in the Kingdom. It also extends its activity to serving the sectors of society through training, conducting studies, and planning to achieve its mission. The Teacher Education Program is leading change in the College of Education by preparing distinguished teachers and developing them professionally and in research, providing solid educational programs and research, and implementing influential community and school district partnerships.

Values

The Teacher Education Program focuses on the following values:

- Lifelong learning.

- Integrity, equality, and justice.

- Diversity and inclusion.

- Mastery, discipline, professionalism, and freedom.

Goals

The goals of the program are as follows:

- Preparing distinguished teachers and developing them professionally and continuously.

- Offering outstanding postgraduate programs.

- Conducting educational research that develops teaching skills and enriches teachers' knowledge.

- Building effective partnerships that contribute to sustainable improvement.

- Developing the programs' students' abilities to understand learning theories, teaching approaches, foundations of curriculum, and methods of evaluation and development.

- Introducing students to the foundations and rules of teaching and providing the opportunity for a critical study of teaching methods, methods of application, and practice.

- Developing students' abilities to practice teaching through student teaching, in which teaching skills are refined and student teachers receive a great deal of guidance to apply their teaching skills to become successful teachers.

Components

According to the College of Education (n.d.-b), the program has two main components: courses and student teaching.

1. *Courses (126 credits)*

    - Preparatory Year Requirements (31 credits)

- University Requirements (6 elective credits)

- College Requirements (6 elective credits)

- Major Requirements (83 credits):

  o Writing Skills (3 credits)

  o Physical and Health Education (3 credits)

  o Social and Religious Upbringing (3 credits)

  o Introduction to Teaching and Learning (3 credits)

  o Comparative Childhood (3 credits)

  o The Health and Safety Program for the Elementary School Child (3 credits)

  o Educational Psychology (3 credits)

  o Childhood Organizations and Legislations (3 credits)

  o Integrating Technology into the Learning Environment (3 credits)

  o Current Trends in Elementary Education (3 credits)

  o Learning Theories (3 credits)

  o Play Psychology (3 credits)

  o Motor and Technical Skills Teaching and Learning (3 credits)

  o Educational Evaluation (3 credits)

  o Arabic Language Skills Teaching and Learning (3 credits)

  o Introduction to Special Education (3 credits)

  o Teaching Social Studies in the Elementary Grades (3 credits)

  o Mathematics Teaching and Learning (4 credits)

  o Technology Enhanced Learning (3 credits)

  o Continuous Professional Development (3 credits)

- o Teaching Children's Literature (3 credits)

- o Educational Technology (3 credits)

- o Child Guidance and Orientation (3 credits)

- o Developmental Psychology (3 credits)

- o Introduction to Mental Excellence and Innovation (3 credits)

- o Science Teaching and Learning (4 credits)

- o Independent Study (3 credits)

2. *Student Teaching (12 credits)*

Before reaching the final stage of their teacher preparation program, student candidates can start their field experience, or pre-student teaching, during the independent study course by attending some classes at school, observing teachers, taking notes, planning activities, and teaching some topics. This experience can take up to six weeks.

One of the most important milestones for the teacher candidate is student teaching. For about 14 weeks, student teachers, guided by expert in-service teachers and university supervisors, learn to take on the responsibilities of a professional teacher. Successful student teaching will lead to graduation and a recommendation for teacher certification. Students should complete their required courses to register for student teaching. The student teaching procedures can be summarized as follows:

- Registration of student teachers who have completed all their theoretical courses in cooperation with the Deanship of Admission and Registration Affairs.

- Distribution of student teachers and their supervisors to the application schools by the regulations agreed upon between the college and the Department of Education in Riyadh.

- Preparing teachers to practice the teaching process through intensive meetings held by each supervisor with their students during the first week of each semester to present the training objectives, requirements, and procedures and provide the necessary directions for training. The specific goals of student teaching are achieved through practicing teaching in the school over an entire semester so that the student teacher carries out the teaching load specified by the school administration and the strict technical supervision by the Student Teaching Unit in cooperation with the school management, teachers, and staff.

Student Teaching Unit

The College of Education (n.d.-c) explains its role in supervising the student teaching experience. It works on developing teaching experience models, communicating with concerned authorities, and benefiting from analyzing results in raising the efficiency of university supervisors, cooperating teachers, and students.

Unit Objectives

- Develop an effective student teaching technique that integrates theory with practice.

- Activate communication mechanisms with the parties concerned with student teaching.

- Standardize procedures for student teaching in different departments and majors.

Unit Tasks

- Assigning student teachers to schools, considering the diversity in geographical areas and the conditions of students.

- Developing teaching models used in student teaching.

- Providing consultations during student teaching to all those in charge of it.

- Offering student teaching tools and collecting them by the end of each semester.

- Entering data electronically and sending it to the Development and Quality Unit in the College of Education.

- Using the results of evaluations to raise the efficiency of the university supervisors and cooperating teachers.

Student Teacher's Responsibilities

Student teaching provides many educational and learning opportunities for teacher candidates to help them develop their understanding of school life in various aspects. Those opportunities are as follows:

- Showing accurate adherence to school regulations and organizational procedures.

- Committing to attend school from the beginning of the school day until the end of it and not to be late or absent except for in cases of extreme necessity and with the principal's approval in advance.

- Following the assigned academic schedule and all other educational tasks and indoor and outdoor activities.

- Establishing good professional relationships and mutual respect with the school administrators, teachers, staff, and students.

- Cooperating with teachers to coordinate all activities related to teaching the subject, its tests, and activities.

- Ensuring a proper representation of the College of Education, adhering to professional ethics and morals in general appearance, showing good behavior, and being an example of a good teacher.

- Paying attention to the students' interests and responding objectively and humanely to their needs.

- Cooperating actively with the student teaching supervisors, responding to their advice, and benefiting from their supervisory expertise.

- Working hard to apply what has been learned in the College of Education regarding knowledge, skills, values, and behavioral trends.

- Benefitting from the educational means and technological devices available in the school, working on using them, and contributing to their development and increase.

- Submitting proposals that would develop student teaching.

Chapter 4

Data Analysis and Results

Introduction

This chapter reports the results of the analysis of quantitative data collected via the online questionnaire. This quantitative study aimed to examine the relationship between Saudi pre-service teachers' perceptions of preparation and their teaching self-efficacy. The analysis reveals the most significant correlation between the participant's average self-efficacy score and the participant's average quality score. At the same time, the correlation between participants' average self-efficacy and average opportunity is also quite significant. Thus, the result shows a linear relationship in the analysis. Moreover, when controlling for a participant's gender and year in college, these values of correlation change but only slightly.

Although the Statistical Package for Social Sciences (SPSS) is the most popular quantitative analysis software program used by social scientists, some researchers like to use Excel to analyze their data. Gliner et al. (2009) stated that the data could be formatted in Excel program files, which can help avoid data entry mistakes. In terms of comparing SPSS with Excel, Lyall (2017) said that SPSS has more comfortable and faster access to statistical functions and tests. She also mentioned that even though Microsoft Excel is an excellent tool for data analysis, using SPSS can provide a researcher with ongoing, quick, and perfect data analysis. Therefore, I used SPSS to analyze the collected data.

The research question is a relationship-based one, in which I describe a correlation between two variables within one group (Rucker, 2015). According to McNeill (2017), researchers use this kind of question to understand how variables influence each other. In this question, I investigate

the relationships between Saudi pre-service teachers' perceptions of preparation and their teaching self-efficacy. According to Rucker (2015), any given relationship-based research question has at least one independent variable**.** The independent variable in this question is Saudi pre-service teachers' perceptions of preparation, and the dependent variable is Saudi pre-service teachers' teaching self-efficacy.

Since this correlational research includes measuring two variables, independent and dependent, and evaluating the relationship between them, I used Pearson test to calculate the correlation coefficient. A regression model was conducted to determine which Saudi pre-service teachers' preparation components might have more predictive power in predicting pre-service teachers' teaching self-efficacy. The mean scores across genders were calculated to determine if there are any significant differences between males and females' respondents (Gliner et al., 2009).

The research question employs a descriptive approach, which is used to "research questions that use only descriptive statistics, such as averages, percentages, histograms, and frequency distributions, which are not tested for statistical significance with inferential statistics" (Gliner et al., 2009, p. 90). The purpose of the descriptive research question is to explain the variables that the researcher has decided to measure to test his/her hypothesis (Davie, 2012). Researchers can also use descriptive research questions to quantify the variables of interest (Harwell, 2011). Kelley et al. (2003) see the descriptive approach as the primary type of research to observe specific events by collecting information about them. Therefore, one goal of descriptive research can be to discuss a situation by defining the essential factors correlated with it. Further, descriptive studies are used "to estimate specific parameters in a population and to describe associations" (Kelley et al., 2003, p. 261)

The dependent variables are Saudi pre-service teachers' perceptions of the quality of their

teacher education program and their perceptions of teaching self-efficacy. The study participants are the junior and senior students in the College of Education at King Saud University in Saudi Arabia. For these questions, means and standard deviations were calculated, depending on the level of measurement of the variables.

Data analysis

The survey used to collect data includes six background questions addressing gender, age, college grade level, teaching grade level, student teaching status, and the number of semesters student teaching. It also includes 26 teaching program quality questions asking about how well the participant's program is preparing them for various tasks associated with teaching. The second part of this questionnaire has 14 educational opportunity questions about how much opportunity the participant has had to learn and develop skills related to teaching. The survey also contains three questions for each of the seven areas of self-efficacy, which ask participants to rank a statement regarding an area of self-efficacy as "*Strongly agree*", "*Agree*", "*Unsure*", "*Disagree*", or "*Strongly disagree*". The other questions regarding preparedness use a scale of "*Definitely*", "*Probably*", "*Possibly*", "*Probably Not*", and "*Definitely Not*". I used statistical software (SPSS) to analyze the collected data.

Research Question

What relationship exists between Saudi pre-service teachers' perceptions of preparation and their teaching self-efficacy?

Statistical Questions:

Question One

What is the correlation between a participant's average preparedness responses and their average self-efficacy responses?

Question Two

What is a best fit model which uses regression to show which areas of preparedness have a stronger relationship with reported self-efficacy?

Question Three

Is there a difference in self-efficacy or preparedness based on gender?

Study Diagram

As it is showed in Figure 4-1, the study involves the distribution of the survey questionnaire to students to complete it. It was deployed by a Survey Platform linked to third and fourth-year students in the teacher preparation program in the College of Education. The survey collects general information, ratings of perceived preparedness statements, and ratings of self-efficacy statements. The collected data is divided into Survey Information, General Information, Perceived Preparedness, and Self-Efficacy Sections.

Figure 4-1

The Study Diagram
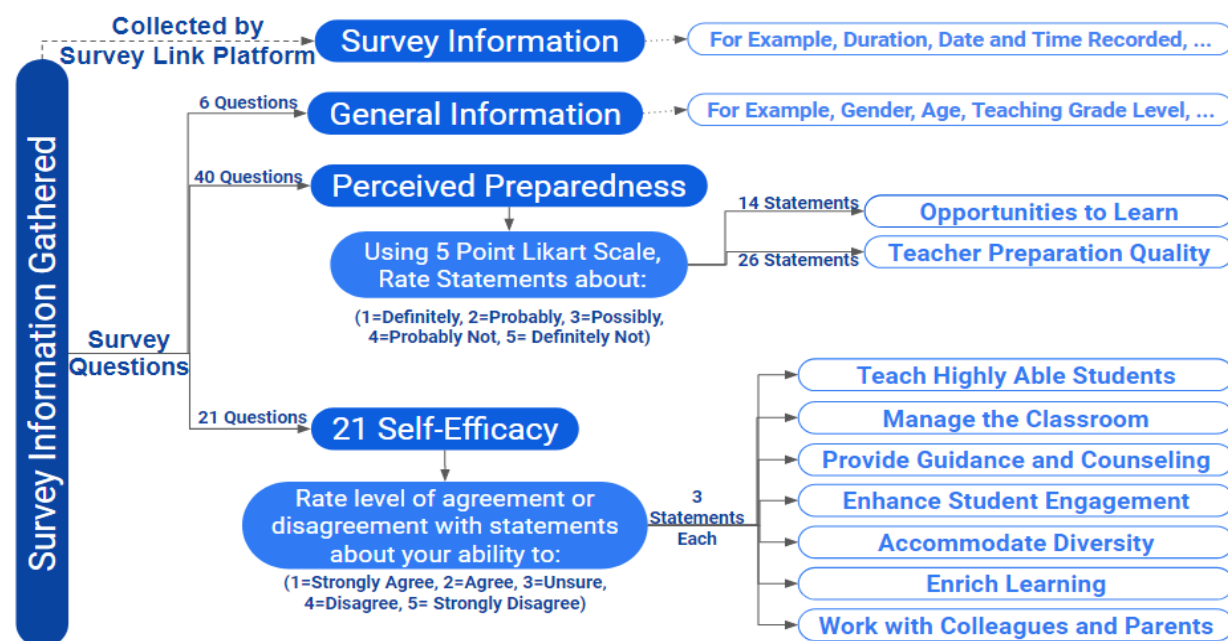
Variables of Interest

While many variables were collected from the survey, including questions asked of the

participants and information collected by the survey link platform, such as the time the survey

started or how long the survey took, Table 4-1 shows that those variables were narrowed down to

the variables of particular interest. The participants' responses were averaged across sections of

the survey to address the statistical questions described earlier.

Table 4-1

Potential Variables of Interest

Variable	Description	Possible Values	Potential Uses
Mean Self-Efficacy	Average of the 21 scores given by a participant in the self-efficacy section of the survey.	1 to 5	Response Variable
Mean Preparedness	Average of the 40 scores given by a participant in the preparedness sections of the survey.	1 to 5	Question 1 Explanatory
Mean Opportunity	Average of the 14 scores given by the participant in the educational opportunity section of the survey.	1 to 5	Questions 1 and 2 Explanatory
Mean Quality	Average of the 26 scores given by the participant in the program preparedness quality section of the survey.	1 to 5	Questions 1 and 2 Explanatory
Gender	Participant's Gender	Male or Female	Question 3 Explanatory

Note. I average the score for questions across each section of the self-efficacy, preparedness, quality,

and opportunity for each participant.

Exploratory Data Analysis (EDA)

The analysis started by focusing on each participant's individual responses rather than the

mean scores discussed in Table 4-1. With this, two participants answered all 40 preparedness

questions with the same value. These cause concerns about if the participants checked the same

box all the way down the survey without considering the question. Out of an abundance of caution, these participants have been removed from the data.

All preparedness and self-efficacy questions have a minimum response value of 1 corresponding to "*Definitely*" or "*Strongly agree*" in response to positive statements about preparedness or self-efficacy, respectively. For self-efficacy responses, all questions range from 1 to 4 or "*Strongly Agree*" to "Disagree". Both the educational opportunity and the program quality have responses from 1 to 5 or "*Definitely*" to "*Definitely Not*". Once I average the scores across sections, the self-efficacy, overall preparedness, and quality scores only range from 1 to below 2.5 (Table 4-2). The opportunity score has an extensive range from 1.07 to 3.57. However, all categories, even the opportunity score, have relatively similar mean values and similar standard deviations.

Table 4-2

Descriptive Statistics for Various Score Variables

Variable	Mean	Standard Deviation	Minimum	Maximum
Participant's Average Self-Efficacy Score	1.46	0.27	1.05	2.23
Participant's Average Preparedness Score	1.47	0.24	1.05	2.17
Participant's Average Opportunity Score	1.49	0.28	1.07	3.57
Participant's Average Quality Score	1.46	0.25	1.04	2.27

Note. The participant's average self-efficacy and average preparedness scores are generally low values which indicates high perceived preparedness and self-efficacy.

The explanatory and response variables for statistical questions one and two show that there is a reasonably linear and positive relationship between a participant's average self-efficacy score and the mean preparedness scores, as well as between a participant's average self-efficacy score and the participant's average for each type of preparedness score (Figure 4-2). This relationship suggests that testing for correlation is appropriate. Also, I notice that more participants have reported high preparedness and high self-efficacy corresponding to low levels of disagreement responses for all the self-efficacy and preparedness variables (Figure 4-2), with the maximum participant's average score less than 2.5 for both categories (Table 4-2).

Figure 4-2

Relationship Between Self-Efficacy and Types of Preparedness by Gender
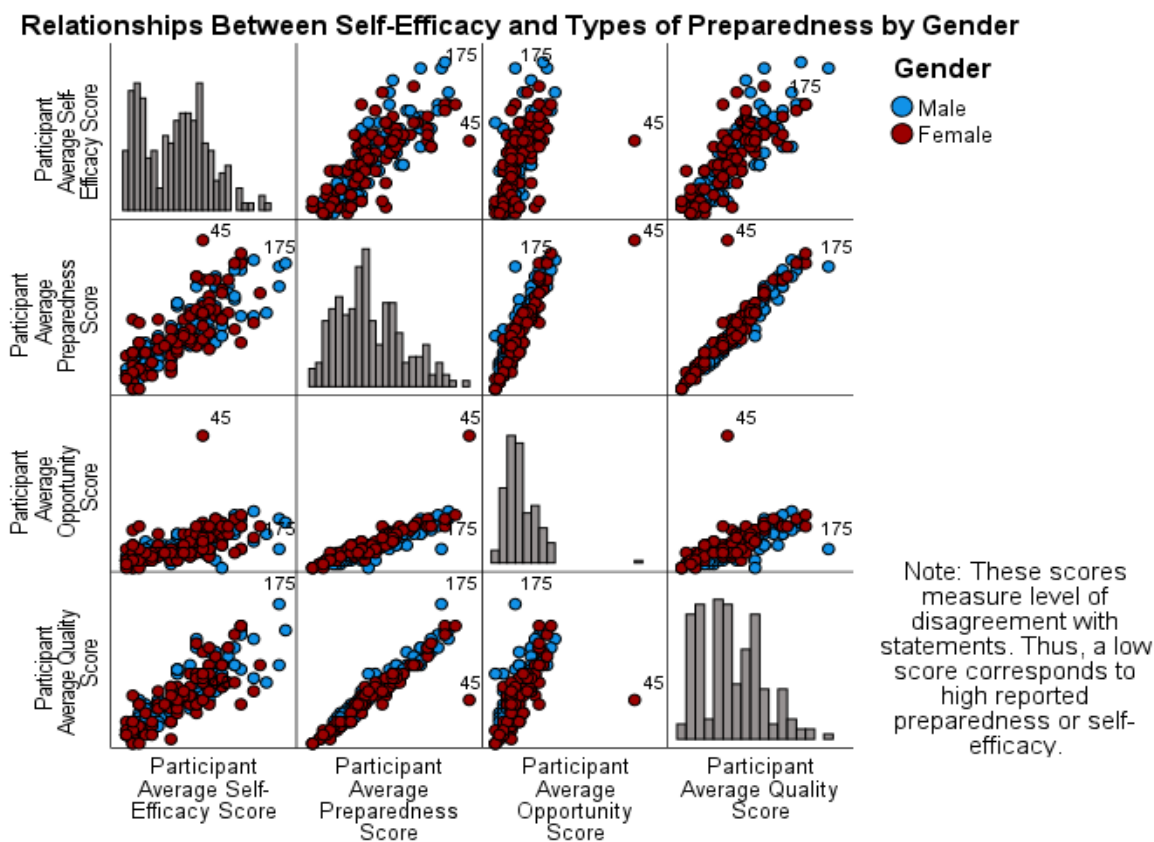
Note. The scores appear to have fairly linear relationships, other than the effects of the cases 45 and 175 which are potential outliers.

Regarding the demographic information collected, 113 participants (56.5%) are fourth-years or seniors. These participants are also the only ones who have started student teaching and reported that they are in the first semester of student teaching. The participants' responses mean only one should be used to represent all of them in any regression models created. In this case, I will use the year in college variable. Additionally, any relationship between a year in college and participants' average scores could also be due to whether they have started student teaching. There needed to be a way to distinguish between these two in the models and analysis. For example, when I graph the year in college variable, the fourth-years have higher values of average scores, but they reported lower self-efficacy than the third-years, which can very well be due to the experiences participants have in student teaching (Figure 4-3)

Figure 4-3

Participant's Average Self-Efficacy by College Year
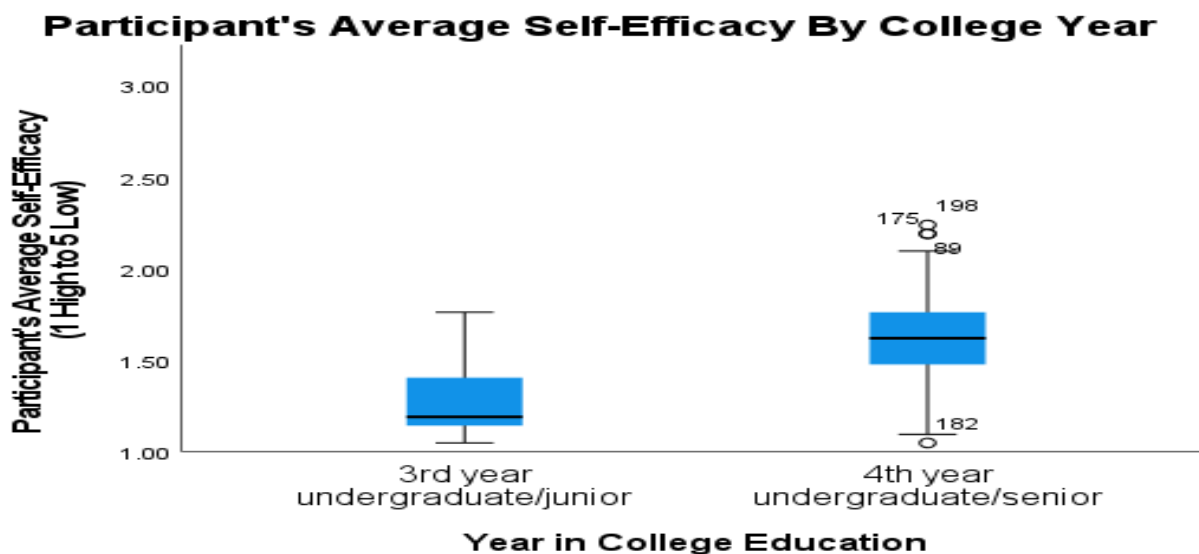
Note. This plot suggests groups based on college education level have different participants' average self-efficacy scores, with 4th years expressing less self-efficacy. This could be due to student teaching experience.

When participants were grouped by the grade level they teach, 105 (53%) reported they teach grades 7 to 12 while 93 (47%) teach grades 1 to 6. However, these two groups have very similar participant average self-efficacy scores (Figure 4-4). Moreover, 97 participants (48.5%) are female, and there is not much noticeable difference in the gender groups in the plot of participant average self-efficacy scores (Figure 4-5).

Figure 4-4

Participant's Average Self-Efficacy by Teaching Grade Level
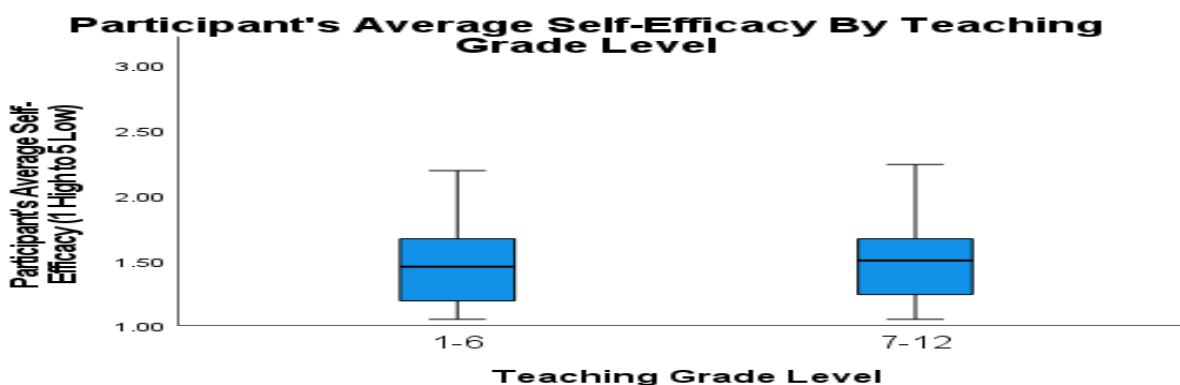
Note. There does not appear to be a difference in average self-efficacy scores based on the grade level a participant teaches.

Figure 4-5

Participant's Average Self-Efficacy by Gender
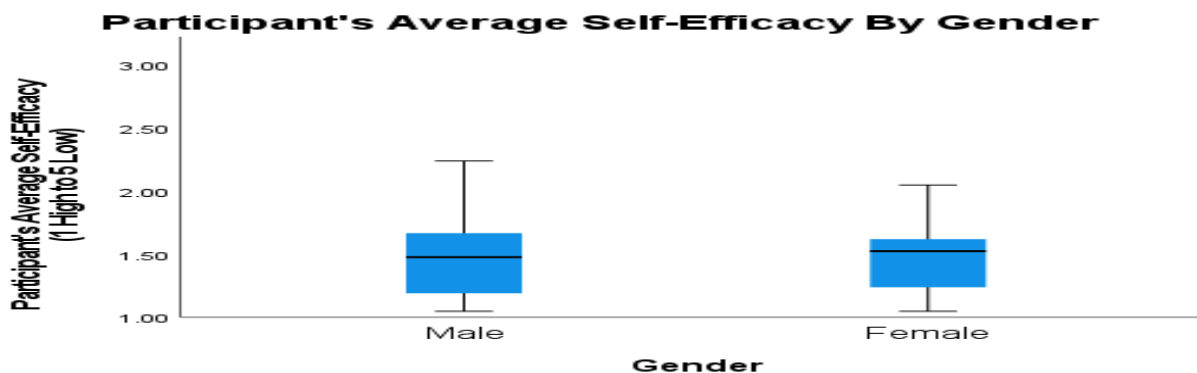
Note. There does not appear to be a difference in average self-efficacy based on participant gender.

When looking at age, I noticed there are only 28 participants who are 22 years old compared to 80 and 90 participants who are 20 and 21 years old, respectively. When looking at age and gender, I notice that the number of women and men is pretty equal within each age category. For the participant's average self-efficacy scores across age and gender in Figure 4-6, I see younger participants report high self-efficacy corresponding to lower scores. These responses may be due to the relationship between age and year in college, whether a participant has started student teaching. Most 20-year-old participants are 3rd-year students, and all 22-year-old participants are 4th-year students. Among 20-year-old participants, I also notice higher self-efficacy in males than females.

Figure 4-6

Participant's Average Self-Efficacy by Teaching Grade
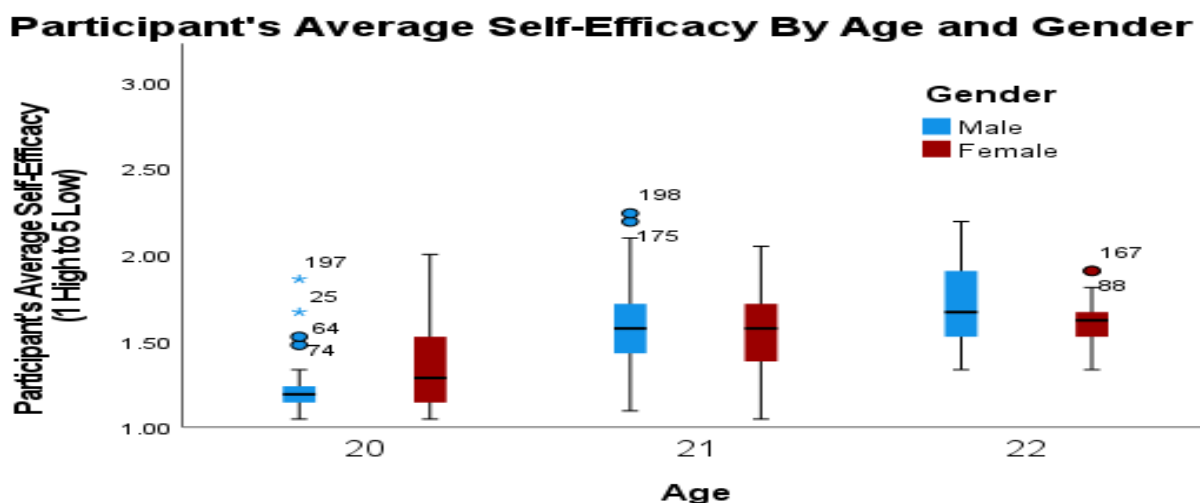
Note. There does appear to be a relationship between age and average self-efficacy with older participants reporting higher scores indicating lower self-efficacy.

When looking at these same demographic and background variables against a participant's average preparedness score or a participant's average quality score, the results are similar to the

self-efficacy ones. Also, it is noticed that 4th-years tend to have higher scores than 3rd-years, but little difference between groups based on teaching grade level. There is very little difference in scores between genders, except within the group of 20-year-old participants. Additionally, there is an increase in scores as age increases.

Finally, the time-related variables were investigated and collected by the survey link platform. Also, there is information about the date and time the survey was recorded from the survey link platform, which is related to the time the survey was completed. It has been noticed that earlier recorded responses have higher participant average self-efficacy scores when compared to later responses (Figure 4-7). This result suggests that participants, who filled out the survey earlier, reported higher self-efficacy. Thus, the report date or end date can be considered in the model for statistical question 2. There may also be a non-linear relationship with the average self-efficacy scores, which suggests that the variable may need to be transformed for use in the regression model.

Figure 4-7

Participant's Average Self-Efficacy over Survey Recorded Data

Note. There appears to be a non-linear relationship between the date and time a survey was recorded and the participant's average self-efficacy score.

Additionally, some outliers are noticed in the survey duration (Figure 4-8), with some participants taking over 13 hours to complete the survey. These responses also appear to correspond to lower participant average self-efficacy scores. Once these long durations are removed, there does not appear to be a relationship between duration and the participant's average self-efficacy score (Figure 4-8). Thus, this variable is not a great candidate for consideration in the regression model.

Figure 4-8

Participant's Average Self-Efficacy over Survey Duration
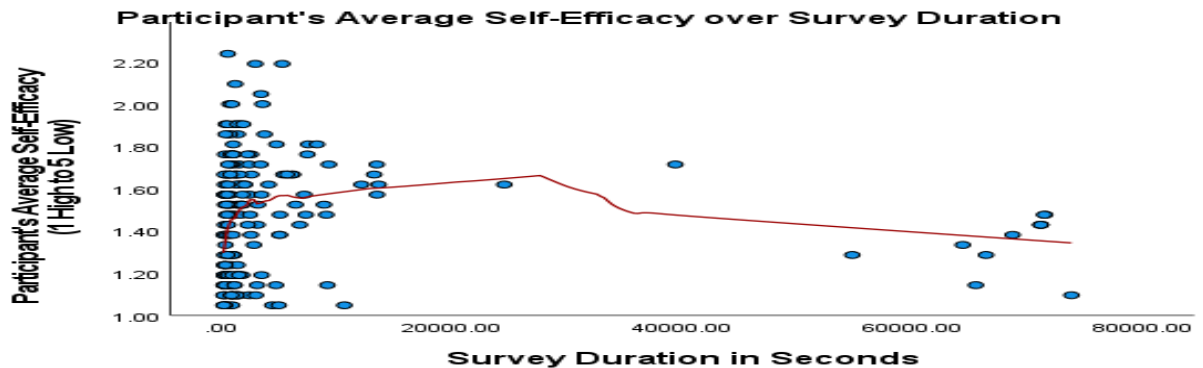
Note. There appears to be a nonlinear relationship between participant's average self-efficacy and survey duration.
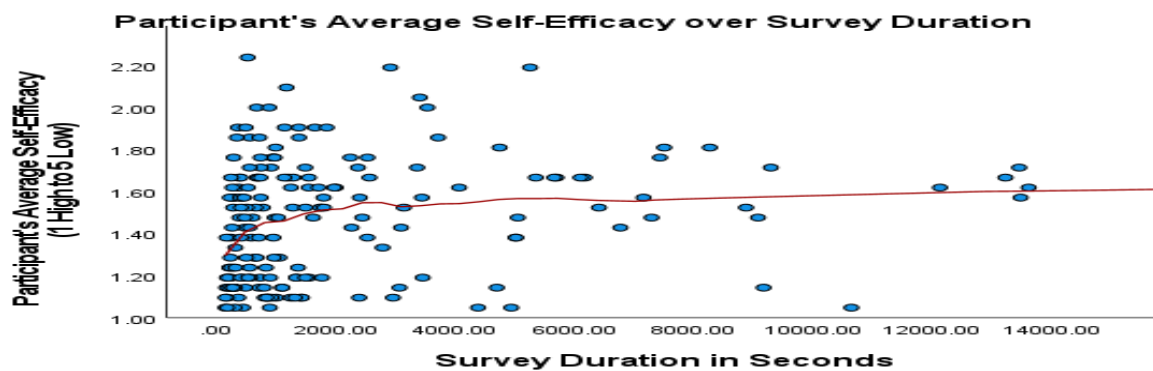
Note. When we focus on the surveys that took less than 4 hours (right plot), we don't see a strong relationship between duration and participant's average self-efficacy.

Statistical Analysis

Correlation between Preparedness and Self-Efficacy (Statistical Question One)

Since the data is continuous with a large sample size, and the average score variables have a positive linear relationship from the scatterplot (Figure 4-9), a Pearson's correlation test can be used (Illowsky & Dean, 2013). The test involves calculating the sample correlation and testing if there is evidence from the sample suggesting the population correlation is not equal to zero. In general, correlations measure the strength and direction of a linear relationship and can take values from a negative one to one. Positive numbers suggest that an increase in one variable corresponds with an increase in the other. Values further from zero suggest stronger relationships than values close to zero (Illowsky & Dean, 2013).

Figure 4-9

Scatterplot of Dependent Variable
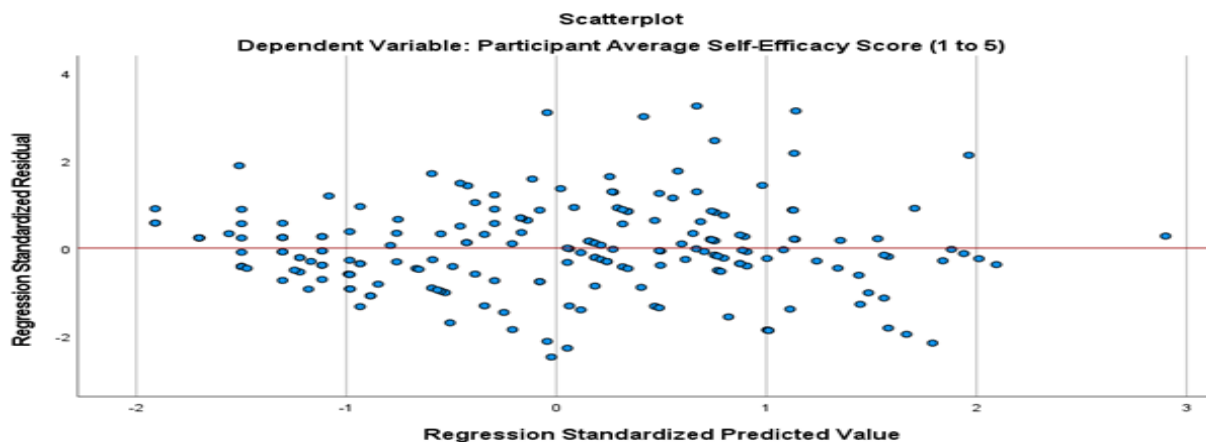
Note. There does not appear to be any major patterns and the residuals appear evenly spread out from zero across the predicted values. This suggests the equal variance of the error term assumption is appropriate.

The participant's average self-efficacy score has a robust positive correlation pairwise with each participant's average preparedness score section. The participant's average self-efficacy

score has correlation values of 0.816, 0.684, and 0.834 with the participant's average preparedness, learning opportunity, and quality scores, respectively (Table 4-3). The significant correlation coefficients suggest that there is evidence of nonzero correlations between the scores.

Table 4-3

Pearson's Correlation Tests

Preparedness Variable	Sample Size	Correlation with Participant's Average Self-Efficacy
Participant's Average Preparedness Score	198	0.816
Participant's Average Prepared Quality Score	198	0.834
Participant's Average Learning Opportunity Score	198	0.684

Note. The correlation between mean self-efficacy, mean preparedness, mean opportunity and mean quality after removing the outliers (cases 45 and 175).

That means when the participant's average preparedness score increases, the participant's average self-efficacy also tends to increase. Out of the two parts of the preparedness sections, the participant's average quality score is more closely correlated with the average self-efficacy score than the participant's average opportunity score. This correlation suggests the participant's average quality score is more related to average self-efficacy and may be considered when discussing how to improve the program for the participants that this survey data represents.

Since Pearson's correlation tests for correlation coefficients do not take into account any relationship that the participant's self-efficacy score has with other variables, an adjusted correlation test can be performed. To control the effect of other variables, partial correlation can be used (Ratner, 2009). After controlling for the potentially confounding variables of gender and year in college, there are some minor changes in the correlation between the participant's self-efficacy pairwise with the participant's average preparedness, opportunity, and quality scores.

Table 4-4 shows that the correlations are still strong but slightly smaller than those described in Table 4-3.

Table 4-4

Pearson's Tests for Adjusted Correlation with Participant's Average Self-Efficacy Score

Pearson's Tests for Adjusted Correlation with Participant's Average Self-Efficacy Score				
			Controlling for…	
Participant's Average…	Sample Size	Gender	Year in College	Gender and Year in College
Preparedness Score	198	0.816	0.728	0.727
Prepared Quality Score	198	0.835	0.738	0.739
Learning Opportunity Score	198	0.685	0.621	0.618

Note. The correlation between mean self-efficacy, mean preparedness, mean opportunity and mean quality after removing the outliers (45 and 175) while controlling for gender, year in college, or both.

Regression Model of Self-Efficacy by Preparedness (Statistical Question Two)

When looking at the regression model of self-efficacy by preparedness, the participant's self-efficacy score could be used as the response variable. For predictor variables, the preparedness is split into two categories, the participant's average opportunity score and the participant's average quality score, which allows looking at each component of preparedness separately. Also, demographic information such as age and college education level are considered predictors. The interactions that were found to be justifiably significant, such as age and either component of preparedness and level of college education and a component of preparedness, were also included as predictor variables.

Four main predictor variables were started with to select a model. These variables are the participant's average quality score, participant's average opportunity score, age, and level of college education, as well as the interaction terms from above between these four primary effects. A forward selection process has been used with adjusted R^2 as the criterion. This method was used,

as opposed to other methods, because a forward selection starts by selecting the most significant variables. The component with the most predictive power should be found in this case.

The adjusted **R²** measures how much variation across participants' average self-efficacy scores can be explained by the model while adjusting for the number of predictors to avoid overfitting a model. The adjusted **R²** as the criterion was used, as opposed to AIC or BIC, as **R²** also helps to highlight the correlation. A model with only an intercept for the predictor will start this process. The models were checked with each possible predictor and kept the predictor with the highest adjusted **R²** in the model. The models also were checked with this first predictor and one more for the remaining predictors. They kept the second predictor in the model based on which added predictor increases the adjusted **R²** the most in addition to the first predictor. If no new predictors or interactions increase the adjusted **R²**, this model is complete with the predictors currently in the model. This interaction continues until all predictors are used, or no more addition of predictors increases the adjusted **R²**.

Table 4-5

Regression Model Output for Response Variable, Participant's Average Self-Efficacy

Explanatory Variable	Coefficient	Coefficient Standard Error	t-Statistic	P-Value
Model Intercept	-0.493			
Participant's Average Prepared Quality Score	1.220	0.257	4.747	<0.001
Participant's Average Learning Opportunity Score	0.536	0.240	2.232	0.027
Interaction Between Participant's Average Quality and Opportunity Scores	-0.302	0.158	-1.913	0.057
Indicator that Participant is 4th-year	0.090	0.027	3.337	0.001
		Adjusted R^2=0.723		

Note. Our final model built through forward selection containing mean quality score, level of college education, mean opportunity, and the interaction between opportunity and quality.

Looking at the regression results shown in Table 4-5 shows that the final model includes four main predictors: the participant's average teacher preparation quality score, an indicator of the participant is in their 4th year, and the participant's average teacher preparation opportunity score, as well as the interaction between the participant's average quality and opportunity scores. These predictors give us the final model:

$$expected\ self\ efficacy = -0.493 + 1.220\ quality + 0.536\ opportunity$$
$$-0.302(\ quality \times opportunity) + 0.090\ 4th\ year\ indicator$$

where the 4th year indicator takes the value 1 if the participant is in their 4th year and 0 otherwise.

To understand this model, it is essential to consider how changes in one variable can change the output. Participants who have the same average quality and opportunity scores, 4th-year participants were expected to have a higher average self-efficacy than 3rd-year students. Changes in participants' average quality or opportunity scores can be harder to describe due to the existence of an interaction term. Since the participant's level in college and average opportunity score remain constant, it has been expected that the participant's average self-efficacy score to increase. This change in the participant's average opportunity score will also behave similarly by changing the expected participant's average self-efficacy score. Table 4-6 detailed decreasing returns on improving a participant's average quality score. This change can conclude that out of the components of teacher preparation, the participant's average quality score has more predictive power than the participant's average opportunity score. In contrast, the interaction along with the demographic term of college education level still has an effect that needs to be accounted for.

Table 4-6

Expected Change in Participant's Average Self-Efficacy While Holding All Else Constant

Expected Change in Participant's Average Self-Efficacy While Holding All Else Constant					
	If Participant's Average Opportunity Score is…				
	1	2	3	4	5
For a 1-point increase in Participant's Average Quality Score	0.918	0.616	0.314	0.012	-0.290
	If Participant's Average Quality Score is…				
	1	2	3	4	5
For a 1-point increase in Participant's Average Opportunity Score	0.234	-0.068	-0.370	-0.672	-0.974

Note. The diminishing return on component scores shows the importance of the participant's average quality score.

Testing for Differences Between Genders (Statistical Question Three)

Table 4-7 shows that Four different types of scores will be compared across gender groups: participants' average self-efficacy score, participants' average overall preparedness score, participants' average learning opportunities score, and participants' average prepared quality score. By looking at the mean and standard deviation of various categories of participants' average scores for males and females, it is clear that these statistics are very close. The most significant difference in mean male and female scores can be seen in the participant's average learning opportunity score, which is 0.03.

Table 4-7

Mean Score Across Genders

Score Category		Gender		
		Male	Female	Difference
Self-Efficacy	Mean	1.459	1.459	<0.001
	Standard Deviation	0.288	0.259	
Overall Preparedness	Mean	1.466	1.458	0.008
	Standard Deviation	0.240	0.228	
Learning Opportunity	Mean	1.458	1.488	0.03
	Standard Deviation	0.242	0.236	
Quality	Mean	1.466	1.441	0.025
	Standard Deviation	0.255	0.237	

Note. The mean and standard deviations of participant's average scores appear very similar

across gender.

Chapter 5

Discussion, Implications, Limitations, and Recommendations

Research Summary

This chapter provides a summary and overview of the purpose of the study, the research questions addressed, the procedures followed to answer these questions, and the results of the quantitative data analysis. The primary goal of conducting this research was to examine the relationship between Saudi pre-service teachers' perceptions of preparation and their teaching self-efficacy. The chapter is organized into three sections: Research Summary, Discussion, and Recommendations. The first section provides a summary of the purpose of the study, research questions, research procedures, and research findings. The second section of this chapter explains the significant findings concerning the implications of these results that may be of future significance to researchers and practitioners. The last section shows recommendations for applications of the findings. Also, it includes a discussion of the study's limitations, areas for future studies, and recommendations for teacher education program designers in Saudi Arabia.

Purpose of the Study

This quantitative study investigates the relationship between Saudi pre-service teachers' perceptions of preparation and their teaching self-efficacy. This study is critical for four reasons; first, it will define the relationship between Saudi pre-service teachers' perceptions of preparation and their teaching self-efficacy. Second, the study suggests the strengths and weaknesses of Saudi teacher education programs through perceptions of preparedness and teacher self-efficacy. Third, it will help the Saudi Ministry of Education and universities improve teacher education programs

to fulfill Saudi Vision 2030. Fourth, this study intends to contribute to the studies on teacher education, which can lead to the reform of practical teacher education programs and a more understanding of teacher education programs' role in preparing pre-service teachers with high levels of self-efficacy.

Research Question

The following research question framed the design of the study, data collection, and data analysis: What relationship exists between Saudi pre-service teachers' perceptions of preparation and their teaching self-efficacy?

Research Procedures

The researcher used a survey questionnaire to answer the research questions and test the relationship among the variables of interest. This questionnaire contains three parts. The first part represents the participants' demographic information, and the second part has a 40-item questionnaire to get their perceptions of teaching preparation and learning opportunities. The Perceptions of Teacher Preparation Quality section includes 26 items detailing pre-service teachers' perceptions of how well their teacher preparation program prepared them to carry out significant teaching tasks. The Opportunities to Learn section has 14 items capturing pre-service teachers' perceptions of how many opportunities they had to obtain and develop essential knowledge and skills through their teacher preparation program. The third part has 21 items that focus on pre-service teachers' perceptions of their teaching self-efficacy. This part has seven domains that ask the participants about their ability to teach highly able students, manage the classroom, provide guidance and counseling, accommodate diversity, enrich learning, and work with colleagues and parents. These items were merged with the instrument mentioned earlier in a

single, web-based questionnaire developed using Survey Qualtrics at the Pennsylvania State University.

After the survey questionnaire was designed, the instrument was translated from English into Arabic, confirming that the translation procedure did not change the meaning of the questionnaire's items (see Chapter 3). Then, the researcher received the approval of the Institutional Review Board (IRB) to conduct the study. The next step was distributing the survey questionnaire to the participants. The questionnaire was accompanied by a cover letter that has some information such as the study's title, the researcher's information, the study's purpose, the importance of participation, a guarantee of confidentiality, recognition of participants' contribution to social research, directions for completing the survey, the expected time to complete the survey, and an advisory of consent for participation in the study. After receiving the survey questionnaire's link, the participants agreed to participate and continued to begin responding to the survey's questions.

The results of this study are based on data collected from 198 pre-service teachers in Saudi Arabia who responded to the research instrument via an online survey. Although some surveys took a long time to be completed, there were no missing data due to the Qualtrics option allowing participants to submit their surveys if all items were completed. After the data were collected from participants, the researcher downloaded them into the IBM Statistical Package for the Social Sciences (SPSS) version 28 to examine the relationship between pre-service teachers' perceptions of preparation and their self-efficacy.

Research Findings

The collected data were analyzed using SPSS to answer the research questions. Demographic information (e.g., gender, age, grade level to teach, level of college education, and

year of student teaching) was collected to get an overall profile of the participants' demographics. The numbers of male and female participants are very close; there were 97 (%48.5) female and 101 (%51.5) male participants. Considering age, there are only 28 (%14.5) participants who are 22 years old compared to 80 (%4) and 90 (45.5) participants who are 20 and 21 years old, respectively. According to the demographic information collected, 113 (56.5%) participants were fourth-years or seniors who did their first semester of student teaching. Regarding the grade level they teach, 105 (53%) participants teach grades 7 to 12, while 93 (47%) teach grades 1 to 6.

Discussion of Findings

This section shows the discussion and findings of the survey questionnaire and data analysis. These are associated with prior research studies on the relationship between pre-service teachers' perceptions of preparation and their teaching self-efficacy. Each statistical question will discuss the findings.

Statistical Question One

The first statistical question was: What is the correlation between a participant's average preparedness responses and their average self-efficacy responses?

In responding to this question, I will discuss the Saudi pre-service teachers' perceptions of their teacher education program quality and their teaching self-efficacy. All preparedness and self-efficacy questions have a minimum response value of 1 corresponding to "*Definitely*" or "*Strongly agree*" in response to positive statements about preparedness or self-efficacy, respectively. For self-efficacy responses, all questions range from 1 to 4 or from "Strongly Agree" to "Disagree." The educational opportunity and the program quality have responses from 1 to 5 or "*Definitely*" to "*Definitely Not*." Once I average the scores across sections, the self-efficacy, overall preparedness, and quality scores only range from 1 to below 2.5

The explanatory and response variables for statistical questions one and two indicate a linear and positive relationship between a participant's average self-efficacy score and mean preparedness scores. In addition, a participant's average self-efficacy score and the participant's average have a similar relationship for each type of preparedness score (Figure 4-2). The descriptive statistics for various score variables' results in Table 4-2 show that Saudi pre-service teachers reported high levels for their self-efficacy scores ($M = 1.46$, $SD = 0.27$) followed by preparedness scores ($M = 1.47$, $SD = 0.24$) and then quality scores ($M = 1.46$, $SD = 0.25$). As mentioned earlier, all self-efficacy and preparedness questions have a minimum response value of 1, corresponding to "Strongly agree" or "Definitely" in response to positive statements about preparedness or self-efficacy.

The mean and standard deviation results show a positive relationship between a participant's self-efficacy and preparedness. Other researchers who explored the relationship between pre-service teachers' self-efficacy and their preparedness reached similar results. In their study, Bernadowski et al. (2013) described the positive impact of course-connected service-learning as a part of pre-service teachers' preparedness program on their self-efficacy. They said, "in a course connected service-learning project the self-perceptions, knowledge, and skills can be more easily maximized for improved self-efficacy" (p. 83). Bandura (1977a) suggested that self-efficacy was the most resilient in the early stages of the learning procedure, indicating that the pre-service teachers' experiences were essential to their succeeding self-efficacy as practicing teachers. Trauth-Nare (2015) also supported this result by saying that field-based experiences, including practicing activities with students and learning environmental theories and concepts, positively affected PSTs' self-efficacy.

Since the data is continuous with a large sample size, and the average score variables have a positive linear relationship from the scatterplot **(**Figure 4-9**),** a Pearson's correlation test was used (Illowsky & Dean, 2013). This test focused on calculating the sample correlation and testing if there is proof from the data indicating the population correlation is not equal to zero. In general, correlations measure the strength and direction of a linear relationship and can take values from a negative one to one. Positive numbers suggest that an increase in one variable corresponds with an increase in the other. Values further from zero indicate stronger relationships than values close to zero (Illowsky & Dean, 2013).

The participant's average self-efficacy score positively correlates with each participant's average preparedness score section. Table 4-4 suggests that the participant's average self-efficacy score has correlation values of 0.816, 0.684, and 0.834 with the participant's average preparedness, opportunity, and quality scores, respectively. The significant correlation coefficients imply evidence of non-zero correlations between the scores.

The result in Table 4-4 shows that the participant's average preparedness score increases, and the participant's average self-efficacy also manages to increase. By looking at the two parts of the pre-service teachers' preparedness sections, the participant's average quality score correlates more closely with the average self-efficacy score than the participant's average opportunity score. This difference indicates that the participant's average quality score is more related to average self-efficacy and may be considered in improving the teacher education program.

Since Pearson's correlation tests do not consider the relationship between the participant's self-efficacy score and other variables for correlation coefficients, an adjusted correlation test can be applied. Partial correlation can be used to control for the effect of other variables (Ratner, 2009). After controlling for the potentially confounding variables of gender and year in college, there are

some minor changes in the correlation for participants' self-efficacy pairwise with the participant's average preparedness, opportunity, and quality scores. Comparing the results in Table 4-3 and Table 4-4, the correlations appear to be strong, as shown in Table 4-4, but a little smaller than those described in Table 4-3.

Statistical Question Two

The second statistical question was: What is a best fit model which uses regression to show which areas of preparedness have a stronger relationship with reported self-efficacy?

When looking at the regression model of self-efficacy by preparedness, the participant's self-efficacy score could be used as the response variable. For predictor variables, the preparedness is divided into two categories, the participant's average opportunity score and the participant's average quality score, which allows for looking at each component of preparedness separately. Also, demographic data such as age and college education level are considered predictors. The interactions between variables found to be justifiably significant, such as age and either component of preparedness and level of college education and either component of preparedness, were also included as predictor variables.

Four main predictor variables were used to select a regression model; the participant's average quality score, average opportunity score, age, and college education level. In addition, the interaction between the participant's average quality and opportunity scores was included in the model. A forward selection procedure has been used with adjusted R^2 as the criterion. This approach was used, as opposed to other approaches, because a forward selection starts by selecting essential variables. Moreover, the adjusted R^2 was used, as opposed to AIC or BIC, to highlight the correlation.

The adjusted R^2 can measure how the model can describe variation across participants'

 average self-efficacy scores. Also, adjusting the number of predictors helps avoid overfitting a model. This process starts with a model with only an intercept for the predictor. The models were checked with each possible predictor and kept the predictor with the highest adjusted R^2 in the model. The models also were checked with this first predictor and one more for the remaining predictors. They kept the second predictor in the model based on which added predictor increases the adjusted R^2 the most in addition to the first predictor. The interactions between variables were added to the model and also checked. If no new predictors or interactions increase the adjusted R^2, this model is complete with the predictors currently in the model. This process continues until all predictors are used or no more addition of predictors that increases the adjusted R^2.

When understanding this model, one must evaluate how changes in one variable change the expected output. For participants with identical average quality and opportunity scores, 4th-year participants were anticipated to have a higher average self-efficacy score of 0.090, corresponding to lower reported self-efficacy than 3rd-year students. Since there is an interaction term, changes in participants' average quality or opportunity scores can be harder to describe. For a one-point increase in a participant's average quality score, while the participant's level in college and average opportunity score remains steady, it has been anticipated that the participant's average self-efficacy score will increase by 1.22-0.302× opportunity. A one-point increase in the participant's average opportunity score will also change the expected participant's average self-efficacy score by 0.536-0.302×quality. This change represents diminishing returns on improving a participant's average quality score, detailed explicitly in Table 4-6. This explanation leads us to the conclusion that out of the components of the teacher education program, the participant's average quality score has a more predictive effect than the participant's average opportunity score. In contrast, we need to be aware of the effect of the interaction and the demographic term of college

education level.

Statistical Question Three

The third statistical question was: Is there a difference in self-efficacy or preparedness based on gender?

I investigated the association between male and female pre-service teachers' perceptions of self-efficacy and preparedness to answer this question. My objective is to highlight if the participant's gender can be linked to high levels of self-efficacy and preparedness from pre-service teachers' perspectives.

Table 4-7 shows the results of comparing four different types of scores across gender groups: participants' average self-efficacy score, participants' average overall preparedness score, participants' average learning opportunities score, and participants' average prepared quality score. By looking at the mean and standard deviation of different categories of participants' average scores for females and males, it is evident that these statistical results are very close (Table 4-7). For instance, male and female pre-service teachers reported identical mean scores in self-efficacy ($M = 1.459$). The difference between their standard deviations was 0.029, which is considered small. The mean male and female scores in the domain of overall preparedness were too close, and the difference between them was .008, which is negligible. The standard deviations were also very close, and the difference between them was 0.012.

The most significant difference in mean male and female scores can be noticed in the participant's average learning opportunity score, which is -0.03. This result is consistent with the study's results by Tschannen-Moran & Hoy (2007), which illustrated how demographic variables such as gender were not systematically related to the self-efficacy beliefs of either level of preparedness to teach. Moreover, the results of the study by Nwachukwu & Falode (2019)

supported that by describing how gender has no influence on pre-service teachers' self-efficacy or their preparation using electronic resources for teaching. Also, Tindall et al. (2016) supported this result by saying there was no notable difference in the self-efficacy scores between the male and female pre-service teachers.

On the other hand, Matoti et al. (2011) found that the chi-square test, once computed, showed no statistically significant relationship between the program and the gender of the participants in the program. Qin and Villarreal (2018), found a similar result that the effect of gender was statistically significant during the period of teaching practicum. They said that the effect of gender was observed in teaching commitment, and female participants held a higher responsibility than male participants.

Conclusion

The findings of this study show that the correlation between the participant's average self-efficacy score and the participant's average teacher preparation quality score is the largest. At the same time, the correlation between the participant's average self-efficacy and average opportunity is also quite significant. Thus, there is a linear relationship in the analysis. When a participant's gender and year in college were controlled, these correlation values changed slightly. The researchers should consider including them in the future model. When predicting the participant's average self-efficacy score, the average score of the preparation quality component has the most predictive power. Additionally, the participant's average learning opportunity score, the level of college education, and the interaction between the participant's average quality and opportunity scores are still significant in the model. There is no noticeable difference in the participant's average self-efficacy, opportunity, quality, or overall preparedness scores based on gender.

Implications

This study aimed to investigate the relationship between Saudi pre-service teachers' perceptions of preparation and their teaching self-efficacy. Moreover, the results of this study provide insights into pre-service teachers' perceptions about their self-efficacy beliefs, the quality of the teacher education program, and opportunities to apply what they have learned in that program. The results show that the correlation between the participant's average self-efficacy score and the participant's average teacher preparation quality score is the largest. At the same time, the correlation between participants' average self-efficacy and average opportunity is also quite significant, and we can explore a linear relationship in the analysis. When the researcher controlled the participant's age and year in college, these correlation values changed slightly. We might consider including them in the future model.

Implications for practitioners

Bandura (1997) also suggested that the development of self-efficacy beliefs among novice teachers is most vulnerable to change during the early learning years. This development should start earlier during their preparation as pre-service teachers. The current research provides evidence of the positive influence of the quality of the teacher education program on pre-service teachers' self-efficacy. This finding suggests that the Ministry of Education should work with the universities to improve and support the teacher education programs by providing them with all materials and resources they need to prepare pre-service teachers to be successful teachers in the future. For the teacher program to improve the quality, the programs' designers and educators should focus on some procedures that can help them improve the quality of their programs, which can positively affect their students' teaching skills. A teacher education program also should make enough space for students to practice teaching and get them to participate in action research

processes, ethics, and methods during the program's coursework. Besides, field experience can be a part of the course's requirements to help pre-service teachers concentrate on relevant and specific issues, which they could be challenged to address and encounter after achieving their degrees. These two critical pre-service teachers' preparation components should be aligned (Peebles & Mendaglio,2014; Ciampa & Gallagher, 2018).

In their study, Harding and Parsons (2011) mentioned that a preparation program should provide pre-service teachers with opportunities to design and engage in real classrooms, examine learner abilities, facilitate language learning difficulties, and deal with multicultural residents and diverse socioeconomic communities. The pre-service teacher will be able to know and feel confident in tackling teaching problems, which can confirm a substantially adequate learning space for their students. The program's designers, leaders, and educators should train pre-service teachers to be idea leaders and support processes that can help them become critical thinkers, decision-makers, challenge identifiers, and problem solvers. Teacher preparation programs can also seek partnerships with faculty in other departments to successfully implement the knowledge of specific majors such as science and mathematics. They also can establish a partnership with schools, which used to be called professional development schools(PDS). This school-university partnership has become a substantial reform for the teacher education programs in Saudi Arabia, which can improve pre-service teachers' self-efficacy as they are the program's outcomes. According to Stoddart et al. (1992) (as cited in Dolly & Oda, 1997), said:

A Professional Development School is a school in which the University faculty work collaboratively with practitioners, over time, with the goal of improving teaching and learning through 1) upgrading the education of pre-service teachers, 2) providing professional development for experienced   teachers,   and   3)   conducting   field-based

research. Inherent in the PDS model is the notion of school sites evolving as models of excellence and centers of inquiry through collaboration between school and university faculties over time. (p. 178)

Part of the teacher education program is to prepare its students to be collaborative teachers in the future. Preparing pre-service teachers to collaborate with their colleagues will positively affect their self-efficacy and thus lead to the development of their collaboration with their in-service colleagues. According to Damasco (2013), teachers with positive self-efficacy tend to have positive attitudes about collaborating with other specialists from the student's educational team. Collaborating with colleagues is an essential tool to improve student learning. Grover (1996) found that there were benefits of the collaboration between teachers, teacher-librarians, and administrators for their students. Haycock (2007) said, "collaboration between teacher and teacher-librarian not only has a positive effect on student achievement, but also leads to growth of relationships, growth of the environment, and growth of persons, all conducive to improved experiences for all members of the school community." (p. 32).

The program designers should also train pre-service teachers to set challenges to motivate student learning and performance. According to Dotson (2016), establishing goals keeps students focused on expected outcomes and provides an explicit direction for them to be successful. Challenging goals is a way of encouraging students to think. They also should be specific, measurable, attainable, relevant, and time-sensitive.

The program's developers and educators should assist pre-service teachers in practicing self-directed learning by empowering them to pursue information they can use to learn and assigning presentation of the findings within the classrooms. Gaining this skill prepares them to transfer it to their future students to become self-directed and productive learners. Every student

deserves a successful learning experience, and self-directed learning is an effective way to personalize and accelerate that experience. Grow (1991) suggests that students can advance through stages of increasing self-direction if they are matched with suitable teaching methods at each learning stage. According to Hains and Smith (2012), students should be the ones who judge their knowledge, ability, readiness, and emotional willingness to progress to higher levels of self-directed learning. The teacher's role is to help them shift by supporting flexibility in their teaching approaches.

Since technology has become a significant part of our lives, it must be an essential tool in education. After the world passed through the Corona pandemic and the classroom turned to e-learning remotely in most countries, it was vital to have the technology and be familiar with its uses, whether for teachers or students. According to Song (2018), teacher education programs may consider adopting technology education courses and initiatives that provide pre-service teachers with adequate opportunities to practice their technology integration skills in schools. It can also be an opportunity for them to observe in-service teachers' technology integration practices in the classrooms. Moreover, Han et al. (2017) recommended that technology integration be used in student teaching practicum. The authors said that student teaching experiences improve pre-service teachers' self-efficacy and intention to use technology in their teaching practice by providing opportunities for both observing and implementing technology integration.

School, community, and parent partnerships should become an educational priority. If teacher education programs want to meet their goals, the topic of school, community, and parent partnerships must be integrated into the designed curriculum. Flanigan (2005) suggested that teacher education programs could replace some existing courses with parent/community courses to develop pre-service teachers' skills in building effective relationships with parents and

communities. McKee et al. (2022) found that pre-service teachers can work with a family in ways that promote parent engagement and honor the family vibrancy.

Implication for researchers

This study's findings lead to results that can be applied to and considered by the work of researchers for further research for the social cognitive theory. I investigated the relationship between Saudi pre-service teachers' perceptions of preparation and their teaching self-efficacy. The other studies conducted about Saudi pre-service teachers focused on specific areas such as mathematics, science, and special education.

This study paves the way for future research in which different factors might be included. For example, a researcher can include faculty members to investigate their perceptions about Pre-service teachers' performance and the teacher education program, which will provide another indicator of their preparation. Moreover, this study can be repeated in high schools to include principals, teachers, and students' perceptions about Pre-service teachers' performance during their teaching practice.

Another critical research implication relates to this study's translated instruments for data collection. The North Carolina New Teacher Preparation Survey (NTPS) has 40 items, and researchers can use the Arabic version used in this study to evaluate the quality of teacher education programs. The other instrument, which was translated into Arabic and used in this study, is called the seven-factor domain-specific teacher self-efficacy scale. This Arabic-translated instrument can be used to investigate pre-service teachers' perceptions of their teaching self-efficacy.

Contributions to Literature

This study contributes new findings about connecting pre-service teachers' preparation, the provided learning opportunities, and the ability to use what have been learned in classrooms. The study confirms Siwatu and Starker's (2010) findings about the relationship between pre-service teachers' preparedness to handle cultural conflicts effectively and their teaching self-efficacy in a diverse classroom. Both studies proved that preparing pre-service teachers to teach in ways that support students with diverse racial, ethnic, and cultural backgrounds can improve their self-efficacy of teaching ability to accommodate diversity. Moreover, as a part of this accommodation, this study extends the work of Stites et al. (2018) by differentiating instruction to meet different learners' needs, which can support pre-service teachers' self-efficacy to teach those diverse students.

This study extends the work of Han et al. (2017), Shittu et al. (2016), and Song (2018) by agreeing on the importance of preparing pre-service teachers to integrate technology in teaching, which can have a positive effect on their self-efficacy. The use of technology is no longer a luxury. However, it has become an essential component of modern teaching methods and an effective tool for accessing information, especially with the multiplicity of educational programs and platforms providing services to universities and schools.

The findings of this study are consistent with the findings of Lentfer and Franks (2015) about preparing pre-service teachers to manage classroom and student behavior and its role in enhancing their self-efficacy. The results confirmed that pre-service teachers could establish a classroom management system, manage disruptive behaviors, and get students to follow the rules and regulations. On the other hand, the study findings of Alsaleh & Anthony (2018) showed that Saudi pre-service teachers felt less prepared for classroom management. Since the current study's data were collected

four years later, the Saudi teacher education program's designers have made changes to improve those programs in classroom management.

One of this study's key findings is that there was no notable difference in the self-efficacy scores between the male and female pre-service teachers. In contrast to this result, Qin and Villarreal (2018) found that the effect of gender was statistically significant during the period of teaching practicum. They said that the effect of gender was observed in teaching commitment, and female participants held a higher responsibility than male participants.

Limitations

However, the current study has several limitations in that it specifies the scope of research to a particular context. This study was conducted in Saudi Arabia, and it thus reflects the unique educational context of Saudi. Therefore, the study's results apply to future Saudi pre-service teachers selected for the investigation within the current teacher education programs. Further research is needed to decide whether the findings apply to future pre-service teachers across the other Saudi universities or whether conducting similar studies in countries whose educational contexts differ from Saudi Arabia would be meaningful. The study also focused on third and fourth-year students in teacher education programs, and researchers may include the first and second-year students in their future studies to see how much they have changed.

Another limitation is related to the online data collection method. I used the Qualtrics platform in this study to collect pre-service teachers' responses online. A link to the questionnaire's items was shared with pre-service teachers, and they were asked to respond to the questions by providing their responses online. This data collection approach may only encourage motivated participants to share their thoughts. Accordingly, the study sample might not represent the pre-service teachers in Saudi Arabia.

Recommendations

The findings of this study lead to several recommendations that can be applied to the work of researchers, faculty, and teacher education program designers. First, the findings of this study shed additional light on a topic of interest among researchers in the field of education. Researchers have conducted many studies to evaluate the effectiveness of pre-service teachers' self-efficacy in improving their future performance. This study contributes to the body of literature by investigating the relationship between Saudi pre-service teachers' perceptions of preparation and their teaching self-efficacy. Studies that link pre-service teachers' self-efficacy with their preparation are rare in cultural contexts similar to Saudi Arabia. Therefore, it is recommended that researchers do more studies to investigate the relationship between pre-service teachers' preparation in a specific major and their teaching self-efficacy.

Another recommendation is reducing the number of items in the research instrument. This study's instrument consists of 61 items, which might discourage many pre-service teachers from sharing their opinions. Instead of using the 7-factor specific-domain instrument, researchers can use the short form of Tschannen-Moran and Hoy (2001) (12-item survey). Therefore, researchers are recommended to perform new studies on this topic in non-Western contexts. Researchers also should pay more attention to the variations between different cultural contexts when investigating motivational outcomes such as self-efficacy. They also should pay more attention to the differences between various teacher education programs when studying the relationship between pre-service teachers' self-efficacy and their preparation.

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Appendix A

The Questionnaire

Thank you for your participation in this questionnaire.

Your participation is completely voluntary and anonymous.

Your responses will help us to improve the quality of teacher preparation programs

 in Saudi Arabia.

Part I: General information

Please check (✓) one only.

1. **Gender**:

   ☐ Female   ☐ Male

2. **Your age:**

   ……… Years . . . . Months

3. **What grade level you teach?**

   ☐ Grades 1-6

   ☐ Grades 7-12

4. **What is your level of college education?**

   ☐ 3rd year undergraduate/junior

   ☐ 4th year undergraduate/senior

5. **Have you started your student teaching?**

   ☐ Yes

   ☐ No

If you answered "Yes" above, please indicate which semester of student teaching

are you currently completing? ☐ First semester of student teaching ☐ Second semester of student teaching	
Part 2	**Pleas rate the following statements using the five-point Likert Scale below:** **1**=Definitely, **2**= Probably, **3**= Possibly, **4**=Probably Not, **5**=Definitely Not
Item #	**Statement**
A	**How well is your teacher preparation program preparing you to?**
1	Collaborate with colleagues to improve student learning
2	Set challenging and appropriate goals for student learning and performance
3	Empower students to become self-directed and productive learners
4	Maintain discipline and an orderly, purposeful learning environment
5	Work with parents and families to better understand students and to support their learning
6	Develop positive and supportive relationships with students
7	Create an environment of high expectations for all students
8	Teach in ways that support English language learners
9	Teach in ways that support students with diverse ethnic, racial, cultural, and socioeconomic backgrounds
10	Teach in ways that support special education students
11	Teach in ways that support academically gifted students
12	Develop a classroom environment that promotes respect and group responsibility
13	Demonstrate knowledge of the subject matter you teach
14	Teach the concepts, knowledge, and skills of your discipline
15	Align instruction with national standards
16	Relate classroom teaching to the real world

17	Use knowledge of student learning and curriculum to plan instruction
18	Develop lessons that build on students' experiences, interests, and abilities
19	Use a variety of assessments (e.g. tests) to monitor student learning
20	Provide purposeful feedback to students to guide their learning
21	Differentiate instruction
22	Use technology in the classroom to improve learning outcomes
23	Help students think critically to solve problems
24	Develop students' questioning and discussion skills
25	Analyze student performance data (e.g. formative and summative assessments, standardized tests, etc.) to improve instruction
26	Adapt practice based on research and student performance data
B	**In your teacher preparation program, how much opportunity did you have to do the following?**
27	Study stages of child development and learning
28	Develop strategies for managing student behavior
29	Develop strategies for establishing classroom procedures
30	Develop strategies for teaching English language learners
31	Develop strategies for teaching students from diverse racial, ethnic, cultural, and socioeconomic backgrounds
32	Develop strategies for teaching students with special needs
33	Develop strategies for teaching students who are academically gifted
34	Develop strategies for teaching students of varying ability
35	Apply national standards to instruction
36	Plan units and lessons
37	Create formative and summative student assessments
38	Analyze student assessment data/work to adjust instruction
39	Provide meaningful and specific academic feedback to students
40	Develop instructional strategies to promote students' critical thinking skills

Part 3	Please indicate the degree to which you agree or disagree with each statement below. 1=Strongly agree, 2= Agree, 3=Unsure, 4= Disagree, 5=Strongly disagree
A	**Your ability to teach highly able students:**
1	I am able to support to strive for excellence/achievement
2	I am able to provide appropriate challenge to the highly able students
3	I am able to teach higher-order thinking skills to the highly able students
B	**Your ability to manage classroom:**
1	I am able to manage disruptive behaviors in classroom
2	I am able to get students to follow rules and regulations
3	I am able to establish classroom management system
C	**Your ability to provide guidance and counseling:**
1	I am able to provide appropriate emotional support
2	I am able to express empathic understanding for problem
3	I am able to make a depressed student feel better
D	**Your ability to enhance student engagement**
1	I am able to motivate students with low interest in schoolwork
2	I am able to use ways to help students value learning
3	I am able to make students enjoy coming to school
E	**Your ability to teach to accommodate diversity:**
1	I am able to adjust lessons to proper level
2	I am able to use various assessment strategies
3	I am able to gauge student comprehension of what was taught
F	**Your ability to teach to enrich learning:**
1	I am able to use ways to foster creativity
2	I am able to help students to think critically
3	I am able to facilitate real-life problem-based learning

G	Your ability to work with colleagues and parents:
1.	I am able to collaborate well with teachers
2.	I am able to work well with administration
3.	I am able to get parents involved to help students learn

Appendix B

Arabic Version of The Questionnaire

شكراً لمشاركتك في هذا الاستبانة.

مشاركتك تطوعية ومجهولة الهوية تماماً.

إجاباتك ستساعدنا على تحسين جودة برامج إعداد المعلمين (المعلمات) في المملكة العربية السعودية

الجزء الأول: معلومات عامة

الرجاء اختيار إجابة واحدة بوضع علامة (✔) أمامها

١ـ الجنس:

☐ أنثى   ☐ ذكر

٢ـ العمر:

.........سنة و ....أشهر

٣ـ الصف الدراسي الذي تُدَرِّسه

☐ الصف الأول الابتدائي – الصف السادس الابتدائي

☐ الصف الأول المتوسط – الثالث الثانوي

٤ـ ما هو مستوى تعليمك الجامعي؟

☐ السنة الثالثة الجامعية

☐ السنة الرابعة الجامعية

٥ـ هل بدأت مرحلة التدريب

☐ نعم

☐ لا

إذا أجبت بـ "نعم" أعلاه، يرجى الإشارة إلى الفصل الدراسي للتدريب الميداني الذي ثُك
☐ الفصل الدراسي الأول للتدريب الميداني
☐ لفصل الدراسي الثاني للتدريب الميداني

الجزء الثاني - يرجى منك تقييم العبارات التالية باستخدام مقياس ليكرت المكون من خمس نقاط أدناه **١ = بالتأكيد، ٢ = محتمل، ٣ = محتمل، ٤ = ممكن، ٥= بالتأكيد لا**
أ ـ ما مدى إعداد برنامج إعداد المعلم (المعلمة) لك لِكَيْ؟
١ - تتعاون(تتعاونين) مع الزملاء(الزميلات) لتحسين تعلم الطالب(الطالبة)
٢- تضع(تضعين) الأهداف التي يكون فيها تحدي والمناسِبة لتعلم الطالب (الطالبة) وأدائِه (أدائها)
٣- تُمكِّن(تُمكِّنين) الطلاب(الطالبات) من أن يصبحوا متعلمين موجَّهين ذاتيا ومُنتِجين
٤- تُحافظ(تُحافِظين) على الانضباط والبيئة التعليمية المنظّمة والهادفة
٥- تعمل(تعملين) مع الوالدين (أولياء الأمور) والأسَر لفهم الطلاب(الطالبات) بشكل أفضل ولدَعْم تعلمهم
٦- تُطَوِّر(تُطَوِّرين) علاقات إيجابية وداعمة مع الطلاب(الطالبات)
٧- تُكَوِّن(تُكَوِّنين) بيئة من التوقعات العالية لجميع الطلاب(الطالبات)
٨- تُدَرِّس(تُدرِّسين) بالطرق التي تدعم متعلمي(متعلمات) اللغة الإنجليزية
٩- تُدَرِّس(تُدرِّسين) بالطرق التي تدعم الطلاب(الطالبات) ذوي الخلفيات المتنوعة إثنياً وعرقياً وثقافياً واجتماعياً اقتصادياً
١٠- تُدَرِّس(تُدرِّسين) بالطرق التي تدعم طلاب(طالبات) التربية الخاصة
١١- تُدَرِّس(تُدرِّسين) بالطرق التي تدعم الطلاب(الطالبات) الموهوبين أكاديمياً
١٢- تُطَوِّر(تُطَوِّرين) بيئة غرفة الصف التي تعزز الاحترام والمسؤولية الجماعية
١٣- تُظْهِر(تُظْهِرين) المعرفة بالموضوع الذي تقوم(تقومين) بتدريسه
١٤- تُدَرِّس(تُدرِّسين) المفاهيم والمعرفة والمهارات المتعلقة بتخصصك
١٥- تُوازي(تُوازِين) التدريس بالمعايير الوطنية
١٦- تَربط(تَربطين) التدريس في غرفة الصف بالعالَم الحقيقي
١٧- تَستخدم(تَستخدِمين) المعرفة بتعلم الطالب(الطالبة) والمناهج الدراسية لتخطيط التدريس
١٨- تُطَوِّر(تُطَوِّرين) الدروس التي تُبْنَى على تجارب الطلاب(الطالبات) واهتماماتهم وقدراتهم
١٩- تَستخدم(تَستخدِمين) مجموعة متنوعة من التقييمات (مثل الاختبارات) لمراقبة تعلم الطالب(الطالبة)
٢٠- تُقدِّم(تُقدِّمين) التغذية الراجعة الهادفة للطلاب(للطالبات) لتوجيه تعلمهم

٢١ـ تَستطيع(تَستطيعين) اختيار التدريس الذي يتناسب مع نوعية الطلاب(الطالبات)
٢٢ـ تَستخدم(تَستخدمين) التقنية في غرفة الصف لتحسين مخرجات التعلم
٢٣ـ تُساعد(تُساعدين) الطلاب(الطالبات) على التفكير النقدي لحل المشكلات
٢٤ـ تُطَوِّر(تُطَوِّرين) مهارات الطلاب(الطالبات) في طرح الأسئلة والمناقشة
٢٥ـ تُحلِّل(تُحلِّلين) بيانات أداء الطالب(الطالبة) (مثل التقييمات التكوينية البنائية والختامية، والاختبارات المعيارية، إلخ)، لتحسين التدريس
٢٦ـ تُكيِّف(تُكيِّفين) الممارسة العملية بناءً على البحث وبيانات أداء الطالب(الطالبة)

بـ في برنامج إعداد المعلم(المعلمة)، ما مقدار الفرص التي أتيحت لك للقيام بما يلي:

٢٧ـ تَدْرُس(تَدْرُسين) مراحل نمو الطفل وتعلّمه
٢٨ـ تُطَوِّر(تُطَوِّرين) استراتيجيات لإدارة سلوك الطالب(الطالبة)
٢٩ـ تُطَوِّر(تُطَوِّرين) استراتيجيات لتأسيس إجراءات غرفة الصف
٣٠ـ تُطَوِّر(تُطَوِّرين) استراتيجيات لتدريس متعلمي(متعلمات) اللغة الإنجليزية
٣١ـ تُطَوِّر(تُطَوِّرين) استراتيجيات لتدريس الطلاب(الطالبات) ذوي الخلفيات المتنوعة عرقياً وإثنياً وثقافياً واجتماعياً اقتصادياً
٣٢ـ تُطَوِّر(تُطَوِّرين) استراتيجيات لتدريس الطلاب(الطالبات) ذوي الاحتياجات الخاصة
٣٣ـ تُطَوِّر(تُطَوِّرين) استراتيجيات لتدريس الطلاب(الطالبات) الموهوبين أكاديمياً
٣٤ـ تُطَوِّر(تُطَوِّرين) استراتيجيات لتدريس الطلاب(الطالبات) ذوي القدرات المتفاوتة
٣٥ـ تُطبِّق(تُطبِّقين) المعايير الوطنية على التدريس
٣٦ـ تُخطط(تُخططين) الوحدات الدراسية والدروس
٣٧ـ تُنشِئ(تُنشِئين) تقييمات الطالب(الطالبة) التكوينية البنائية والختامية
٣٨ـ تُحلل(تُحللين) بيانات تقييم الطالب(الطالبة) وعمله لتعديل التدريس
٣٩ـ تُقَدم(تُقَدمين) للطلاب(للطالبات) تغذية راجعة أكاديمية هادفة ومحددة
٤٠ـ تُطَوِّر(تُطَوِّرين) استراتيجيات تدريسية لتعزيز مهارات التفكير الناقد لدى الطلاب(الطالبات)
الجزء الثالث- يرجى تحديد إلى أي درجة أنت توافق(توافقين) أو لا توافق (لا توافقين) على كل عبارة أدناه ١ = موافق بشدة، ٢ = موافق، ٣ = غير متأكد، ٤ = غير موافق، ٥ = غير موافق بشدة
أ ـ قدرتك على تدريس الطلاب(الطالبات) ذوي القدرات العالية
١. أنا قادر(قادرة) على الدعم للسعي إلى التميز والإنجاز
٢. أنا قادر(قادرة) على تقديم التحدي المناسب للطلاب(للطالبات) ذوي القدرة العالية

٣. أنا قادر(قادرة) على تدريس مهارات التفكير العليا للطلاب(للطالبات) ذوي القدرات العالية
ب‌ـ قدرتك على إدارة غرفة الصف:
١. أنا قادر(قادرة) على إدارة السلوكيات التخريبية في غرفة الصف
٢. أنا قادر(قادرة) على حث الطلاب(الطالبات) على اتباع القواعد واللوائح
٣. أنا قادر(قادرة) على تأسيس نظام لإدارة غرفة الصف
ج‌ـ قدرتك على تقديم التوجيه والإرشاد:
١. أنا قادر(قادرة) على تقديم الدعم العاطفي المناسب
٢. أنا قادر(قادرة) على التعبير عن الفهم التعاطفي للمشكلة
٣. أنا قادر(قادرة) على جعل الطالب(الطالبة) المكتئب يشعر بتحسن
د‌ـ قدرتك على تعزيز مشاركة الطلاب(الطالبات):
١. أنا قادر(قادرة) على تحفيز الطلاب(الطالبات) ذوي الاهتمام المنخفض بالواجبات المدرسية
٢. أنا قادر(قادرة) على استخدام الطرق لمساعدة الطلاب(الطالبات) على تقدير التعلم
٣. أنا قادر(قادرة) على جعل الطلاب(الطالبات) يستمتعون بالحضور إلى المدرسة
ه‌ـ قدرتك على التدريس لاستيعاب التنوع:
١. أنا قادر(قادرة) على تعديل الدروس إلى المستوى المناسب
٢. أنا قادر(قادرة) على استخدام استراتيجيات تقييم متنوعة
٣. أنا قادر(قادرة) على قياس فهم الطالب(الطالبة) لما تم تدريسه
و‌ـ قدرتك على التدريس لإثراء التعلم
١. أنا قادر(قادرة) على استخدام الطرق لتعزيز الإبداع
٢. أنا قادر(قادرة) على مساعدة الطلاب(الطالبات) على التفكير النقدي
٣. أنا قادر(قادرة) على تسهيل التعلم الواقعي القائم على المشكلات
ز‌ـ قدرتك على العمل مع الزملاء والوالدين (أولياء الأمور)
١. أنا قادر(قادرة) على التعاون بشكل جيد مع المعلمين(المعلمات)
٢. أنا قادر(قادرة) على العمل بشكل جيد مع الإدارة
٣. أنا قادر(قادرة) على إشراك الوالدين (أولياء الأمور) لمساعدة الطلاب(الطالبات) على التعلم

Appendix C

IRB Approval Letter

PennState

Office for Research Protections
Vice President for Research
The Pennsylvania State University
205 The 330 Building
University Park, PA 16802

814-865-1775
Fax: 814-865-8699
orp@psu.edu
research.psu.edu/orp

EXEMPTION DETERMINATION

Date: June 7, 2021

From: Cody Hensley,

To: Abdulrahman Alasmari

Type of Submission:	Initial Study
Title of Study:	The Relationship between Saudi Pre-service Teachers' Perceptions of Preparation and Their Teaching Self-Efficacy
Principal Investigator:	Abdulrahman Alasmari
Study ID:	STUDY00017803
Submission ID:	STUDY00017803
Funding:	Not Applicable
Documents Approved:	• Alasmari (973033439) (0.03), Category: IRB Protocol • The Questionnaire.docx (0.01), Category: Data Collection Instrument

The Office for Research Protections determined that the proposed activity, as described in the above-referenced submission, does not require formal IRB review because the research met the criteria for exempt research according to the policies of this institution and the provisions of applicable federal regulations.

Continuing Progress Reports are **not** required for exempt research. Record of this research determined to be exempt will be maintained for five years from the date of this notification. If your research will continue beyond five years, please contact the Office for Research Protections closer to the determination end date.

Changes to exempt research only need to be submitted to the Office for Research Protections in limited circumstances described in the below-referenced Investigator Manual. If changes are being considered and there are questions about whether IRB review is needed, please contact the Office for Research Protections.

Penn State researchers are required to follow the requirements listed in the Investigator Manual (HRP-103), which can be found by navigating to the IRB Library within CATS IRB (http://irb.psu.edu).

This correspondence should be maintained with your records.

<div align="center">

VITA

Abdulrahman Ahmed Alasmari

</div>

EDUCATION

Ph.D.	Pennsylvania State University College of Education University Park, PA, USA	Curriculum & Instruction	2023
M.A. in Teaching	Murray State University College of Science, Engineering, and Technology Murray, KY, USA	Teaching Mathematics	2014
B.A.	The University of Tabuk College of Teachers Tabuk, Saudi Arabia	Elementary Mathematics	2002

CERTIFICATES

Academic Leadership Development Workshop	The Saudi Arabia Cultural Mission (SACM) Fairfax, VA, USA	February 2019
English Language	Pennsylvania State University IECP University Park, PA, USA	Jan 2012 - Dec 2012
Computer Skills	The Developed Computer Applications and Maintenance Jeddah Training and Education Institution, Tabuk, Saudi Arabia	Spring 2004

PROFESSIONAL EXPERIENCE

Lecturer	The University of Tabuk College of Education and Arts Tabuk, Saudi Arabia	2020 – present
Teaching Assistant	The University of Tabuk College of Education and Arts Tabuk, Saudi Arabia	2010 – 2020
Teacher	Alabnaa 3rd Elementary School Ministry of Defense Tabuk, Saudi Arabia	2007 – 2010
Teacher	Alabnaa 1st Middle School Ministry of Defense Tabuk, Saudi Arabia	2002 – 2007