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The Effects of Alternative Certification Program Type on Teacher Self-Efficacy: A Causal-Comparative Study

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The Effects of Alternative Certification Program Type on Teacher Self-Efficacy: A Causal-

Comparative Study

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College of Education

Dissertation submitted to the Faculty of the College of Education

in partial fulfillment of the requirements for the degree of

Doctor of Education in

Transformational Leadership

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Abstract

The purpose of this study was to examine the effect of alternative teacher certification program type on teachers sense of efficacy in classroom management, student engagement, and instructional strategies. Teacher self-efficacy has become the industry standard to measure a teachers sense of confidence in instructional tasks (Lauerman, & König, 2016). Measuring teacher self-efficacy of new teachers can indicate how teacher preparation program plays a role in establishing teacher self-efficacy. The study was built upon the conceptual framework of the teacher self-efficacy theory, which is a subset of the self-efficacy theory (Tshannen-Moran & Woolfolk-Hoy, 2001). Participants in this study were new alternative certified teachers in Texas who had graduated from three program types typically found in Texas. Teachers completed the long form of Teachers Sense of Efficacy Scale (TSES). Each domain of teacher self-efficacy was statistically analyzed by a one-way ANOVA test to examine mean differences among teachers efficacy scores in each of three domains. Although no statistically significant differences were found between the mean scores of teachers in three domains of teacher self-efficacy, the researcher recommended that further testing using mixed methods continue. Understanding how different training experiences throughout professional training affect teachers perceived sense of efficacy can offer program developers a realistic view on which methods support teachers the most.

Keywords: alternative teacher certification, self-efficacy, teacher self-efficacy, Teachers Sense of Efficacy Scale (TSES)

Dedication

First and foremost, I dedicate this dissertation to my Lord and Savior, Jesus Christ. I asked and then begged him for the chance to begin and then accomplish this task, and he said yes. Second, I would like to dedicate this accomplishment to my grandparents, J. D. and Althalene Handy because they were born into a time and place that made education a difficult achievement yet they wanted the best for their children. Every milestone that I achieve, I achieve for them as well. Third, I would like to dedicate this dissertation to my sons, John, Mike, De'Mond, and Jeremiah, and my grandchildren. I have been "absent" from family get-togethers many times during my dissertation journey, but I hope that my absence paved the way for all of you so that each of you can say "Yes, I can." Last, but not least, I dedicate the journey to my mother, Mary H. Moore who have always been my number one hero. Thank you deeply for all of your encouragement when times were very bleak. An educator, philosopher, psychiatrist, and missionary at heart, you kept me motivated throughout all of my educational journey's.

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Chapter 1: Introduction

Introduction to the Problem

Three factors are cited as most responsible for changing the landscape of teacher

education in the 1980's (Zumwalt, 1996), including the retirement of an aging population of

experienced teachers. The proportion of qualified teachers fell far below projected need to fill in

shortages (Bowling & Ball, 2018). More qualified teachers were needed in important fields such

as science and mathematics (Redding & Smith, 2016). Like then, the teaching profession is

currently facing a crisis with keeping qualified teachers in the classroom regardless of

experience. Attrition of teachers and less efficacious student outcomes continue to spark many

heated debates that fuel arguments that traditional preparation programs do not adequately

prepare teachers.

Under the Elementary and Secondary Education Act (ESSA) of 1965 and amended by

Every Student Succeeds Act of 2015, the United States government approved multiple pathways

to teacher certification whereas teacher certification was previously university-based (Whitford,

Zhang, & Katsiyannis, 2017). Educational research reflects a growing approval that different

pathways to teacher certification create massive potential to encourage mature individuals with

advanced professional experiences, minorities, and males into the teacher workforce (Haim &

Amdur, 2016; Zhang & Zeller, 2016). The approval of alternative routes brought in more

professionals with content knowledge that was currently lacking (Chudgar, Chandra, &

Razzaque, 2014). Shorter program lengths and the opportunity for immediate employment while

earning certification appeared to increase the teaching population with industry specific

experience (Redding & Smith, 2016; Stitzlein & West, 2014). Shorter routes to certification was

a way to attract more highly qualified professional since teaching methods and teaching theory

has been argued as superfluous during preservice training (Redding & Smith, 2016). Advocates of alternative teacher preparation profess that teachers learn best through actual teaching rather than by theory (Friedrich, 2014).

Despite strong arguments for alternative teacher certification, important risks are associated with multiple pathways that have attributed to a growing concern that may possibly outweigh advantages (Bowling & Ball, 2018). Although federal departments oversee educational policy, states have options of how to address policy and teacher preparation programs also have options of how to satisfy the mandates of educational policy (United States Department of Education, 2015). The proliferation of private and public alternative teacher certification programs has caused concerns to critics and some have argued that the deregulation approach has led to less oversight and accountability of alternative teacher certification programs (Friedrich, 2014). Alternative routes to teacher certification operate under different regulations from traditional teacher certification programs and differences in regulations include program length, curriculum, and experiential requirements (West & Clark, 2019).The complexity and rigor of alternative teacher certification programs have been questioned especially regarding how programs structure preservice teaching (Consuegra, Engels, & Struyven, 2014; Zhang & Zeller, 2016).

Background, Context, and History

By 2015, teachers who received preparation through alternative routes made up 20% of the total teacher population in the United States (Zhang & Zeller, 2016). The debate about the effectiveness of alternative teacher programs is ongoing and among many arguments against alternative teacher certification programs include how programs train teachers (West & Clark, 2019). Due to differences among programs, teachers may receive preparation from five weeks to

two years, and may take classes face-to-face, strictly online, or a combination of both. Unlike traditional teacher certification of which teachers participate in structured observations and a final teaching internship before becoming teachers of record, some quick immersion programs may provide teachers with a few weeks of training while other types of alternative teacher programs may provide up to two years of individualized training (West & Clark, 2019). Additionally, teachers from most alternative certification programs assume full classroom duties within weeks of starting teacher preparation, while other programs structure teachers to gradually gain control of classrooms.

Despite a marked increase in enticing content specific professionals into teaching, conflicting evidence exists that alternative certified teachers also experience the highest attrition rate (Redding & Smith, 2016). Evidence that many factors for attrition exist yet one primary cause of concern has been attrition related to preparation. Teachers with less teaching-related skills experience more challenges in the classroom (Ronfeldt, Schwartz, & Jacob, 2014). Less preparation in teaching pedagogy and knowing how to connect appropriate instruction to developmental stages in children related to negative teacher and student outcomes (Jay & Miller, 2016; Redding & Smith, 2016). Sufficient preteaching experience and the opportunity to master different strategies to manage a classroom, engage students, and plan and implement developmentally appropriately instruction is extensively argued within teacher literature as three of the most important skills that beginning teachers needed for confidence in teaching (Uriegas, Kupczynski, & Mundy, 2014; Zee, deJong, & Koomen, 2017). Evidence of researchers suggest that some fast entry alternative teacher certification programs do not provide sufficient pedagogical foundations that prepare teachers for different student and institutional contexts (Friedrich, 2014; Zhang & Zeller, 2016). Alternative certified teachers who receive little to no

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preservice preparation have been cited as most at risk of exhaustion, burnout, and high attrition, especially in urban contexts (Redding & Smith, 2016). A common practice is to hire alternative certified teachers in schools that have a higher proportion of minority students and low student outcomes (Zhukova, 2018). Teachers prepared through alternative routes also have a higher probability of working in cultural and economic contexts of which they were unprepared for (Zhang & Zeller, 2016), or outside their field of expertise (Whitford, Zhang, & Katsyannis, 2017).

Recommendations have been made that teacher preparation programs should evaluate preservice teachers sense of pedagogical readiness, yet alternative teacher preparation programs have an additional caution (Zhang & Zeller, 2016). Alternative certified teachers without educational backgrounds have been cited as needing additional pedagogical support especially relating to the teaching process, developing relationships with students, and how to assess critical areas of learning (Ronfeldt, Schwartz, & Jacob, 2014).

Conceptual Framework for the Problem

The conceptual framework for this study was based on the self-efficacy theory of Albert Bandura (1979) and the teacher self-efficacy model of Tschannen-Moran and Woolfolk-Hoy (2001). Bandura (1979) described self-efficacy as the confidence to carry out specific tasks and that four experiences related to perceived confidence. Bandura (1979) argued that mastery experience was the greatest factor in establishing confidence such that repeated exposure developed a specific set of knowledge and skills associated with the experience. Vicarious experience occurs through observing others successfully and repeatedly perform a skill and through repeated exposure, an individual gains more confidence in the ability to use the exact set of knowledge and skills to perform the action. Social or verbal persuasion occurs from

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constructive and positive feedback from others such that higher praise produces more confidence and constructive feedback may motivate individuals to work harder to produce better outcomes (Tschannen-Moran, Woolfolk-Hoy, & Hoy, 1998). Physiological experience occurs from the emotional impact in having the knowledge and skill to perform tasks.

Teacher self-efficacy is the teacher's confidence in carrying out tasks associated with the teaching and the teaching environment (Tschannen-Moran, Woolfolk-Hoy, & Hoy, 1998). The teacher self-efficacy model was created by Tschannen-Moran & Woolfolk-Hoy (2001) from a need to define specific variables to measure the confidence of teachers after several models did not fully measure a teacher's sense of preparedness. The model is a three-factor model developed from previous teacher efficacy models of Bandura (1997), Gibson and Dembo (1984), and RAND researchers in 1976 (Tschannen-Moran, Woolfolk-Hoy, & Hoy, 1998). The three variables of teacher-self efficacy include classroom management, student engagement, and instructional strategies.

Teacher self-efficacy in classroom management is the teacher's confidence in controlling the classroom and developing procedures for a safe and orderly environment (Uriegas, Kupczynski, & Mundy, 2014). Teacher self-efficacy in student engagement is the teacher's confidence in connecting with all students and understanding how learning occurs across different academic, social, and cultural contexts (Strati & Maier, 2016). Teacher self-efficacy in instructional practice is the teacher's confidence in differentiating instruction and assessments to meet the needs of all learners (Zee & Koomen, 2016). The teacher self-efficacy model has been validated as stable under different contexts (Küngsting, Neuber, & Lipowsky, 2016). Salient points of each factor are discussed in the following section.

Classroom management. Classroom management is argued as the one skill that many teachers have difficulty with regardless of preparation route (Flower, McKenna, & Haring, 2016) and is the one skill that if not sufficiently developed, can destroy positive teacher and student outcomes (Uriegas, Kupczynski, & Mundy (2014). Classroom management is described as a primary pedagogical skill that all highly qualified teachers possess and of which entails a specific knowledge set and procedures (Kwok, 2017) However, classroom management is the least skill taught in teacher preparation programs (Flower, McKenna, & Haring, 2016). Rather than focusing on quick methods to control disruptions, teachers with a high sense of efficacy in classroom management understand the complexity of managing students and relentlessly plan student interactions, engagement, and the flow of information at the beginning of the school year (Everston, Emmer, Sandford, & Clements, 1983).

Student engagement. Student engagement is described as social interactions between teacher and student and is cited as strong predictors of student academic success and both teacher and student's overall well-being (Cadima, Doumen, Verschueren, & Buyse, 2015). Teacher self-efficacy in student engagement is the teachers confidence to successfully build ethical teacher-student relationships to connect with and motivate students to maximize their learning potential (Hagenauer, Hascher, & Volet, 2015). Highly experienced teachers have distinct teaching styles that incorporate cultural, social, academic, and developmental layers of students to provide challenging but attainable instruction (Schmidt & Maier, 2016). Less experience or skill in this domain results in teacher dissatisfaction which may ultimately lead to an overall lack of confidence in achieving task specific goals and negative emotions regarding the teaching process and interacting with students (Cadima, et al., 2015).

Instructional strategies. Instructional strategies are tasks carried out by teachers and largely depend on a specific set of professional knowledge to maximize learning for all students (Cooper, Hirn, & Scott, 2015). Teachers with more experience have a larger repertoire of strategies that incorporate specific learning styles of students that keeps students challenged, motivated, and engaged (Poulou, Reddy, & Dudek, 2019). Quality of instruction has been linked to achieving mastery of goals and teachers with higher goals for student learning constantly explore different ways to develop more effective methods to achieve goals (Künsting, Neuber, & Lipowsky, 2015).

Statement of the Problem

Many factors are associated with alternative certified teacher attrition such as school and student contexts, better prospects, and changing schools (Pfitzner-Eden, 2016), yet teachers' sense of efficacy remains a significant factor of and mediator to teacher burnout and attrition (Savas, Bozgeyik, & Eser, 2014). The attrition rate of alternative certified teachers who graduated from certain programs has been documented as higher than traditional teachers (Ronfeldt, Schwartz, & Jacob, 2014). Teachers who are pedagogically underprepared as beginning teachers had preconceived notions of their weaknesses and was predicted to have lower expectations for themselves and their students (Zhukova, 2018). Motivation is a highly discussed concept regarding self-efficacy, such that despite perceived challenges teachers with a stronger sense of efficacy worked harder to produce expected outcomes. Conversely, teachers with lower self-efficacy are described as needing more motivation and development, and challenges are often too difficult to overcome (Sisman, 2014). Evidence was found on comparing teacher self-efficacy between traditional and alternative certified teachers, yet a gap existed in

research comparing the sense of teacher efficacy in teachers graduating from different types of alternative certified programs.

Purpose of the Study

The present study examined the effects of alternative teacher certification program type on teachers sense of efficacy in classroom management, student engagement, and instructional strategies. The results of this study highlight the unique challenges that alternative certified teachers face during and after career changing. Despite teachers having the content knowledge for a specific subject, the amount and type of teacher preparation that they receive may not adequately support their transition into the teaching field (Redding & Smith, 2016). Alternative teacher certification programs must cater to second career professionals need to merge expert content knowledge with managing a classroom, engaging students, and using appropriate strategies to instruct all students (Troesh & Bauer, 2017). The results of this study add to available teacher preparation literature by providing evidence that distinct differences of teacher self-efficacy occur among teachers of different types of alternative teacher certification programs.

Research Questions and Hypotheses

This study examines the effect of alternative teacher preparation type on teachers' sense of efficacy in classroom management, student engagement, and instructional practice.

RQ1: What is the effect of alternative teacher certification program type on teacher self-efficacy in preservice elementary teachers regarding classroom management?

$H_0 1$: There is no effect of alternative teacher certification program type on teacher self-efficacy in preservice elementary teachers regarding classroom management?

RQ2: What is the effect of alternative teacher certification program type on teacher self-efficacy in preservice elementary teachers regarding student engagement?

H_0 2: There is no effect of alternative teacher certification program type on teacher self-efficacy in preservice elementary teachers regarding student engagement.

RQ3: What is the effect of alternative teacher certification program type on teacher self-efficacy in preservice elementary teachers regarding instructional practice?

H_0 3: There is no effect of alternative teacher certification program type on teacher self-efficacy in preservice elementary teachers regarding instructional practice.

Rationale, Relevance, and Significance of the Study

Literature is evident on comparing teacher self-efficacy between traditional and alternative certified teachers (Uriegas, Kupczynski, & Mundy, 2014). Researchers described the difficulty in measuring the effects of alternative teacher certification programs and available research offered inconstant conclusions (Zhang & Zeller, 2016). Consequently, a gap in the literature existed in measuring teacher self-efficacy of teachers from specific alternative teacher certification program types.

Teacher self-efficacy has become a standard concept when examining teachers' readiness to teach and a teacher's preparation program is argued as a key indicator of the type of skills that teachers possess as well as their approach to teaching (Thomas & Mucherah, 2016). Teacher characteristics are often developed through mastery of experience and accumulating specific skills and knowledge during preservice teacher training, yet the lack of specific training in conjunction with less vicarious experiences may affect the accumulation of important pedagogical skills (Haim & Amdur, 2016). Literature is abundant on the effects of lower teacher self-efficacy and a commonality found among the literature is the negative effects on teacher and

student outcomes (Henry, et al., 2014). Utilizing the theory of self-efficacy and the teacher self-efficacy model to measure teachers' sense of efficacy provided a better lens to examine if alternative teacher certification program type had an effect on teacher self-efficacy. Findings from the present study may encourage program administrators to promote more sustainability in utilizing longer and more progressive preservice experiences to develop and strengthen teacher self-efficacy before teachers assume full classroom duties.

The significance of this study provided information that was currently lacking in the field of education. Literature sorts all alternative teacher certification programs into one umbrella term (Zhang & Zeller, 2016) and minimal empirical studies exists that compare teacher self-efficacy between teachers of different types of alternative teacher certification programs. The debate remains on the viability of alternative teacher certification, especially pertaining to their curriculum, rigor, and training methods (Haim & Amdur, 2016), as well as the often-contested higher rate of attrition of alternative certified teachers (Redding & Smith, 2016). Providing evidence that differences exists in teacher self-efficacy among teachers of different program types may encourage program administrators to fully examine how different training structures develop and sustain teacher self-efficacy.

Definition of Terms

Alternative teacher certification: Alternative teacher certification is defined as any preparation path that differs from traditional, university based four-year teacher preparation programs and are characterized as expedited routes to certification (Redding & Smith, 2016)

Pedagogy: Pedagogy is defined as principles of teaching that connects theoretical knowledge of learning and teaching to teachers' classroom practices (Horn & Campbell, 2015).

Preteaching: Preteaching is any structured activity that introduces teacher candidates to theoretical foundations of teaching and provides connections to actual classroom practice (Ronfeldt, Schwartz, & Jacob, 2014).

Sense of efficacy in classroom management: Classroom management is a dimension of teacher self-efficacy (Tschannen-Moran & Woolfolk-Hoy, 2001) and is defined as a teachers' confidence to create and manage class rules and procedures to promote learning, teaching, and order (Sahin, 2015).

Sense of efficacy in instructional practice: Instructional practice is the confidence of teachers in using differentiated methods to teach and assess all types of students and learning styles (Depaepe & König, 2017).

Sense of efficacy in student engagement: Student engagement is a dimension of teacher self-efficacy that pertains to how confident teachers are in connecting students cognitive and affective needs to instruction (Strati, Schmidt, & Maier, 2017).

Teacher self-efficacy: A subset of self-efficacy, teacher self-efficacy is the teacher's perception of their ability to successfully perform instructional and professional duties and achieve goals (Ford, Van Sickle, Clark, Faxio-Brunson, & Schween, 2017).

Teachers' Sense of Efficacy Scale (TSES): TSES is a Likert type survey instrument with a long form consisting of 24 questions or a short form consisting of 12 questions. Each form asks participants to rate themselves on perceived ability regarding the teaching process. TSES has been strongly and persistently documented as a common source to measure teacher confidence in classroom management, student engagement, and instructional practice (Tschannen-Moran & Woolfolk-Hoy, 2001).

Assumptions, Delimitations, and Limitations

Assumptions. The following list of assumptions was considered during the study.

- Each participant had completed one of three programs identified for the study.

- Each participant had completed a program of study accredited by Texas Education Agency (TEA) and State Board for Education Standards (SBEC).

- Each participant responded honestly to the Teachers' Sense of Efficacy Scale.

- Each participant was or would become teachers of record in one specific area of Texas.

- No teachers held prior professional experience in educational settings.

- No participant received prior teacher education in any content.

- A sample were drawn from a total population of teachers in one specific area.

Delimitations. Teachers sampled in this study were early elementary through middle school candidates who had completed their capstone field experience and who would teach at participating schools partnering with their program. A common attribute of alternative certification programs in Texas is to train teachers in specific contexts, such as classroom management or English Language Learners based on needs of partnering schools. A second delimitation of the study was in the choice of three program types among many that exist in Texas so therefore the results cannot generalize to all alternative certified teachers in Texas, nor can the results indicate the quality of programs. Furthermore, a three-factor model of teacher self-efficacy was used to measure teachers' sense of efficacy against one dependent variable of program type. Although demographical data were captured, the data were not analyzed in reference to teacher self-efficacy.

Limitations. A limitation of the study was in the use of accumulating data from a single point in time. This type of approach is cross-sectional; therefore the researcher could not evaluate a sense of efficacy before or throughout the study. Longitudinal approaches are described as best to measure teacher self-efficacy over time to provide a better examination of how time and events shape teacher self-efficacy (Thomas & Mucherah, 2016). A second limitation refers to the use of self-reported data. After reviewing the literature, the researcher chose the instrument most utilized and validated for measuring teacher self-efficacy. The Teachers Sense of Efficacy Scale (TSES) is a self-reported instrument and a limitation in that the researcher could not verify if responses were caused by factors that the researcher did not include in the study.

Summary

In summary, this study examined if the independent variable of alternative teacher certification program type had an effect on the dependent variable of teacher's sense of efficacy in classroom management, student engagement, and instructional strategies. The theoretical foundation of this study was framed upon the self-efficacy theory of Bandura (1979) who posited that perceived ability was the confidence in producing specific outcomes and without confidence, individuals would not have the motivation for performing the task. The self-efficacy theory was later used to form the teacher self-efficacy model by Tschannen-Moran and Woolfolk-Hoy (2001). Teacher self-efficacy is the teacher's perceived confidence in carrying out instructional tasks (Pfitzner-Eden, 2016). The model has become a standard model to measure teachers confidence and has been adapted to different contexts, content, and languages. The findings of this study added to the current body of knowledge for teacher training due to the practice of sorting all alternative teacher certification programs under one type. Limited evidence

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exists on how specific types of alternative teacher certification program affect teacher self-efficacy. Findings may encourage more alternative teacher certification program managers to evaluate each domain of teacher self-efficacy and respond by analyzing how curriculum, experiential processes, and program methods develop and sustain teacher self-efficacy.

Chapter 2 begins with an introduction to the section followed by a theoretical exploration of self-efficacy and teacher self-efficacy as foundations of the study. A discussion on how alternative teacher certification has become an important part of the academic landscape is explored. The role of perceived teacher efficacy is examined with a focus on new teachers. Characteristics of high and low teacher self-efficacy is reviewed relative to preparation and teacher practices. Characteristics of classroom management, student engagement, and instructional practice is explored as three constructs of teacher self-efficacy. Chapter 2 also contains a discussion of previous research methods that examined teacher efficacy as well as a critique of available research.

Chapter 3 provides the rationale for using the Teachers Sense of Efficacy Scale to measure teachers perceived efficacy in classroom management, student engagement, and instructional practice. An explanation of the methodology, sampling procedures, and statistical tests were discussed as a rational approach to answer the three research questions. A section on respondents rights reviewed how privacy was protected as well ethical consideration in interacting with respondents.

Chapter 4 contains statistical data from the study such as percentages of participants who responded and mean scores of teachers from three types of alternative teacher certification programs for each domain of teacher self-efficacy. Also included are results of ANOVA testing

to determine statistically significant differences between scores for each program of teachers in each domain of teacher self-efficacy. A summary of all statistical tests is discussed.

In Chapter 5, I present conclusions predicated upon the findings of the study. I briefly explain the study and how data collection and findings were interpreted relative to teacher self-efficacy and literature on perceived efficacy of beginning teachers. Implications for how the results may affect future teacher preparation policy and future research is also considered.

Chapter 2: Literature Review

Introduction to Literature Review

The purpose of this study was to examine the effect of alternative teacher preparation type on Texas teachers' sense of efficacy in classroom management, student engagement, and instructional practice. To logically guide the reader, the literature review begins with a description of self-efficacy as a framework of the study that will explore psychological processes of new teachers and how initial perceptions of their skill affect perceived sense of efficacy. Next, to emphasize the present landscape of teacher education, the history of and characteristics of Alternative Teacher Certification Programs will explain conditions that led to the formation of alternative teacher certification programs and differences in program types followed by a discussion of arguments on teachers from alternative certification programs. A discussion on teacher efficacy will examine high and low characteristics of teacher self-efficacy. How teachers demonstrate knowledge and skill in classroom management, student engagement, and instructional practice will be described. A final section will explain methods and statistical procedures by previous researchers who measured and compared teacher self-efficacy and route to certification.

Conceptual Framework

The theoretical framework of this study is grounded in concepts of self-efficacy, which is a dimension of the social cognitive theory (Bandura, 1977). The history of self-efficacy spans more than three decades of disputes and researchers of education, psychology, business, medicine, organizational development, and management have measured the constructs of self-efficacy to examine worker quality (Pfitzner-Eden, 2016), the effect of workplace conditions and

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new initiatives (Zhukova, 2018), retention (Savas, Bozgeyik, & Eser, 2014), and employee motivation (Chestnut & Burley, 2015).

When researchers discuss the tenets of self-efficacy, many characterize the foundation of efficacy to Rotter (1966) and Bandura (1977). Rotter (1966) predicated that behavior and learning can be attributed to internal and external causes known as causal relationships. Rotter (1966) developed an earlier form of social learning theory to demonstrate how reinforcing events affect expectancy outcomes. A reinforcement acts to strengthen an expectancy that a particular behavior will produce particular results and that a particular behavior developed a sense of general expectancy efficacy (Rotter, 1966). Patterns of behavior were said to be strengthened by reinforcements such that if a behavior occurred that was likely to produce the same or similar results, the behavior became internalized to become an individual's idea of locus of control. Locus of control is the perception of control over events, such that individuals will behave a specific way to produce a specific outcome but will perceive events out of their control if outcomes are unpredictable. When perceptions of successful outcomes are lowered, individuals will not trust the reinforcement and will choose behaviors that will lead to more favorable outcomes.

Using his social cognitive theory as a platform, Bandura (1977) postulated that human behavior is dependent upon generalized expectancy outcomes and the perception of producing a specific outcome. Although an individual knows that certain actions may lead to certain and expected outcomes, confidence in executing a task is directly related to actually performing the task. Bandura (1977) defined confidence of executing a task as self-efficacy, such that perceived ability predicted how motivated an individual was to accomplish a domain specific task. Perceived ability, or self-efficacy, does not occur simultaneously, but rather as a series of events

developed by three types of influences (Bandura, 1977). Actions, thoughts about the actions, and environmental influences operate as sources of causation or belief, such that some sources of causation may be stronger than others (Bandura, 1986). The degree of self-efficacy a person has will motivate the person to try until a behavior produced a specific expected outcome (Bandura, 1977). Low self-efficacy is characterized by less motivation in the sense that the perceived challenge would take more effort than what an individual will give or is capable of.

Bandura (1977) described four sources that developed self-efficacy: mastery experience, vicarious experience, verbal persuasion, and physiological influences. Mastery of experiences is described as the first and strongest source (Moulding et al., 2014) and occur from the direct interaction of an experience. As the experience is repeated, a specific system of knowledge and skills are internalized with the expectancy to produce the same outcome (Giallousi et al., 2014). Mastery builds more confidence for the skill as an individual becomes more efficient in completing the task (Brown et al., 2015). Modeling and vicarious experiences occur through direct observation of experience (Moulding et al., 2014) and strengthen the perception that an individual can perform the same task with equal or better ability than what was observed. Social persuasion is the third experience that influences self-efficacy. Social networks, such as family, friends, and peers can help strengthen views that individuals are competent in their pursuits (Meristo & Eisenschmidt, 2014). Physiological influences refer to how emotional experiences are interpreted (Bandura, 1977). When individuals have a strong negative response to an action, individuals will most likely avoid the action and any steps associated with an action (Bandura, 1986). However, when individuals have a strong positive emotional response to an action that has been mastered, self-efficacy is strengthened for the same task and tasks similar in nature (Bandura, 1977).

A subset of self-efficacy, teacher self-efficacy is a measure of a teacher's perceived confidence to complete specific tasks related to teaching and the teaching environment (Hoy, 2000; Wang et al., 2015). Research of the Rand corporation is argued as the first study to effectively synthesize locus of control theory (Rotter, 1966) into one cohesive argument for teacher self-efficacy (Tschannen-Moran, Woolfolk-Hoy, & Hoy, 1998). Rand researchers measured teacher self-efficacy as a two-item factor, such as general teaching efficacy and personal efficacy and the sum of the two items equaled to an overall sense of teaching efficacy (Hoy & Woolfolk, 1993;Tschannen-Moran, Woolfolk-Hoy, & Hoy, 1998). General teaching efficacy referred to teachers' sense of control over the teaching environment of which persuade how teachers affect student learning while teaching efficacy was the teacher's confidence in their ability to teach and interact with difficult or unmotivated students (Hoy & Woolfolk, 1993). After concerns regarding the suitability of the instrument to measure teacher self-efficacy (Zee & Koomen, 2016), more researchers began developing domain specific measures for teacher self-efficacy. Gibson and Dembo (1984) measured teacher efficacy with two factors. Personal teaching efficacy was a construct to measure overall self-efficacy and teaching efficacy was developed to measure outcome expectancy of teachers. Other researchers adapted the scale by Gibson and Dembo (1984) to specific studies. Bandura (1997) developed a seven-factor instrument to measure teacher self-efficacy yet critics argued that factors were too strict and controlling (Tshannen-Moran, Hoy, & Hoy, 1998).

Tschannen-Moran and Woolfolk-Hoy (2001) developed a three-factor model to operationalize teacher self-efficacy and designed the Teacher Sense of Efficacy Scale (TSES) to measure three constructs of perceived teacher efficacy in leading classrooms. Classroom management, student engagement, and instructional practice were three common factors closely

related with teachers' sense of efficacy (McLennan, McIlveen, & Perera, 2017). TSES has been argued as superior to other teacher self-efficacy scales due to the broad nature of questioning that spans across different contexts, experiences, and content (Whittle, Benson, & Telford, 2017).

Teacher self-efficacy has evolved as critical for teacher resilience and has been emphasized as a strong predictor of teacher behavior and instructional practice (Christophersen, Elstad, Turmo, & Solhaug, 2015). As in self-efficacy, teacher self-efficacy is task specific and correlates with how strong past actions have shaped teachers convictions for specific outcomes (Ptfitzner-Eden, 2016). Despite having the potential of producing expected results, poor confidence may override expected results (Emre & Unsal, 2017).

Review of Research Literature

The search for relevant literature was created from salient points of the self-efficacy theory which is reportedly considered as foundations of teacher self-efficacy, teacher competency, teacher knowledge, and alternative teacher certification (Tschannen-Moran & Woolfolk-Hoy, 1998). Literature was found using databases at Concordia University–Portland in the fields of teacher education, psychology, and sociology. Topics used to search for literature included *classroom management, student engagement, instructional practice, self-efficacy, teacher self-efficacy, beginning teachers, teacher retention, teacher attrition, alternative teacher certification, and social cognitive theory*. Additionally, authors and publications found in reviewed articles were searched for relevancy. Refinement of this study occurred through an analysis of themes found within the literature.

Characteristics of alternative teacher certification programs. The National Commission on Excellence in Education (NCEE) (1983) evaluated the nation's academic achievement of students and published *A Nation at Risk*. NCEE questioned how traditional

teacher preparation programs trained teachers of which helped instigate a response to create alternate forms of teacher training. Under the federal Elementary and Secondary Education Act (ESSA) of 1965, and amended by Every Student Succeeds Act of 2015, the United States Department of Education authorized states to offer multiple pathways to teacher certification to help address attrition rate of teachers, to encourage individuals with content specialty into teaching, and to increase the amount of highly qualified teachers (Whitford, Zhang, & Katsiyannis, 2017). To date, 49 states and the District of Columbia have some form of alternative teacher certification program. Over 20% of all new teachers that entered the workforce in 2014 received preparation from alternative paths (Zhang & Zeller, 2016). Currently, Texas has more avenues for certification than all other states (Lincove et al., 2015).

Alternative teacher certification programs are nontraditional routes to teacher certification and are designed to allow individuals with a bachelor's degree or higher to gain teacher certification in significantly less time and with less preservice experience (Zhang & Zeller, 2016). The definition of alternative certification varies among each state and each program yet has similar goals to satisfy the highly qualified teacher status. The focus of alternative teacher certification programs may also differ such that some may offer training primarily on content and others may focus training on context such as urban teaching or classroom management (Brewer, 2014; Hammerness & Craig, 2016). Advocates of alternative teacher certification programs emphasize that quick immersion into the teaching field is a better strategy for acclimating teachers rather than trying to integrate theory to the pragmatic experiences of teachers (Redding & Smith, 2016). Concerns regarding the effectiveness of alternative teachers are discussed in teacher preparation literature and some researchers question

how programs structured experiences to build and promote a sense of teaching efficacy (Haim & Amdur, 2016; Troesch & Bauer, 2015; Zhang & Zeller, 2016).

The Education Commission of the States (2003) suggested five important criteria for successful alternative programs: strong partnership between preparation program and school of which the candidate is or will be employed in, quality curriculum, integrity of screening applicants, mentoring, and preservice experience before teaching. Quality pre-inductive experience is posited as necessary to alternatively certified teachers since many have backgrounds that significantly differ from education (DiCicco, Sabella, Jordan, Boney, & Jones, 2014) and have different perceptions of how learning and knowledge movement occurs. Despite having strong experience in their first field, alternative certified teacher's previous experience and skills may present challenges in the teaching field (Haim & Amdur, 2016). Although an abundance of alternative teacher certification programs existed, this study focused on three types of teacher certification programs in Texas that differed across a range of pre-experiences and teacher preparation methods.

Teacher certification programs. Graduate teacher programs were designed to certify individuals as teachers who have a baccalaureate degree in a non-education field and in some programs, teachers may have the option of completing a master's degree (West & Frey-Clark, 2019). Also known as Post-Baccalaureate Initial Certification (PBIC) programs, some graduate programs are said to differ little from traditional programs in terms of rigor, candidate selectivity, and courses. The most notable difference between traditional teacher programs and graduate teacher certification programs occur from length of teacher training and field-based experiences (Redding & Smith, 2016).

Differences were also found between graduate programs, such that some graduate programs had lengthier and more rigorous screening process while other programs did not (Bowling & Ball, 2018). Although all graduate programs require teachers to take the same certification examinations that teachers of traditional routes do, the timing of tests may vary. Some programs require teachers to take and successfully pass content and professional exams before receiving authorization to become teachers of record while other programs recommend teachers to begin teaching while they are working on their certification (Uriegas, Kupczynski, and Mundy, 2014).

Authorization verify that the teacher candidate passed required courses, had the content knowledge appropriate for the chosen certification and level and ready to apply to become a teacher of record through a probationary or emergency certificate. As a teacher of record throughout the year in the induction or residency period, candidates also complete the remainder of teacher program requirements during specific times throughout the year (Zhang & Zeller, 2016). After the candidate has satisfied program and state requirements, and have successfully taught for a specified duration, teachers are recommended by the program to apply for a standard certificate.

Education service centers (ESC) are regional boards of education that perform a wide range of services to local education agencies in a specific geographical region (Uriegas, Kupczynski, & Mundy, 2014) including certifying teachers. Education service centers have strong partnerships with local education agencies (LEAs) in their region and work in conjunction to identify and address the needs of each district. The primary difference between ESCs and university graduate programs relates to how teachers are certified. Whereas graduate programs commonly develop their own curriculum, regional service centers partner with a program from a

list of state approved teacher certification programs to provide training. Each regional service center widely varies in selection processes, duration, methods, and structure of teacher preparation. As with all teacher preparation programs in Texas, each education service center operates under the oversight of Texas Education Agency (TEA) and the State Board of Education Certification (SBEC). Teachers alternatively certified through education service centers or local education agencies must also complete testing requirements for content and participate in a significant number of preservice training hours before applying for probationary certification to become teachers of record. As with graduate programs, teachers are trained in education service centers and local education agencies through a combination of center based and campus-based education. Throughout the year-long residency or internship, candidates complete the remainder of program requirements online, in the evenings, or over weekends.

Certification programs with no affiliation to educational institutions can be either non-profit or for profit and have several features of graduate and regional service center program requirements. Candidates of certificate programs must also pass content exams before a recommendation is made to apply for a probationary certificate. The rigor of preservice classes may also differ between programs and may focus a little or completely on technical aspects of teaching (Urieagas et al., 2014). The duration also varies where some programs may last from one year to three years and ends with teachers successfully completing an internship or residency. Additionally, certificate programs may have strong ties with the surrounding community or may be standalone.

Of all types of nontraditional teacher certification paths, certificate programs may have the widest variation in structure, and some have had the most scrutiny in the literature (Gottfried & Straubhaar, 2015). Classifying common features of nontraditional teacher programs are

difficult; however, classifying common features of certificate programs may be more so, if not impossible due to the driving political, educational, or business perspectives that support each program. As with all routes to teacher preparation, certificate programs may provide training online, face to face, or a hybrid combination. Some certification programs develop their own curriculum and from a review of research, standards, competencies, and duration are among a few concepts of concern (Redding & Smith, 2016; Zhang & Zeller, 2016). Certification programs have comparable methods to certification as other routes of alternative teacher preparation programs such as requirements for state testing. The variability is endless, such that some programs allow teachers to enter classrooms without probationary status and some programs follow strict guidelines of testing requirements before allowing teachers into the classroom full time.

Positive perceptions of alternative teacher certification. With an influx of professionals with content experience, alternative certified teachers are often described as an answer to closing the achievement gap (Troesch & Bauer, 2017) and for filling hard to staff jobs (Zhang & Zeller, 2016). Alternative certified teachers are commonly more mature and have successful experience from previous fields (Haim & Amdur, 2016). Altruism is cited as a prevalent decision for becoming alternative certified teachers which is said to enhance the drive to overcome many challenges that first career teachers faced (Hunter-Johnson, 2015; Haim & Amdur, 2016). Whereas traditional teacher certification programs commonly attract young, monolingual White females, alternative programs are most described as attracting more multicultural, multilingual, and male individuals (Hammerness & Craig, 2016). Some researchers suggest that alternative certification programs are superior and opinioned that

teachers certified through nontraditional routes are more instructionally prepared than teachers certified through shorter field-based traditional training (Colson et al., 2017).

Positive perceptions occur on the effectiveness of teachers that exited certain alternative certification programs. Some researchers accredit program structure and mentoring to the quality of teachers (von Hippel et al., 2016) and student outcomes (Henry et al., 2014). Programs that combine a sound theoretical and content base to quality residency or induction experiences are considered successful in training teachers for the complexity of teaching (Marshall & Scott, 2015; Childre, 2014). Evidence from researchers showed that teachers from some alternative teacher preparation programs increased student achievement at or above levels by traditionally certified teachers. In a study by Henry et al. (2014), teachers from alternative programs such as Teach for America (TFA) significantly outperformed traditionally trained students in science, math, and secondary grade levels. In the same study, teachers from Visiting International Faculty (VIF), a program for international degreed students of education to gain certification in the United States, was found to be especially effective in elementary school subjects (Henry et al., 2016).

Sass (2015) found significant results when comparing Florida teachers from three different nontraditional pathways to a Florida traditional teacher program. Teachers from one alternative route with low entry requirements outperformed traditionally trained teachers by 6 to 8% in math. Using TFA as a comparison, Sass (2015) surmised that professionals from more selective colleges with stronger academic backgrounds and a set of highly developed content skills could potentially outperform teachers from traditional programs. Additionally, Sass (2015) suggested that low entry requirements are time and money cost effective which could help facilitate other highly skilled professionals into the teaching field.

Negative perceptions of alternative teacher certification. Conflicting arguments occur in the literature regarding the outcome of alternative certified teachers and insufficient exposure to preservice experience is a common concern among alternative certified teachers (Zhang & Zeller, 2016) and researchers of alternative teacher programs (Redding and Smith, 2016). Despite Teach For America's positive status in the alternative teacher certification arena, Brewer (2014) raised significant concerns on the impact of Teach For America's theoretical model on teachers sense of efficacy and career stability. Findings from Brewer's (2014) study revealed that between 2005 through 2010, over 2000 corps members had dropped from the program either before or just after the 2-year commitment. Heineke, Mazza, and Tichnor-Wagner (2014) also studied Teach For America and explained that program retention vary across the nation. Data revealed that after the 2-year commitment, Teach For America teachers attrition was significantly higher than rates of other alternatively certified teachers and similar to traditional teachers. Heineke et al. (2014 argued that some members left before the two-year period and cited issues with low confidence in instructional practice and sense of preparedness (Zhang & Zeller, 2016), burnout from harsh teacher accountability (Brewer, 2014), and working or student conditions within schools (Redding & Smith, 2016).

Henry et al. (2014) analyzed state data of teachers who received initial certification by alternative and traditional routes. The focus was to measure the student achievement of teachers with three or less years of experience. Alternative routes consisted of private and public alternative certification programs, graduate programs, and Teach For America. Using a rich set of student and teacher control variables, Henry et al. (2014) found significance in three of eight comparisons that teachers from alternative programs other than Teach For America underperformed traditionally trained teachers. Findings showed that corps members

outperformed traditionally compared teachers in six of eight comparisons. However, Henry et al. (2014) surmised that the increase could have resulted from a lengthier school year that students of corps members endure than students trained with traditional teachers. Comparisons between undergraduate and graduate degreed teachers returned with notable differences. Teachers without a graduate degree outperformed graduate degreed teachers in high school science. Private and public university graduates performed similarly in all eight grade levels. Henry et al. (2014) argued that reducing barriers to teaching such as with fast entry programs may significantly impact student achievement, especially in areas that alternative certified teachers were expected to have the greatest results, such as Science, Technology, Engineering, and Mathematics (STEM) classes.

Ingersoll, Merrill, and May (2014) questioned how levels of teacher education and preparation affected attrition. Using the Schools and Staffing Survey (SASS) along with the Teacher Follow Up Survey (TFS), Ingersoll et al. (2014) compared data from the 2003 to 2004 sample of beginning teachers ($n = 2,651$) and a second set from the 2004 to 2005 year ($n = 2,263$) beginning teachers who received certification through traditional and alternative routes. Teacher characteristics, school characteristics, and teacher education were three predictors of attrition. Ingersoll et al. (2014) found that practice teaching and pedagogical preparation significantly related to attrition. Teachers of both routes with less pedagogical preparation and practice teaching before becoming teachers of record had a higher rate of attrition than teachers with more practice teaching and pedagogical preparation. Ingersoll et al. (2014) surmised that math and science teachers commonly graduate from selective colleges and entered the teaching profession through alternative routes with strong content knowledge. However, data reflected that math and science teachers were among the highest to leave the field due to receiving less

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pedagogical preparation and practice teaching before becoming teachers of record. Ingersoll et al. (2014) and other researchers suggested that alternative certified teachers entering schools needed more preservice experience and stronger support especially in the first five years (Redding & Smith, 2016; Zhang & Zeller, 2016).

In addition to having less formal pedagogical training, alternative certified teachers background was construed as both positive and negative. Alternative certified teachers may enter teaching with different theoretical frameworks for learning developed from their first career or from their experiences as students (DiCicco et al., 2014). Assumptions in the social aspect of knowledge (Paulick, Broβschedl, Harms, & Möller, 2017) may challenge the teaching process in general and impact instructional practice holistically. Teaching knowledge is specific to teaching and incorporates developmentally appropriate methods to disseminate information to students. Although alternative certified teachers are characterized by the type of content knowledge that they possess, discussed throughout literature is the concern that alternative certified teachers may have insufficient knowledge to teach students in a developmentally appropriate way.

Various knowledge existed in the overall pedagogy of teacher practice yet integration of three specific domains of knowledge are considered as key to building an important foundation of teaching competency (König, Ligtvoet, Klemenz, & Rothland, 2017) and was a contention among critics of alternative teacher certification. Conceptually, conflicts remained among educational and political forces on the meaning of teaching knowledge (Sheridan, 2016) such that some researchers expressed that specific teaching knowledges occur with direct teaching rather than learned through teacher preparation. Other researchers argue that teaching knowledge is best learned through structured, preservice preparation (König et al., 2017). For the context of this study, knowledge related to teaching pedagogy is defined as a system of explicit beliefs

borne of past experiences that deeply influence a teaching approach (Waring & Evans, 2015). A review of literature specific to teaching competency resulted in three professional pedagogies of knowledges most associated together and with teaching tasks such as general pedagogical knowledge, content knowledge, and pedagogical content knowledge (Harr, Eichler, & Renkl, 2014).

As a social-cultural construct, general pedagogical knowledge embodies a system of idiosyncratic principles that influence how teachers understand the epistemology of teaching, learning, and a teacher's role in the learning process (Berger & LêVan, 2017; Nomlomo & Sosibo, 2016). Some researchers said that general pedagogical knowledge has an indirect, weak, or no correlation with a teacher's confidence in carrying out tasks (Depaepe & König, 2017). Other researchers report that general pedagogical knowledge has a strong effect on the type of instructional methods used and the confidence to carry out professional tasks (König et al., 2017). Additionally, confidence stemmed from cognitive mastery of content such that with more experienced teachers can quickly and competently make or adjust instructional decisions by drawing on a larger repertoire of skills (Blömeke et al., 2016).

Studying the link between teachers' general pedagogical knowledge, teacher self-efficacy, general self-efficacy, and burnout, Lauermann and König (2016) found a strong positive effect between general pedagogical knowledge and teacher self-efficacy which mediated negative effects of burnout. The findings indicate that teachers with a stronger sense of general pedagogical knowledge have a higher propensity of mastering teaching experiences and seek additional knowledge to strengthen competency. A very important consideration to in-service teachers in general but specifically to alternative certified teachers who gain most of their

experience during a year-long induction or residency, teacher knowledge may be a stronger predictor of self-efficacy when teachers have more practical pre-experiences.

Pedagogical content knowledge is one of many professional domains of knowledge that shapes teachers' professional self-concepts, perceptions of competency, (Paulick et al., 2016) and argued as having the greatest impact on student outcomes. Pedagogical content knowledge is an amalgam of content knowledge and knowledge of how to connect instructional strategies to teach the content (Merk, Rosman, Rueß, Syring, & Schneider, 2017). Paulick et al. (2016) argued that pedagogical content knowledge is the teacher's ability to reach learners of all learning styles and difficulties. The degree in how teachers can connect students' prior knowledge, background, and learning expectations is directly related to teachers' overall competence and perceived confidence of teaching.

Deng (2017) also argued pedagogical content knowledge as a learned skill of which teachers can transform subject specific knowledge into age and developmentally appropriate representations. Teachers with more experience in using pedagogical content knowledge can guide students from basic knowledge to more complex (Deng, 2017). As such pedagogical content knowledge is a special kind of teacher's content knowledge that include curricular knowledge. Curriculum knowledge was expressed as an integration of subjects such that teachers with a strong sense of pedagogical content knowledge are more effective in selecting which concepts to use from other subjects to help support learning.

Nomlomo and Sosibo (2016) studied how the rigor of postgraduate certification affected pedagogical and practical knowledge of teachers. Postgraduate programs in the study had similar structure and requirements of nontraditional routes to certification as in other countries. Candidates with an emphasis in a specific content were allowed to join a teacher college as a

postgraduate to gain initial teacher certification and similar to other countries questions were raised regarding the effectiveness and competency of teachers. Nomlomo and Sosibo (2016) raised significant concerns regarding the dichotomous character of practice in nontraditional routes. Knowledge of practice and knowledge in practice referred to how content knowledge and pedagogical content knowledge was learned. Emphasis was placed on preservice preparation under the assumption that students learned effective teaching principles best from observing and working under the guidance of master teachers, participating in supervised and structures activities that provided multiple opportunities to reflect on practice.

Evaluating graduate students perceptions with a qualitative method, Nomlomo and Sosibo (2016) examined features of an alternative teacher certification program in South Africa to determine how components of the program developed pedagogical and pedagogical content knowledge in terms of rigor as a conceptual framework. A consensus among teachers disclosed that the program met expectations of theoretical rigor however a significant number of teachers reported that the program lacked clinical rigor especially in the practical aspects of practice teaching. Teachers emphasized low efficacy due to insufficient real classroom experience that included teaching and evaluating the outcome of their experience. Less opportunity in the classroom left student teachers inexperienced with accumulating knowledge and skills required to connect with and teach students of different cultural or familial contexts, of which Nomloma and Sosibo (2016) describes as situational knowledge. Rigor was attributed to how well a programs curriculum focused on key aspects of teacher knowledge and skills. A coherent curriculum helps develop holistic knowledge so that teachers can better integrate how theory and skill lead to better teaching.

Program length and insufficient practical knowledge are also concerns of teachers. Quick immersion into teaching did not provide a stable foundation to connect their previous experiences as professionals to the teaching profession. Teachers also report insufficient time to interpret or retain knowledge specific to teaching. As such, they were unprepared in controlling the teaching environment and feared that insufficient training had left them anxious in overcoming the challenges of the classroom.

Although Nomlomo and Sosibo (2016) emphasized that findings could not generalize to other contexts or countries, a review of research suggested comparable findings from researchers who measured the effects of other nontraditional route programs in the United States (Ronfeldt, Schwartz, & Jacob, 2014). Background of teachers, features and characteristics of the teacher preparation program, and depth and complexity of theoretical and practical aspects of alternative certification programs in the United States have been extensively analyzed in connection to teachers confidence and competency (West & Frey-Clark, 2019). To address how alternative certified teachers developed knowledge of practice and knowledge in practice, induction and residency programs have become two of the most common methods systematically used in the United States.

Induction related to alternative teacher certification. Induction programs were designed to acclimate teachers to their new environment and to assist teachers in developing competencies for their specific context (DeBolt, 1992). Lo Casio et al., 2016) described seven components of an effective induction program commonly found within research literature:

- Induction programs should utilize an adult learner theory that is meaningful and structured to individual learners so that learners are actively involved in the process

(Watt, 2016). An emphasis is placed on providing the learner with structured

activities and time to participate in collaborative and dialectical feedback.

- Support a district culture that provides a community of practice and collaboration.

- Induction programs should have activities that support mental, social, and

  professional aspects of learners.

- Consistent and quality formal and informal communication.

- Modeling, coaching, and observations to provide the learner with real world

  experiences and to establish rapport.

- Use of incentives.

- Using experienced and trained mentors from preservice to throughout the induction

  period.

Although all preparation paths would benefit from induction and first year professional

development activities, Fitchett, McCarthy, Lambert, and Boyle (2017) implied that alternative

certified teachers would especially benefit from induction and professional development

activities. Alternative certified teachers with minimal or no field experience had more perceived

instructional and classroom management concerns than traditionally prepared teachers (Redding

& Smith, 2016; Zhang & Zeller, 2016) and researchers suggest that induction programs are

strategies to help close the gap between teacher knowledge and instructional pedagogy (Fitchett

et al., 2017). Campus mentors are the primary source of support in induction programs and are

characterized as older and more experienced than the inductee (DeBolt, 1992). Evidence of

researchers indicate that new teachers who receive mentoring were significantly more likely to

remain in the teaching profession as those who did not (Curry, Webb, & Latham, 2016). Data

from a study by Watt (2016) on career changers reveal that support between cohort members,

university supervisors, and campus personnel help minimize the challenging task of becoming a teacher, of feeling like an outcast, and fear of failure. Despite challenges, the quality of support that teachers receive is often a strong factor in continuing their teacher certification program and professional development. Gijbels et al. (2017) studied teachers in training and posited that observing and collaborating with successful teachers is the best type of induction and mentorship and essentially introduced a new teacher to the reality of teaching and exposure to multiple experiences. Haim and Amdur (2016) studied alternative teachers in an inductive program and found that teachers valued their induction experience despite having initial concerns with classroom management, student engagement, and instructional practice. Teachers view their campus and college mentors as vital to their experience and expressed gratitude to campus peers for helping to integrate them into the teaching profession.

However, research shows that not all mentors or programs provide the support needed to beginning alternative certified teachers and a lack of support has been attributed to attrition and low teacher efficacy (Watt, 2016). Alternative certified teachers may also not receive adequate support under the assumption that their age will help overcome obstacles and their experience will translate to the teaching field (Troesch & Bauer, 2017). Exploring the effect of an induction program on alternative teachers, LoCascio, Smeaton, and Waters (2016) found significant violations of New Jersey's requirements for candidate support. Participants expressed insufficient pre-experience as part of the induction phase and were not assigned a mentor within the first 20 days. Over half of participants had some form of contact with mentors, and only 11% responded frequent contact. Participants who were interviewed discussed a lack of structured activities that would have developed professional practice. Only one participant reported a chance to observe teaching whereas no participant had the opportunity to coteach. How teachers

begin the year indicates how effective the teacher is throughout the year and induction programs

can foster the development of teacher self-confidence and teacher efficacy (Littleton & Littleton,

2000).

Residency related to alternative teacher preparation. Residency programs are similar

to induction programs except for two major conditions. Whereas induction programs offer

support to practicing teachers, teachers practice alongside mentor teachers in residency programs

without being the teacher of record. Residents are also provided funding or stipends rather than

income from acting as teachers of record. Additionally, residents commonly agree to teach in

partnering schools of the resident program up to three years (Guha, Hyler, & Darling-Hammond,

2017). Residency programs are founded upon residency models which are similar to medical

residency models (Williamson & Hodder, 2015) and are viewed as a method to effectively

bridge theory and practice. Most programs can secure funding from the United States

Department of Education and context specific programs, such as urban residencies, and are

valued as successful in addressing the attrition rate and competency of teachers (Marshall &

Scott, 2015).

A component of some resident programs, rounds are described as clinically rich of which

residents participate in highly structured rounds to visit and observe several classrooms to

develop conceptual ideas on the teaching process, classroom management, and instructional

strategies (Reynolds et al., 2016; Giles & Kent, 2014). Advocates of residency programs argue

that residents are exposed to multiple teaching principles and different contextual experiences

without the usual anxiety associated with full responsibility of a class (Hammerness & Craig,

2016). As residents become more immersed in the program, opportunities are provided to

practice teaching in front of peers and program staff before residents are gradually released into

the classroom to practice with mentor teachers (Reagan, Chen, Reogman, & Zuckerman, 2015).

Researchers have spoken of positive results in using residency and residency rounds as a

method for training alternative certified teachers. In a study by Reagan et al. (2015) researchers

related that by the time of program completing, residents had developed a variety of skills

needed for beginning teachers. Residents expressed that the program encouraged learning among

peers and accumulating both specific and broad skills. Constant feedback and collaboration

among cohorts, supervisors, and mentor teachers helped in connecting theory to practice. A

strong emphasis occurred in learning in a nonthreatening environment since residents did not

have sole responsibility of a classroom their first year. Studying personal beliefs, self-efficacy,

and teaching preferences on two types of alternative teacher preparation programs, Mentzer,

Czerniak, and Duckett (2018) found no significant response in teacher self-efficacy among

candidates who incurred experience through an induction program and those prepared through a

residency program.

Despite residency programs are now common among alternative teacher programs, some

researchers argue that resident programs must be constantly evaluated as any other program and

are not definitive in preparing teachers (Williamson & Hodder, 2015). Residency programs that

do not incorporate rounds are said to create more problems in the sense that teachers are not

exposed to different contexts or instructional methods (Reagan et al., 2015). Williamson and

Hodder (2015) studied two versions of rounds and analyzed both programs using characteristics

such as multiple class sites, debriefing and briefing, how teachers and classrooms were selected

and guided observation opportunities. Common issues of teachers were a lack of observing

specific strategies related to instructional practice and supporting high needs students. However,

Williamson and Hodder (2015) surmised that new teachers without educational backgrounds often do not know what to look for and cannot synthesize how teacher practice relate to individual or whole groups of students. Structured guidance by dedicated and seasoned supervisors and mentors was said as a better method to help develop a clearer understanding of how teacher practice influence classroom procedures and student-teacher interactions.

Examining how school and student contexts developed teacher practice, Hammerness and Craig (2016) found contradictory results. Despite exposure to different student and school contexts, teachers expressed a lack of time and concrete experiences that would have truly prepared residents to plan lessons, teach in different types of poverty ridden schools, and develop successful student-teacher engagement with English language learners. Analysis of qualitative data found that teachers questioned their confidence and did not have a repertoire of performance mastery to overcome challenges.

Characteristics of Teacher Efficacy

Although various characteristics of teacher efficacy had been discussed in teacher literature, a substantial amount of teacher preparation research focused on development and effects of teacher efficacy (Pfitzner-Eden, 2016; Thomas & Mucherah, 2016). Higher teacher efficacy is associated with careful planning and assessing how instructional practice affects student outcomes (Wagner & Immanuel-Noy, 2014). Highly efficacious teachers are more eager to try different instructional methods and trust their ability to reach students across a wider range of contexts, abilities, and culture (Moulding, Stewart, & Dunmeyer, 2014). A higher sense of student accountability, expectations, and outcomes through culturally relevant teaching practices are associated with higher teacher self-efficacy (Wang, Hall, & Rahimi, 2015). Commonly faced issues such as less resources, less support, multi-cultural contexts, and negative student behavior

is cited as challenges to self-efficacy (Wang, Hall, & Rahimi, 2015; Meristo & Eisenschmidt, 2014). However, teachers with higher efficacy thrive despite commonly faced issues (Knoblauch & Chase, 2015).

Adaptability, versatility, and resilience are positive effects of high teacher self-efficacy (Thomas & Mucherah, 2016). Rather than accepting student or professional challenges as a loss, highly efficacious teachers view challenges as a tool to self-reflect and evaluate teaching principles (Nielson, 2016). Adaptability and versatility is said to be especially necessary for alternative certified teachers. Entering the teaching profession with skills, ideologies, and knowledge from other fields may challenge how teachers view the process of teaching and learning (Westrick & Morris, 2016). In some instances, alternative certified teachers may actively refuse the accumulation of teaching skills and may view that the set of skills and knowledge from their previous profession is superior. However, alternative certified teachers who affirm their professional identity as a teacher among peers adapt better psychologically (Watters & Diezmann, 2015). Teachers who affirm their professional identities as teachers have a higher sense of self-efficacy and prioritize which skills, behaviors, and knowledge are more conducive to the teaching profession.

Higher teacher efficacy is characterized as having successful methods to engage students (Hagenauer, Hasher, & Volet, 2015). During challenging events, teachers with a higher sense of efficacy are more motivated to seek out guidance from mentors, through professional development, collaboration with peers, and information from outside sources to supplement their knowledge (Troesh & Bauer, 2017; Wagner & Immanuel-Noy, 2014). Highly efficacious teachers are more open to ideas that contradicted their knowledge and more willing to become vulnerable to grow (Senler, 2016). Stronger resilience, job satisfaction, retention, and having a

better work-life balance are attributed as positive outcomes of higher teacher self-efficacy (Aloe, Amo, & Shanahan, 2014).

Teacher efficacy development transcends proficiency in practice teaching (Thomas & Mucherah, 2014), and efficacy principles are cited as difficult to change (Fitzner-Eden, 2016; Le Fevre, 2014). Development of teacher self-efficacy is linked to psychological and environmental causes. Common psychological causes relate to cultural and background characteristics of teachers (DeJong et al., 2014), how efficacious an individual was prior to teaching (Dicke et al., 2015), and specific methods that encourage teachers to critique pre-conceived thoughts about the nature of teaching and learning (Thomas & Mucherah, 2016). Some researchers argue that the psychological make-up of teachers is the strongest affective prediction of self-efficacy and studies are dedicated to how psychological aspects correlate with teacher self-efficacy (Wang, Hall, & Rahimi, 2015; Hoogendijk et al., 2018). Dicke et al. (2018) surmised from other longitudinal studies that prior emotional exhaustion from the student teaching experiences have a direct impact on emotional exhaustion throughout teachers first year, which may attribute to a lower sense of teacher efficacy. Regardless of preparation path, during the first year of teaching, teachers may experience increased lower-self efficacy and emotional exhaustion yet the kind of support that teachers receive may provide a buffer between some effects (LoCascio et al., 2016).

Environmental components related to the development of preservice teacher efficacy were more complex. Teachers may associate specific characteristics of their teacher self-efficacy to the quality and length of training, experiences during training, and support from mentors (Moulding et al., 2014; Wagner & Noy, 2014). Mastery experience is argued as a primary environmental factor in the development of teacher self-efficacy (Troesch & Bauer, 2017). Direct pre-experience without sole responsibility of the class encourages nonthreatening

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evidence of teaching ability (Pfitzner-Eden, 2016). Teacher training is a time for reflection and critiquing assumptions about teaching and learning processes. As such, when opportunities are provided for teachers to gain a sense of identity as a teacher and cultivate a set of skills crucial to a specific context, teachers have a stronger sense of professional cohesion (Watters & Diezmann, 2015).

Evidence of negative aspects of alternative certified teachers' self-efficacy occur in the literature. Lower self-efficacy and lower perceptions of competency among alternative certified teachers have been linked to certification route as an important factor (Colson et al., 2017; Giles & Kent, 2014). Alternative certified teachers are often employed in schools that are harder to staff, have higher minority students, have a higher percentage of poverty level students (Knoblauch & Chase, 2014). Additionally, alternative certified teachers have a higher probability of working in schools with less resources but are expected to perform at the same or increased levels that experienced teachers perform (Thomas & Mucherah, 2016). Researchers found that alternative certified teachers may not receive adequate induction support or have a solid foundation of teacher preparation (Zhang and Zeller, 2016). Despite success in a previous field, alternative certified teachers may have a harder time connecting previous content skills with teaching. Disconnections between former success and uncertainties in the teaching environment coupled with a lack of necessary preteaching experience may exaggerate deficits in instructional practice that may affect teacher efficacy.

Lower teacher efficacy has been cited as a predictor to burnout, high attrition, lower student outcomes, and higher intentions to quit (Dicke et al., 2014). Wang et al. (2015) studied the effect of burnout, job satisfaction, illness, and quitting intentions on perceived teacher self-efficacy and found that the psychological factor of teacher self-efficacy was a direct predictor.

Results from the study of Wang, Hall, and Rahimin (2015) also concluded that although teacher self-efficacy correlated with lower levels of burnout, job satisfaction, illness, and quitting intentions regarding instructional practice and student engagement, teachers still had a higher intention to quit when factoring for classroom management and managing student behaviors.

Zang and Zeller (2016) studied the relationship between teacher retention and teacher preparation using different types of alternative teacher certification programs and sorted teachers by regular, lateral, and emergency certifications. Triangulation of data revealed that lateral entry teachers had similar retention comparable to regular and emergency certified teachers in the first two years but had significant attrition during and after the third year. Lateral entry teachers were described as second career individuals who were given a brief introduction to teaching in the summer and then became teachers of records as they completed their teaching program requirements. When comparing literature across a range of researchers, Zhang and Zeller (2016) found that lateral entry teachers had a mixture of disadvantages, such as less pre-experience, working in difficult school and student contexts, and experiencing less support during their induction year. Attrition was inferred due to a low sense of preparedness and teacher efficacy when expectations of student outcomes and teacher practice were too high.

Characteristics of Classroom Management

Sense of efficacy in classroom management is defined as the teacher's confidence in their ability to establish classroom rules and routines and develop methods to ensure compliance to promote a successful learning environment (Tschannen-Moran & Woolfolk-Hoy, 2001). Classroom management is argued as one of the most critical skills that a teacher possesses to produce successful student outcomes (Flower et al., 2016). Effective classroom management is a pedagogical skill that affects interaction between teachers and students (Dicke et al., 2014).

Effective classroom management begins with a well thought out plan before the school year begins, such that the plan becomes a methodological tool to shape classroom organization techniques, how traffic moves in areas, classroom procedures, and establishing routines (Evertson, Emmer, Sandford, & Clements, 1983; Gardwood, Harris, & Tomick, 2017).

Teachers with higher teacher efficacy have better classroom management procedures to minimize distractions and promote learning (Gurcay, 2015; Wagner & Immanuel-Noy, 2014). Results have shown that highly efficacious teacher have less disciplinary referrals and attribute disruptions as deficiencies in establishing clear classroom rules rather than attributing misbehaviors as non-compliance or students' fault (DeJong et al., 2014). Expectations of classroom behavior remain high and highly efficacious teachers focus on the quality of student-teacher interactions and the student-teacher relationship is more interactive and proactive rather than rigid and controlling (Gurcay, 2015).

Motivation and consistency have been linked with higher teacher self-efficacy such that teachers will spend more time and seek resources to overcome challenges (Sarfo et al., 2015). When teachers are motivated to establish a classroom environment conducive to learning, the teacher will develop procedures and routines relevant to the type of classroom environment that he or she wants to establish. Attitudes of teachers play a significant role in motivation and how teachers manage their classrooms (Gurcay, 2015). Personal perceptions about classroom management and the learning environment affects how teachers view student-teacher interactions and the procedures associated with each interaction (Gurcay, 2015; Jordan et al., 2017). A mismatch between expectations of teachers and students may challenge teachers' sense of control, efficacy, and may ultimately become an indicator of attrition (Gurcay, 2015; Hagenauer, Hascher, & Volet, 2015; Kwok, 2017).

Due to an increasingly diverse demography of students a need has arisen for teachers to be equipped with the right methods and skills in developing culturally responsive classrooms that are both ethical and equitable (Chong, Loh, & Mak, 2014; Kwok, 2017). Researchers provide evidence that some teachers are unprepared to handle classroom behaviors and classroom mismanagement occur frequently (Dicke et al., 2014). For teachers, classroom self-efficacy is the perceived ability to successfully plan a system of procedures to effectively control classroom processes and behaviors (Karabiyik & Korumaz, 2014). The type of classroom management style and perceived competency that teachers utilize is related to school and student contexts (Kwok, 2014). School context indicates the economical and geographical location of the school, school norms, and the social and professional climate (Zhukova, 2018). Student context symbolizes the demographic makeup of students, such as economic status, cultural, the proportion of special needs, psychological development, and academic outcomes (Knoblauch & Chase, 2014; Jordan et al., 2017).

Some researchers of teacher preparation suggest that most preservice teachers are comfortable teaching in contexts similar to their backgrounds (Zhang & Zeller, 2016). Goldhaber, Krieg, and Theobald (2017) found that matching similar field placement schools with a candidate's future school context correlated with confidence to teach and manage students. Among several research questions, Ronfeldt (2015) studied how field placement school settings affected teacher performance and surmised that school context had less to do with teacher feelings of preparedness than with class context. The dynamics of the classroom and specific demographical and personal situations of students have more effect on teachers' perceptions of readiness.

Thomas and Mucherah (2016) hypothesized that teachers should face situations that make them uncomfortable and should be trained in diverse and multicultural contexts yet a prevalence occur in the literature of teachers who prefer training and employment for suburban contexts (Zhukova, 2018). Brown, Lee, and Collins (2016) examined factors that positively impacted preservice teachers and found that any school setting where teachers experienced the distinct differences in their students were necessary, however, teacher self-efficacy can lower when teachers are exposed to student behaviors that they are unprepared for. When preteaching experiences relate to the context of where preservice teachers intended to teach, teachers developed specific instructional and classroom management pedagogical skills necessary to thrive within that environment (Brown et al., 2016).

Negative results of poor classroom management are addressed in the literature. The most common concurrence of new teachers regardless of pathway was that classroom management was the one skill in which they were the least confident in or needed additional development (Uriegas et al., 2014; Evertson et al., 1983). Literature on classroom management and teacher education reflects that many teacher certification programs do not successfully prepare teachers to manage classrooms and some teachers purport that programs prepared them for ideal classrooms using universal strategies (Flower et al., 2017). Inefficient use of specific strategies to control problem behaviors or use behavioral interventions is also a common complaint found in teacher literature (Curry et al., 2016).

Teachers with low teacher efficacy have ineffective classroom management systems and often use short term techniques (Flower et al., 2017). Teachers worry more of controlling classroom behaviors and spend instructional time addressing negative student behaviors (Zhukova, 2018). Some researchers argue that teachers trained in urban residencies and or field-

based urban schools commonly develop a more stringent attitude regarding classroom management (Kwok, 2014). With insufficient knowledge and experience in developing student-teacher relationships, some teachers are more prone to implementing reactive classroom management rather than proactive (Gurcay, 2015). Poor teacher efficacy in classroom management has been linked to emotional exhaustion, dissatisfaction with teaching, and higher retention rates (Curry et al., 2016) as well as low student outcomes.

Characteristics of Student Engagement

Student engagement is as an important aspect of learning and refer to how well students are involved in the learning process (Cadima, Doumen, Vershueren, & Buse, 2015). Teachers with high efficacy in student engagement are experienced in delivering developmentally appropriate activities that stimulate interest of students and apply methods of classroom procedures that support a learning environment (Zee & Koomen, 2016). Student engagement is strongly linked to classroom management (Poulou et al., 2019) and teachers' instructional practice to support students outcomes (Küngstin et al., 2016). High student engagement has been attributed to lower drop-out rates among students (Strati, Schmidt, & Maier, 2016), and a teacher's self-efficacy in student engagement was a mediational factor that helped teachers cope with problems in the student learning environment.

Two common concepts associated with student engagement found in literature are challenges for and support of students (Cooper et al., 2015). Teachers with high self-efficacy structure opportunities to challenge students (Strati et al., 2016). Teachers assess students at their current level and then provide opportunities for growth through structured activities that challenge prior knowledge while connecting new knowledge (Tomlinson, 1999). Highly efficacious teachers persist in motivating students and understand the complexity of challenge

(Brooks & Brooks, 1993). Culture and socioeconomic status are factors that highly efficacious teachers closely monitor when evaluating how to plan for student engagement using structured challenging activities, but not enough that students become disinterested or inactive in learning (Blömeke et al., 2014; Tomlinson, 1999).

Teachers with higher self-efficacy are more persistent in utilization different types of support systems, such as emotional and instructional (Cadima et al., 2015). Emotional support is the degree of which teachers encourage students to try again as the teacher simultaneously supports the student with different types of instructional methods (DeJong et al., 2014). In this sense, the teacher actively demonstrates the value of the student and authenticates confidence that the student will overcome challenges (Alkharusi et al., 2016). Some researchers posit that student engagement is cyclical, of which teachers and students constantly motivate one another to higher forms of relationships (Gourneau, 2014). As trust between teacher and student develops, student academic self-efficacy and teacher self-efficacy in student engagement is also enhanced (DeJong et al., 2014).

Characteristics of Instructional Strategies

Domain and task specific teacher efficacy are discussed as important factors in influencing instructional practices and is defined as the teacher's confidence to plan and successfully implement different types of instruction to maximize academic potential of all students (Tschannen-Moran, & Woolfolk-Hoy, 2001). Instructional strategies is a construct of teacher self-efficacy and strongly relate to how well teachers manage the classroom (Poulou et al., 2019) to engage students (Gourneau, 2014). From a review of literature, high teacher efficacy in instructional strategies are identified by the use of appropriate instructional planning including

instructional delivery and learning assessments, creating a positive classroom climate, and building relevant student relationships (Künsting et al., 2016).

Teachers with high teacher efficacy appropriately plan lessons that challenge students without adversely affecting student's self-efficacy (Cooper, Hirn, & Scott, 2015). During planning teachers focus on examining how to adapt curriculum components to individual students to maximize learning potential (Poulou et al., 2019). Teachers are successful in differentiation and appropriately assess student learning quickly and ethically (Perren et al., 2016). Highly efficacious teachers collaboratively plan with other professionals to ensure that procedures alignment with students social, emotional, and academic aspects (Goddard & Kim, 2018). Introduction to the lesson, demonstration, and checking for learning are ways that teachers assess instructional delivery (Alkharusi, Aldhafri, & Alnabhani, 2014).

Effective planning is the degree of teacher's expertise in content knowledge, pedagogical content knowledge, and background of the teacher (Cobanoglu & Capa-Aydin, 2015). Content knowledge is industry specific knowledge and characterized by the complex knowledge that teachers have in a specific content (Paulick et al., 2016). Experienced teachers with content knowledge appropriately asses learning and create different activities to scaffold each concept (Alkharusi, Aldhafri, & Alnabhani, 2014; Clark, Clark, & Brey, 2014). Pedagogical content knowledge integrates what content to teach and how to teach the content (Harr, Eichler, & Renkl, 2014). Alternative certified teachers typically had strong content knowledge yet some lacked experience in how to appropriately teach the content to diverse students (Zhang & Zeller, 2016). Pedagogical content knowledge is the practice of differentiating and adapting instruction and assessment practices to students' individual learning styles and ability (Deng, 2017; Alkharusi et al., 2014). Throughout teacher literature is a common practice for teachers to teach as they were

taught or copying how their cooperating teacher taught, and unfortunately at times, ethical or not (Garza, Werner, & Wendler 2016). Highly efficacious teachers plan for cultural and age differences between themselves and their students. Consequently, highly efficacious teachers are more resourceful to adapt appropriate techniques to integrate different types of technological methods, even adaptive technology, to deliver content to capture students' interest (Poulou, Reddy, & Dudek, 2019).

Instructional strategies of highly efficacious teachers is characterized by a highly engaging classroom where students clearly understand the expectations of learning and behavior (Poulou et al., 2014). Teachers are comfortable in multi-cultural climates and demonstrate considerable care when planning for instruction and interaction among students (Cooper, Hirn, & Scott, 2015). Safety and order are important components of successful classrooms, such that students are aware of and understood the culture of respect and collaboration even though students may have had more autonomy in academic endeavors (Gourneau, 2014. At the core of a highly efficacious teachers' classroom climate is the community of practice developed from a set of collective norms (Polou et al., 2014). Teachers are unafraid to take risks and establish that certain academic risk taking is expected of students (Cooper et al., 2015). Students' senses of inquiry are developed through the use of rich experiences and teachers can quickly assess learning from a combination of practices that integrate the emotional, social, and developmental aspects of each student (Blömeke et al., 2014).

Active demonstration that students are valuable members of the classroom community who are expected to positively contribute to the class are associated with the instructional practice of highly efficacious teachers (Künsting et al., 2016). Procedures that maximized student-teacher interactions and interactions between students are planned in advance and

constantly evaluated. Bonding is considered a key element for teacher and student success and motivate teachers and students to understand differences in cultural attitudes and mores that drive behavior (DeJong et al., 2014). Teachers that are experienced in multicultural understand social and emotional aspects of their students. Rather than perceived behavior appearing defiant, teachers with higher efficacy in student engagement are skilled in identifying if behaviors stem from underlying issues related to psychological, cultural, and social factors (Gournea, 2014). Despite the challenge, teachers with higher self-efficacy are more resilient in planning to effectively incorporate students with challenging contexts into the classroom community (Künsting et al., 2016).

Negative perceptions of teachers with low self-efficacy and skill in instructional strategies are discussed in the literature and are characterized by low expectancy in student outcomes (Helms-Lorenz, van de Grift, & Maulana, 2015), poor classroom management (Hagenauer, Hascher, & Volet, 2015), heightened sense of stress (Zhang & Zeller, 2016), and having a higher likelihood of quitting (Pfitzner-Eden, 2016; Ronfeldt et al., 2014). Instructional strategy is significantly associated with teacher training and how teachers view their training (Depaepe & König 2017). From a review of literature, Pfitzner-Eden (2016) claimed that over half of preservice teachers in a study by Swan (2011) quit after their student teaching experience and cited lower self-efficacy in student engagement. Taneri and Ok (2014) reported significant results of alternative certified teachers who had substantial problems related to instructional practice during their first two years and had to learn on the job of what methods and procedures worked best. Problems with instructional practice included not knowing how to effectively plan for lessons, implement lessons, or assess student learning.

Knowledge of and successfully teaching the subject, assessing learning, and reflecting on teaching are related to skills developed through a combination of field-based experiences, method classes, and feedback (Depaepe & König 2017). Having a strong sense of how to teach and how to structure the learning environment is argued as mediators against the stress of teaching in high needs schools and teaching students who have wide differences in culture, socioeconomics, and instructional needs (Ronfeldt et al., 2014).Thomas and Mucherah (2016) discussed gaps in teacher's overall teaching competency and explained that the certainty of changing student outcomes raised teacher self-efficacy. When teachers experience challenges in preservice preparation that expose teachers to different schools, teaching methods, and student contexts (Powell, 2014), teachers develop a student-centered approach and activate more complex skills to address social, emotional, and learnings needs of all students. Studying alternative preparation effect on teacher self-efficacy, Sisman (2014) cited that preservice teachers need more complexity and time to develop instructional practice and implied that teachers who have insufficient opportunity to actively reflect from feedback cannot adequately integrate teacher training to actual teacher practice.

Review of Methodological Issues

In this section a collection of methods and instruments related to teacher self-efficacy and alternative teacher certification research is reviewed. Teacher self-efficacy is defined as a teachers' perceived confidence in carrying out specific tasks associated with teaching and the teaching environment (Ptfizer & Eden, 2016). Tschannen-Moran and Woolfolk-Hoy (2001) posited that teaching efficacy was task and domain specific and that the three constructs of student engagement, classroom management, and instructional practice are the most related constructs when referring to tasks in the teaching environment. A review of literature on teacher

efficacy support that teacher efficacy is more complex than personal confidence and dependent

on mastering experiences during preservice when teachers worked directly with students

(Thomas & Mucherah, 2016). Mastering experiences incorporate knowledge specific to teacher

tasks as well as the cognitive functioning for carrying out the task (Bandura, 1977).

Tschannen-Moran and Woolfolk-Hoy (2001) created a three-factor model to measure

teacher self-efficacy which stemmed from a need for a more definitive factor structure to

measure teacher-self-efficacy in relation to teacher and student outcomes (Zee & Koomen 2016).

The teacher efficacy model has been argued as broad enough to measure efficacy across different

contexts, subjects, and fields (Callaway, 2017), and is predicated upon the perceived confidence

that teachers have for expected outcomes rather than actual ability (Tschannen-Moran,

Woolfolk-Hoy, & Hoy, 1998) of specific tasks associated with teaching (Colson et al., 2017).

Wang, Hall, and Rahimi (2015) argued that the teacher self-efficacy model exemplify salient

points of social learning and socio-cognitive theory in the sense that teacher self-efficacy

development is cyclical in nature such that greater pre-experience lead to more confidence and

more confidence results in teachers who are more motivated despite perceived challenges.

Available research on alternative certification and teacher self-efficacy was limited;

however, the method of choice by most researchers of teacher self-efficacy clearly utilized

quantitative approaches with survey methods. Some studies created instruments or used multiple

instruments to compare self-efficacy across a range of variables, such as demographical

information (Taneri & Ok, 2014), type of teacher pathway (Sisman, 2014; Christophersen et al.,

2016), and specific teaching content (West & Frey-Clark, 2019). The most common analysis

method for researchers who created specific instruments was factor analysis to evaluate if items

for a self-efficacy variable were correctly assessed (Taneri & Ok, 2014; Christophersen et al.,

2016). ANOVA and MANOVA were statistical tests most often applied to determine mean scores and relationships of factors across multiple groups (Sisman, 2014).

Some researchers focused on measuring how preparation affected teacher self-efficacy and specifically questioned the length and quality of preservice experience. Taneri and Ok (2014) compared problems faced by 285 novice traditional and alternative certified teachers utilizing a quantitative approach and developed one researcher made questionnaire that consisted of two parts to capture data. The first section of the questionnaire captured demographical information while the second part consisted of teacher self-efficacy components. Creation of the teacher self-efficacy component occurred from a review of teacher self-efficacy literature that Taneri and Ok (2014) synthesized into 51 items. A team of educational experts authenticated the items and examined each item for relevance and suitability which resulted in minimizing the items to 24. Teachers ($n = 54$) unassociated with the study was administered the test to evaluate reliability and the estimated Cronbach alpha was calculated with a high internal consistency of 0.84. Independent samples t-tests were conducted to measure the differences in teacher problems according to certification type, gender, graduation year, and content taught. A One-Way Analysis of Variance (ANOVA) measured demographical differences according to teachers work region, age, and program that teachers graduated from. Taneri and Ok (2014) found that alternative certified teachers experience more problems and exhibit lower teacher efficacy due to insufficient pedagogical knowledge. Significance was found when comparing subject matter knowledge of which the researchers suggested that regular trained teachers had more time to accumulate specific knowledge and practice relating to the curriculum that they would teach.

Sisman (2014) used a mixed method to convenience sample 153 candidates to gather data about alternative certified teachers' sense of efficacy and to measure how participants felt about

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their teacher preparation program. Some participants had backgrounds in various industries including business and others had backgrounds in content knowledge from educational fields. Data were accumulated from one instrument and a researcher made questionnaire specific to the study to capture subjective experiences of teacher's preparation program. Demographic information captured age, gender, city of program, and educational level of parents. Quantitative data were descriptively analyzed by SPSS and qualitative data were measured against quantitative data for consistency.

Findings revealed that alternative certified teachers had lower teacher efficacy in instructional practice and student engagement. After further evaluation of the researcher made questionnaire, Sisman (2014) found that teachers questioned the duration of the program as well as the quality of mentor and program supervisors. Alternative certified teachers were also critical of the lack of experiences to form and apply pedagogical content knowledge in the classroom. Some teachers expressed a concern that the program was more focused on educational theory rather than training teachers in methods to improve instructional practice for the classroom.

Troesch and Bauer (2017) discussed that stronger general self-efficacy was related to a higher probability of career changing. A longer teaching career was argued as a result of stronger general self-efficacy and mastery of task and domain specific indicators from more teaching experience. However, minimal empirical studies were found that examined the link between job stress, job satisfaction, general self-efficacy, and teacher self-efficacy in career changers. Troesch and Bauer (2019) provided evidence that second career teachers exhibited more frustration due to challenges associated with unexpected demands of the teaching profession, unexpected support, and a misalignment of previous skills to the teaching environment. A need to examine how general self-efficacy and teacher self-efficacy influenced job satisfaction and job

stress spurred Troesch and Bauer (2019) to use a quantitative method to examine 400 second career teachers 7–10 years after graduation. A 15-item, five-point Likert scale by Enzmann and Kleiber (1989) measured job stress, and the 12-item, six-point Likert scale General Job Satisfaction by Merz (1979) measured how teachers perceived the profession in general. A general self-efficacy scale and the teacher self-efficacy scale by Schwarzer and Jerusalem (1999) accumulated data on two types of efficacy. Data were analyzed descriptively, and independent t-tests compared differences between first and second career teachers' job satisfaction and stress. To define how self-efficacy beliefs related to job satisfaction and job stress between first and second career teachers, Troesh and Bauer (2017) used two stepwise hierarchical regression models.

Findings showed that second career teachers had higher general self-efficacy than first year teachers. No significance was found between groups on teacher self-efficacy. An evaluation of data suggested no significance in first and second career teachers' stress and job satisfaction. Significant findings showed that second career teachers were more satisfied with their job after several years in the teaching industry than first year teachers. Troesh and Bauer (2017) surmised that general self-efficacy of second career teachers was a significant factor and that when coupled with past skills, age, and longer teaching experience, manifested as higher career satisfaction.

Limitations and cautions were discussed regarding the findings. Causality could not be inferred from the research based on cross-sectional data. However, Troesch and Bauer (2017) evaluated their conclusions against past research and found that conclusions supported past research. A concern of reverse causality was also discussed and Troesch and Bauer (2017)

argued that findings could not verify that teacher self-efficacy was not a result of high job satisfaction and low job stress rather than the direction that was tested.

A second and third limitation refers to sampling. Former cohorts of teacher candidates were contacted 7–10 years after graduation. Although a sufficient sample was available, selection bias may have occurred from non-responders. Teachers who had left the profession were among non-responders and researchers had no way of knowing if teachers had left from dissatisfaction, stress, low teacher efficacy, or other factors. Findings may have shown different results if non-responders had participated especially if non-responders reported higher job dissatisfaction, higher job stress, and lower self-efficacy. Despite a 50% non-response rate, a higher response rate may not have affected the differences between first and career teachers. A final limitation refers to how data were analyzed. During regression analysis age and years of teaching were controlled for. Although assumptions were met, effects could not be fully captured to differentiate between age and years of teaching experience or from general work and life experience (Troesch & Bauer, 2017).

Christophersen, Elstad, Turmo, and Solhaug (2016) used a quantitative method to measure self-efficacy of teachers of different teacher preparation relative to perceptions of negative student behavior, pedagogy and practice, subject and practice, and supervisor support. Christophersen et al. (2016) referred to each component as an explanatory variable of which may affect how teachers view their overall preparation as well as variables that may affect future professional decisions. Sampling occurred through a snowball strategy and a questionnaire was electronically distributed to student teachers ($n =491$). Due to the nature of sampling and the difficulty of ensuring that a representative of the population occurred, Christophersen et al. (2016) validated the sample by comparing gender and age of the total population of student

teachers as well as comparing time on task using the Norwegian Agency for Quality Assurance in Education and within the two institutions of which teachers were sampled.

Christophersen et al. (2016) developed a researcher made instrument compiled of seven previous instruments found within literature which was adapted and translated into Norwegian, as well as variables of pedagogy and practice (PP), subject and practice (SP), and supervisor support (SS). The instrument was a 7-point Likert-type scale of which the number four indicated a neutral point. Items for the instrument were analyzed according to confirmatory factor analysis (CFA) and theoretical concept validity. Additional testing occurred from factor loadings and model fit from empirical results. When building the teacher efficacy items, Christophersen et al. (2016) argued that skill in maintaining discipline and motivating students were the most difficult and important skills of teachers. As such, the subscale of dependent variables for the instrument became classroom management (CM) and engagement (EG) items.

Cronbach's alpha for the 14-item teacher self-efficacy portion was calculated as .73 for three items of classroom management; .82 for three items of engagement; .87 for four items of pupil behavior (PB); .83 for two items of pedagogy and practice; .87 for two items of subject and practice; and .90 for four items of supervisor and support. Structural equation modeling (SEM) and SPSS Amos 22 was chosen for analysis of variables and Christophersen et al. (2016) argued that SEM pairs well with confirmatory factor analysis and path analysis. Results of the analyses showed inconsistency with teacher knowledge integration. In teacher preparation programs, different contexts of knowledge may be irrelevant and/or challenge other knowledges which may create confusion for the teacher in deciding which knowledge is more useful in the classroom.

A second result revealed greater teacher efficacy in classroom management and student engagement of teachers graduating from university colleges than university post-baccalaureate

programs. Longer program length and the timing of induction heavily impacted teachers' sense

of confidence. Preservice teachers with more experience were exposed to greater challenges and

developed a better system of knowledge integration to engage students and manage a classroom.

Christophersen et al. (2016) discussed methodological and conceptual limitations of the

study and surmised that other factors may have existed that influenced teacher perceptions of

teacher efficacy. Cross-sectional studies may not fully capture teacher perceptions in one

moment in time and may not fully examine causal factors that may have a stronger relationship

with perceived teacher efficacy. Additionally, other factors that may have had more of a

relationship with teacher-efficacy were omitted or not tested. Longitudinal, experimental, or

quasi-experimental research was regarded as a better option to determine causality. However,

data from the study was emphasized as empirical evidence that lateral entry or fast track

programs may not provide similar types of challenges that help preservice teachers accumulate

knowledge integration, classroom management, or student engagement skills.

Synthesis of Research Findings

Although different types of instruments were utilized in the reviewed studies, variations

of a TSES authored by Tschannen-Moran and Woolfolk-Hoy (2001) was the most utilized

instrument to measure teacher efficacy. The short form is a three factor 12-item instrument and is

commonly used with in-service teachers (Tschannen-Moran and Woolfolk-Hoy, 2001). The long

form is a three factor 24-item instrument with eight questions in each of three subscales and has

been argued as the best instrument for preservice teachers due to a broad factor structure that is

not too specific (Thomas & Mucherah, 2016). Of the 15 quantitative studies relating to

alternative teacher certification and teacher self-efficacy examined for this study, seven

accumulated data by the 24-question long form of TSES, three measured teacher self-efficacy

with the short form, and five adapted a version of TSES by Tschannen-Moran and Woolfolk-Hoy (2001) specific to a country.

Thomas and Mucherah (2016) applied an experimental method to examine 32 preservice teacher's self-efficacy within a community-based field experience (CBIL) and 64 preservice teachers in a traditional campus-based field experience. Teacher self-efficacy was measured with the short form of Teacher Sense of Efficacy Scale (TSES) by Tschannen-Moran and Woolfolk-Hoy, 2001) and was measured three times over the course of the field-placement as a test-retest to measure reliability of TSES. Cronbach's alpha was rated as a .92 for instructional practice and a .94 for classroom management after administering the test twice within a 6-week interval. Arguing the need to perform a reliability test to examine if results were stable and that the instrument was valid for their study, Thomas and Mucherah (2016) found that the internal consistency of TSES were similar to results validated by Tschannen-Moran and Woolfolk-Hoy (2001). A repeated measures ANOVA and sphericity was tested through Mauchly's test to analyze differences of means between groups. Findings revealed that teachers of the immersive group had significant improvement in all domains of the TSES versus teachers who received traditional length field-based experience. Additionally, different types of field-based experiences introduced teacher candidates to the culture of their students and helped teachers develop pedagogical skills and knowledge specific to that culture.

Chestnut and Burley (2015) performed a meta-analysis of English-speaking countries such as North America, Europe, Asia, and Australia to compare and examine teacher self-efficacy and commitment to teaching and argued that metanalyses are used to find group similarities that would indicate a goodness of fit. The focus of research by Chestnut and Burley (2015) was to critique common measures of teacher self-efficacy in research. Sources to find

studies included online journals, dissertation databases, and studies linked to relevant articles. Keywords to guide the search were a combination of teacher self-efficacy, related outcomes of teacher self-efficacy, and instruments used to measure teacher self-efficacy. Only quantitative studies were searched and articles that that did not have a clear alignment between research question and the exact factors that the researchers looked for were removed. Thirty-three qualified studies were coded with a 93% interrater agreement between the authors on a 5-point scale. All studies were analyzed with descriptive and substantive statistics. Significant findings correlated that teachers' self-efficacy beliefs are positively related to their commitment to the teaching profession.

Of the 33 studies reviewed, 12 studies measured teacher self-efficacy with the original version or a translated version of TSES by Tschannen-Moran and Woolfolk-Hoy (2001) while six measured teacher self-efficacy with an earlier version of the long form of Teacher Efficacy Scale (TES) by Gibson and Dembo (1984) and the short form of TES by Hoy and Woolfolk (1993). Chestnut and Burley (2015) suggest that self-efficacy measures with accurate concepts correlate significantly with commitment to teaching than conceptually inaccurate measures. Therefore, researchers should strongly ensure that self-efficacy instruments relate to constructs as defined and authenticated by the self-efficacy theory of Bandura (1977) rather than related constructs (Dicke et al., 2014). Additionally, self-efficacy constructs should be broad enough to measure variations while specific enough to generalize results. Teacher self-efficacy instruments should have an equal weight of both personal teaching efficacy and context specific teaching efficacy (Tschannen-Moran, Woolfolk-Hoy, & Hoy, 1998). Noncompliance of specific self-efficacy constructs or instruments may result in conceptually incorrect findings.

Mentzer, Czerniak, and Duckett (2018) questioned the long-term effects of route to teacher preparation on teachers self-efficacy. Mean scores of STEM teachers from a fast track 6-month teacher program and a one-year residency teacher program were compared after data were collected and triangulated from eight instruments. The long form of TSES developed by Tschannen-Moran and Woolfolk-Hoy (2001) and the Science Teacher Efficacy Beliefs Instrument was used to evaluate teacher self-efficacy relating to student engagement, classroom management, and instructional practice of alternative teachers prepared in different types of alternative teacher certification programs as well as context specific teaching efficacy.

Four different scales were used to examine teachers overall approach to teaching. The Science Teacher Ideological Preference Scale (STIPS) measured teachers' instructional style preference. The Teacher Belief Inventory (TBI) measured the type of orientation teachers most employed and signified whether teachers designed experiences from a theoretical or practical view. The Teacher Epistemological Belief Interview (TEB Interview) was a mixed instrument that captured both qualitative and quantitative items that examined teachers' subjective responses and measured whether teachers exhibited a teacher centered or student-centered pedagogy. The Pedagogy of Science Teacher Test (POSTT) was a 4-item instrument designed to further analyze a teacher's overall teaching style in orientation to teacher or student centered. Two instruments specifically measured teachers' ability to teach in different contexts. The Haberman Star Teacher Screener measured the probability of teaching in high-needs and the Promoting Classroom Management Survey was a four-point Likert-type scale to measure teachers' perception of student behavior and how teachers responded to disruptive behavior.

Mentzer et al. (2018) removed five of the nine options on the TSES scale and analyzed responses with four independent *t* tests. No statistically significant results were found between

the two groups examine. However, the researchers cautioned that there was a high degree of measurement error and that findings could not explicitly evaluate if route to preparation did not affect self-efficacy in instructional practice, classroom management, and student engagement.

Güngä and Özdemir (2017) randomly selected second career teacher candidates (N = 560) from two universities to analyze which variables affected teacher candidates perceived self-efficacy. Although teachers attended two different universities, the universities offered the same classes in terms of content and focus. Güngä and Özdemir (2017) measured teacher self-efficacy with a Turkish adaptation of Tschannen-Moran and Woolfolk-Hoy (2001) TSES long form. 628 teacher candidates were administered the survey to verify reliability and validity. After factor analysis to evaluate construct validity, factor loadings for items ranged from 0.49–0.74. Cronbach alpha was reputed to be .82 for student engagement, .86 for instructional practice, .84 for classroom management, and .94 for the overall scale which the researchers argued that their evaluation was similar to results found in the literature. Demographical information such as age, gender, educational level, where candidates lived longest, teacher program, and highest educational level of parents was captured from a researcher made questionnaire.

Analysis included an ANOVA that measured and compared teacher efficacy across a range of demographical variables and compared subscales and total scores of both sets of teacher candidates. Güngä and Özdemir (2017) argued that the TSES most aligned with the design of their research and that a focus of their research was to compare teacher self-efficacy using two distinct groups of teachers rather than teachers from one institution. The ease and suitability of the instrument was necessary to the research as well as that the TSES has been argued as reliable from other researchers. Additionally, the TSES worked well with the researcher made questionnaire and was a good instrument to confirm and triangulate data.

Significant differences were found in student engagement, instructional practice, and classroom management subscales between total scores regarding preparation facility, content of program, and region where participants lived. The researchers argued that the relationship between preparation facility and teacher efficacy may lie in the norms, professional culture, and interactions within the institution. Additionally, self-efficacy was a cyclical process and teachers with higher self-efficacy may have chosen programs that had more rigorous standards and structured experiences that addressed teachers expected outcomes. The relationship between teacher self-efficacy and region where participants lived was indicative of the availability of resources. Güngä and Özdemir (2017) argued that teachers with more experience in urban settings were likely more developed and understood socio-economic mores of urban regions.

Critique of Previous Research

Previous research on teacher preparation pathway and the rigor of pre-experiences have shown connections with teacher self-efficacy (Sisman, 2014; Troesch & Bauer, 2017). A general consensus became evident that when alternative teacher education programs balanced substantial practice to theoretical methods, teachers were better prepared to respond to the challenges of 21st century students (Gelfer, Krasch, & O'Hara, 2015). Some authors provided evidence that alternative teacher self-efficacy is comparable among teachers of different types of alternative programs (Mentzer et al., 2018). Teachers who experienced more successful outcomes were generally found to have graduated from alternative teacher education programs that required stronger teacher selectivity processes and rigorous screening methods (DeMonte, 2015), as well as provided more structured preservice experience (Haim & Amdur, 2016).

Alternative certified teachers who possess a sound theoretical foundation of pedagogical knowledge and pedagogical content knowledge have greater teacher self-efficacy in their first

year (Sisman, 2014). Self-efficacy is predicated on past performance of skills and successfully mastering specific teaching skills was found to be a strong predicator of future success of teachers (Brown et al., 2015). Teachers with higher self-efficacy have a greater repertoire of skills and were adaptable to challenges in the environment as well as different environments and contexts (Zhukova, 2018). Maintaining higher expectations of classroom behavior, interactions between students and teacher, and maintaining a rigorous plan of instruction that challenges students academically while building student self-efficacy was argued as a characteristic of teachers with higher teacher self-efficacy (Nielson, 2016).

Low teacher self-efficacy is described as pre-cognition that is more significant in early years of teaching (Dicke et al., 2014; Zhang & Zeller, 2016). Teacher self-efficacy is a teacher's confidence of carrying out specific tasks by using industry specific knowledge (Tshannen-Woolfolk & Woolfolk-Hoy, 2001). Detecting and addressing deficiencies in knowledge and skills that cultivates low self-efficacy in preservice teachers is advised (Haim & Amdur, 2014). Suggestions are made that teacher preparation programs should increase specific methods of pre-experiences that are staged throughout teacher preparation programs to help alleviate negative aspects of perceived ability (Giles & Kent, 2014).

Although teacher literature has abundant evidence on teacher self-efficacy of traditional route teachers, less evidence is found that related to teacher self-efficacy and alternative route teachers. Researchers of alternative certified teachers argue that alternative certified teachers may need additional support since alternative certified teachers typically are experienced in fields other than education (Ronfeldt et al., 2014). Despite alternative certified teachers having more content related skills or high self-efficacy in their first profession, their skills or self-efficacy may not automatically transfer to the teaching field and in some instances, may

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contradict skills specific to the teaching environment, which may lower teacher self-efficacy (Dicke et al., 2015; Westwrick & Morris, 2016).

Summary

Despite entering the teaching field with strong content knowledge, a lack of confidence in controlling, teaching, and assessing students may pose challenges to a teacher's sense of efficacy. The level of teacher self-efficacy is a strong indicator of teacher resilience and adaptability when confronting challenging situations. Key factors associated with the development of teacher self-efficacy are mastery experiences and the opportunity to reflect and evaluate teaching practices in nonthreatening ways.

Teachers of alternative certification programs may have experienced less opportunity to develop mastery experience of specific teaching tasks before becoming teachers (Zhang & Zeller, 2016). As a common practice, teachers certified through nontraditional routes are expected to demonstrate similar and, in some cases, more advanced skills than their peers due to perceived maturity and content knowledge. Adversely, support mechanisms during the first years of teaching may not completely benefit teachers trained in alternative teacher preparation programs. Inadequate support in addition to a sense of unpreparedness may exacerbate feelings of low teacher self-efficacy.

The aim of this study was to examine how alternative teacher certification type affected teachers sense of efficacy. Teachers completed the long form of Teachers Sense of Efficacy Scale (TSES) to analyze perceived confidence in classroom management, student engagement, and instructional practice. The three domains of TSES has been proven adaptable to various contexts of teachers and students yet specific enough for teachers to evaluate confidence in daily tasks.

Chapter 3: Methodology

Introduction

Despite arguments by defenders of traditional teacher preparation**,** alternative teacher certification is an increasing path for teacher licensure in the United States (Zhang & Zeller, 2016). Alternative certified teachers are employed in various educational fields, such as private and public schools (Zhang & Zeller, 2016) and may teach subjects and or contexts of which they receive little or no preparation for (Zhukova, 2018). Literature is available in teacher research that compare different preparation paths on teacher efficacy (Ronfeldt et al., 2014) yet inconclusive results still exist (Whitford et al., 2017). A contention among researchers of teacher preparation is an absence of a universal definition or program features of alternative teacher education which result in structural differences among alternative teacher certification programs (Whitford et al., 2017). One such structural difference among alternative certification programs relate to practice teaching, which according to some researchers of teacher self-efficacy and teacher preparation paths is a foundation for training in classroom management, student engagement, and instructional practice (Ronfeldt et al. 2014; Redding & Smith, 2016).

A prevailing sentiment among researchers of traditional teacher education is on the ability of alternative teacher certification programs to develop and sustain professional competency and teacher efficacy (Haim & Amdur, 2016; Zhang & Zeller, 2016). A subset of self-efficacy, teacher efficacy is the teacher's perception of their ability to successfully perform instructional and professional duties and achieve goals for specific tasks (Ford et al., 2017). Teacher efficacy is a strong predictor of teacher success, teacher retention rates, and overall feelings of professional preparedness (McLennan et al., 2017). When teachers have a higher perception of teacher efficacy and lower anxiety about competency, teachers are better prepared

to fulfill professional and instructional roles and demonstrate complex instructional pedagogy skills (Wagner & Immanuel-Noy, 2014). Research on teacher development suggest that a teacher's efficacy affects the amount of motivation and effort teachers use to overcome personal, professional, and instructional challenges within the teaching environment (Pfitzner-Eden, 2016).

The aim of this study was to examine the effect of alternative teacher preparation on teachers' sense of efficacy in classroom management, student engagement, and instructional practice. In Texas, teacher candidates can choose from programs affiliated with higher education institutions, local education authorities, and profit and nonprofit teacher certification programs unaffiliated with higher education (Lincove et al., 2015). Examining the relationship between alternative teacher preparation type and three factors of perceived teacher efficacy could help incorporate methods to strengthen teacher efficacy in future alternative teacher certification programs for elementary teachers.

This chapter describes the (a) purpose of the research study, (b) research questions, (c) hypotheses, (d) research design, (e) target population, (f) sampling method and related procedures, (g) instrumentation, (h) data collection, (i) operational variables, (j) data analysis procedures, (k) limitations and delimitations of the research design, (l) internal and external validity, (m) ethical issues in the study, and (n) the summary.

Purpose of the Study

This study examined the effect of alternative teacher preparation type on teachers' sense of efficacy in classroom management, student engagement, and instructional practice. Alternative teacher certification programs have different methods and procedures to train teachers in skills especially related to managing a classroom and developing strategies to teach, engage, and assess student learning. From a review of research, researchers have questioned how

alternative teacher certification programs structure training for teachers to develop knowledge of practice and knowledge in practice. Measuring three dimensions of teacher self-efficacy and type of alternative program helped examine confidence in specific skills that teachers should possess upon becoming practicing teachers.

Classroom management has a direct impact on teacher efficacy (Brown et al., 2015) and is a primary skill that could potentially make or break a teacher's career (Uriegas et al., 2014). Teachers graduating from some preparation programs are more poorly prepared than others to manage a classroom, especially with new integration standards (Flower et al., 2017). Teachers with higher teacher self-efficacy had a greater impact on the classroom environment, better control of classroom procedures, and were better skilled at interacting and managing students from different backgrounds (Thomas & Mucherah, 2016).

Instructional strategies refer to how well teachers reach and assess all types of students and learning styles (Depaepe & König, 2017). Teachers with higher teacher self-efficacy have more complex skills in instructional practices and are better able to accommodate a wider range of issues relating to learning (Clark et al., 2014). Gaps in teacher knowledge (du Plessis, 2015) and insufficient exposure to the complexities of teaching and learning (Brewer, 2014; Zhang & Zeller, 2016) are common concerns that influence a teacher's self-efficacy in instructional practices (Clark et al., 2014).

Student engagement is a third construct of teacher self-efficacy and involve how well teachers plan a program of study that addresses behavioral, cognitive, and emotional levels of students (van Uden, Ritzen, & Pieters, 2014). Student engagement is synonymous to a positive classroom environment (deJong et al., 2014) and is evident of teacher personality traits. Teachers with higher perceptions of self-efficacy are more likely to facilitate a warm and inviting

classroom environment (Shoulders & Krei, 2015). Higher teacher efficacy is also related to how well teachers maintain high expectations of student achievement and engage and develop relationships with students compassionately and cooperatively rather than judgmentally (Brown, Lee, & Collins, 2015).

Research Question

This study examined the effect of alternative teacher preparation type on teachers' sense of efficacy in classroom management, student engagement, and instructional practice. Self-efficacy was operationalized as a significant factor for understanding and evaluating behavior (Bandura, 1977). An individual's self-efficacy perceptions determine how an action is initiated, how much effort is expended, and how long the effort occur despite challenges and failures (Senler, 2016). Teacher self-efficacy is defined as a teacher's perception of their ability to reach educational goals (Moulding et al., 2014) and is repeatedly correlated to classroom management, student engagement, and instructional practices (Tschannen-Moran & Woolfolk-Hoy, 2001). Conflicting results occur regarding alternative certified teachers' sense of self-efficacy in classroom management, student engagement, and instructional practice (Troesch & Bauer, 2017). Some researchers argue that self-efficacy of alternative certified teachers is lower than traditional certified and attribute difference to less practice before becoming teachers (Sisman, 2014; Taneri & Ok, 2014; Zhang & Zeller, 2016). Other researchers argue that teacher efficacy of alternative certified teachers is equal to or greater than traditionally prepared teachers (Uriegas et al., 2014). Measuring and comparing teacher self-efficacy in classroom management, student engagement, and instructional practices among preservice teachers of three different alternative teacher preparation programs types added to current literature of teacher preparation.

RQ1: What is the effect of alternative teacher certification program type on teacher self-efficacy in preservice elementary teachers regarding classroom management?

H_0 1: There is no effect of alternative teacher certification program type on teacher self-efficacy in preservice elementary teachers regarding classroom management?

RQ2: What is the effect of alternative teacher certification program type on teacher self-efficacy in preservice elementary teachers regarding student engagement?

H_0 2: There is no effect of alternative teacher certification program type on teacher self-efficacy in preservice elementary teachers regarding student engagement.

RQ3: What is the effect of alternative teacher certification program type on teacher self-efficacy in preservice elementary teachers regarding instructional practice?

H_0 3: There is no effect of alternative teacher certification program type on teacher self-efficacy in preservice elementary teachers regarding instructional practice.

Research Design

This study used a causal comparative design. The sample consisted of candidates who had completed or about to complete their capstone experience and were ready to become practicing teachers. Measuring and comparing teacher efficacy after exiting teacher education programs worked well with a casual comparative design since events that shaped efficacy had already occurred (Fulmer, 2018) and the participants had already formed efficacy perceptions that are cited as resistant to change (Moulding et al., 2014). A causal comparative design was appropriate for my study since my methods of analyses were descriptive in nature and identified a relationship between one continuous independent variable, alternative teacher preparation program, which was measured against the three-factor dependent variable of teacher self-efficacy (Apuke, 2017).

Target Population, Sampling Method and Related Procedures

      Target population. The target population were alternative certified teachers in Texas who had received training from three program types commonly found in Texas. Teachers had completed or were in the process of completing their capstone experience and were or ready to become practicing teachers. Zhang and Zeller (2016) surmised that differences occur in alternative certification programs such as length of program, quantity and quality of methods courses, and the connection between field-based experiences and methods courses of which could affect the outcome of teachers. Redding and Smith (2016) reported that alternative teacher certification programs had selection processes that differed among each program. Brewer (2014) found that the selection process for a top alternative teacher certification program, Teacher For America was more rigorous and reported TFA usually selected candidates at the top 10% of their class in more prestigious universities. Researchers also found that some alternative teacher certification program types had minimal entry standards and less vigorous teacher selection processes (Uriegas et al., 2014).

      The three program types of this study addressed a wide range of differences to capture the unique variances of each program type (Ronfeldt et al., 2014) and are classified as graduate teacher programs, local education agency sponsored programs, and private teacher certification programs. Although all three program types are considered routes to quick immersion into teaching, graduate program types are typically equated with traditional teacher training programs (Redding & Smith, 2016), whereas local education programs and private teacher certification programs may have varying degrees of preservice preparation (Zhang & Zeller, 2016). As such, a convenience sample of teachers were drawn from all three program types.

Sampling method. Sampling methods must consider proximity, expense, ethical considerations of population, and time (Cohen et al., 2017). My target population were within relative proximity and were teacher candidates from three program types of alternative certification programs within a specific area of Texas. Due to different requirements to request research, I downloaded, completed, and returned a request for research packet for institutions that required formal authorization by their research department. For institutions that did not require formal authorization, I sent an electronic letter to authorized representatives describing the focus and timeline of the study as well as a description of how I would protect the rights of respondents. The request also described the following characteristics: (a) teachers who have recently completed or were about to complete their capstone field experience; and (b) teachers who sought EC–8 certification. Teachers who completed the online TSES were considered as a convenience sample.

Convenience sampling is a nonprobability method that meets a researcher's criteria such as geographical proximity (Etikan et al., 2015). If participants do not have a variety of characteristics as found within the total population, convenience sampling may have higher errors in selection bias and results may not reflect accurate generalization of the population (Ruel, Wagner, & Gillespie, 2016). However, the researcher of this study planned to avoid selection bias despite using a convenience sampling method. Although a common characteristic of teachers related to alternative teacher certification, the researcher drew samples of teachers who were trained in different locations and under different methods and procedures to ensure similar proportions of preparation experience as were found in the total population of teachers.

Sampling method, sampling size, effect, significance level, and power are the foundation of research that can be replicated and is essential for null hypothesis testing (Téllez, Garcia, &

Corral-Verdugo, 2015). Researchers that examined teacher self-efficacy used standard values to minimize Type I errors and reported that the significance level p is normally < 0.05 (Brown, Lee, & Collins, 2015; Knoblauch & Chase, 2014). Cohen, Manion, and Morrison (2017) considered that 0.20 to 0.30 was considered a medium effect size and of which was more suitable for smaller sample sizes (Pfitzner-Eden, 2016). As such, I performed an a priori using G*Power 3 analysis and set the power to 0.95 with an effect size of 0.25 which returned with a suggested sample of 252.

Significant problems occurred during the first round of accumulating participants. After verifying the number of registered students with alternative teacher certification program managers I determined a total of 322 registered teacher candidates from preliminary lists which became my convenience sample. I repeatedly sent out electronic requests to perform research to school districts, authorized representatives of private teacher certification programs, and local education agencies with low response. After 20 participants responded to electronic requests that I or authorized program representatives sent, I resent electronic invitations to participants or authorized representatives' email addresses 1 week after the first submission, with a third and final request sent 3 days later. The availability of respondents may have been possibly low due to the timing of the study as well as refusal of program managers to provide access to participants. As a result, after speaking with my committee chair, I expanded my sample search wider and requested help from the state department, Texas Education Agency.

The second round of requests occurred 2 months later. I received a list of emails from the Texas Education Agency of teachers who were recently certified and were trained through alternative teacher certification programs in Texas. I sent out 1,000 electronic requests explaining the nature of the study as well as requested teachers to participate if they lived in or

within close proximity of Southeast Texas and had received EC-8 certification in any content. The list did not signify which program type that teachers received training from so I could not determine if requests were equal for all three program types. As such, I sent out 1,000 more requests in an attempt to accumulate an equal number of respondents from all three program types. After finding that teachers from private teacher certification programs responded more, I extended the study 2 days longer in an attempt to accumulate more responses from teachers of graduate programs and local education programs. The researcher considered the timing of the study as well as the number of attempts to accumulate responses when deciding to close access to the questionnaire within three days. At the close of data collection, 232 responses were collected of which 37 were incomplete and therefore discarded. Out of a total population of 322, 197 participants completed the study which calculated as a 61% response rate.

Related procedures. After approval of Concordia University–Portland Institutional Review Board (IRB), a Request for Research was electronically sent to authorized representatives or IRB committees in institutions across Texas. Although I did not know administrators at each facility, I was familiar with Texas's higher education systems and had a list of alternative teacher preparation programs that had various structural components to query. Upon receiving approval from program managers or university IRB committees, I sent a consent form to candidates whose email were provided and to authorized representatives to disseminate to teachers with the requested characteristics. The consent form contained a description of the study, the number of participants needed, and the timeline of the study. Additional instructions disclosed that data would be encrypted and seen only by me, and that participants could opt out simply by closing their browser and not completing the TSES. I used a one click consent method

for ease of participants. If candidates agreed to participate, the link took them to the one click

consent method to begin three field questions before beginning the questionnaire.

Instrumentation

Teacher efficacy is a subset of self-efficacy within the social cognitive theory of Bandura

(1977). Tschannen-Moran and Woolfolk-Hoy (2001) developed a scale to measure three

dimensions of teacher efficacy such as classroom management, student engagement, and

instructional practices. Burić et al. (2018) advised that instruments should be psychometrically

sound and theoretically related to variables within the study. Evidence found by researchers of

teacher preparation revealed that route to teacher certification closely relate to classroom

management, student engagement, and instructional strategies even when measured with

different adaptations of TSES (Alpan, Özer, Erdamar, & Subaşı, 2014; Depaepe & König, 2018).

This study used the long form of TSES which was a 24-item, nine-point Likert type scale

with eight questions relating to each dimension (Kurt et al., 2014). The range of total scores that

one can achieve on the TSES is between 24 and 216 and on each subscale, scores ranged from 8

to 72 (Dalioglu & Adiguzel, 2016). The factor structure of TSES was valid and stable across

studies and using different samples of teachers (Depaepe & König, 2018). A confirmatory factor

analysis evaluated TSES as a composite variable with three dimensions as stable (Depaepe &

König, 2018; Wang et al., 2015). TSES has tested reliable in multiple studies that measured

preservice and in-service teacher's self-efficacy (Pfitzner-Eden, 2016). Brown, Collins, and Lee

(2015) reported that the TSES had a consistent high rating for reliability well above .90 and that

reliability of each subcategory rated an .86 for instructional strategies. Cronbach's alpha

coefficients were reported as .94 (Tschannen-Moran & Woolfolk Hoy, 2001). TSES validity has

been proven to measure three constructs of perceived teacher efficacy rather than actual teacher

efficacy, and evidence from researchers demonstrated that TSES produced consistent results across different methods, contexts, and approaches (Wang et al., 2015).

Using self-reported instruments such as TSES were useful when generalizing information and were adept at analyzing the degree and nature of relationships with less processing errors (Cohen et al., 2017). Researchers who focused on examining if an overall perception exists among a larger population says that self-reported instruments are viable for reaching samples widely dispersed from the researcher (Taneri & Ok, 2014). As an instrument used to examine quantitative data, TSES worked well with a causal comparative design. TSES can be measured as a total score or as sub scores which helped examine mean scores between each group (Tschannen-Moran & Woolfolk-Hoy, 2001).

Data Collection

Preservice elementary teachers were selected from three types of alternative teacher certification programs in one area of Texas and were classified according to program type. An online version of TSES was administered using Qualtrics furnished by Concordia University–Portland. Prbyl (1994) asserted that electronic use of self-reported data was cost effective and could be credibly used with small or large populations. From a review of methodological literature on teacher education, TSES is the most commonly used scale in the United States to measure teacher self-efficacy.

Colson et al. (2017) used TSES in a single session at the end of their study and found that perceived responses were more accurate with the body of evidence on measuring teacher self-efficacy at the end of training. Wang, Hall, and Rahimi (2015) said that teachers needed experience and a chance to reflect upon experience before entering classrooms and administered TSES at the end of teachers' program matriculation. Callaway (2017) studied the relationship

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between culturally responsive teaching and teacher self-efficacy using TSES and expressed that TSES was well suited for different types of research related to teachers. To anticipate a change in teacher perceptions, I distributed TSES at the end of each teacher's capstone year which encouraged participants to critically self-reflect on their confidence after program completion. The timeline for the study was 2 weeks and the questionnaire was not timed to provide teachers ample opportunity to carefully consider their perceptions.

Operationalization of Variables

Operationalization of variables occurred from the need to define how the constructs of teacher self-efficacy can be measured. The constructs of teacher self-efficacy as a whole and the dimensions of classroom management, student engagement, and instructional strategies were emphasized based on teacher certification literature. The description of variables associated with teacher preparation were also included and were related to teacher self-efficacy as found in reviewed literature for this study.

Alternative teacher certification programs (ATCP): Alternative teacher certification programs are abbreviated teacher preparation programs designed for second career professionals who did not major in education to become teachers (Haim & Amdur, 2016). ATCP differ in program length, courses offered, and the degree of required field-based experience (Spearman, 2017). Programs may be classified as non-university based, such as for-profit institutions, or university based. ATCP typically allow teachers to teach in the classroom while they complete activities to satisfy certification requirements (Whitford et al., 2017).

Preservice teacher: Preservice teachers have not yet completed their capstone experience, have not fulfilled certification requirements, and have not assumed sole classroom duties (Vásquez et al., 2017).

Teacher self-efficacy: A subset of self-efficacy, teacher self-efficacy is the teacher's perception of their ability to successfully perform instructional and professional duties and achieve goals (Ford et al., 2017).

Student engagement: Student engagement is a dimension of teacher self-efficacy that pertains to how well teachers can bridge students' cognitive and affective needs to instruction (Strati et al., 2017).

Classroom management: Classroom engagement is a dimension of teacher self-efficacy and is defined as class rules and procedures that a teacher establishes to promote learning, teaching, and order (Sahin, 2015).

Instructional practice: Instructional practice is a dimension of teacher self-efficacy and relates to methods and procedures that teachers implement to promote student learning (Qingmin, 2014).

Data Analysis Procedures

To measure how alternative teacher certification program type relate to teacher self-efficacy in classroom management, student engagement, and instructional practice, data from TSES was descriptively and inferentially analyzed using SPSS software. Descriptive research focuses on answering "what" questions rather than attempts to answer "why" questions (Fowler, 2014). Inferential analysis produces results that researchers can use to make predictions or inferences about the larger population from a collected sample. As in survey designs, data collected from Likert type scales can easily show distribution and how variables are related (Allen, 2017). Researchers must know the statistical level of data to process, such as nominal, ordinal, interval, or ratio (Cohen et al., 2017). Using procedures from similar studies that compared certification route to teacher self-efficacy, alternative certification program type was

the independent variable and was processed as nominal, and the three domains of teacher self-efficacy were processed as ordinal (Salgado et al., 2018).

A statistically significant level was determined at the standard levels of $a < .05$. I grouped 197 teachers according to alternative certification program type and labeled programs by University Post-baccalaureate, Local Education Agency (LEA), and Private. A one-way analysis of variance (ANOVA) was chosen as the statistical method for hypothesis testing. To test a hypothesis with ANOVA, six assumptions should be met in order to produce valid statistical analyses (Belhekar, 2019). The first three assumptions refers to the study design, such that the dependent variable should be continuous, the independent variable is categorical with two or more groups although three or more is the norm, and groups should be independent (Frey, 2018). The last three assumptions refers to how data is analyzed in reference to ANOVA. Data should have no outliers, should have normal distribution, and should have equal variance (Belhekar, 2019).

A one-way ANOVA test examines differences of means between three unrelated groups and uses the F distribution (Fitzgerald & Fitzgerald, 2014). I performed three different tests of a one-way ANOVA to answer three research questions. The first ANOVA was calculated to answer the first research question: What is the effect of alternative teacher certification type on teachers' sense of efficacy in classroom management? A second ANOVA was used to answer the second research question: What is the effect of alternative teacher certification type on teachers' sense of efficacy in student engagement? The third ANOVA was calculated to answer the third researcher question: What is the effect of alternative teacher certification type on teachers' sense of efficacy in instructional practice? For each domain of teacher efficacy, scores ranged from 9 to 72 and the total score of teacher self-efficacy ranged from 27 to 216 (Dalioglu

& Adiguzel, 2016). Testing the data with three separate ANOVA minimalized statistical errors and erroneous results and consistently clarified data between groups.

Limitations and Delimitations of the Research Design

Limitations. Limitations are factors, that although controlled for, affect reliability of findings in a study (König et al., 2017). One such limitation to this study relates to variables identified for the study. From research literature, preparation route was assumed to play a significant role in preservice teacher's perceived teacher self-efficacy (McLennan et al., 2017). However, alternative certification programs may have been weighted differently and applied within different contexts in other studies. This study examined if different alternative certification program types affected teacher efficacy but did not examine if other situations or confounding variables played a greater role.

A second limitation was the use of relying on self-reported data to capture teacher's perceptions (Giles & Kent, 2014). Depending upon the timing of the test, cultural or psychological aspects of participants may not truly reflect what participants actually knew but rather perceptions to what they should know according to the Texas Pedagogy and Professional Responsibilities standards. A third limitation of this study pertains to not having pretest data to measure changes in self-efficacy over time. Longitudinal data on how teacher efficacy changed over time was seen in the literature and findings were said to be more effective at measuring declines or improvements in teacher efficacy (Ptfitzner-Eden, 2016). Additionally, participants were not randomly generated. Using a randomized true experiment was described as the best option for examining how a treatment affects groups (Apuke, 2017). Participants in this study were from a small population in one area of Texas and teacher perceptions may not generalize to other populations across Texas. Last, this study used only instrument to capture data. From a

review of literature on teacher self-efficacy, multiple instruments were used to sufficiently cross check participant perceptions across a range of variables to examine how different variables caused changes in teacher self-efficacy (Depaepe & König, 2017).

Delimitations. Although researchers discussed many factors associated with lower teacher efficacy (Ptfitzner-Eden, 2016) this study examined one variable, certification route, found to be common in teacher research related to teacher efficacy (Zhang & Zeller, 2016; Haim & Andur, 2016; Troesch & Bauer, 2017). Delimitations associated with this study refers to sampling and generalization. Participants were from one area in Texas and were certified through programs that used different training methods. Results reflect teacher perceptions at one single time during preparation and may not solely indicate their preparation. Rather than focusing on a qualitative approach to gain meanings from individual responses, the aim of this preliminary study was to examine associations among broad perceptions (Giles & Kent, 2014) of teachers. Using a causal-comparative approach after a capstone experience provided a better representation of teachers' perceived efficacy and confidence to become teachers of record (Haim & Amdur, 2016). Consequently, the delimitations are:

- Teachers were preservice with no prior professional teacher experience other than field-based.
- Teachers sought certification up to EC–8.
- Teachers were prepared using one of three program types discussed in this study.
- The study was conducted within an economically and culturally diverse Texas region.
- Only one instrument was used with no pre or post-tests.

Internal and External Validity

Internal Validity

Causal-comparative designs are suitable when a potential cause has already happened and cannot be manipulated (Allen, 2017). This study is a quantitative causal-comparative design and was used to examine if differences occurred in teacher self-efficacy among teachers of different alternative teacher certification program types. Internal validity refers to the appropriateness of the design and methods used to build a solid argument about relationships between variables (Frey, 2018). The dependent variable of this study, teacher self-efficacy has been extensively studied in reference to preservice teachers' confidence in assuming classroom duties. Teachers with higher teacher self-efficacy before assuming duties have been cited as lasting longer in the profession as well as having more resilience and persistence during challenging situations (Thomas & Mucherah, 2016).

However, teacher self-efficacy is one concept among teacher preparation and has not been associated as a sole indication of teacher's overall confidence. The independent variable, program type, is a variable that has been studied minimally which may be argued as a threat to the internal validity of this study. Although differences among program types have been explained in previous sections, there are many variations of teacher training within each program type that may affect teachers' perception in ways that this study cannot measure.

Statistical conclusion validity refers to how well data were analyzed by appropriate statistical tools that addressed the research question (Oljenik, 1984). To determine accuracy between the research question, measures and analysis, McLennan, McIlveen, and Perera (2017) suggested researchers confirm that the instrument and analysis procedures accurately reflect the theoretical constructs. The instrument used for data collection in this study has been used and

validated multiple times by researchers. The Teachers' Sense of Efficacy Scale (TSES) was the sole instrument to capture data for this study and has undergone rigorous analyses. Testing and test–retest reliability over a 6-week interval ranged from .94 for Classroom Management, .92 for Instruction and .89 for Student Engagement (Tschannen-Moran & Woolfolk Hoy, 2001). When testing the effect of teacher preparation on self-efficacy, Depaepe and König (2018) purported that the three dimensions of TSES appropriately assessed common conditions associated with teacher practice and the teaching environment.

The TSES is adaptable to a range of contexts, subjects, and professions to measure effect of an intervention, program, or initiative (Thomas & Mucherah, 2016). McLennan, McIlveen and Perera (2017) used confirmatory factor analyses and structural equation modeling to determine that measures of TSES addressed theoretical constructs of teacher self-efficacy. Thomas and Mucherah (2016) used TSES to measure teacher self-efficacy of a nontraditional immersive group and a control group that received traditional field experience. Evaluating the suitability of TSES for their study, Thomas and Mucherah (2016) calculated the Cronbach's alphas values between .83 and .89 for all three domains of the TSES and validated that the TSES was reliable to successfully produce valid conclusions when measuring teacher self-efficacy of alternative prepared teachers. This study used the long form of TSES, which the developers advised appropriate for less experienced teachers (Brown et al., 2015) due to the factor structure.

The statistical test used to analyze data in this study was the one-way ANOVA which is robust to test the means of at least three independent groups (Frey, 2018). Pertaining to unequal sample sizes, the data violated the outlier and normal distribution assumptions of ANOVA which could be argued as threats to the validity of statistical conclusions (Blanca, Alarcón, Arnau, Bono, & Bendayan, 2017). From evaluating multiple sources (Belhekar, 2019; Blanca et al.,

2017; Bono, Blanca, Arnau, & Gómez-Benito, 2017) and re-evaluating data, the researcher verified that statistical conclusions in this study were reliably interpreted despite the violations to the assumptions of outliers and normal distribution.

External Validity

External validity refers to the extent of how findings from research can be generalized across different contexts (Hanasono, 2018). Participants in this study received training from one of three program types typically found in Texas yet other programs in the same type existed and results may not be generalizable to the larger population of teachers. Additionally, sampling occurred through a nonprobability technique and specific characteristics of teachers were a delimitation of the study as well as a potential limitation to generalizability of the total population of teachers. Despite the possibility that findings may not generalize to all alternatively trained teachers, methods and procedures in this study may offer other researchers recent data on a difficult construct and may spur further research as recommended.

Ethical Issues in the Study

Written statements of Principle D in the American Educational Research Association Code of Ethics (AERA, 2011) Concordia University IRB, and Title 45 of the Department of Health and Human Services Code of Federal Regulations (2018) reflected that researchers have an ethical duty to respect participants' rights and do no harm while conducting educational research. Collection methods for this study was accumulated from electronic data and the researcher adhered to the ethical considerations of using electronic data. Roberts and Allen (2015) said that educational studies that use electronic instruments had five ethical processes such as dual teacher/researcher roles, informed voluntary consent, use of incentives, privacy, anonymity, confidentiality, data quality, and conflict of interest. As the principal investigator, I

did not use incentives to accumulate participants. I did not have knowledge of or had no relationship to participants. I secured authorization from Concordia University–Portland IRB department and IRB committees or authorized representatives from graduate institutions, school districts, LEA, and certification institutions. Collection methods were approved by Concordia University–Portland IRB as exempt from further review due to the anonymity of participant responses. Last, the study was for the purpose of personal research so no conflict of interest was related.

Electronic requests for research provided written documentation of the overall nature and timeline of the study, sample population of students that I sought as well as a description of how data would be collected, stored and utilized (Leach et al., 2015). Informed consent is a legal pre-study document that participants willingly undergo based on their perceptions of personal risks communicated to them by the researcher (Israel, 2015). Informed consent forms should be written in appropriate language and context that respondents can intellectually and linguistically understand (Roberts & Allen, 2015). When describing the nature of the study, how the study would be used, and clarifying voluntary participation, I ensured that the consent forms were in students' native languages and used terminology familiar to the educational field.

Anonymity was assured by providing an anonymous link to participants or authorized representatives that did not capture geographical location or computer data. Entrance to the questionnaire held nothing to identify names or educational institutions of participants. All information was seen only by me and destroyed after the study was completed. Data were kept together, and no additional coding was needed. If participants did not choose to participate after reading the consent form, they could close their browser without saving any information and their responses were voided. I was the only researcher and only I had access to the Qualtrics link.

All responses were downloaded on my computer that was password encrypted and disconnected from online cloud services.

Chapter 3 Summary

This research study examined if alternative teacher certification program type had an effect on teacher's sense of efficacy in classroom management, student engagement, and instructional strategies. A quantitative causal-comparative approach with a survey design was used to measure teacher self-efficacy. Survey methods rely on self-reported data of which results can be generalized to a population and collect ex-post-facto data considering that phenomena have already shaped participants opinions (Jann & Hinz, 2016). The instrument for data collection in this study was the Teachers Sense of Efficacy Scale (TSES), which is a 24 item self-report instrument broken into three overall constructs of classroom management, student engagement, and instructional strategies.

Data from TSES were analyzed with a one-way analysis of variance (ANOVA) to test if the independent variable, program type had a significant effect on teachers sense of efficacy in classroom management, student engagement, and instructional strategies. Sampling occurred through a nonprobability convenience sampling method. Analyzing data with an ANOVA clarified differences of teacher self-efficacy among teachers of three program types, thereby adding to existing literature on alternative certified teacher literature.

Chapter 4: Data Analysis and Results

Introduction

The purpose of this study was to examine the effect of alternative certification type on teacher self-efficacy in classroom management, student engagement, and instructional practice in a sample of teachers in Texas. Teacher self-efficacy was the teachers' perceived ability in successfully fulfilling tasks pertaining to teaching and the teaching environment (Tschannen-Moran & Woolfolk-Hoy, 2001). Teacher self-efficacy was dependent upon overall self-efficacy which was regarded as general self-efficacy and task specific teaching efficacy (Bandura, 1977). General self-efficacy was described as the perceived confidence to exercise control over situations and events that affected an individual's life (Bandura, 1986). Task specific teaching efficacy was the confidence to successfully plan for and deliver instruction to all students in a way that addresses each student's specific needs (Giallousi et al., 2014).

This study sought to answer three research questions by examining how alternative certification program type affected teacher self-efficacy in classroom management, student engagement, and instructional practice. Descriptive statistics captured the frequency of age, gender, and race to ensure that each factor was equally representative to national statistics. Statistical analyses measured the differences among the means of teacher self-efficacy from alternative certified teachers of graduate programs, local education agency sponsored programs, and private teacher certification programs.

Data collection was comprised of two parts. Age, gender, preparation route, and race comprised the first section as field questions to explore common assumptions of literature that alternative certification programs typically attract more males, mature, and minority applicants (see Appendix D). The second section was comprised of the long form of TSES developed by

Tschannen-Moran and Woolfolk-Hoy, 2001 and was a 24-item instrument separated into three domains with eight questions each. Discussion of the sample and data collection methods are discussed followed by an explanation of all statistical calculations and interpretation of results from data. In the final section, a summary of the results that analyzes the relationship between variables is also provided.

Description of the Sample

The target population was recently certified teachers from alternative teacher certification programs in Texas. After authorization from Concordia University–Portland IRB, institutions of higher learning, and from authorized representatives, invitations to participate were electronically sent to teachers from three types of alternative teacher certification programs and respondents were considered a convenience sample. Convenience sampling is best when the researcher seeks available respondents with specific characteristics (Frey, 2018). Convenience sampling is a form of non-probability sampling in which all cases may not have equal representation (Allen, 2017). Consequently, the researcher verified that the proportion of respondents were representative of state and national statistics.

Electronic invitations were sent to multiple programs that certify teachers from three of the most common alternative certification program types found in Texas, as well as institutions that hire alternative certified teachers from those programs. Initially, the response rate was very low and out of the first 100 invitations sent, 20 participants responded. A low rate of return may have been due to the timing of the study when most teachers were out for summer. Refusals of alternative certification programs and school districts to approve external research may have also affected the response rate. The researcher met with the dissertation chair to examine how best to proceed, which resulted in the researcher expanding the sample search farther yet still within

close proximity of the initial research area in Texas. Additionally, the researcher contacted Texas Education Agency for assistance and was awarded a database of emails of teachers who had received alternative certification training from the beginning of 2017 to 2019 and who fit the criteria in terms of certification level. The researcher could not verify which program type that teachers received training from and as a result, could not pre-determine if an equal number of electronic requests were mailed to teachers from all three program types. To plan for selection bias, the researcher emphasized which characteristics were sought, such that teachers were asked to complete the study if they were certified EC-8 in any content, resided in or were approximate to Texas districts targeted for the study, and had received preparation through the three program types examined in this study.

A total of 2,000 electronic requests were emailed over a period of one week in an attempt to accumulate an equal number of respondents from teachers who received certification from three program types examined in this study as well as possessed certification characteristics that this study focused on. After finding that teachers from private teacher certification programs responded more, the researcher extended the search two days longer in an attempt to accumulate more responses from teachers of graduate programs and local education programs. The timing of the study as well as the number of attempts to accumulate responses were considered when deciding to close access to the questionnaire within three days. At the close of data collection, 232 responses were collected of which 37 were incomplete and therefore discarded. Out of a total population of 322 teachers, 197 participants completed the study which calculated as a 61% response rate.

Research Methodology and Analysis

This study used a causal comparative design and candidates had completed or were nearing completion of their capstone experience and were ready to become teachers of record. The study was designed as an initial examination to understand if certain types of alternative teacher certification programs had an effect on teacher self-efficacy. Efficacy perceptions have been cited as resistant to change once formed (Moulding et al., 2014). A causal comparative method was appropriate for this study due to the likelihood of collecting data ex-post facto and capturing a sense of efficacy after events that shaped efficacy had already occurred (Fulmer, 2018). Data were collected from a survey method of which teachers completed the long version of the Teachers' Sense of Efficacy Scale (TSES) by Tshcannen-Moran and Woolfolk-Hoy (2001; see Appendix C). The TSES has been used and validated by many researchers of teacher self-efficacy who designed studies across a range of approaches, including quantitative (Thomas & Mucherah, 2016). Data were analyzed with descriptive statistics to examine age, race, and gender across program types to clarify teacher demographics. Teacher self-efficacy was a three-category dependent variable and program type was a three-category independent variable. Therefore, one statistical method was chosen to accurately measure multiple categorical data. Inferential statistics included three tests of ANOVA to examine if differences occurred between teachers total and domain specific efficacy and program type.

Summary of the Results

Teachers from three alternative certification program types were examined in this study. Table 1 shows the frequency and percentages of teachers from each program type. Of 197 respondents, 64.5 % ($n = 127$) received teacher training through private certification programs, 22.3% of teachers ($n = 44$) received training through local education agency sponsored

programs, and 13.2% of teachers (*n* = 26) received training in university sponsored baccalaureate programs.

Table 1

Program Type

Program Type	*f*	%
University Sponsored Post Baccalaureate Program	26	13.2
Local Education Agency	44	22.3
Private Teacher Certification	127	64.5
Total	197	100.0

Type of certification program was tabulated to show comparison between age groups. Table 2 shows the distribution of age by frequency and percent among certification program types. Evidence from literature surmised that one advantage to alternative certification programs was that programs attracted more mature adults into the teaching field and data in this study did not fully substantiate that assumption. Of the 197 teachers who completed the question for age, results reflected that 60% of teachers were between the age of 25 and 40, such that 35.5% of respondents were in the 31 to 40 age range (*n* = 70), followed by 34% represented in the 25 to 30 age group (*n* = 67). Roughly 30% of teachers were aged 41 and above and 21% of teachers represented the 41 to 50 age group whereas the lowest number of teachers (*n* = 19) were in the 51 and over age range and represented 9.6 % of the sample. Statistics for program data showed that of all program types, 64.3% of teachers (*n* = 127) received preparation through private certification program. 72.2% of teachers in the 31 to 40 age range received preparation from private teacher certification programs. Teachers in the 31 to 40 age range (*n* = 7) also had the

lowest percentage that received preparation from university sponsored post-baccalaureate programs.

Table 2

*Age * Program Type Crosstabulation*

			Program Type		
			University Sponsored Post Baccalaureate Program	Local Education Agency Sponsored Program	Private Teacher Certification Program
Age	25-30	Count	11	16	40
		Percentage	42.3%	36.4%	31.5%
	31-40	Count	6	13	51
		Percentage	23.1%	29.5%	40.2%
	41-50	Count	7	10	24
		Percentage	26.9%	22.7%	18.9%
	51 and above	Count	2	5	12
		Percentage	7.7%	11.4%	9.4%
Total		Count	26	44	127
		Percentage	100.0%	100.0%	100.0%

In Table 3, gender was tabulated with program type to compare frequency and percentages. 197 respondents completed the question for gender and descriptive statistics showed that 18.8% were male ($n = 37$) and 81.2% were female ($n = 160$). Although researchers have argued that alternative certification programs attract more males into the profession, data in this study did not substantiate that assumption (Hammerness & Craig, 2016). Of teachers who received preparation through a private teacher certification program, males represented 64.9 % ($n = 24$) and females represented 64.2 % ($n = 104$). University sponsored post-baccalaureate programs had the lowest percentage and frequency from both genders, with 5.4% of males ($n = 2$) and 15.4% of females ($n = 24$).

Table 3

*Program Type * Gender Crosstabulation*

Program Type		Male	Female	Total
University Sponsored Post Baccalaureate Program	Count	2	24	26
	% within Program Type	7.7%	92.3%	100.0%
Local Education Agency Sponsored Program	Count	11	33	44
	% within Program Type	25.0%	75.0%	100.0%
Private Teacher Certification Program	Count	24	103	127
	% within Program Type	18.9%	81.1%	100.0%
Total	Count	37	160	197
	% within Program Type	18.8%	81.2%	100.0%

Race was tabulated with program type to compare frequency and percentages in Table 4. 197 teachers completed the question for race and data shows that the majority of respondents were White ($n = 118$) which represented 58.9% of all teachers in the study. Black or African Americans ($n = 37$) represented 18.8%; Hispanics ($n = 39$) represented 19.8%; Asian and Other, respectively, ($n = 2$) represented 1%; and American Indian or Alaskan Native ($n = 1$) represented 0.5%. Although some researchers (Hammerness & Craig, 2016) argue that alternative certification programs attract more minorities, data in this study reflect similar proportions of races found in national statistics (NES, 2016).

Table 4

*Race * Program Type Crosstabulation*

			Program Type		
			University Sponsored Post Baccalaureate Program	Local Education Agency Sponsored Program	Private Teacher Certification Program
Race	White	Count	16	23	77
		Percentage	13.8%	19.8%	66.4%
	Black or African American	Count	3	14	20
		Percentage	8.1%	37.8%	54.1%
	Hispanic	Count	6	6	27
		Percentage	15.4%	15.4%	69.2%
	American Indian or Alaskan Native	Count	0	0	1
		Percentage	0.0%	0.0%	100.0%
	Asian	Count	1	1	0
		Percentage	50.0%	50.0%	0.0%
	Other	Count	0	0	2
		Percentage	0.0%	0.0%	100.0%
Total		Count	26	44	127
		Percentage	13.2%	22.3%	64.5%

The second section of the questionnaire was based on responses from the TSES (Tschannen-Moran & Woolfolk-Hoy, 2001). The TSES has been used and validated in many studies that measured self-efficacy of teachers across different routes to certification, innovations, and interventions (Pfitzner-Eden, 2016). TSES is a self-report 24 item 9-point Likert-type scale with three domains and 8 items in each domain. The domain of classroom management assesses teachers' perceived confidence in managing the classroom environment which includes planning for and monitoring student behaviors, classroom routines, and developing consistent classroom procedures (Whittle et al., 2017). Student engagement assess

teachers' perceived confidence in making connections to students and providing a culturally sensitive student-centered environment (McLennan et al., 2017). Instructional practice assesses teachers' perceived confidence in delivering instruction to address a wide range of student needs and learning and academic abilities (Künsting et al., 2016). The lowest range of 1 represents an efficacy score of "not at all" and indicates that teachers perceive a distinct deficit in confidence; 5 represents a mid-range efficacy score of "some degree" of which teachers perceive more stability; and 9 represents a high efficacy score of "a great deal" and reflects that teachers presume mastery of teaching skills. The lowest score that respondents can achieve in each domain is 8 and the highest is a 72. The total teacher self-efficacy score that a respondent can achieve is 24 and the highest is 216.

To ensure that variables are measured correctly, instruments must have internal consistency which means that instruments can be repeatedly used to measure events that are specifically related to a variable (Chestnut & Burley, 2015). To test the constructs of teacher self-efficacy from the Teachers Sense of Efficacy scale, a reliability test was performed for this study. Table 5 summarizes the Cronbach alpha coefficients for each domain of teacher self-efficacy and the total alpha for teacher self-efficacy. As seen, data were drawn from 197 participants who completed the study and the Cronbach alpha for total teacher self-efficacy (TSE) was 96.9, classroom management (CM) was 94; student engagement (SE) was calculated as 91.6, and instructional strategies (IS) was calculated as 92.7. A rating of over 70 is considered a good alpha and the ratings for this study met the criteria. Each rating aligns with results found in prior research on teacher self-efficacy (Tschannen-Moran & Woolfolk-Hoy, 2001).

Table 5

Reliability Statistics of Teachers' Sense of Efficacy Scale

| Domain | Coefficients [a] | | Cases |
	Cronbach's Alpha	*N* of Items	
Total TSE	.969	24	197
Classroom Management	.943	8	197
Student Engagement	.916	8	197
Instructional Strategies	.927	8	197

Note. [a] TSE denotes teacher self-efficacy.

Detailed Analysis

All data were downloaded as an SPSS 24 file software platform (IBM, 2019) from Qualtrics. Doing so allowed the researcher to filter sub-scales items together for analysis. Teachers were grouped as university post-baccalaureate graduates, local education agency sponsored graduates, or private teacher certification graduates. Items were grouped together to differentiate between three domains. Descriptive statistics was the method of choice to calculate total mean scores of teacher self-efficacy according to program type and Table 6 shows an analysis. Teachers total teacher self-efficacy scores from private and local education agency sponsored agencies were similar at 173.88 and 171.86, respectively. Total mean self-efficacy scores for teachers from university sponsored graduate programs were higher at 183.12.

Table 6

Means Across Total Teacher Self-Efficacy

	Comparisons[a]				
Program Type	*M*	*N*	*SD*	Minimum	Maximum
PBIC	183.12	26	25.08	114	216
LEA	171.86	44	28.46	94	215
PTCP	173.88	127	29.03	25	216
Total	174.65	197	28.489	25	216

Note. [a] PBIC are university sponsored post baccalaureate programs; LEA are local education programs; PTCP are private teacher certification programs.

Although the means of total teacher self-efficacy scores were unequal, scores could not clarify significance among the three domains of teacher self-efficacy. Authors of TSES advised examining each domain to analyze differences in specific domain (Tschannen-Moran, Woolfolk-Hoy, & Hoy, 1998). Three separate tests of ANOVA were chosen to measure if statistically significant differences occurred between the means of teachers in three program types according to classroom management, student engagement, and instructional strategies.

Models of one-way ANOVA are robust hypothesis tests of which six assumptions should be met in order to produce valid statistical analyses (Belhekar, 2019). The first three assumptions asserts that the dependent variable should be continuous, the independent variable is categorical with two or more groups, and groups should be independent (Frey, 2018). When designing the study, the researcher assumed that variables and groups met the first three assumptions. The last three assumptions refers to how data is analyzed in reference to ANOVA. Data should have no

outliers, should be normally distributed, and should have equal variance (Blanca, Alarcón, Arnau, Bono, & Bendayan, 2017).

When measuring teacher self-efficacy total score against the independent variable, program type, assumptions 4 and 5 failed. As evidenced by a Q-Q plot (see Figure 1), an analysis showed that data had multiple outliers. Further evidence from an evaluation of Shapiro-Wilks analysis showed that data violated the fifth assumption and were not normally distributed. However, data passed the sixth assumption as evidenced by an analysis of Levene's test for homogeneity of variance. Attempting to determine if changes to the violations could improve, the researcher tested the data with and without outliers and found no differences in statistical means or normality assumption.

Having multiple outliers can skew the data and affect normal distributions which can negatively affect evaluating and interpreting data with consistency. Conflicting evidence abound on the subject of normality and outliers regarding ANOVA assumptions (Blanca et al., 2017) and some researchers have argued that most data for education and social sciences do not fit normal distributions (Bono, Blanca, Arnau, & Gómez-Benito, 2017). To evaluate that despite failing normality assumptions and that statistical tests of ANOVA could maintain fidelity, Blanca et al. (2017) tested ANOVA using different data sets including unequal groups, different sample sizes, as well as coefficient sample size variations. Blanca et al. (2017) found that ANOVA remained robust and reliable to analyze and interpret data due to the robustness of statistical procedures to minimize Type I errors. Due to passing the homogeneity of variance assumption in this study and the assertion that ANOVA remained robust despite violations to the fourth and fifth assumptions (Blanca et al., 2017), the researcher did not perform additional statistical tests.

Data were drawn from the TSES which is a self-reported instrument that captured respondents perceptions of competency and the ethical considerations of the researcher negated removal or transformation of data.
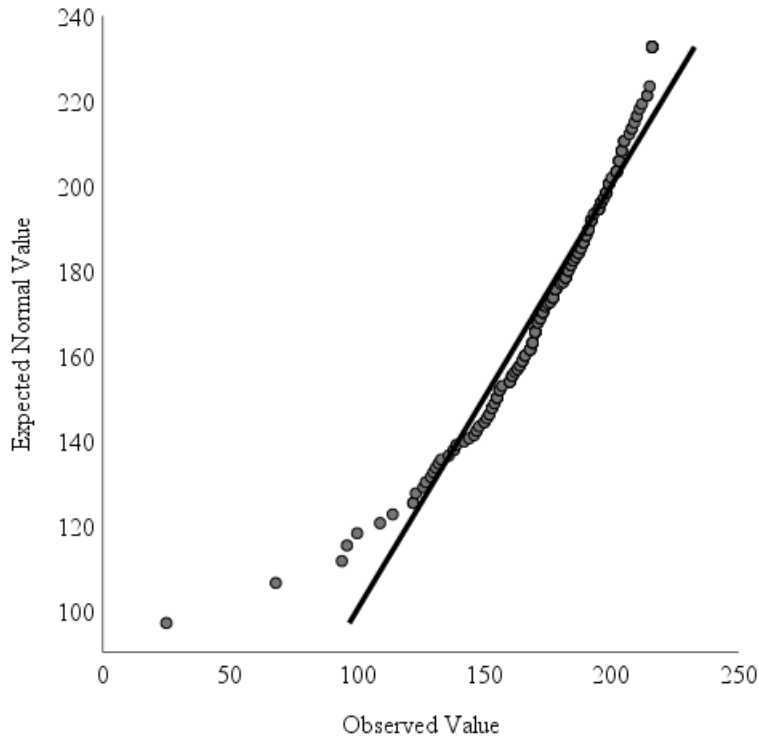
Figure 1. QQ plot.

Research question 1. *What is the effect of alternative certification program type on teacher self-efficacy in classroom management?* Higher teacher self-efficacy in classroom management had been found to correlate with more complex skills in maintaining classroom order, developing stronger classroom procedures to engage students, and developing consistent procedures to address and manage student behaviors (Dicke et al., 2014). A lower sense of teacher self-efficacy in classroom management was correlated with inefficient procedures to maximize the learning environment and using more short-term methods to control student behavior (Flower et al., 2017).

The null hypothesis for research question 1 stated that alternative teacher certification

program type had no effect on teacher self-efficacy in classroom management. Table 7 shows the

results of a descriptive comparison of means among three program types and teacher self-

efficacy in classroom management. A total of 197 teachers completed the questionnaire and the

proportion of teachers were calculated as ($n = 27$) for teachers from graduate programs, ($n = 44$)

from local education agency sponsored programs, and private teacher certification programs ($n =$

127). Teachers from university sponsored graduate programs had higher means of teacher self-

efficacy in classroom management ($M = 61.04$) than teachers of local education agency and

private teacher certification programs. Teachers from private certification programs had the

lowest means ($M = 57.32$) in teacher self-efficacy in classroom management.

Table 7

Means of Classroom Management

Program Type[a]	*M*	*N*	*SD*
PBIC	61.04	26	9.28
LEA	57.32	44	11.52
PTCP	58.95	127	10.61
Total	58.86	197	10.66

Note. [a.] PBIC denotes post baccalaureate initial certification; LEA denotes local education agency; PTCP denotes private teacher certification.

To answer research question 1, an ANOVA was conducted to test mean scores from teacher

self-efficacy in classroom management for statistical significance among three groups of teachers.

During the testing of assumptions, one significant outlier among the groups existed as analyzed by

boxplot and was not removed; data were not normally distributed as assessed by Shapiro-Wilk test

($p = <.0001$) and there was homogeneity of variances by Levene's test of homogeneity of variances

($p = .951$). Statistics for teacher self-efficacy in classroom management for graduate teachers were ($M = 61.04.96$, $SD = 9.284$); for local education agency sponsored teachers were ($M = 57.32$, $SD = 11.523$); and teachers from private certification programs were ($M = 58.95$, $SD = 10.618$). An ANOVA test was run to measure differences among groups and as seen in Table 8, results were not statistically significant, $F (2, 194) =1.007$, $p = .367$. Therefore, the researcher accepted the null hypothesis ($p > .05$).

Table 8

One-way ANOVA for Classroom Management

	SS	df	MS	F	Sig.
Between Groups	229.076	2	114.538	1.007	.367
Within Groups	22070.224	194	113.764		
Total	22299.299	196			

Research question 2. *What is the effect of alternative teacher certification program type on teacher self-efficacy in student engagement?* As a teaching skill, student engagement refers to the teachers skill in planning and implementing instructional activities that keeps students focused and challenged on tasks. Teachers also have better methods to establish trust through relationship building with students. The null hypothesis for question 2 stated that alternative teacher certification program type did not have an effect on teacher self-efficacy in student engagement. Table 9 shows the results of a descriptive comparison of means among three program types and teacher self-efficacy in student engagement. Teachers from university sponsored graduate programs had higher means of teacher self-efficacy in student engagement ($M = 60.12$) than

teachers from local education agency and private teacher certification programs. Teachers from

local education agency had the lowest among all three groups ($M = 56.41$).

Table 9

Means for Student Engagement

Program Type[a]	*M*	*N*	*SD*
PBIC	60.12	26	9.127
LEA	56.41	44	10.269
PTCP	56.81	127	10.258
Total	57.16	197	10.137

Note. [a] PBIC denotes post baccalaureate initial certification; LEA denotes local education agency; PTCP denotes private teacher certification.

The statistical test chosen to test for significance was a one-way ANOVA to determine if

alternative certification program type had an effect on teacher self-efficacy in student

engagement. Teachers were classified into three groups such as teachers from graduate programs

($n = 27$), teachers from local education agency sponsored programs, ($n = 44$), and teachers from

private teacher certification programs ($n = 127$). During assumption testing, one significant

outlier among the groups existed as analyzed by boxplot and was kept in data analysis; data were

not normally distributed as assessed by Shapiro-Wilk test ($p = <.0001$) and there was

homogeneity of variances by Levene's test of homogeneity of variances ($p = .951$). The one-way

ANOVA measured no statistically significant differences between groups as seen in Table 10, F

$(2, 194) = 1.305$, $p = .274$. Therefore, the researcher accepted the null hypothesis ($p > .05$).

Table 10

One-way ANOVA for Student Engagement

	SS	df	MS	F	Sig.
Between Groups	267.367	2	133.684	1.305	.274
Within Groups	19874.755	194	102.447		
Total	20142.122	196			

Research question 3. *What is the effect of alternative teacher certification type on teacher self-efficacy in instructional strategies?* The hypothesis stated that alternative teacher certification program type had no effect on teacher self-efficacy in instructional strategies. Teachers with high efficacy in instructional strategies are more skilled in differentiating instruction to meet the needs of diverse learners. Teachers have better methods to deliver instruction and can successfully integrate multiple content for students to make connections across various subjects (Künsting et al., 2016). Additionally, teachers with higher teacher efficacy in instructional strategies develop comprehensive assessment practices that enable students of different backgrounds to demonstrate mastery of concepts (Cooper et al., 2015). To measure differences between means in teacher self-efficacy in instructional strategies, as seen in Table 11, descriptive statistics showed that graduate teachers had higher means in total teacher self-efficacy in instructional strategies (*M* = 61.96) and teachers from local education agency sponsored programs (*M* =58.14) and private teacher certification (*M* = 58.12) were highly similar.

Table 11

Means of Instructional Strategies

Program Type[a]	M	N	SD
PBIC	61.96	26	8.637
LEA	58.14	44	8.802
PTCP	58.12	127	10.102
Total	58.63	197	9.685

Note. [a] PBIC denotes post baccalaureate initial programs; LEA denotes local education agency; PTCP denotes private teacher certification.

A one-way ANOVA was run to analyze if alternative certification program type had an effect on teacher self-efficacy in instructional practice. Teachers were classified into three groups, such as (PBIC) graduate programs ($n = 27$, $M = 61.96$, $SD = 8.637$), local education agency sponsored programs, ($n = 44$, $M = 58.14$, $SD = 1.327$), and private teacher certification programs ($n = 127$, $M = 58.12$, $SD = 9.685$). During assumption testing, one significant outlier among the groups existed as analyzed by boxplot and was not removed; data were not normally distributed as assessed by Shapiro-Wilk test ($p = <.0001$) and there was homogeneity of variances by Levene's test of homogeneity of variances ($p = .951$). The ANOVA in Table 12 showed that differences between groups were not statistically significant, $F (2, 194) = 1.787$, $p = .170$. Therefore, the researcher accepted the null hypothesis ($p > .05$).

Table 12

One-way ANOVA for Instructional Strategies

	SS	df	MS	F	Sig.
Between Groups	332.578	2	166.289	1.787	.170
Within Groups	18053.372	194	93.059		
Total	18385.949	196			

Summary

From a review of research, only two clear paths exist to teacher certification which is the traditional path and the nontraditional path (Zhang & Zeller, 2016). As such, alternative teacher certification programs are categorized into one type and there is minimal empirical evidence that exist on how specific program types affects teacher self-efficacy. Therefore, the researcher used the variable of program type to examine if an effect existed. In this study, descriptive and inferential analyses was conducted to measure the effect of the independent variable, alternative teacher certification program type, on the dependent variable, teacher self-efficacy. Descriptive analyses examined mean scores across total teacher self-efficacy, program type, and teacher demographics. The instrument for data collection was the Teachers Sense of Efficacy Scale (TSES) which has been proven reliable and valid by many authors. No confirmatory factor analyses were run considering the validity of prior analyses and the researcher analyzed the Cronbach's alpha's for total teacher self-efficacy as .969.

Differences in teacher self-efficacy means established justification to fully examine teacher self-efficacy. Running inferential analyses posed unexpected challenges that were linked to two limitations of the study. The first limitation refers to unequal sampling of which one

program type had the highest number of respondents. The second limitation refers to the use of self-reported data. The methods for analyses were tests of one-way ANOVA which analyzed lower and higher scores as outliers which affected normality assumptions. All other assumptions for one-way ANOVA were met which prompted the researcher to complete the analyses with raw data rather than remove or transform non-normal data.

Unexpected limitations and challenges occurred during analyses. Unequal sample sizes and widely dispersed scores affected standard deviation and variances which affected how the tests of one-way ANOVA analyzed data. The study was conducted with a single instrument and one analysis and therefore the researcher did not have additional data to make comparisons. The study was preliminary and descriptive examinations provided evidence that teacher self-efficacy varies according to alternative teacher certification program type. Results of the analyses did not provide statistical evidence to reject any of the null hypotheses; however, one recommendation for advancing the study was the use of multiple methods and instruments so that more robust comparisons can be made to examine how program type affect teacher self-efficacy.

Chapter 5: Discussion and Conclusion

Introduction

The purpose of Chapter 5 is to discuss the summary and results of the study. This study used a causal-comparative design which allowed an examination of teacher's sense of efficacy in classroom management, student engagement, and instructional strategies after teachers had completed their training and were entering or had entered their final phase as interns. Teacher self-efficacy is an important concept concerning a teacher's professional practice (Christophersen et al., 2015). Teachers with higher teacher self-efficacy are described as more prepared to meet the challenges of diverse students, have an accumulation of skills to work as an interdisciplinary member for the academic attainment of students, and are more adaptable to different structures within schools. Low self-efficacy often have drastic results. Teachers with low self-efficacy often make poorer decisions in controlling student behaviors (Wang et al., 2015), are less skilled in engaging students (Blömeke et al., 2014), have lower expectations of student success (Helms-Lorenz et al., 2015) and have higher rates of burnout, exhaustion, and intention to quit (Ronfeldt et al., 2014).

Alternative certification has deep roots within teacher education literature and conflicting research is associated with the professional readiness of alternative certified teachers. Much of the research on alternative certified teachers has been centered on how alternative teacher certification affect student outcomes and teacher attrition. Alternative certified teachers are cited as having higher attrition rates than tradition prepared teachers, and much of the research regarding attrition has been delegated to a few well-known alternative teacher certification programs such as Teacher For America (Brewer, 2014).

A gap existed in research on measuring the effect of alternative certification programs on teacher self-efficacy due to the concept of sorting all alternative teacher certification programs as

one type. This study focused on teachers who received preparation through three common alternative teacher certification program types found in Texas. Teachers were either in their internship phase or had completed their requirements to become interns. In this section, empirical findings are explained in relation to the study's three research questions:

RQ1: What is the effect of alternative teacher certification program type on teacher self-efficacy in preservice elementary teachers regarding classroom management?

H_0 1: There is no effect of alternative teacher certification program type on teacher self-efficacy in preservice elementary teachers regarding classroom management?

RQ2: What is the effect of alternative teacher certification program type on teacher self-efficacy in preservice elementary teachers regarding student engagement?

H_0: 2: There is no effect of alternative teacher certification program type on teacher self-efficacy in preservice elementary teachers regarding student engagement.

RQ3: What is the effect of alternative teacher certification program type on teacher self-efficacy in preservice elementary teachers regarding instructional practice?

H_0 3: There is no effect of alternative teacher certification program type on teacher self-efficacy in preservice elementary teachers regarding instructional practice.

From review of research on teacher development and training, the concept of self-efficacy (Bandura, 1979) was a primary concept in the creation of the teacher self-efficacy model (Tschannen-Moran & Woolfolk-Hoy, 2001) which is an overarching framework for teacher practice. Bandura's self-efficacy theory is an explanation of how conditions and experiences create behavior (Bandura, 1979) and was predicated upon perceived confidence for a specific outcome. Four sources of experiences that build confidence for an expected outcome is mastery experience, vicarious learning, verbal persuasion, and physiological experiences (Bandura,

1988). Each experience for a particular skill may be concurrent or singular yet culminates into one concept of perception. Teacher self-efficacy is the teacher's confidence relating to teaching and the teaching environment (Tschannen-Moran & Woolfolk-Hoy, 2001). Three factors are related to daily tasks of teachers such as classroom management, student engagement, and instructional strategies (Pfitzner-Eden, 2016). This chapter discusses the development of the research in terms of how the approach, methods and research findings addresses the research questions. A section also describes the limitations of the study and how findings have implications for future research.

Summary of the Results

Frequency analyses were conducted to examine if age, race, and gender were stereotypical of frequencies found in literature for alternative certified teachers. The new variable of program type was measured against each demographical factor for verification. The range for age demographics included 25 to 30, 31 to 40, 41 to 50, and 51 and above. Alternative certification programs were reported to attract more mature professionals with significant years of professional experience yet data in this study was inconsistent with research. Teachers in the 51 and above range had the lowest of all frequencies at 9.6%. Teachers in the 41 to 50 age range consisted of 20.8 % percent. The highest frequencies of teachers belonged to the 25 to 30 and 31 to 40 age range and consisted of 69% of all teachers. According to program type, teachers in private teacher certification programs attributed to 64.5% of all teachers which posed challenges during inferential analyses.

Program type was measured against gender for the second frequency analysis to clarify if results were consistent with previous literature (Hammerness & Craig, 2016). Out of 197 respondents, 18.8% ($n = 37$) were males. Of that, 64.9% of males received preparation from

private teacher certification programs compared to 64.4 % of females. Data did not conclusively verify that more males were represented than in national data (NES, 2018). The lowest frequency of both gender types was represented in university sponsored baccalaureate programs with 5.4% of males and 12.2% of females.

Race was tabulated with program type to determine if more minorities were represented. Out of 197 respondents, 58.9% of all teachers were classified as White while minority populations represented the remaining 41.1%. Data in this study is similar to national statistics for teachers so no significance occurred regarding race. Similar proportions occurred in data when examining the percentages of race according to program type. 60.6% of White respondents received certification through private teacher certification programs compared to 15.7% of Black or African Americans and 21.3% of Hispanics, followed by 0.8% of American Indian or Alaskan Native.

The method for analyzing means of teacher self-efficacy according to program type consisted of a one-way ANOVA to measure against each domain of teacher self-efficacy. The one-way ANOVA is a parametric test and considered robust as data must pass six assumptions in order for results to be correctly interpreted (Frey, 2018). Data were accumulated through the use of the self-report 24 item Teachers' Sense of Efficacy Scale (TSES) of which total scores can range from 24 to 216 and for each domain of teacher self-efficacy between 8 and 72. One-way ANOVA tests analyze means by combining all scores to provide a statistical average and scores that considerably vary from the average are considered outliers (Allen, 2017). In this study, data that were measured from tests of one-way ANOVA were analyzed as non-normal data due to the wide differences in scores and accompanying outliers. An additional limitation occurred due to sampling. The percentage of teachers in private teacher certification programs were higher than

teachers of other programs, which contributed to wider variances of scores and skewed data. Three tests of one-way ANOVA were conducted to measure teachers' sense of efficacy in classroom management, student engage, and instructional practice. Details of the results are discussed in the following sections.

Discussion of the Results

During the planning of this study, the researcher verified constructs of the dependent variable, teacher self-efficacy using available literature. Classroom management, student engagement, and instructional strategies are discussed as everyday tasks of teachers and have strong correlations to teachers' sense of confidence in completing tasks within the teaching environment (Tschannen-Moran & Woolfolk-Hoy, 1999). As an independent factor, program type had no available literature due to the ambiguity surrounding alternative teacher certification. As a result, the researcher synthesized available literature to differentiate between programs.

Research question 1. *What is the effect of alternative teacher certification program type on teacher self-efficacy in preservice elementary teachers regarding classroom management?* Teachers develop teaching efficacy from specific experiences that occur throughout their program (Haim & Amdur, 2016). The construct of self-efficacy in classroom management has been reported as one of the most important skills that teachers need to substantially impact student outcomes (Flower et al., 2014) and an area that alternative certified teachers were purported to struggle with (Uriegas et al., 2014). For the present study, data were accumulated through the long version of the Teachers' Sense of Efficacy Scale (TSES). The 24-item scale has been verified multiple times for consistency (Moulding et al., 2014) and the researcher of this study analyzed the reliability coefficient as .969 for classroom management. Two descriptive examinations were conducted in this study to verify if means in teacher self-efficacy differed

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according to the independent variable, program type. The first test examined the means of total teacher self-efficacy in classroom management against program type. Teachers of university sponsored programs had reported means of 183.12 which were almost 12 points higher than reported means for teachers in local education agency sponsored programs at 171.86. A second descriptive analysis was conducted to measure if means in classroom management differed among program type. Means for teachers in university sponsored programs were higher at 61.04 as compared to the lowest reported means from teachers in local education agency sponsored programs at 57.32.

A one-way ANOVA was conducted to clarify if the differences in means according to program type were significant. A *p*-value of < .05 was set to indicate significance and the ANOVA calculated teacher self-efficacy in classroom management as .367. Unequal sample sizes and wide variances of scores resulted in violations to assumptions of no outliers and normal distribution, which posed challenges to statistical analyses. To maintain the true nature of responses, the researcher did not manipulate data. The one-way ANOVA found no significance between means of teacher self-efficacy in classroom management so no additional tests were warranted.

Research question 2. *What is the effect of alternative teacher certification type on teacher self-efficacy in preservice elementary teachers regarding student engagement?* Student engagement is referred to as an important skill of which teachers are responsible in providing the conditions to support and nurture students while also structuring academic challenges for students to interact within the classroom environment (Strati et al., 2017). A holistic interpretation of student engagement is the accumulation of advanced skills to structure experiences and relationships that addresses the affective and cognitive needs for students. For

the present study, data were accumulated through the long version of the Teachers' Sense of Efficacy Scale (TSES). The 24-item scale has been verified multiple times for consistency (Moulding et al., 2014) and the researcher of this study analyzed the reliability coefficient as .916. Two descriptive analyses were conducted in this study to verify if means in teacher self-efficacy differed according to the independent variable, program type. The first test examined the means of total teacher self-efficacy compared by program type. Teachers of university sponsored programs had reported means of 183.12 which were almost 12 points higher than reported means for teachers in local education agency sponsored programs at 171.86. A second descriptive analysis was conducted to measure if means in student engagement differed among program type. Means for teachers in university sponsored programs were higher at 60.12 as compared to the lowest reported means from teachers in local education agency sponsored programs at 56.41.

A one-way ANOVA was conducted to clarify if the differences in means of student engagement were significant according to program type. A *p*-value of < .05 was set to indicate significance and all assumptions of ANOVA passed except for outliers and normal data distribution. Unequal sample sizes and wide variances of scores posed challenges to statistical analyses. To maintain the integrity of responses, the researcher did not manipulate data. The one-way ANOVA calculated teacher self-efficacy in student engagement as .274 which did not indicate significance at the *p* < .05 confidence interval so no additional tests were warranted.

Research question 3. *What is the effect of alternative teacher certification type on teacher self-efficacy in preservice elementary teachers regarding instructional strategies?* Perceptions of self-efficacy has been described as a strong indicator of how teachers structure the learning environment and employ various methods to assess student learning. Teachers with a higher sense of efficacy in instructional strategies have more advanced skills in planning for

academic, social, developmental, and behavioral challenges for students (Poulou et al., 2019). Despite challenges that exist in the teaching environment, teachers with higher teacher self-efficacy in instructional strategies are motivated to examine existing barriers and studiously work to develop appropriate methods to teach and assess students.

In this study, data for teacher self-efficacy in instructional strategies were accumulated using the long version of Teachers' Sense of Efficacy Scale (TSES). Eight items represented typical experiences that teachers face daily during tasks and the researcher calculated the reliability for the construct as .927. Descriptive statistics were the first analysis conducted to establish that means differed among teachers. Statistical calculations reported that the means of teacher self-efficacy in instructional strategies for university sponsored graduate programs were almost 12 points higher ($M = 183.12$) than teachers in local education agency programs ($M = 171. 86$) at 95% confidence interval. A second set of descriptive analyses were conducted to examine only the domain of instructional strategies. The analysis showed similar means for teachers sense of efficacy in instructional strategies.

To determine if the differences in means were significant, a one-way ANOVA was conducted to measure the effect of program type on teachers' sense of efficacy in instructional strategies. Unequal sample sizes and the wider variance of scores posed challenges in analyzing with a one-way ANOVA. The assumptions for outliers and normal data distribution failed yet all other assumptions for a one-way ANOVA passed. The researcher did not manipulate the data to remove outliers or form normal data which resulted in the test finding no statistically significant differences at $p = 170$.

Discussion of the Results in Relation to the Literature

Teacher self-efficacy theory is a subset of self-efficacy and involves how teachers perceive their confidence in carrying out tasks in the teaching environment (Tschannen-Moran & Woolfolk-Hoy, 2001). The construct is three dimensional and each dimension has been found to connect to common activities associated with teachers and their practice. How teachers perceive their confidence has been widely attributed to experiences of their teacher preparation (Nomlomo & Sosibo, 2016). Teachers with higher teacher self-efficacy have stronger motivation to persist despite challenges in the teaching environment and are better able to evaluate how teaching methods affect student outcomes (Moulding et al., 2014). Specifically to alternative certified teachers, entering teaching without a background for teaching has been emphasized as critical, such that a previous sense of confidence and ability may not transfer to the teaching field if teachers perceive that their preparation was insufficient (Thomas & Mucherah, 2016; Westrick & Morris, 2016).

Addressing the theory of teacher self-efficacy can challenge teacher educators to analyze how program components support and nurture teachers sense of efficacy throughout the teacher program. Evidence from researchers have shown that despite inconclusive results, a significant result of teacher preparation was in the teacher's overall confidence in their professional role and providing a system of teaching methods to positively affect student outcomes. When teachers are confident enough to control the learning environment, differentiate teaching methods and instructional practices, teachers are more confident in carrying out tasks. Task specific mastery of skills is a primary prerequisite of confidence and self-efficacy (Zee & Koomen, 2016). Teachers who have been exposed to professional roles of teachers and direct teaching skills in preservice preparation were reported to have more confidence and determination to adapt and pursue additional skills when presented with challenges (Troesch & Bauer, 2017).

Alternative teacher certification programs and teacher self-efficacy. Researchers that examined the effect of alternative routes of teacher certification on teacher self-efficacy showed conflicting results, especially when comparisons were made between alternative and traditional routes. Most researchers did not focus on specific program type but cast all programs into one category. However, investigations of alternative teacher certification program type have become increasingly common since evidence has been provided by researchers that teachers of some alternative certification programs have higher attrition than others (Zhang & Zeller, 2016; Redding & Smith 2016). One primary emphasis on attrition has been a lack of overall preparedness and efficacy of teachers of which researchers attributed to the rigor of preparation methods, the structure of pre-experience activities, and support during induction (Zhang and Zeller, 2016).

A general consensus of researchers implied that there was more variability between than among alternative teacher certification programs which summarizes that no two programs have the same structural methods. Teachers choose programs that cater to specific contexts found within communities and student populations that teachers will teach (Hammerness & Craig, 2016). Teachers consider if the rigor of their educational program will prepare them for the context in which they will teach, and the teacher's sense of efficacy is dependent on the rigor of the program and the perception of readiness. The three program types examined in this study differed in structural methods. No statistical significances of means were found when measuring total self-efficacy or measuring the three domains of teacher self-efficacy although means of teacher self-efficacy scores in classroom management, student engagement, and instructional practice were highest for one program type. From the perspective of the researcher of this study, perfect scores in each domain of teacher self-efficacy suggested that a combination of previous

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experience and formal teacher training methods highly prepared teachers for a specific teaching environment. Self-efficacy is a perception that is developed over time (Moulding et al., 2014) and teachers with perfect efficacy scores in all domains in this study perceived that they had mastered all concepts of each domain.

In a study by Zhang and Zeller (2016), teachers trained in programs that offered more experiential learning and support during pre-preparation reported a stronger sense of overall competency. Experiential learning, also called field-based learning, integrates cognitive and affective components and largely affects how teachers view important concepts of the teaching profession and teaching in general (Tomkins & Ulus, 2016). Different types of experiential learning are necessary so that teachers develop more complex instructional methods through practice and then reflecting on the processes (Thomas & Mucherah, 2016). A salient point of the self-efficacy theory is mastery experience of specific tasks (Bandura, 1977; Tshannen-Moran & Hoy, 1998). Programs that offered structured preservice experiences and provided a rich variety of challenges during field-based experiences were reported as graduating teachers with more advanced teaching skills and a stronger sense of efficacy (Brown et al., 2014; Zhang & Zeller, 2016).

Program types examined in this study had different methods and structures for training teachers and no specific program type was found to significantly affect teacher self-efficacy. Alternative certified teachers are usually more professionally experienced, mature, and have accumulated a sense of efficacy from previous careers yet previous efficacy may or may not transfer to the teaching profession (Thomas & Mucherah, 2016). An important factor found between program type and teacher self-efficacy related to support (Zhang & Zeller, 2016). Researchers found that some alternative certification program types did not offer alternative

certified teachers the supervision and support needed (Watt, 2016). According to some researchers, alternative certified teachers need more support and timely feedback from mentors and program supervisors throughout teacher training and especially during the induction or residency phase (Redding & Smith, 2016). Support and feedback are important concepts related to self-efficacy development (Bandura, 1977). Development of teacher self-efficacy through social persuasion occurs from emotional factors of teachers (Colson et al., 2017). Social networks, such as family, friends, and peers can help strengthen perceptions that individuals are competent in tasks that they pursue (Meristo & Eisenschmidt, 2014). For preservice teachers especially, how program managers oversee the rigor of timely and critical feedback from cooperating teachers and program supervisors supports preservice teacher development of a stronger sense of teacher identity (Green, 2015).

Limitations

The three most significant limitations of this study were non-response, the use of self-reported data, and measuring data with a single instrument. The timing of the study may have created significant challenges when attempting to collect enough participants. Refusal of program administrators to participate and non-response of participants were primary factors as well. The researcher sent 20% more requests than needed in an attempt to equalize sample sizes; however, response rates for teachers from graduate and local education agency sponsored programs were significantly less than private teacher certification programs yet the researcher still received 10% of those populations. Although the number of participants was sufficient to satisfy the power level for the study, unequal sample sizes may have attributed to sample bias. From an examination of available research, the researcher verified that national statistics sorts all alternative certification programs into one category and an exact representation of percentages by

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program type was unavailable. However, the researcher verified that the sample was representative of the total population of alternative certified teachers in Texas and therefore, accepted unequal sample sizes due to the ambiguity regarding program types in national statistics.

A second limitation was the reliance upon self-reported data. TSES is an instrument that is used to measure teachers perceived confidence rather than their actual ability (Tschannen-Moran, Woolfolk-Hoy, & Hoy, 1998). Novice teachers may not have become fully exposed to the complexities of teaching and may not yet have developed accurate representations of their skill (Williamson & Hodder, 2015) before becoming fully inducted. Dependent on the environment where preteaching occurred, alternative certified teachers may assume full confidence of all tasks if they have a high degree of personal efficacy and may not adequately evaluate their skills or truthfully answer all questions (Giles & Kent, 2014).

A third limitation relates to how data were measured. Empirical studies of researchers that were used to build this study included methods that measured and examined teacher self-efficacy with multiple approaches, instruments, and statistical tests. Mixed-method researchers utilized multiple approaches to examine teacher self-efficacy with a combination of quantitative and qualitative data to measure if efficacy changed with different interpretations (Sisman, 2014; Thomas & Mucherah, 2016). This study captured data with one instrument and one statistical test and despite the limitations, an examination of descriptive results showed that teachers of at least one program type consistently scored higher means in the three domains of teacher-self efficacy than two other program types.

Implications of the Results for Practice, Policy, and Theory

The results of this study add to existing literature relating to alternative teacher certification on teacher self-efficacy. Minimal evidence exists in the literature on sorting alternative teacher certification programs into specific types. The present study defined three alternative teacher certifications programs as university sponsored graduate programs, local education agency sponsored programs, and private teacher certification programs. According to three tests of one-way ANOVA, the construct of program type did not have a significant effect on teachers sense of efficacy in classroom management, student engagement, and instructional strategies. Descriptive statistics showed notable differences in teacher self-efficacy according to program type that warrants further study for theoretical aspects.

The concept of teacher self-efficacy has become a professional standard for measuring teacher's overall perceptions of preparedness to teach (Senler, 2016). From a review of research, correlations between alternative teacher certification and teacher self-efficacy is widely discussed in teacher literature. Although both positive and negative interpretations occur regarding alternative teacher certification programs, much of the negative results revolve around the concept of fast immersion programs (Sisman, 2014; Zhang & Zeller, 2016). Some alternative teacher certification programs use more rigorous screening of candidates and structure longer preservice learning experiences before allowing teachers into the classroom full-time (Mentzer, Czerniak, & Duckett, 2018). However, many programs offer quick immersion which catapult teachers into the classroom after a few weeks of professional training of which teachers are expected to fulfill their roles as well as seasoned teachers (Brewer, 2014).

Findings from this study clarified the prevalence of teachers entering the workforce from private teacher certification programs. Wide variances in scores contributed to a preliminary snapshot for policy makers and program leaders to verify that differences occur in teacher self-

efficacy from teachers of different program types. Empirical evidence from past research used to build this study supported that teachers from some quick immersion programs do not fare well and begin teaching with a lower sense of efficacy and overall are unprepared to instruct and manage students or assume teachers professional roles (Haim & Amdur, 2016). Although inferential evidence did not clarify significance, descriptive evidence from this study supported that teachers reported lower confidence by program type and specifically in tasks related to instructional strategies. One statistical test was conducted to measure teacher self-efficacy with program type which provided insight into challenges that occurred in analyzing teacher self-efficacy with only one self-reported instrument. Findings from this study may encourage other researchers to maximize the potential of using program type as a construct and utilize multiple statistical methods, multiple instruments, and taking appropriate measures to equalize sample sizes.

The conceptual framework that girded this research study was the self-efficacy theory of which Bandura (1979) conceptualizes how individuals perceive confidence in executing tasks to achieve specific outcomes. The teacher self-efficacy model is a subset of self-efficacy and is the teachers confidence in performing tasks relating to teaching and the teaching environment. Descriptive findings from this study concluded that teachers of post baccalaureate graduate programs consistently reported higher means in all three domains of teacher self-efficacy than teachers from local education agency sponsored programs and private teacher certification programs. The researcher could not examine why the phenomenon occurred due to not having access to teachers or having any identifying information to connect programs to teachers.

In addition to personal, cultural, and environmental factors, teachers may associate specific characteristics of their teacher self-efficacy to the quality and length of training and as

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well as experiences during training (Moulding et al., 2014; Wagner & Noy, 2014).From a review of research used to assemble this study, graduate programs were conceptually considered as similar to undergraduate initial teacher certification programs in terms of selectivity, rigor, and training methods (Redding & Smith, 2016). Teachers in this study who were certified through graduate programs may have been trained in such programs.

Bandura (1979) posited that mastery is one of the most important experiences that builds confidence and of this study, teachers certified through graduate programs may have received more pre-experience to master teaching concepts. Pre-experience could have occurred from substitute teaching, working as a paraprofessional, volunteering, or other types of experiences that exposed teachers to the teaching environment. As such, teachers may have accumulated much more industry knowledge and considered themselves highly capable. Tschannen-Moran, Woolfolk-Hoy, and Hoy (1998) described teacher self-efficacy as task and context specific, such that timing, environment, and skill all interact to form teachers' self-efficacy judgements. In the context of this study, the researcher could not determine which situations affected graduate teachers perceptions of efficacy to compare if teachers may have over or under evaluated their sense of efficacy.

Recommendations for Further Research

Descriptive results of the present study provided a preliminary snapshot that differences occur in total means of teacher self-efficacy compared by program type. The three tests of one-way ANOVA did not report statistical differences among means. Equalizing the sample sizes, adding additional variables, and performing multiple statistical methods could improve future studies relating to teacher self-efficacy and program types.

Program type. Minimal research exists that examines alternative teacher certification program type on teacher self-efficacy. The construct of program type used in this study was a synthesis of programs discussed in relevant teacher preparation literature. No definitive concept of program type is evident in literature other than a description of methods for training teachers. Additionally, alternative teacher certification programs may not have commonality among or between them (Haim & Amdur, 2016). As such, defining a conceptual or theoretical approach to alternative teacher training is difficult. Therefore, a recommendation for further research is explicitly related to examining how the theoretical framework of alternative teacher certification programs support the development of teacher self-efficacy. Additionally, the sorting of alternative teacher certification programs can perhaps help researchers develop an appropriate construct for program type as well as operationalize their characteristics.

Teacher self-efficacy. Teacher self-efficacy has been abundantly measured in different contexts (Ptfitzner-Eden, 2016). As a construct, teacher self-efficacy can be measured as one variable, or three independent variables classified as classroom management, student engagement, and instructional strategies (Tshcannen-Moran, & Woolfolk-Hoy, 1999). The construct of teacher self-efficacy is consistently verified as an important component of teacher preparation and a teachers sense of professional readiness (Thomas & Mucherah, 2016).How teachers were trained and the experiences that occurred during training has been repeatedly correlated to a stronger sense of efficacy in teachers (Christophersen, Elstad, Turmo, & Solhaug, 2016). Once self-efficacy perceptions have been formed, they are difficult to change (Moulding, Stewart, & Dunmeyer, 2014).

Examining teacher self-efficacy of alternative certified teachers provided a lens to clarify that descriptive differences occurred according to program type. Recommendations for future

research relates to adding variables. Utilizing other variables in conjunction with program type could provide additional clarification on the effect that preparation has on teacher self-efficacy. One scale and one statistical analysis method were used in the present study. A second recommendation for further research involves the use of multiple instruments. The Teachers' Sense of Efficacy Scale (TSES) is a reliable instrument to measure a sense of efficacy. Using additional instruments can provide a more robust interpretation of how specific tasks are related.

One analysis method was performed in the current study which posed challenges in analyzing and interpreting results. Therefore, a recommendation for future research involves the use of multiple analysis methods to show how data in one set relates to other types of data. A lesson learned in this study relate to how statistical analyses treat data so an additional recommendation is for future researchers to examine if the analyses can accurately measure the constructs across a range of challenges.

Timing and sampling were two limitations of the study. The two-week window to accumulate data began during the spring and the second window began during the summer when teachers were off. Additionally, program managers and authorized representatives refused to accept research requests. Despite repeated attempts to accumulate more respondents from graduate programs and local education agency sponsored programs, a low response rate occurred. Two recommendation to minimize this challenge for future researchers is to utilize state resources rather than rely on individual programs. State educational departments maintain a database for public researchers which is easier to utilize. Additionally, a longer period for data accumulation may be necessary to address difficulties during testing dates and school closures.

Challenges that occurred due to sampling is related to unequal sample sizes. When determining how to address the unequal sample sizes, I utilized available literature and examined

methodological issues. To maintain the integrity of responses, I did not transform or manipulate the data so the assumption of normal data was violated for the statistical test of one-way ANOVA. A recommendation for further research is to have a larger sampling frame. In this study, teachers from private teacher certification programs had a greater representation than teachers of graduate and local education agency problems. A larger frame may possibly introduce more variability in responses so that statistical tests can provide a more robust analysis.

Conclusion

The purpose of this study was to examine how three types of alternative teacher certifications programs affected teacher self-efficacy in classroom management, student engagement, and instructional strategies. Participants in this study were a convenience sample of alternative certified teachers in southeast Texas who volunteered to participate. Three research questions were created from analyzing and comparing the work of authors who measured the effects of teacher self-efficacy and alternative teacher certification. The conceptual framework of this study is specific to teachers and frequently used to establish theoretical grounds for examining the effects of teacher preparation.

Descriptive and inferential statistics were methods to analyze teacher self-efficacy according to program type from one self-reported instrument (TSES). Inferential statistical results did not show significant evidence to reject any of the three null hypotheses. Program type had no effect on teachers' sense of efficacy in classroom management, student engagement, or instructional strategies.

Using a mixed method approach with multiple instruments to clarify the effect of program type on teacher self-efficacy is recommended due to the personal characteristics and emotive complexity of individuals. Instruments created specifically to examine how support and

feedback correlate with low efficacy items can provide additional insight into how teachers'

confidence change over time. Measurement of teacher-self efficacy has been one factor to

consistently predict teachers longevity in the profession (Savas, Bozgeyik, & Eser, 2014) and an

indication of how teachers structure a learning environment conducive to student learning (Zee,

deJong, & Koomen, 2017). Implementing activities to develop and nurture teacher efficacy in

teacher programs can perhaps minimize negative effects in the first three years, such as burnout,

exhaustion, and intent to quit.

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Appendix A: Consent Form

The purpose of this study is to examine the effect of alternative certification type on second-career teachers self-efficacy. We expect approximately 252 volunteers. To be in the study, you complete this online survey. Completing the survey should take less than 10 minutes of your time. The online survey is anonymous. You can stop answering the questions in this online survey if you want to stop. We will not ask you any personal identifying information and we will have no record of who completes this survey.

There are no risks to participating in this study other than the everyday risk of your being on your computer as you take this survey. The benefit is your answers will help us understand the effect of alternative certification **type** on teachers self-reported efficacy in classroom management, student engagement, and instructional practice. You could benefit by reflecting on your confidence to become teachers of record.

All data is collected anonymously and will be destroyed three years after the study ends. You can get a copy of this form by printing or emailing the investigator.

If you have questions you can talk to or write the principal investigator, Tonda Handy at (Contact information redacted).

Click the link below to consent to take this survey.

Appendix B: Permission to Use TSES

COLLEGE OF
OHIO STATE UNIVERSITY
EDUCATION AND
HUMAN ECOLOGY

Anita Woolfolk Hoy, Ph.D.   Professor
                                                            Psychological Studies in Education

Dear

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

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

Best wishes in your work,

Anita Woolfolk Hoy

Anita Woolfolk Hoy, Ph.D.
Professor Emeritus

Appendix C: Demographical Section for Participants

Please indicate your age range:

25–30

31–40

41–50

51 and above

Please indicate your race

White

Black or African American

Hispanic

American Indian or Alaskan Native

Asian

Native Hawaiian or Pacific Islander

Other

Please indicate your gender:

Male

Female

Route of Certification

University Sponsored Post-Baccalaureate Program

Local Education Agency Sponsored Program

Private Teacher Certification Program

Appendix D: A priori

F tests - ANOVA: Fixed effects, omnibus, one-way

Analysis: A priori: Compute required sample size
Input: Effect size f   =   0.25
                 α err prob   =   0.05
                 Power (1-β err prob)   =   0.95
                 Number of groups   =   3
Output: Noncentrality parameter λ   =   15.7500000
                 Critical F   =   3.0320649
                 Numerator df   =   2
                 Denominator df   =   249
                 Total sample size   =   252
                 Actual power   =   0.9514888

Appendix E: Statement of Original Work

The Concordia University Doctorate of Education Program is a collaborative community of scholar-practitioners, who seek to transform society by pursuing ethically-informed, rigorously- researched, inquiry-based projects that benefit professional, institutional, and local educational contexts. Each member of the community affirms throughout their program of study, adherence to the principles and standards outlined in the Concordia University Academic Integrity Policy. This policy states the following:

Statement of academic integrity.

As a member of the Concordia University community, I will neither engage in fraudulent or unauthorized behaviors in the presentation and completion of my work, nor will I provide unauthorized assistance to others.

Explanations:

What does "fraudulent" mean?

"Fraudulent" work is any material submitted for evaluation that is falsely or improperly presented as one's own. This includes, but is not limited to texts, graphics and other multi-media files appropriated from any source, including another individual, that are intentionally presented as all or part of a candidate's final work without full and complete documentation.

What is "unauthorized" assistance?

"Unauthorized assistance" refers to any support candidates solicit in the completion of their work, that has not been either explicitly specified as appropriate by the instructor, or any assistance that is understood in the class context as inappropriate. This can include, but is not limited to:

- Use of unauthorized notes or another's work during an online test
- Use of unauthorized notes or personal assistance in an online exam setting
- Inappropriate collaboration in preparation and/or completion of a project
- Unauthorized solicitation of professional resources for the completion of the work.

Statement of Original Work (Continued)

I attest that:

1. I have read, understood, and complied with all aspects of the Concordia University–Portland Academic Integrity Policy during the development and writing of this dissertation.

2. Where information and/or materials from outside sources has been used in the production of this dissertation, all information and/or materials from outside sources has been properly referenced and all permissions required for use of the information and/or materials have been obtained, in accordance with research standards outlined in the *Publication Manual of The American Psychological Association.*

_____

Digital Signature

_____

Name (Typed)

_____

Date

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