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An Investigation of the Relationship Between Teachers' Personal Epistemologies and Their Self-Efficacy About Culturally Responsive Classroom Management

A dissertation
presented to
the faculty of the Department of Early Childhood Education
East Tennessee State University

In partial fulfillment
of the requirements for the degree
Doctor of Philosophy in Early Childhood Education

by
Tahani Ahmed
August 2022

Dr. Amy Malkus, Chair
Dr. Pamela Evanshen
Dr. Ruth Facun-Granadozo

Keywords: personal epistemology, culturally responsive classroom management, self-efficacy

ABSTRACT

An Investigation of the Relationship Between Teachers' Personal Epistemologies and Their Self-Efficacy About Culturally Responsive Classroom Management

by

Tahani Ahmed

Diversity is now an essential matter in US public schools. For the first time in America's history, students of color will constitute a majority of the public school enrollment; on the other hand, most early childhood and elementary teachers remain monolingual, white, middle-class females (Hussar & Bailey, 2019). The demographic mismatch between students and teachers presents a critical concern for teacher preparation programs (Banks et al., 2005; Gay, 2018; Muñiz, 2019). Therefore, this study proposed that understanding the relationship between pre-service teachers' epistemological beliefs and their culturally responsive classroom management self-efficacy illustrated factors that may improve their teaching concept toward diversity. The study also evaluated whether early childhood (PreK-3) pre-service teachers held different personal epistemologies of teaching and culturally responsive classroom management self-efficacy beliefs than elementary (K-5) pre-service teachers. Lastly, the study explored factors that may contribute to pre-service teachers' personal epistemological beliefs of teaching and their self-efficacious beliefs about culturally responsive classroom management. The study used the explanatory sequential mixed-methods design that contained two phases. In Phase I, 111 pre-service teachers completed two surveys: the teachers' Personal Epistemologies of Teaching Scale (PT-PETS) and the Culturally Responsive Classroom Management Self-Efficacy scale (CRCMSE). In Phase II, six pre-service teachers participated in semi-structured interviews. The results indicated no significant linear correlation between pre-service teachers' sophisticated personal epistemological

beliefs and their confidence in employing culturally responsive classroom management. In addition, the integration of the quantitative and the qualitative data demonstrated that pre-service teachers held sophisticated personal epistemological beliefs of teaching. They also showed different confidence levels about applying culturally responsive classroom management. A two-way ANOVA revealed that only semester level significantly affected the PT-PETS scores, where pre-service teachers in the seventh semester performed better than those in the fifth semester. The current study illustrated various positive and negative factors that may influence pre-service teachers' epistemological beliefs of teaching and their self-efficacious beliefs in culturally responsive classroom management, which may provide insight for teacher preparation programs.

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DEDICATION

I dedicate this work to the love of my life, my husband Mohammed, and the stars of my sky, my daughters Rawf and Zowd. Without the inspiration, love, and support you gave me, I might not be the person I am today.

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Chapter 1. Introduction

Statement of the Problem

Diversity is now an essential matter in US public schools. For the first time in America's history, students of color will constitute a majority of the public school enrollment; on the other hand, most early childhood and elementary teachers remain monolingual, White, middle-class females (Hussar & Bailey, 2019). The demographic mismatch between students and teachers presents a critical concern for teacher preparation programs (Banks et al., 2005; Gay, 2018; Muñiz, 2019). Data from several studies showed that many pre-service and in-service teachers articulate that they feel ill-prepared to work with diverse students (Mills, 2013; Salerno & Kibler, 2013; Yuan, 2017a; Zhang & Peltari, 2014).

Unfortunately, too many culturally and linguistically diverse (CLD) students are involved in classrooms where they are disconnected from their backgrounds, held to low academic expectations, and more likely to experience rigorous discipline strategies (Ladson-Billings, 2006; Mallett, 2017; Muñiz, 2019). As an example, my daughter had an unfortunate experience with a third-grade math teacher. Rawf, who speaks English as a second language and comes from a collectivist culture, struggled to connect with the third-grade math teacher. The teacher held low expectations of Rawf and assumed that she did not put enough effort into improving her 85 percent reading scores. Sadly, the third-grade math teacher forced Rawf to walk laps to work on her reading scores. I tried to show the third-grade teacher that Rawf obtained a perfect score in the reading test designed for English language learners (ELL), but the third-grade teacher was unwilling to collaborate with me and the ELL teacher. To this day, I am still working with my daughter to reconstruct her conception of reading.

A school must be a safe environment for all children. According to the National Association for the Education of Young Children [NAEYC] (2019), “all children have the right to equitable learning opportunities that enable them to achieve their full potential as engaged learners and valued members of society” (p. 1). Crucially, teachers play a significant role in constructing positive and unique mental images and experiences about schools and learning for CLD students. Therefore, pre-service teachers should be equipped with beliefs, knowledge, and skills that enable them to work effectively with CLD students (Banks et al., 2005; Chen et al., 2009; Miller & Mikulec, 2014).

Recently, there has been renewed interest in identifying factors that may contribute to pre-service teachers’ preparedness for diversity (Bondy, Ross, Galligane, & Hambacher, 2007; Muñiz, 2019; Sleeter, 2001; Yuan, 2017b). One of the fundamental factors to take into account in teacher preparation programs is to understand and improve the beliefs of pre-service teachers, which in turn improve their teaching practices (Brownlee & Berthelsen, 2008; Brownlee & Ferguson, 2017; Noddings, 1995; Richardson, 2003). Many studies have investigated the relationship between personal epistemologies and teachers’ self-efficacy as general domains. However, what is not yet known is the actual relationship between personal epistemologies of teaching and culturally responsive classroom management self-efficacy as specific domains. This research examined the association between two vital beliefs: personal epistemologies of teaching and culturally responsive classroom management self-efficacy by using domain-specific questionnaires in the context of teacher preparation.

Pre-Service Teachers’ Belief Systems

The belief systems of pre-service teachers filter, form, and guide their experiences in teacher preparation programs (Brownlee & Berthelsen, 2008; Fives & Buehl, 2017; Hofer, 2010).

According to Thompson (1992), “belief systems are dynamic, permeable mental structures, susceptible to change in light of experience” (as cited in Fives & Buehl, 2012, p. 473). The learning experience that pre-service teachers receive in teacher preparation programs influence their beliefs about learning and teaching (Brownlee & Berthelsen, 2008; Roesken et al., 2011). Therefore, it is important to examine pre-service teachers' beliefs about teaching and learning that they enter the program with and help them develop an adequate understanding of learning and teaching (Hill, 2000; LePage et al., 2005).

The impact of teachers' beliefs on teaching practice is well-documented (Brownlee & Ferguson, 2017; Richardson, 2003; Schwartz & Jordan, 2011). Girardet (2018) conducted a systematic review of 24 qualitative, quantitative, and mixed-methods longitudinal empirical studies to understand factors that impact pre-service and in-service teachers to change their classroom management conceptions and practices. Girardet (2018) found that pre-service and in-service teachers' prior beliefs were a negative factor that limited their willingness to adopt new classroom management methods. Thus, changing teachers' beliefs about an educational concept may lead to a change in practice. Therefore, it is vital to examine, modify, and develop pre-service teachers' beliefs toward diversity (LePage et al., 2005; Yuan, 2017b).

Pre-Service Teachers' Personal Epistemological Beliefs

The epistemological beliefs of pre-service teachers have a clear implication in teacher preparation programs. Noddings (1995) explained the consequences of teachers' personal epistemologies on their teaching practices:

Teachers do not usually share the epistemologists' concerns about the foundations of knowledge, but there are several reasons why teachers should be concerned with epistemology. First, teachers need to make decisions about the status of material they

teach: Is it true? Does it matter whether it is true? Second, teachers need to evaluate the "knowledge" that comes to them from educational research. Third, teachers must decide whether the knowledge long reserved for a few students should or can be made accessible to all. (p. 78)

Over the past 40 years, research on personal epistemological beliefs has been investigated as a general domain (Brownlee & Berthelsen, 2008; Fives & Buehl, 2010, 2017; Hofer, 2001; Muis et al., 2006). Lately, there has been a shift in educational research to consider teachers' personal epistemologies as a separate domain (Elby & Hammer, 2010; Fives & Buehl, 2012, 2017; Hofer & Bendixen, 2012; Muis et al., 2006). Personal epistemologies of teaching refer to "beliefs about the origin and development of knowledge related to teaching" (Schraw et al., 2017, p. 4). Hofer and Pintrich (1997) illustrated that an individual's epistemological beliefs develop from naive beliefs such as right and wrong answers to more sophisticated beliefs such as evidence-based ways of knowing.

Several theoretical and empirical studies found that teachers' epistemological beliefs influence their pedagogical practices (Fives & Buehl, 2010; Hofer, 2001; Hofer & Bendixen, 2012; Muis et al., 2006; Noddings, 1995). Schwartz and Jordan (2011) applied a mixed-methods design that combined teachers' interviews with extensive classroom observations. This study demonstrated that teachers with more sophisticated beliefs (knowledge is uncertain and complex, and learning requires time) are more likely to implement effective teaching strategies and promote a high level of dialogical interactions with students. Given that personal epistemology may impact teaching, pre-service teachers need to have opportunities within teacher preparation programs to understand and develop their epistemological beliefs.

Studies showed that the epistemological beliefs of pre-service teachers might impact their conceptions about learning and teaching (Bondy, Ross, Adams, et al., 2007; Chai et al., 2006; Chan, 2004; Hofer, 2001; Hofer & Bendixen, 2012; Walker et al., 2012; White, 2000; Yadav & Koehler, 2007). Chan (2004) conducted a study with 385 pre-service teachers to understand how pre-service teachers' epistemological beliefs filter their selections of teaching approaches. The study results demonstrated that pre-service teachers with sophisticated epistemological beliefs were more likely to choose a constructivist teaching approach. In addition, Windschitl (2002) conducted a systematic literature review to explore factors and obstacles that may influence the constructivist approach to teaching. This researcher found that developing sophisticated epistemological beliefs is a prerequisite to becoming a constructivist teacher.

In another study, White (2000) used a case study approach to explore pre-service teachers' epistemology via understanding their perspectives on problematic classroom situations. The findings showed that a pre-service teacher who holds sophisticated epistemologies tends to consider different perspectives when thinking about a solution for the problematic classroom situation. Similarly, Yadav and Koehler (2007) found that pre-service teachers' epistemological beliefs guide their perceptions and interactions when observing exemplary teaching practices. Therefore, understanding pre-service teachers' epistemological beliefs may explain the underlying mechanisms that guide their teaching process (Chan, 2004; Feucht & Bendixen, 2010; Fives & Buehl, 2017). Hence, preparing pre-service teachers to work with CLD students may start by developing their epistemological beliefs of teaching.

Several empirical studies conducted with pre-service teachers provide evidence that pre-service teachers' epistemological beliefs may change by the learning experience during teacher preparation programs (Gill et al., 2004; Hofer, 2001; Lunn Brownlee et al., 2017; Walker et al.,

2012; Yu, 2013). For instance, Walker et al. (2012) conducted a longitudinal study with 850 early childhood and elementary pre-service teachers to examine the development of their epistemological beliefs. The results demonstrated that pre-service teachers' personal epistemologies were subject to change when they were involved in meaningful learning experiences. In another study, Gill et al. (2004) formed a conceptual model to examine the change in 161 pre-service teachers' epistemological beliefs about teaching and learning in mathematics. This study demonstrated that augmented activation and refutational text's instructional intervention encouraged a great change in pre-service teachers' epistemological beliefs about mathematics. Thus, pre-service teachers must find a safe learning environment to explore and challenge their epistemological beliefs of teaching CLD students.

The aforementioned studies indicate that personal epistemologies of teaching have a clear implication on early childhood education and elementary pre-service teachers' preparedness. Nevertheless, additional research is needed to investigate pre-service teachers' epistemic beliefs by using domain-specific questionnaires (Brownlee & Berthelsen, 2008; Hofer, 2006; Hofer & Bendixen, 2012; Muis et al., 2006; Yu, 2013). Likewise, there is a need to understand whether and how personal epistemologies as guides relate to self-efficacy in the context of teaching (Fives & Buehl, 2017; Muis et al., 2006).

Pre-Service Teachers' Culturally Responsive Classroom Management Self-Efficacy Beliefs

Managing a classroom is a complex task, but it becomes more challenging in a diverse classroom. Since each culture has different definitions and expectations of appropriate behaviors, a conflict may happen between teachers and students from diverse cultural and linguistic backgrounds (Allen & Steed, 2016; Siwatu et al., 2017; Weinstein et al., 2003). Therefore, pre-service teachers need to develop beliefs, knowledge, and skills that prepare them to work

effectively with diverse students (Bondy, Ross, Gallingane, & Hambacher, 2007; Lewis Chiu et al., 2017; Sleeter, 2001; Zhang & Pelttari, 2014). One of the essential beliefs that pre-service teachers should develop during a teacher preparation program is culturally responsive classroom management self-efficacy (CRCMSE) beliefs. According to Siwatu et al. (2017), CRCMSE can be defined as follows: pre-service teachers' beliefs in their abilities to implement culturally responsive classroom management tasks.

CRCMSE is a relatively new term that encompasses two terms: culturally responsive classroom management and self-efficacy; both are well-documented in the literature (Bandura, 1997; LePage et al., 2005; Siwatu et al., 2017). Culturally responsive classroom management can be defined as “a frame of mind as much as a set of strategies or practices” (Weinstein et al., 2003, p. 275). Teachers’ self-efficacy refers to “individuals’ beliefs in their capabilities to perform specific teaching tasks at a specified level of quality in a specified situation” (Dellinger et al., 2008, p. 752). Despite the importance of studying self-efficacy as tasks and specific situations, most research explores self-efficacy as a general domain without considering the cultural aspect.

Teachers’ self-efficacy beliefs are an essential factor influencing teachers’ effectiveness and psychological well-being (Aloe et al., 2014; Delale-O’Connor et al., 2017; Gaias et al., 2019; Zee & Koomen, 2016). For example, Aloe et al. (2014) utilized a multivariate meta-analysis method to examine the relationship between teachers’ self-efficacy about classroom management and teacher burnout. The results from 16 studies indicated that teachers with a higher level of classroom management self-efficacy are less likely to experience feelings of burnout. In another study, Zee and Koomen (2016) systematically reviewed 135 articles to explore the consequences of teachers' self-efficacy on teachers’ effectiveness. The critical review indicated that teachers’ self-efficacy positively correlated with teachers’ ability to create a productive learning

environment, student achievement and motivation, and teachers' psychological well-being. Gaias et al. (2019) utilized a person-centered approach to study the classroom management practices of 103 teachers. Gaias et al. found that teachers with a poor classroom management tend to have significantly more students with negative behaviors than teachers with better classroom management. In addition, "effective teachers must also be culturally knowledgeable, able to analyze the role of culture in their perceptions of student behavior, and able to use culture to create classroom contexts that support, nurture, and respect students" (Bondy, Ross, Galligane, & Hambacher, 2007, p. 344).

Therefore, preparing pre-service teachers to feel efficacious in designing culturally responsive classroom management is a fundamental step in teacher preparation programs because there is a high chance that pre-service teachers will teach CLD students (Gay, 2018; LePage et al., 2005; Muñiz, 2019). In fact, one of the most significant current discussions in educational research is finding variables that may foster pre-service teachers' preparedness to teach in diverse classrooms (Mills, 2013; Milner, 2019). Hence, preparing pre-service teachers to teach CLD students may start by supporting pre-service teachers to develop sophisticated personal epistemologies of teaching.

Fives and Buehl (2017) recommended that "teacher educators need to invite future and practicing teachers to engage their personal epistemologies and actively use them to frame teaching and learning" (p. 47). Clearly, understanding the connection between personal epistemologies and teaching methods is valuable to identify the impact of epistemological beliefs or, in turn, are impacted by instructional and curricular decisions in the classroom context (Yu, 2013). Therefore, the present study argued that examining the relationship between personal

epistemologies of teaching and self-efficacy regarding culturally responsive classroom management may provide new insight into preparing pre-service teachers for diverse classrooms.

Significance of the Study

This study responded to the NAEYC recommendations to advance equity and diversity in early childhood education. The NAEYC (2019) position statement on equity and diversity advocates that pre-service teachers needed to be prepared to work effectively with diverse students. In addition, it is well-known that teachers' beliefs influence their teaching practices (Brownlee & Ferguson, 2017; Fives & Buehl, 2017; Richardson, 2003). Thus, altering teachers' beliefs about teaching knowledge and diversity may change their teaching concepts and future practices.

In the current study, pre-service teachers' beliefs were investigated by examining the relationship between two essential beliefs: personal epistemologies of teaching and culturally responsive classroom management self-efficacy. The study proposed that understanding the relationship between pre-service teachers' epistemological beliefs and their culturally responsive classroom management self-efficacy could illustrate factors that may improve their teaching concept toward diversity. In addition, the study contributed to the literature on personal epistemologies of teaching and culturally responsive classroom management by using domain-specific questionnaires. Finally, the study demonstrated potential areas of development in teacher preparation programs.

Definitions of Terms

The following definitions are the key terms in this study:

- **Culturally responsive classroom management** encompasses theoretical knowledge (teacher mindset about diversity) and practical knowledge (teacher's approach to

incorporate students' cultural knowledge into classrooms) to design psychologically-supportive classroom environments (Brown, 2004; Gaias et al., 2019; Gay, 2002; Siwatu et al., 2017; Weinstein et al., 2004; Yuan, 2017a).

- **Culturally Responsive Classroom Management Self-Efficacy (CRCMSE)** refers to pre-service teachers' beliefs in their abilities to implement culturally responsive classroom management tasks (Siwatu et al., 2017).
- **The constructivist teaching approach** is based on constructivist learning theory, which views learning as an active process; knowledge is constructed by learners and influenced by their previous experiences, cultures, and values (Noddings, 1995; Windschitl, 2002).
- **An early childhood pre-service teacher** is defined in the current study as an undergraduate college student in the fifth or seventh semester who receives training at an early childhood teacher preparation program to become a licensed teacher for pre-k through third grade.
- **An elementary pre-service teacher** refers to an undergraduate college student in the fifth or seventh semester involved in a curriculum and instruction teacher preparation program to become a licensed elementary teacher for kindergarten through fifth grade.
- **Personal epistemologies of teaching** means “beliefs about the origin and development of knowledge related to teaching” (Schraw et al., 2017, p. 4).
- **Teacher self-efficacy** is defined as “individuals' beliefs in their capabilities to perform specific teaching tasks at a specified level of quality in a specified situation” (Dellinger et al., 2008, p. 752).

- **Teaching knowledge** refers to “a body of professional knowledge that encompasses both knowledge of general pedagogical principles and skills and knowledge of the subject matter to be taught” (Grossman & Richert, 1988, p. 54).
- **The traditional teaching approach** involves practices in schools and views that learning occurs by acquiring information from teachers, textbooks, and the surrounding environment; knowledge is an objective phenomenon that exists independently of learners (Noddings, 1995; Windschitl, 2002).

Chapter 2. Literature Review

This chapter reviews the existing literature that supports the two main constructs of the study: personal epistemologies and culturally responsive classroom management self-efficacy. The chapter also demonstrates the theoretical frameworks that guide the investigation of this study. In the 21st century, the demographic changes in classrooms confront teacher educators with the challenge of creating meaningful experiences to guide pre-service teachers to acquire knowledge, skills, and beliefs that support them in working with culturally and linguistically diverse (CLD) students (Gay, 2018; Krasnoff, 2016; LePage et al., 2005; Muñiz, 2019). The current study proposed that developing the epistemological beliefs of pre-service teachers may improve their self-efficacy in managing diverse classrooms.

Conceptualization of Personal Epistemologies

Personal epistemologies are one of the essential beliefs that significantly influences a pre-service teacher's way of thinking. Brownlee et al. (2009) stated that "personal epistemological beliefs, or beliefs about knowing, provide a way in which to understand learning in a range of educational contexts because they are considered to act as filters for all other knowledge and beliefs" (p. 599). Therefore, assessing pre-service teachers' beliefs and their relationship to other beliefs might provide insight about factors that impact their conception about learning and teaching. Moreover, Bondy, Ross, Adams, et al. (2007) explained that supporting personal epistemologies of pre-service teachers is crucial because they become responsible for students' knowledge and ways of knowing.

Theoretical Framework of Personal Epistemologies

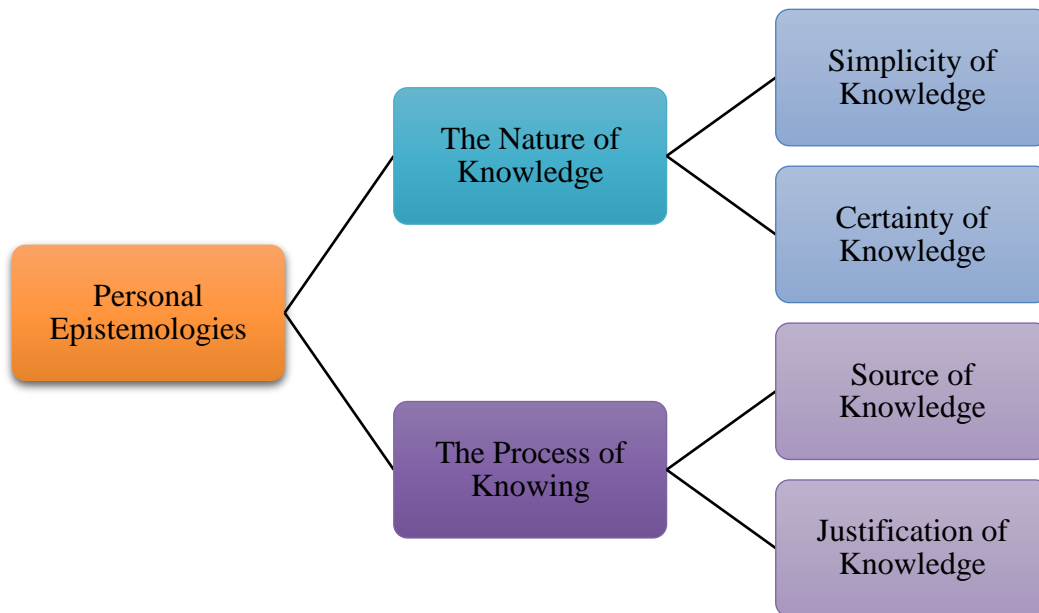
The epistemological framework of Hofer and Pintrich (1997) guided the investigation of this study. Hofer and Pintrich defined the construct of epistemological beliefs as individual beliefs about the nature of knowledge and the process of knowing. They theorized that personal epistemologies are an individual theory structured in ways that are comparable to how theories are structured in science. Hofer and Pintrich proposed that personal epistemologies consist of independent, multi-dimensional structures of beliefs interconnected in a coherent and internally consistent manner and develop in reasonable, predictable directions.

Hofer and Pintrich (1997) planned a model of personal epistemologies that has four dimensions. They rationalized that an individual's epistemological theories encompass two general aspects: the nature of knowledge and the process of knowing, which include four dimensions: certainty of knowledge, simplicity of knowledge, justification of knowledge, and source of knowledge. The next section demonstrated the aspects and dimensions of the model. Figure 1 provides an overview of Hofer's and Pintrich's (1997) model of personal epistemologies.

The nature of knowledge is about what an individual believes knowledge is (Hofer & Pintrich, 1997). The individual way of viewing knowledge progresses from viewing knowledge as simple and certain to a relativistic view and then to a contextual, constructivist stance (Hofer, 2001; Hofer & Pintrich, 1997; Schwartz & Jordan, 2011).

Figure 1

Hofer's and Pintrich's Model of Personal Epistemologies



Hofer and Pintrich (1997) stated that the nature of knowledge is subdivided into two dimensions: simplicity of knowledge and certainty of knowledge. They explained that the certainty of knowledge means the degree to which an individual views knowledge as fixed or fluid. The certainty of knowledge includes two levels. The lower level is viewing knowledge as absolute truth with certainty. Hofer and Pintrich described that the higher level is viewing knowledge as uncertain and changing. They also clarified that the simplicity of knowledge means an individual view of knowledge as simple facts or interconnected concepts. The simplicity of knowledge includes two levels. The lower level is viewing knowledge as isolated, concrete, knowable facts. The higher level is viewing knowledge as relative, contingent, and contextual (Hofer & Pintrich, 1997).

Hofer and Pintrich (1997) said that the process of knowing means the beliefs of how an individual comes to know. They subdivided the process of knowing into two dimensions: the sources of knowledge and justification of knowing. The sources of knowledge include two levels. The lower level is viewing knowledge that comes from outside of oneself and exists within external authority from which it can be transmitted. The higher level is viewing knowledge constructs inside oneself with the ability to build knowledge through interactions with others (Hofer & Pintrich, 1997).

Hofer and Pintrich (1997) illustrated that the justification of knowing means the individual approach of evaluating knowledge claims that includes using evidence and evaluating authority and expertise. “As individuals learn to evaluate evidence and to substantiate and justify their beliefs, they move through a continuum of dualistic beliefs to the multiplistic acceptance of opinions to reasoned justification for beliefs” (Hofer & Pintrich, 1997, p. 122). This theoretical model of personal epistemologies provided a foundation for the investigation in the current study.

The Mechanism of Epistemic Belief Change

Piaget’s theory of cognitive disequilibrium is often used to demonstrate the mechanism of epistemological belief changes (Hofer, 2001; Hofer & Pintrich, 1997; Muis et al., 2006; Noddings, 1995). Disequilibrium means a state of cognitive imbalance (Crain, 2000). Disequilibrium occurs when constructing knowledge requires building a new schema or modifying an existing schema (Waite-Stupiansky, 2017). A schema is a mental system of knowledge to help us interpret and understand the world (Crain, 2000; Waite-Stupiansky, 2017). Disequilibrium is an uncomfortable state, and individuals tend to go back quickly to equilibrium (Kibler, 2011). Therefore, developing pre-service teachers’ epistemological beliefs requires a safe

environment where pre-service teachers can evaluate and reflect on their existing epistemological beliefs, which may lead to developing sophisticated epistemological beliefs.

Personal Epistemologies and Learning to Teach

Extensive research has shown that pre-service teachers' personal epistemologies filter, guide, and frame their conceptions about learning and teaching (Bondy, Ross, Adams, et al., 2007; Brownlee & Berthelsen, 2008; Chan, 2004; Fives & Buehl, 2010, 2017; Hofer, 2001). For example, White (2000) used an inductive approach to explore 20 pre-service teachers' epistemological beliefs via understanding their perspectives on problematic classroom situations. The data was collected through interviews and two individual written responses to five case studies of first-year teachers who experienced problematic classroom situations. The study showed that pre-service teachers hold different epistemological beliefs that interconnect and are related to teaching.

Another finding was that pre-service teachers' epistemology impacted their views about problematic classroom situations (White, 2000). A pre-service teacher who holds a naive epistemology tends to see the problematic classroom situation from only a teacher's viewpoint. On the other hand, a pre-service teacher who holds sophisticated epistemology tends to consider different perspectives when thinking about a solution. This study showed that pre-service teachers' epistemological beliefs guide their perception about learning to teach.

In another study, Chan (2004) used a quantitative method to examine the relationship between 385 pre-service teachers' conceptions of teaching and learning and their epistemological beliefs. The results showed that pre-service teachers' conceptions of teaching and learning are related to their epistemological beliefs. Pre-service teachers who believe in the constructivist teaching and learning approach were more likely to hold sophisticated epistemological beliefs.

Pre-service teachers who believe in the traditional teaching and learning approach were more likely to hold naive epistemological beliefs. The finding of this study confirmed the existence of a relationship between pre-service teachers' epistemological beliefs and their perceptions of teaching and learning.

Bondy, Ross, Adams, et al. (2007) used a qualitative method to explore the relationship between pre-service teachers' personal epistemologies and their approach of learning to teach. They applied an operational construct sampling procedure to select 14 pre-service teachers from all the pre-service teachers who entered the teacher preparation program in fall 2000. The pre-service teachers were interviewed four times in the first and the second semesters of the first year.

The findings showed that pre-service teachers hold different personal epistemologies that filter their learning experiences (Bondy, Ross, Adams, et al., 2007). The pre-service teachers who hold sophisticated beliefs of teaching knowledge developed a deep understanding of new ideas and experiences and made connections between coursework and fieldwork. On the other hand, the pre-service teachers who hold naive beliefs about teaching knowledge provided surface information about their learning experiences and rejected unfamiliar ideas that conflicted with their initial perspectives. The study showed that pre-service teachers' epistemological initial beliefs about the nature of knowledge and knowing seem to impact their ways of learning to teach.

In another study, Brownlee et al. (2009) investigated the relationship between personal epistemologies of first-year undergraduates and their learning and teaching conceptions. A total of 35 early childhood education and elementary pre-service teachers and creative writing students were interviewed during the first week. The semi-structured interview included scenarios that were designed to match students' majors. The study's finding is consistent with previous studies

that students' personal epistemologies were related to their learning conceptions. Naive personal epistemologies seem to be linked with viewing learning as a process of acquiring information from external resources to reproduce and apply later in life.

On the other hand, sophisticated personal epistemologies seem to be linked with viewing learning as a process of making personal meaning of information. Also, sophisticated personal epistemologies seem to be linked with viewing learning as a process of making a connection between pre-existing and new information. The results of this study showed the importance of understanding pre-service teachers' pre-existing personal epistemological beliefs and the impact of these beliefs on their conception of learning and teaching.

Similarly, Yadav and Koehler (2007) used hypermedia-enhanced video cases about effective literacy teaching strategies to examine the relationship between pre-service teachers' epistemological beliefs and learning. A total of 11 pre-service teachers participated in the quasi-experimental study. A qualitative and quantitative analysis was applied to determine if a consistent pattern exists between pre-service teachers' epistemological beliefs and their selected cases. The finding showed that pre-service teachers' epistemological beliefs impact their selections and interpretations of the video cases. For example, the pre-service teachers who hold naive epistemological beliefs such as knowledge is simple and learning is innate tend to select a video case where a teacher used traditional teaching strategies. On the other hand, the pre-service teachers who hold sophisticated epistemological beliefs tend to choose a video case where a teacher used constructivist teaching strategies.

In sum, various research methods confirmed the existing relationship between pre-service teachers' epistemological beliefs and their conception of learning to teach. Nevertheless, one of

the missing aspects of research in personal epistemologies in the context of teacher preparation programs is to assess pre-service teachers' epistemological beliefs of teaching knowledge.

Promoting Pre-Service Teachers' Personal Epistemologies

Several lines of evidence suggest that personal epistemologies of teachers are connected to their selections of instruction, curriculum, and learning materials (Elby & Hammer, 2010; Fives & Buehl, 2017; Hofer & Bendixen, 2012; Noddings, 1995). It has been demonstrated that teachers who hold sophisticated personal epistemologies are more likely to implement a student-centered constructivist approach to teaching (Chan, 2004; Elby & Hammer, 2010; Windschitl, 2002). Therefore, there is a need to understand how to increase sophistication in pre-service teachers' epistemic thinking and recognize the mechanism of epistemic belief change in teacher preparation programs.

For example, Walker et al. (2012) designed a longitudinal study and used a mixed-methods approach to investigate whether a change of pre-service teachers' personal epistemologies occurs with progression through teacher preparation programs. Also, the study was designed to understand the reasons behind the change of pre-service teachers' personal epistemologies. A total of 850 early childhood and elementary pre-service teachers were assessed and interviewed three times. The first time was when the pre-service teachers were beginning their first courses. The second time was when the pre-service teachers were in the third year. The final time was when the pre-service teachers were in the last year of their programs. The study results showed that pre-service teachers' beliefs become more sophisticated toward the end of their teacher preparation programs. The results indicated that throughout teacher preparation programs, the pre-service teachers were more likely to believe that knowledge is integrated,

learning takes time, knowledge is personally constructed, student success is more than innate ability, and knowledge is uncertain.

Another significant result of the study was that pre-service teachers believe the reasons behind the change in their personal epistemologies during their progression on teacher preparation program included:

- Involvement in the university
- Increasing knowledge
- Developing a deep understanding of teaching knowledge
- Maturation
- Experiencing contradictions in opinions and theories
- Engaging in reflection
- Engaging in a lot of reading and writing
- Attending practical experiences in the field

The findings of this study showed that pre-service teachers' personal epistemologies were subject to change during their training in teacher preparation programs when they were involved in meaningful learning experiences. According to Walker et al. (2012), the learning experiences that may encourage pre-service teachers' sophisticated personal epistemologies include understanding different learning theories and reasons behind the disparities, discussing conflicting educational issues, and practical teaching experience with diverse learners, and reflections.

To understand which instructions may promote pre-service teachers' personal epistemologies Gill et al. (2004) constructed a conceptual model to examine the change in pre-service teachers' epistemological beliefs about teaching and learning in mathematics. A total of

161 pre-service teachers participated in the intervention. The pre-service teachers were in the first semester of an elementary teacher preparation program. Also, they had no previous exposition to constructivism before the intervention. The pre-service teachers were randomly assigned to the treatment or control groups. Gill et al. (2004) used the Epistemological Beliefs Questionnaire (EBQ) to assess pre-service teachers' general epistemological beliefs. The Cognitively Guided Instruction Belief Survey (CGI) was employed to evaluate the explicit epistemological mathematics beliefs of pre-service teachers.

Gill et al. (2004) created eight mathematics teaching scenarios to assess pre-service teachers' implicit epistemological mathematics beliefs. Half of the teaching scenarios represented constructivist teaching, and the other half represented traditional teaching. The pre-service teachers were asked to rate the eight scenarios on a scale of 1-10, where 10 indicates the most excellent mathematics teaching. Gill et al. (2004) examined how pre-service teachers systematically process the refutational text and non-refutational text using a thought-listing task. The refutational text is intended to encourage conceptual change in students' beliefs by presenting scientific evidence that fosters dissatisfaction with their current beliefs (Guzzetti et al., 1993). After reading the passage, the pre-service teachers had three minutes to list their ideas, thoughts, attitudes, and feelings. The number of message-based thoughts was used as a measure of systematic processing.

A week later, the pre-service teachers received the treatment and the posttreatment measures (Gill et al., 2004). The pre-service teachers were given 15 minutes to read the experimental and control passage. The experimental treatment group read an augmented activation and a refutational text. The purpose of the augmented activation passage was to stimulate and change the pre-service teachers' epistemological beliefs, which guided their

responses on the CGI scale. The refutational text aimed to demonstrate a logical explanation of the benefits of adopting constructivist epistemology and teaching approaches. The refutational text was intended to directly challenge the pre-service teachers' epistemological beliefs of the traditional mathematics teaching approach. The control group read a typical expository text likely to be found in a traditional textbook (Gill et al., 2004). The expository text explained the benefits of constructivist teaching practices in mathematics to the pre-service teachers. Afterward, both the control and the treatment groups completed the posttreatment measures: the EBQ, the CGI, the eight teaching scenarios, and the manipulation check measure (Gill et al., 2004).

The results demonstrated that augmented activation and refutational texts instructional intervention encouraged a significant change in pre-service teachers' epistemological beliefs about mathematics as opposed to reading the traditional text. Therefore, the practical approach to promote change in pre-service teachers' epistemological beliefs is by targeting and challenging their existing beliefs. The results also showed that systematic processing did not mediate the relationship between the instructional intervention and pre-service teachers' epistemological beliefs (Gill et al., 2004). On the other hand, systematic processing mediated the relationship between pre-service teachers' general epistemological beliefs and the change in their specific epistemological beliefs. Thus, systematic processing was shown to be a mechanism for change in pre-service teachers' specific epistemological beliefs.

Moreover, the results indicated that pre-service teachers who hold naive epistemological beliefs are less likely to engage in deep thinking about mathematical teaching concepts and less likely to develop sophisticated beliefs about the nature of mathematics and how mathematical knowledge is developed (Gill et al., 2004). This experimental design's finding is consistent with other studies (Bondy, Ross, Adams, et al., 2007; Sosu & Gray, 2012; Walker et al., 2012) that

pre-service teachers hold different epistemological beliefs as they progress through teacher preparation programs. Therefore, teacher educators need to support pre-service teachers who hold naive personal epistemologies to understand the complexity of the nature of knowledge and knowing.

Sosu and Gray (2012) conducted a longitudinal study to investigate whether pre-service teachers experienced epistemic belief change during the teacher preparation program. The study also examined the relationship between pre-service teachers' epistemological beliefs, teaching competence, and instructional preference. In the first wave of the study, 112 pre-service teachers participated. In the second wave of the study, 71 pre-service teachers participated. A total of 63 pre-service teachers completed the two waves of the study. The findings affirmed that pre-service teachers' epistemological beliefs become more sophisticated toward the end of the teacher preparation program. Sosu and Gray (2012) discovered that pre-service teachers' epistemological beliefs significantly influence their instructional preferences. For example, pre-service teachers who prefer the traditional teaching approach were more likely to hold naive epistemological beliefs. Sosu and Gray (2012) also found that the impact of pre-service teachers' epistemological beliefs on teacher competence was mixed. The source of knowledge was the only epistemic belief found to be associated with teaching competence. The results align with previous research that pre-service teachers with sophisticated epistemic thinking are more likely to believe in a constructivist teaching approach (Chai et al., 2009; Chan, 2004; Walker et al., 2012; White, 2000).

In sum, previous studies illustrate that teacher preparation programs influence the epistemological thinking of pre-service teachers. They also demonstrated that the learning experience that pre-service teachers receive during training plays an essential role in changing

their epistemic beliefs. Therefore, teacher educators need to be aware of pre-service teachers' pre-existing epistemological beliefs to provide appropriate support. To promote sophisticated thinking, teacher educators need to challenge pre-service teachers' epistemological beliefs by presenting them with evidence-based knowledge contrary to their existing beliefs.

Conceptualization of Culturally Responsive Classroom Management Self-Efficacy

Culturally responsive classroom management self-efficacy (CRCMSE) was another construct that was investigated in the present study. The CRCMSE is a new construct that was proposed by Siwatu et al. (2017). However, the construct is combined from two well-documented constructs: culturally responsive classroom management and teachers' self-efficacy (Allen & Steed, 2016; Bandura, 1997; Dellinger et al., 2008; Milner & Tenore, 2010; Weinstein et al., 2004). The next sections present the theoretical framework and relevant literature on culturally responsive classroom management and self-efficacy.

Theoretical Framework of Culturally Responsive Classroom Management

Weinstein et al. (2004) proposed a conception of culturally responsive classroom management that include five essential components: (1) recognition of one's own ethnocentrism, (2) knowledge of students' cultural backgrounds, (3) realization of the broader social, economic, and political context, (4) ability and willingness to practice culturally appropriate management strategies, and (5) commitment to build caring classrooms.

Recognition of One's Own Ethnocentrism

Weinstein et al. (2004) stated that pre-service teachers need to have a safe environment to develop an awareness of their ethnocentrism and biases. They need to understand their culture's values and beliefs by bringing the cultural assumptions and biases to the conscious level, which helps pre-service teachers recognize the connection between culture and behavior and make mindful decisions about students' behaviors.

Understanding Knowledge of Students' Cultural Backgrounds

Weinstein et al. (2004) explained that students come to the classroom with their own cultural norms and values. They explained that students behave according to their cultural backgrounds, and teachers may misinterpret students' behavior as disrespectful because it does not align with teachers' culture. Thus, Weinstein et al. (2004) believed that pre-service teachers need to learn and develop skills that enable them to understand students' cultural backgrounds. They also clarified that pre-service teachers need to understand the complexity and variation of cultural practices. Pre-service teachers should learn how to ask questions related to students' culture, including family backgrounds, educational experiences, and cultural norms and values (Weinstein et al., 2004).

Realizing the Broader Social, Economic, and Political Context

Weinstein et al. (2004) stated that pre-service teachers need to have opportunities to reflect on educational issues that represent social injustice. Pre-service teachers need to reflect on how educational institutions and school culture are normalized by the dominant group's cultural norms and values. They need to read stories about successful teachers who overcame educational inequity. Also, Weinstein et al. (2004) recommended that pre-service teachers need to think about strategies to support and build connections with underprivileged students. Weinstein et al. (2004)

explained that critical reflections guide pre-service teachers to question classroom management and discipline.

Develop Desires and Abilities to Implement Culturally Responsive Classroom Management

Weinstein et al. (2004) emphasized that pre-service teachers need to be willing to use cultural diversity as a lens to create an effective and equitable learning environment that supports all students. Weinstein et al. (2004) outlined the culturally responsive classroom management tasks:

- Creating a physical environment to support the academic and social goals
- Determining and sustaining expectations for students' behavior
- Increasing students' motivation
- Developing and managing instructional approaches
- Collaborating with families
- Employing suitable interventions to manage misbehavior

Building Caring Classroom Communities

Weinstein et al. (2004) explained that caring is a fundamental component of effective learning and teaching. They recommended that pre-service teachers need to learn strategies to structure a caring classroom community with diverse students. Weinstein et al. (2004) said that a caring classroom is where students feel respected, trusted, and supported by teachers and classmates.

Theoretical Framework of Self-Efficacy

Self-efficacy is a major concept of Bandura's social cognitive theory. Bandura (1977, 1982, 1989, 2001) proposed a conceptual model of triadic reciprocal causation. He explained that

learning occurs in a social context through dynamic interactions between internal personal, behavioral, and environmental reciprocating factors (Bandura, 1989, 2001). Self-efficacy is one of the internal personal factors that positively affects human behavior (Bandura, 1977, 1982). According to Bandura (1982), "self-efficacy is concerned with judgments of how well one can execute courses of action required to deal with prospective situations" (p. 122).

Self-efficacy beliefs are core features of human agency (Bandura, 2001). In addition, "self-efficacy beliefs are believed to mediate relationships between knowledge and behaviors while interacting within environmental contexts" (Dellinger et al., 2008, p. 752). For instance, an individual with high self-efficacy in performing specific tasks has the courage and motivation to act in the face of obstacles in accomplishing the desired results (Bandura, 1977, 1982, 2001). "Efficacy beliefs are concerned not only with the exercise of control over action but also with self-regulation of thought processes, motivation, and effective and physiological states" (Bandura, 1997, p. 36). Self-efficacy beliefs are not fixed abilities, but instead, efficacy beliefs are generative capabilities linked to specific domains (Bandura, 1977, 1982, 1989, 1997). Self-efficacy is constructed from four sources of information (Bandura, 1977):

- **Mastery experiences.** The successful accomplishment of a task is the most influential source of self-efficacy.
- **Vicarious experience.** Observing people who share similar abilities with us succeed in a mission contributes to our sense of self-efficacy in achieving similar results.
- **Verbal persuasion.** Receiving encouragement in our abilities to accomplish a difficult task enhances our sense of self-efficacy.

- **Physiological and emotional states.** People judge their self-efficacy on performing a task based on their bodily states and reactions in complicated situations.

Self-Efficacy in the Teaching Context

Teachers' self-efficacy is a well-documented construct (Bandura, 1997; Crain, 2000; Dellinger, 2005; Waite-Stupiansky, 2017). The two terminologies, teacher efficacy and teacher self-efficacy, have been used interchangeably (Dellinger et al., 2008). However, teacher efficacy and teacher self-efficacy are separate constructs and have different implications (Bandura, 1977, 1982, 1997; Dellinger et al., 2008). Teacher self-efficacy is defined as "individuals' beliefs in their capabilities to perform specific teaching tasks at a specified level of quality in a specified situation" (Dellinger et al., 2008, p. 752). On the other hand, teacher efficacy is defined as teachers' beliefs in their capabilities to impact student outcomes (Gibson & Dembo, 1984). Furthermore, teacher efficacy focuses on student outcomes without identifying specific teaching strategies, but teacher self-efficacy concentrates on teachers' ability to perform specific tasks in a specific context. The following statement clarifies Bandura's explanation of the difference between efficacy expectations and outcome expectations:

Outcome and efficacy expectations are differentiated, because individuals can believe that a particular course of action will produce certain outcomes, but if they entertain serious doubts about whether they can perform the necessary activities, such information does not influence their behavior (Bandura, 1977, p. 193).

Self-efficacy beliefs are active and learned systems that are task and situation specific (Bandura, 1982, 1989, 1997; Cohen & Waite-Stupiansky, 2017; Dellinger et al., 2008). Thus, in

the present study, the culturally responsive classroom management self-efficacy term was used to assess pre-service teachers' abilities regarding culturally responsive classroom management tasks.

Preparing Pre-Service Teachers for Diversity

There is a need to prepare pre-service teachers with beliefs, skills, and knowledge to work effectively with CLD students (Chen et al., 2009; Gay, 2002; Ladson-Billings, 2006; Lewis Chiu et al., 2017; Muñiz, 2019; Skepple, 2014). However, many pre-service teachers have inadequate training to teach in diverse classrooms (Gay, 2002; Mills, 2013; Salerno & Kibler, 2013; Villegas & Lucas, 2002). Gay (2002) stated that teacher educators need to prepare pre-service teachers to become culturally responsive teachers to meet the demand of the demographic change in classrooms and improve the academic achievements of CLD students. Teaching CLD students required teachers to explore the uniqueness that each student brings to the learning environment. According to Gay (2002), “culturally responsive teaching is defined as using the cultural characteristics, experiences, and perspectives of ethnically diverse students as conduits for teaching them more effectively” (p. 106).

Many researchers agreed that understanding pre-service teachers' disposition toward diversity is the initial phase in preparing culturally responsive teachers (Chen et al., 2009; Gay, 2002; Vázquez-Montilla et al., 2014; Weinstein et al., 2003). In one study, Vázquez-Montilla et al. (2014) investigated teachers' beliefs and dispositions toward teaching CLD students. A total of 425 southwest Florida pre-service and in-service teachers participated. Vázquez-Montilla et al. (2014) stated that teachers reported negative dispositions and beliefs regarding teaching CLD students, which included:

- Teachers believed that English language learners (ELL) should only learn English at school, even if the cost is losing their first language.
- Teachers thought that ELL students lack the motivation to learn English.
- Teachers believed that ELL students used irrational justifications to defend their poor performances at schools.
- Teachers thought that having ELL students in the classroom hindered the learning of English native speakers.
- Teachers said that teachers should not adjust their teaching approach to meet the needs of CLD students.
- Teachers also believed that schools and society put too much time and energy to advocate for multiculturalism.

However, these teachers held opposite views toward language requirements of American citizenship. They believed that citizens could be non-English speakers (Vázquez-Montilla et al., 2014). They agreed Americans should learn a language additional to English (Boser et al., 2014; Mallett, 2017; Mills, 2013; Skepple, 2014). Despite the positive views that teachers had toward learning an additional language, they held negative dispositions toward CLD students. Thus, there is a need to understand underlying factors that influence teachers' beliefs about diversity.

Changing pre-service teachers' dispositions about diversity is a complex task, and there is a need for tools that guide the changing process. Chen et al. (2009) stated that deep reflection about self is not comfortable, and a self-study tool can be used as a starting point in preparing pre-service teachers to become culturally responsive educators. Chen et al. (2009) designed a self-study tool for pre-service teachers to reflect on their attitudes, assumptions, and knowledge about diversity. The self-study tool uses a developmental approach that facilitates reflections on actions

(assessing the current practice) and for actions (planning for future practice). The self-study tool can support pre-service teachers to study themselves in conjunction with teacher educators' support (Chen et al., 2009). The self-study tool stimulates pre-service teachers' thinking in four aspects (Chen et al., 2009):

- **Self-awareness**, which includes questions that examine pre-service teachers' level of awareness and comfort regarding self-identity, personal perceptions on differences, and the ability to respond to bias.
- **Physical environment**, which contains questions that stimulate pre-service teachers' thinking in designing culturally responsive classrooms.
- **Pedagogical environment**, which includes questions that assess intentional and unintentional messages that are delivered to students through selections of language, curriculum, and teaching methods.
- **Relationship with families and community**, including questions that motivate pre-service teachers to think about different communication strategies in culturally responsive ways.

Discussion topics related to diversity can be sensitive to some pre-service teachers. Lewis Chiu et al. (2017) recommended creating a safe environment for pre-service teachers to share their views toward diversity. Pre-service teachers need to have different opportunities to explore themselves as cultural beings and understand the difference between cultural norms and absolute truth (Lewis Chiu et al., 2017). Discussion about race, power, and privilege is a sensitive topic that involves emotions and feelings of discomfort (Lewis Chiu et al., 2017). Therefore, teacher educators need to support pre-service teachers to understand their current positions on the diversity spectrum (Lewis Chiu et al., 2017). Group dialogue is a vital strategy to discuss

diversity topics. However, pre-service teachers need to have group and private opportunities to express their perceptions about diversity (Lewis Chiu et al., 2017).

Identifying factors and obstacles that contribute to pre-service teachers' attitudes, skills, and knowledge toward CLD students is an essential step in understanding the necessary changes to prepare pre-service teachers for diversity. In one study, Skepple (2014) used a mixed-methods approach to explore personal and professional factors that may affect pre-service teachers' beliefs, skills, and knowledge toward diversity. The study used a demographic background questionnaire with 82 pre-service teachers and a focus group interview with eight purposefully selected pre-service teachers. Skepple (2014) found that pre-service teachers were aware of diversity, but they did not have to think deeply about diversity issues before joining the teacher preparation programs. Regarding the sociocultural consciousness beliefs of pre-service teachers, the study showed that pre-service teachers' culturally diverse knowledge base (race, ethnicity, social class, and language) might influence their perception and behavior toward diversity. In addition, Skepple (2014) explained that educational learning experiences in teacher preparation programs increased pre-service teachers' knowledge of culturally responsive teaching. However, pre-service teachers needed more practical training to understand the effective teaching methods in diverse classrooms.

Skepple (2014) also found that classroom management for a diverse classroom was a significant concern for pre-service teachers. This study emphasized the critical roles that teacher preparation programs take in preparing pre-service teachers for diversity. Therefore, teacher educators need to examine what type of educational experience pre-service teachers receive and their influence concerning diversity.

Mills (2013) conducted a longitudinal study to highlight the challenges a teacher preparation program encounters when preparing future teachers for diversity. A total of 24 pre-service and beginning teachers were interviewed five times across three years. The findings showed that pre-service teachers experienced frustrations and concerns about their lack of knowledge about diversity. Mills (2013) found that a stand-alone multicultural education course did not impact pre-service teachers' views toward diversity due to the traditional teaching and unauthentic assessment approach. In addition, teachers stated a lack of practical experiences in diverse contexts was another reason for their unpreparedness to teach in diverse classrooms (Mills, 2013). Both pre-service and beginning teachers stated that the teacher preparation program prepared them to teach the average student who represents the mainstream culture and language but not to teach diverse students (Mills, 2013). The results of this study underline two complex issues in teacher preparation programs. The first issue is how diversity is presented in the teacher preparation program. For example, using a stand-alone course about multicultural education did not illustrate the importance of using culture as a lens for every subject. The second issue is the lack of practical experiences in a diverse classroom environment.

Another study presented obstacles and practical implications in preparing pre-service teachers for diversity. Yuan (2017) stated that the absence of multicultural perspectives and materials in teacher preparation programs limited teacher educators' abilities in preparing pre-service teachers to work effectively with diverse learners. The lack of culturally relevant literature representing diverse groups hinders progress toward diversity in teacher preparation programs. Yuan (2017) explained that teacher preparation programs' current design includes courses and field experiences that train pre-service teachers to teach White, monolingual students. Yuan

(2017) also found that the disparities between theories and practical implications that reflect classrooms' reality restricted pre-service teachers' understanding of CLD students.

Therefore, there is a need for creating culturally responsive teacher preparation programs to enhance pre-service teachers' abilities to teach CLD students (Yuan, 2017a), which include: a suitable and comprehensive training that positively influence pre-service teachers' attitudes toward diversity, a culturally responsive knowledge base, and practical experiences in various cultural contexts.

Generally, most pre-service teachers do not have adequate training to work with CLD students. Absence of perspectives, materials, knowledge, and field experiences representing diversity in teacher preparation programs contribute to the insufficient training. Further research is needed to understand other factors that may influence pre-service teachers' views toward diversity (Lewis Chiu et al., 2017; Muñiz, 2019; Yuan, 2017a).

Efficacy for Culturally Responsive Classroom Management

Classroom management is the primary concern for pre-service and in-service teachers because of its complex and unpredictable nature (Freeman et al., 2014; LePage et al., 2005). The complexity of classroom management increases when students and teachers come from different cultural backgrounds or speak different first languages (Aloe et al., 2014; Delale-O'Connor et al., 2017; Milner, 2019). Indeed, one of the main challenges in preparing pre-service teachers for classroom management is their desire to know the right and wrong answers (Pereira & Gates, 2013; Siwatu et al., 2017). However, classroom management decisions are far more complicated than having the right answer or a universal approach that could apply in any situation.

Pre-service teachers need to have the mindset to understand the implications and the underlying mechanisms that guide their choices when creating culturally responsive classroom

management (Milner & Tenore, 2010; Siwatu et al., 2017; Weinstein et al., 2003, 2004). Hence, the present study proposed that pre-service teachers with sophisticated personal epistemologies of teaching were more likely to have high self-efficacy regarding culturally responsive classroom management.

Previous studies have addressed that a teacher who has high-self efficacy in classroom management is more likely to build effective classroom management. According to Bandura (1989), self-efficacious thinking establishes correspondences between knowledge and action. Therefore, becoming an effective culturally responsive classroom manager requires pre-service teachers to have knowledge, skills, beliefs (e.g., self-efficacy and personal epistemologies) that serve as guides. Preparing pre-service teachers to feel efficacious regarding culturally responsive classroom management is a fundamental step in teacher preparation programs because there is a high chance that pre-service teachers will teach CLD students (Gay, 2018; LePage et al., 2005; Muñiz, 2019).

An effective classroom manager is able to assess the physical and pedagogical learning environment to build a caring classroom community to meet the needs of all students. Thus, it is vital to consider the cultural aspect when designing classroom management because understanding the cultural backgrounds of CLD students explains the cultural context that shapes their behaviors and cognitive abilities. According to Park and Huang (2010), “cultural values and experiences shape neurocognitive processes and influence patterns of neural activation and may even affect neural structures” (p. 399). It is crucial that pre-service teachers understand the connection between culture and CLD students’ development. According to the National Association for The Education of Young Children (2019), culture is “the patterns of beliefs, practices, and traditions associated with a group of people” (p. 17). CLD students come to a

classroom with learned behaviors, and it is not fair that they experience any discrimination due to their differences. However, there is a possibility that judging others based on an individual's personal experiences is a human instinct. Therefore, there is a need for professional training to help pre-service teachers understand the differences between cultural norms and reality.

Pre-service teachers need to have different opportunities to learn how to make professional decisions to manage a diverse classroom. The present study argued that culturally responsive classroom management self-efficacy (CRCMSE) belief is one of the essential beliefs that pre-service teachers need to successfully lead a diverse learning environment. The CRCMSE refers to pre-service teachers' beliefs in employing culturally responsive classroom management tasks (Siwatu et al., 2017). Pre-service teachers need to be culturally knowledgeable, understand the impact of culture on students' behavior and teachers' interpretations, and use students' cultural knowledge to design a supportive and nurturing learning environment (Bondy, Ross, Galligane, & Hambacher 2007).

Teachers play a significant role in students' well-being. Consequently, all students need a teacher who can protect them from harsh discipline, understand their needs and support their academic achievements and social skills, but the challenge is more significant for CLD students due to the difference between home and school culture (Cartledge & Kourea, 2008). The difference between home and school culture generates additional obstacles for CLD students. According to Phinney (1990) young CLD students need to resolve two primary issues as members of a nondominant culture, which encompass:

- CLD students need to deal with stereotype threats about their groups (presumptions that genetics or cultural differences impact students' achievement, such as Asians are good at math).

- CLD students need to learn new learning and social skills to balance their cultural value system and the dominant culture.

Thus, CLD students need a teacher who can bridge the cultural differences between home and school. In addition, CLD students need teachers who familiarize them with school culture and provide them with a sense of belonging to the learning environment. They also need teachers who recognize culturally different behaviors, use appropriate and proactive responses to misbehavior, and engage students academically (Cartledge & Kourea, 2008). For example, a teacher could use the following six practical principles to guide them in creating a culturally responsive, productive learning environment for CLD students (Milner & Tenore, 2010):

- Distinguish between equality and equity using or adopting classroom strategies suitable to CLD students' needs and situations.
- Recognize the power structure among students and work with a popular CLD student to enhance learning and engaging other CLD students.
- Connect with their CLD students through music, sport, film, and pop culture and incorporate the gathered knowledge in their classroom practices.
- Develop an understanding of self about others by recognizing the similarities and differences regarding race, ethnicity, socioeconomic status, and gender and use the gained knowledge to build a positive teacher-student relationship.
- Make connections by exchanging stories with CLD students to create a community learning environment.
- Conceiving of school as a community and building that through collaborations and sharing perspectives among teachers, CLD students, and their families.

Data from several studies showed that many pre-service and in-service teachers articulate that they feel ill-prepared to work with diverse students (Mills, 2013; Salerno & Kibler, 2013; Yuan, 2017a; Zhang & Peltari, 2014). It has been documented that the disconnection between professional knowledge and practical knowledge contributes to pre-service teachers' limited abilities of teaching and managing a diverse classroom (Freeman et al., 2014; Pereira & Gates, 2013; Premier & Miller, 2010). For example, Siwatu (2011) conducted an explanatory sequential mixed-methods study to assess and explore pre-service teachers' self-efficacy beliefs about culturally responsive teaching (CRT). In the first phase, 192 pre-service teachers evaluated their self-efficacy on CRT tasks. In the second phase, eight pre-service teachers who represent high or low self-efficacy were interviewed. In the same vein, Siwatu et al.(2017) conducted a study to evaluate how efficacious 380 pre-service and in-service teachers feel in implementing culturally responsive classroom management (CRCM). The results showed that most of the pre-service and in-service teachers reported high-self-efficacy in implementing easy tasks of CRCM to include (teach students how to work together, clear communication classroom policies; establish routines for carrying out specific classroom tasks).

On the other hand, the majority of pre-service and in-service teachers revealed low self-efficacy in employing difficult tasks that are associated with CRCM, such as using culturally responsive discipline practices to alter the behavior of a student who is being defiant; communicating with students' parents whose primary language is not English, etc. These studies' findings showed that most pre-service teachers had high self-efficacy beliefs on tasks that represent general teaching strategies and classroom management, which usually do not require integrating students' cultural and linguistic backgrounds. On the other hand, pre-service teachers reported low self-efficacy beliefs in tasks that were related to culturally responsive teaching.

Additionally, many pre-service teachers stated that teacher preparation programs did not provide sufficient procedural and conditional knowledge that prepares them to become culturally responsive teachers (Premier & Miller, 2010; Siwatu, 2011; Siwatu et al., 2017). Therefore, there is a need to reconstruct the training that pre-service teachers receive to teach CLD students.

Despite the value of applying culturally responsive classroom management with CLD students, general classroom management strategies override culturally responsive classroom management practices. For example, Gaias et al. (2019) utilized a person-centered approach to study how 103 teachers implemented traditional classroom management in conjunction with culturally responsive classroom management practices in diverse classrooms. Despite most of the students coming from different cultural backgrounds, the results showed that most teachers implemented general classroom management with less emphasis on culturally responsive classroom management. Therefore, there is a need for a study to understand which factors contribute to preparing pre-service teachers to work with CLD students. Hence, the present study proposed that understanding the relationship between pre-service teachers' personal epistemologies of teaching and their culturally responsive classroom management self-efficacy might provide new insight in preparing pre-service teachers for diverse classrooms.

Several lines of evidence suggest that educational experiences that pre-service teachers receive and practice during teacher preparation programs may alter their beliefs about teaching CLD learners (Kavanoz et al., 2017; Lewis Chiu et al., 2017; Mills, 2013). Thus, pre-service teachers must obtain both indispensable knowledge and skills and self-efficacy beliefs to become effective culturally responsive managers (Siwatu, 2011).

Preparing pre-service teachers to teach in diverse classrooms is a challenging task. However, Weinstein et al. (2004) demonstrated five essential components to prepare pre-service teachers to become culturally responsive classroom managers. First, pre-service teachers need to recognize their ethnocentrism and biases. They also need to understand student cultural backgrounds and how this knowledge impacts students' behavior. Pre-service teachers need to realize the broader social, economic, and political contexts that causes educational inequity. They need to be willing to use cultural diversity as a lens to create an effective and equitable learning environment that supports all students. Lastly, pre-service teachers need to learn strategies to structure a caring classroom community with CLD students.

Similarly, Delale-O'Connor et al. (2017) illustrated three context-focused principles that increase pre-service and in-service teachers' self-efficacy concerning classroom management in a diverse learning environment, which are:

- Teachers need to build robust and sustainable relationships with students.
- Teachers should understand the contextual environment that CLD students experience outside of school.
- Teachers need to appropriately respond to trauma CLD students may experience.

According to Delale-O'Connor et al. (2017) developing an understanding of CLD students as individuals and as part of their communities changes teachers' views and interpretations of CLD students' behaviors. When pre-service teachers become familiar with contextual factors that shape students' behavior, they feel efficacious in their abilities to provide appropriate support to meet CLD students' needs (Delale-O'Connor et al., 2017).

Several studies agreed that building a caring and trusting teacher-student relationship is a cornerstone of working with CLD students (Allen & Steed, 2016; Chen et al., 2009; Kang &

Hyatt, 2010; Krasnoff, 2016; Pas et al., 2016; Sugai et al., 2012; Weinstein et al., 2003; Yoon, 2008; Yuan, 2017b). However, few studies exemplified the implications of the caring concept in a classroom. Toshalis (2012) used an ethnographic investigation to explore pre-service teachers' and their CLD students' conceptions of care during disciplinary interactions. Four pre-service teachers and 10 CLD high-school students participated in the study. Multiple data resources were collected, including videotapes, observations, post-surveys, and interviews with pre-service teachers and students.

Toshalis (2012) found that pre-service teachers believed in the importance of care, but their care execution negatively impacted CLD students' academic achievements. Unfortunately, pre-service teachers fail to provide authentic care for CLD students. According to Toshalis (2012), authentic care is a form of care where power, social location, culture, context, and access to resources are considered. However, Toshalis (2012) stated that pre-service teachers used aesthetic care, where they compliment the non-academic skills of their CLD students. Aesthetic care means a form of care where superficial caring gestures or phrases are used without providing caring actions (Toshalis, 2012). This study showed that the teacher-student relationship is a fundamental aspect of a culturally responsive classroom management approach, and care is a cornerstone of this relationship. However, teachers' implications of care can damage or support CLD students. Thus, teacher educators need to support pre-service teachers to understand how to carry out authentic care with CLD students.

It is essential to understand the difference between caring and uncaring teachers, which significantly impacts CLD students' academic performance and behavior. According to Cartledge and Kourea (2008), caring teachers build a positive connection with each CLD student, respond to their students' needs, encourage academic achievements, and are friendly with their students

inside and outside classrooms. On the other hand, Gay (2002) explained that uncaring teachers extensively use criticism and disciplinary actions and infrequently use praise and encouragement.

Despite the limited guidance teachers received regarding culturally responsive classroom management, a few teachers created an equitable learning environment for their CLD students. These teachers feel efficacious in their abilities to design a learning environment for all students. Brown (2003) used a qualitative approach to understand how effective teachers were able to create a productive classroom management system to support CLD students. A total of 13 teachers from seven U.S. cities were interviewed. The teachers had students from different ethnic and cultural backgrounds, refugee students, and students who spoke English as a second language. Most of the students came from low-income families. The teachers' classroom management design positively influenced students' academic achievements and supported their ethnic, cultural, and social needs. There were three essential components that teachers employed in their classroom management systems. The first and most crucial component is that teachers developed a caring relationship by showing genuine interest in each student. Also, teachers showed assertiveness to establish the authority they need to sustain a business-like learning environment. Lastly, the teachers used communication styles that respond to students' ethnicity and cultural backgrounds.

Bondy, Ross, Galligane, and Hambacher (2007) conducted a qualitative study to understand the strategies that three effective novice teachers used to create an orderly, culturally sensitive, and productive classroom environment. The three teachers came from different cultural backgrounds: Asian, Black, and White. The teachers had less than five years of teaching experience but were able to establish a caring community where CLD students succeeded. Most of the students were low-income African-Americans with low academic achievements. Digital

video recorders were used to record the first two hours of the schools' first day to capture the three teachers' culturally responsive classroom management implementations. Also, the three teachers were interviewed. The three novice teachers agreed that building relationships with CLD students and among CLD students is a key fundamental factor in culturally responsive classroom management. They emphasized the importance of using culturally responsive communication styles to communicate effectively with CLD students. The three teachers incorporated four elements to communicate with diverse students successfully including:

- Applying familiar words and expressions
- Referencing popular culture to students
- Employing call-and-response interaction patterns
- Using straightforward directives

Another fundamental key to culturally responsive classroom management is to establish expectations for student behavior and success. The CLD students were held accountable for meeting expectations. In the first two hours of the academic year, the three teachers started to teach students appropriate behavior toward a teacher and one another. They also used proactive strategies to encourage appropriate behavior. The three teachers encouraged CLD students to think critically about the importance of rules and procedures. The teachers used different strategies to demonstrate their high expectations of their students' success. They also taught CLD students to value themselves and provided them with strategies to support themselves when they had a challenging day. The study showed that the teachers could combine being optimistic, warm, kind, funny, calm, and taken seriously by students, which enable them to create psychologically-supportive classroom environments. Perhaps the most exciting aspect of these successful culturally responsive classroom management practices is discovering factors that influence

teachers' choices. Therefore, the present study predicted that understanding the association between pre-service teachers' personal epistemologies of teaching and their self-efficacy regarding culturally responsive classrooms could explain factors that may enhance pre-service teachers' preparation toward diversity.

Summary

The aforementioned theoretical frameworks and empirical studies illustrated the prominence of two beliefs: personal epistemologies and culturally responsive classroom management self-efficacy. Hofer's and Pintrich's (1997) epistemological framework led the investigation of personal epistemologies where they believed individuals progress from having naive personal epistemologies to having sophisticated personal epistemologies. In addition, Piaget's theory of cognitive disequilibrium explained the mechanism of changes in pre-service teachers' epistemological beliefs (Hofer, 2001; Hofer & Pintrich, 1997; Muis et al., 2006; Noddings, 1995). The previous empirical studies in personal epistemologies demonstrated the impact of teachers' epistemological beliefs in their practices (Chan, 2004; Gill et al., 2004; Sutton et al., 1996; White, 2000; Yadav & Koehler, 2007). Other studies have concluded that pre-service teachers' epistemic thinking affected their approaches of learning and conceptions about teaching (Bays et al., 2014; Sosu & Gray, 2012; Tanase & Wang, 2010; Walker et al., 2012). Surprisingly, the previous studies used a general domain assessment to measure pre-service teachers' personal epistemologies. Therefore, there is a need for research that deals with personal epistemologies as a specific domain in the context of teaching (Hofer & Bendixen, 2012; Muis et al., 2006).

The culturally responsive classroom management self-efficacy (CRCMSE) was another construct of the current study's investigations. The term CRCMSE is a new terminology that was created by Siwatu et al. (2017). However, the CRCMSE term consists of two well-documented

constructs: culturally responsive classroom management and self-efficacy (Bandura, 1997; Siwatu et al., 2017; Weinstein et al., 2003, 2004). The theoretical frameworks of Bandura's (1977, 1982, 1989, 2001) social cognitive theory and Weinstein et al.'s (2004) culturally responsive classroom management theory guided the investigation of the CRCMSE.

It has been demonstrated that self-efficacy is a learned ability that significantly affects teacher practices and pre-service teachers' preparations (Bandura, 1977, 1982; Gibson & Dembo, 1984). For example, it has been shown that teachers with high-self efficacy were more likely to implement effective classroom management (Dellinger et al., 2008; Gibson & Dembo, 1984; LePage et al., 2005).

Several studies demonstrated the difference between general classroom management and culturally responsive classroom management, and emphasized that self-efficacy is generative and task-specific (Bandura, 1997; Gibson & Dembo, 1984; Weinstein et al., 2003, 2004). Also, various research showed that pre-and in-service teachers are not ready to teach CLD students (Mills, 2013; Salerno & Kibler, 2013; Yuan, 2017a; Zhang & Peltari, 2014). Therefore, the current study saw the potential benefits of examining pre-service teachers' self-efficacy as a specific task for culturally responsive classroom management.

The current study was conducted to understand whether sophisticated thinking was associated with high self-efficacy in a culturally responsive classroom. The current study also proposed that understanding the relationship between personal epistemologies of teaching and culturally responsive classroom management may influence pre-service teachers' readiness for teaching in a diverse learning environment. The study contributed to the literature by identifying factors that may contribute to having high or low self-efficacy regarding culturally responsive classroom management and naive or sophisticated epistemological thinking of teaching

knowledge. In sum, the current study proposition was that understanding the relationship between the two variables (PT-PETS, CRCMSE) allowed teacher educators to know whether developing sophisticated thinking about teaching was associated with high self-efficacy culturally responsive classroom management.

Purpose of the Study

This explanatory sequential mixed-methods study aimed to investigate the relationship between pre-service teachers' personal epistemologies of teaching and their self-efficacy regarding culturally responsive classroom management. The study also evaluated whether early childhood pre-service teachers held different personal epistemologies of teaching and culturally responsive classroom management self-efficacy beliefs than elementary pre-service teachers. Additionally, the study investigated if being in earlier versus later stages of teacher preparation programs could influence the development of pre-service teachers' beliefs. Lastly, the study explored factors that may contribute to pre-service teachers' personal epistemological beliefs of teaching and their self-efficacious beliefs about culturally responsive classroom management. The study used validated and reliable belief measures to assess the variables under investigation and a semi-structured interview to elaborate on the quantitative results.

Research Questions and Hypotheses

The research questions and hypotheses guiding this study included:

1. What is the nature of pre-service teachers' personal epistemologies of teaching?
2. What are pre-service teachers' self-efficacy levels regarding culturally responsive classroom management?

3. Is there a positive relationship between pre-service teachers' personal epistemological beliefs of teaching and their self-efficacious beliefs regards culturally responsive classroom management?
 - Research hypothesis: There will be a positive correlation between pre-service teachers' personal epistemological beliefs of teaching and their self-efficacious beliefs regards culturally responsive classroom management.
4. Is there a significant difference in personal epistemologies of teaching between pre-service teachers in early childhood education (PreK-3) and elementary education (K-5) programs?
 - Research null hypothesis: There is no statistically significant difference between pre-service teachers in early childhood education (PreK-3) and elementary education (K-5) programs in terms of personal epistemologies of teaching.
5. Is there a significant difference in pre-service teachers' epistemological beliefs in the early stage and those in the later stage of the teacher preparation programs?
 - Research hypothesis: The pre-service teachers in the later stage (seventh semester) will have more sophisticated personal epistemological beliefs than those in the early stage (fifth semester) of the teacher preparation programs.
6. Is there a significant difference in culturally responsive classroom management self-efficacy beliefs between pre-service teachers in early childhood education and elementary education programs?
 - Research null hypothesis: There is no statistically significant difference between pre-service teachers in early childhood education (PreK-3) and elementary education (K-5) programs regarding culturally responsive classroom management self-efficacy.

7. Is there a significant difference in pre-service teachers' self-efficacious beliefs about culturally responsive classroom management between the early stage and those in the later stage of the teacher preparation programs?
 - Research hypothesis: The pre-service teachers in the later stage (seventh semester) will have high confidence in their abilities to implement culturally responsive classroom management tasks than those in the early stage (fifth semester) of the teacher preparation programs.
8. What are the factors that influence pre-service teachers' personal epistemological beliefs of teaching?
9. What are the factors that influence pre-service teachers' culturally responsive classroom management self-efficacy?

Chapter 3. Methodology

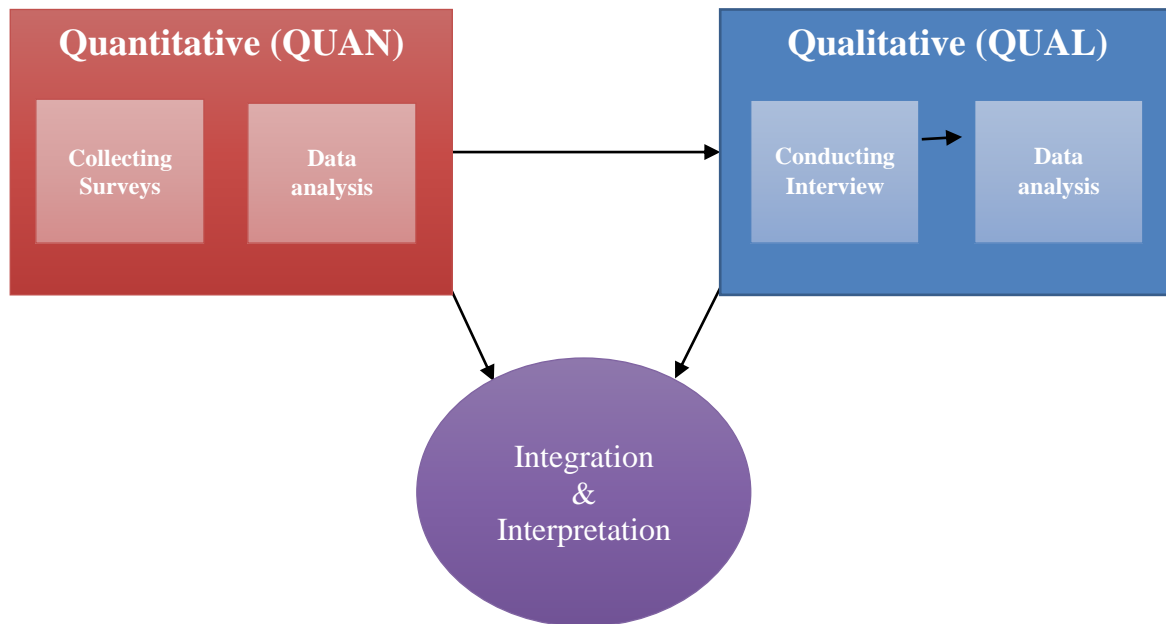
“By combining multiple observers, theories, methods, and data sources, researchers can hope to overcome the intrinsic bias that comes from single-methods, single-observer, and single-theory studies” (Denzin, 1989, as cited in Patton, 2015, p. 661).

The purpose of this explanatory sequential mixed-methods study was to investigate the relationship between pre-service teachers’ personal epistemologies of teaching and their self-efficacy regarding culturally responsive classroom management. The study also evaluated whether early childhood pre-service teachers hold different personal epistemologies of teaching and culturally responsive classroom management self-efficacy beliefs than elementary pre-service teachers. Additionally, the study investigated if being in earlier versus later stages of teacher preparation programs may influence the development of pre-service teachers’ beliefs. Lastly, the study explored factors that may contribute to pre-service teachers’ personal epistemological beliefs of teaching and their self-efficacious beliefs about culturally responsive classroom management. The study used validated and reliable belief measures to assess the variables under investigation and a semi-structured interview to elaborate on the quantitative results.

Figure 2 provides a visual representation of the explanatory sequential mixed-methods design of the current study. According to Creswell (2015), the explanatory sequential mixed-methods design consists of first gathering quantitative data, then collecting qualitative data to explain the quantitative results. This mixed-methods study included quantitative data analysis, qualitative data analysis, and the integration and interpretation of quantitative and qualitative data.

Figure 2

Explanatory Sequential Mixed-Methods Design of the Present Study



According to Creswell (2015), combining quantitative and qualitative data provides a more complete understanding of a research problem. In Phase I of the study, quantitative data was collected using survey methods. A total of 111 pre-service teachers rated their personal epistemologies of teaching and/or their culturally responsive classroom management self-efficacy beliefs. The Pre-service Teachers' Personal Epistemologies of Teaching Scale (PT-PETS) was used to evaluate the epistemological beliefs that pre-service teachers hold about teaching (Yu, 2013). The Culturally Responsive Classroom Management Self-Efficacy Scale (CRCMSE) was employed to assess pre-service teachers' confidence levels in culturally responsive classroom management (Siwatu et al., 2017).

In Phase II of the study, qualitative data was collected using a semi-structured interview. Creswell (2015) said that qualitative data provides a deep understanding of a research problem.

Therefore, in Phase II, a semi-structured interview was used to expand upon Phase I's results and explore factors that may contribute to or impact pre-service teachers' beliefs. A total of six early childhood and elementary pre-service teachers agreed to participate in the interview. To ensure the confidentiality of the participants, a case number was assigned to each participant. The researcher was the only one to access the list of names and case numbers. The Qualtrics software system, Statistical Package for Social Sciences (SPSS), Microsoft Word, and Excel were used for data collection and analysis.

Population

The study was conducted in a mid-sized southeastern university. The study's population included all pre-service teachers who were undergraduate students in the Early Childhood Education (ECED) department and all pre-service teachers who were undergraduates enrolled in elementary education in the Curriculum and Instruction (CUAI) department. The early childhood pre-service teachers were completing a PreK-3 license, and the elementary pre-service teachers were completing a K-5 license. Early childhood and elementary pre-service are required to complete specific courses, field hours, residency teaching experiences, and state testing requirements before licensure occurs.

During the data collection period, the early childhood and elementary pre-service teachers were in the first, third, fifth, or seventh semesters in their teacher preparation programs. The pre-service teachers in the first and third semesters were excluded from this study because they mainly studied general college courses. In this study, the early childhood and elementary pre-service teachers who were in the fifth and seventh semesters of their respective programs were selected to participate. Because they are farther along in their programs of study, fifth and seventh

semester students should have more clearly defined beliefs about teaching knowledge and diversity.

It was important to have early childhood preservice teachers in the study, because teachers who teach in early childhood contexts were not adequately represented in previous research of personal epistemologies (Brownlee et al., 2015; Brownlee & Berthelsen, 2008; Schwartz & Jordan, 2011). Also, recent research proposed the need to understand various factors that may contribute to teacher preparedness toward diversity (Lewis Chiu et al., 2017; Mills, 2013; Muñiz, 2019; Vázquez-Montilla et al., 2014). Therefore, the current study examined whether pre-service teachers' personal epistemologies were associated with their self-efficacy regarding culturally responsive classroom management and whether this varies by semesters and the type of licensure program within which the student's training occurs.

Phase I—Surveys

Participants

The sample of Phase I was part of the population above. The participants included 111 early childhood and elementary pre-service teachers in the fifth or seventh semesters. The pre-service teachers were involved in one of the following courses:

- ECED 3210 Balanced Comprehensive Literacy and Assessment for EC PreK-3
- ECED 4637 Residency I: Instructional Strategies for Math and Differentiation of Instruction for PreK-3
- CUI 3500 Instructional Management K-5
- CUI 4310 Integrated Elementary Mathematics

Due to COVID-19 and social distancing practices, both paper and online surveys were offered to collect data. In September 2021, the recruitment email was sent to the courses' professors. They

set a time for data collection and chose the data collection procedures (i.e., the paper and/or the online surveys).

In the paper survey strategy, each pre-service teacher received a packet that contained the informed consent, the demographic questionnaire, the PT-PETS, and the CRCMSE surveys. The demographic survey asked about age, gender, ethnicity, school year, major, teaching experiences, and email (Appendix A).

In the online survey, the pre-service teachers received recruitment emails. The recruitment email served as the consent form. If pre-service teachers agreed to participate in the study after reading the email, they would click on a link and be directed to the online survey. The online surveys included the demographic information, the PT-PETS, and the CRCMSE scales. The pre-service teachers' background information illustrated factors that may impact their beliefs regarding personal epistemologies of teaching and their self-efficacy about culturally responsive classrooms.

Instruments

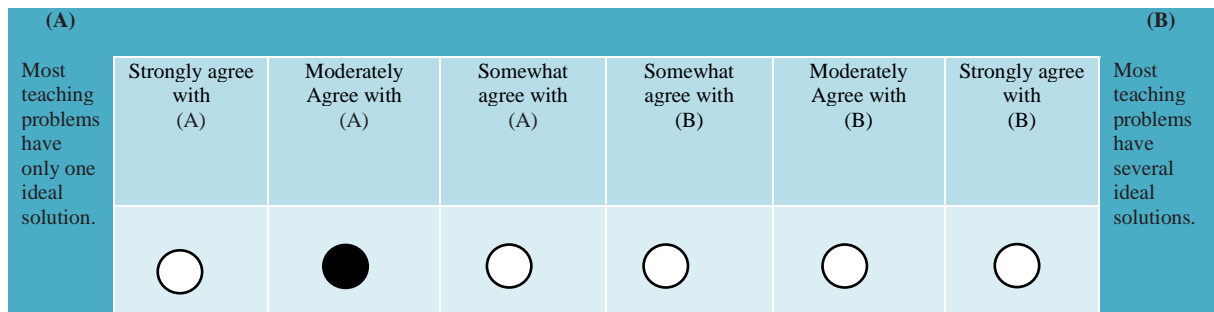
Pre-service Teachers' Personal Epistemologies of Teaching Scale (PT-PETS). The PT-PETS was developed based on Hofer's definitions of the nature of knowledge and the process of knowing (Yu, 2013). The design of the PT-PETS followed the developmental approach of personal epistemology where an individual progresses from naive beliefs such as absolutist views and right and wrong answers to more sophisticated beliefs such as relativistic views and diverse viewpoints (Yu, 2013). The PT-PETS was the only instrument available to evaluate individual conceptualizations of the nature of knowledge and the process of knowing in teaching (Yu, 2013). The PT-PETS has three factors that encompassed 20 items (Appendix B).

The first factor was "Construction of Teaching Knowledge" which examined pre-service teachers' beliefs about the nature of the knowing process in teaching. The first factor consisted of 9 items such as "learning to teach is a process in which I personally construct understandings and gain experiences about how to teach". The second factor was "Contextuality of Teaching Knowledge" which assessed pre-service teachers' individual beliefs about the nature of teaching knowledge. The second factor consisted of 8 items such as "most teaching problems have several ideal solutions". The third factor was "Complexity of Teaching Knowledge" which evaluated pre-service teachers' beliefs on viewing teaching knowledge as an accumulation of facts or encompassing highly interrelated concepts. The third factor was "Complexity of Teaching Knowledge" which contained three items, such as "when solving a teaching problem, the most important thing is to understand core concepts that are always true".

The PT-PETS included 20 items. Each item contained two opposite statements about teaching knowledge and a 6-point Likert-type response format. The 6-point scale was located between the two opposing statements (see Figure 3).

Figure 3

A Visual Representation of the PT-PETS



The statements on the left side of the scale represented naive epistemological beliefs such as “most principles and theories about teaching are unchanging” and “most teaching problems have only one ideal solution”. The statements on the right side of the scale represented sophisticated epistemological beliefs such as “most principles and theories about teaching have changed over time” and “most teaching problems have several ideal solutions”. The pre-service teachers chose the degree to which the statement matched their thinking. The PT-PETS composite score ranges from 1 to 6, where a high score (i.e., 4, 5, and 6) indicated sophisticated beliefs of teaching knowledge.

The PT-PETS’s Validity and Reliability. There is evidence that supports the validity and reliability of the PT-PETS. The PT-PETS was developed through a rigorous process including an extensive literature review and multiple study phases. The PT-PETS has three factors: Construction of Teaching Knowledge, Contextuality of Teaching Knowledge, and Complexity of Teaching Knowledge. According to Coaley (2010), Cronbach’s alpha is an indication of reliability for a scale, and it should be between 0.70 and 0.99. The PT-PETS showed internal consistency because the coefficient alpha for factor 1 and factor 2 was .915 and .911; whereas, the coefficient alpha for factor 3 was .759.

In addition, the PT-PETS had three types of measurement validity: content, criterion, and construct. Coaley (2010) stated that the content validity of an instrument develops through an extensive literature review and the judgment of the target population and experts of the field. Three experts and five pre-service teachers evaluated the content validity of the PT-PETS.

Concurrent validity is a type of criterion validity developed via correlation with relevant instruments (Carmines & Zeller, 1979). Yu (2013) examined the relationship between PT-PETS’s factors and four conceptually-related constructs. There was a significant positive correlation

between the 10 modified items from the instrument Perceptions of Teacher Educators' Pedagogical Practices, which was created by Hennessey et al. (2013), and the three PT-PETS's factors ($r = .490, .513, \text{ and } .567, p < .01$) respectively.

In addition, five items of Perception of Information Quality, which were adopted from Lim (2009)'s instrument, revealed a significant positive association with the three factors of PT-PETS ($r = .157, .140, \text{ and } .175, p \leq .05$) respectively. The three items of the Information Evaluation Self-efficacy were modified from Lim (2009)'s instrument and showed a significantly positive association with the three factors of PT-PETS ($r = .322, .379, \text{ and } .346, p < .01$) respectively. Lastly, a significant relationship was found between three adopted items of the Knowledge Sharing Self-Efficacy from Chen and Hung (2010)'s instrument and the three factors of PT-PETS ($r = .223, .287, \text{ and } .277, p < .01$) respectively.

The last type of validity that the PT-PETS had was nomological validity, which means "the extent to which a measure operates within a set of theoretical constructs and their respective measures" (Netemeyer et al., 2003, p. 86). The PT-PETS had evidence of nomological validity. Yu (2013) assessed the nomological validity of the PT-PETS by using structural equation modeling to examine the relationship between factors of personal epistemologies of teaching and other theoretical variables that influence teachers' knowledge construction (Yu, 2013). The theoretical variables included perceptions of teacher educators' pedagogical practice, perception of information quality, knowledge sharing self-efficacy, and information evaluation self-efficacy. To sum up, the PT-PETS was shown to be a valid and reliable measure to assess pre-service teachers' personal epistemologies of teaching.

Culturally Responsive Classroom Management Self-Efficacy Scale (CRCMSE). This scale was designed to assess pre-service teachers in becoming culturally responsive classroom

managers. For example, teachers rated themselves on items that include “I am able to use culturally responsive discipline practices to alter the behavior of a student who is being defiant,” “I am able to design classroom in a way that communicates respect for diversity,” and “I am able to modify lesson plans so that students remain actively engaged throughout the entire class period or lesson.”

The CRCMSE consisted of 35 items that asked pre-service teachers to evaluate how confident they were in applying culturally responsive classroom management tasks (Appendix C). The pre-service teachers rated the degree of their confidence from 0 (no confidence at all) to 100 (completely confident). Total scores were generated by summing the response of each item (Siwatu et al., 2017). Pre-service teachers could have a total score that ranges from 0 to 3500. Pre-service teachers who had higher scores were more confident in their abilities to implement culturally responsive classroom management tasks. To generate a CRCMSE strength index, the total score was divided by the total number of items (35). The outcome was a quantitative indicator of the pre-service teachers’ CRCMSE beliefs (Siwatu et al., 2017).

The CRCMSE’s Validity and Reliability. There is evidence that supports the validity and reliability of CRCMSE. The scale had excellent internal consistency; Cronbach’s alpha on the 35-item scale was .97. In addition, the CRCMSE had an indication of content validity and concurrent validity. Netemeyer et al. (2003) demonstrated that “content validity is manifested from procedures at the initial stages of scale development that generate items representative of the domain of the focal construct” (p. 76). The development of the content validity of the CRCMSE was accomplished through three steps. The first step was an extensive literature review of the three main constructs: culturally responsive teaching, classroom management, and self-efficacy. The second step was by following Bandura’s theoretical guidelines for developing self-efficacy

scales (Siwatu et al., 2017). The third step was implementing a pilot study to receive feedback to make changes in the first version of the CRCMSE.

Moreover, the CRCMSE had evidence of concurrent validity developed through correlation with two published scales. There was a significant positive association between the Culturally Responsive Teaching Self-Efficacy scale, which was adopted from Siwatu (2007), and the CRCMSE ($r = .77, p < .001$). There was also a moderate positive correlation between the Teacher Sense of Efficacy scale, which was developed by Tschannen-Moran and Woolfolk Hoy (2001), and the CRCMSE scales ($r = .51, p < .001$). To sum up, the CRCMSE was a valid and reliable scale used to measure pre-service teachers' self-efficacy regarding culturally responsive classroom management.

Procedures

To recruit the participants, the primary researcher contacted the early childhood and elementary program coordinators and explained the study's purpose. Then the researcher asked the coordinators about the professor's emails who taught the four courses outlined above. Due to the pandemic era, the professors chose the data collection procedures that worked best for their course: the online and/or the paper survey strategies.

When a professor chose the online survey option, the recruitment emails were sent to the pre-service teachers. If a pre-service teacher agreed to participate, they would click on the online survey link. The online survey asked pre-service teachers to provide their demographic information and rate their PT-PETS's and CRCMSE's beliefs. The surveys took about 20 minutes to complete and was collected through the Qualtrics software system over two weeks. When a professor selected the paper survey strategy, a time was scheduled to visit the class. The pre-service teachers received paper packets including informed consent, the demographic

questionnaire, the PT-PETS, and the CRCMSE surveys. The pre-service teachers were given 20 minutes to complete the surveys. If needed, professors could also choose to utilize both online and paper-and-pencil options.

In both strategies, the paper and the online survey, the pre-service teachers were informed that participation in the study was voluntary, and they could withdraw at any time. By completing the survey, pre-service teachers had a chance to enter a random drawing of two \$50 Amazon gift cards as a thank you for taking the time to fill out the surveys.

A case number was assigned to each pre-service teacher to protect their privacy and confidentiality. A list of pre-service teachers' emails was kept in a separate file and stored in a different place, so there was no way to connect the participants' responses and emails. Only the primary researcher had access to the email list and case numbers.

Analysis of the Survey Data

The primary researcher entered all the survey data into the Statistical Package for Social Sciences (SPSS). The unit of analysis for this study was the pre-service teacher. The independent variables were the type of programs and the semester levels, where both were categorical variables. The dependent variables were continuous variables, including the PT-PETS scores and the CRCMSE scores. The data for all the variables were normally distributed, so the following tests were used for analysis. Initially, the primary researcher used descriptive statistics, including mean and standard deviation, to answer the first and second research questions, "What is the nature of pre-service teachers' personal epistemologies of teaching?" and "What are pre-service teachers' self-efficacy levels regarding culturally responsive classroom management?". The descriptive statistics were chosen because they summarized the overall trends in the data and enabled comparison between scorers (Creswell, 2015).

Then the primary researcher chose the Pearson correlation to answer the third research question, "Is there a positive relationship between pre-service teachers' personal epistemological beliefs of teaching and their self-efficacious beliefs regards culturally responsive classroom management?". The Pearson correlation was chosen to measure the strength and direction of linear relationships between the two continuous and normally distributed variables: the PT-PETS and the CRCMSE (Cohen et al., 2018).

After that, the primary researcher selected a two-way ANOVA to answer the fourth and the fifth research questions, "Is there a significant difference in personal epistemologies of teaching between pre-service teachers in early childhood education (PreK-3) and elementary education (K-5) programs?", and "Is there a significant difference in pre-service teachers' epistemological beliefs in the early stage and those in the later stage of the teacher preparation programs?". A two-way ANOVA was chosen to understand the effect of the type of programs and semester levels on the PT-PETS scores. In addition, A two-way ANOVA was used to answer the sixth research question, "Is there a significant difference in culturally responsive classroom management self-efficacy beliefs between pre-service teachers in early childhood education and elementary education programs?" and the seventh research question, "Is there a significant difference in pre-service teachers' self-efficacious beliefs about culturally responsive classroom management between the early stage and those in the later stage of the teacher preparation programs?" to determine the effect of type of programs and semester levels on the CRCMSE's scores. However, a two-way ANOVA was used twice instead of performing multiple analysis of variance (MANOVA) because the PT-PETS and the CRCMSE variables had no significant linear correlation; statisticians discourage researchers from using MANOVA with uncorrelated variables (Cole et al., 1994).

Phase II—The Pre-Service Teacher Semi-Structured Interview

Participants

Initially, the stratified random sampling technique was planned to select the interview participants; however, this was changed due to no response from the pre-service teachers who met the stratified random sampling technique criteria (PT-PETS scores, CRCMSE scores, semester levels, and type of programs). As a result, a general email invitation for the interview was sent to all pre-service teachers who were part of Phase I of the study. Therefore, all pre-service teachers had an equal chance to participate in Phase II of the study. As a result, six early childhood and elementary pre-service teachers agreed to participate in the interview.

Instrument

The Pre-Service Teacher Semi-Structured Interview. The semi-structured interview design is commonly used in explanatory mixed-methods design because of the structural design of the questions, which provides data in the form of a matrix, similar to quantitative data (Morse, 2012). The semi-structured interview is also chosen to provide qualitative data that explains the quantitative data (Creswell, 2015). Therefore, the pre-service teacher semi-structured interview investigated pre-service teachers' personal epistemologies of teaching and their self-efficacy in culturally responsive classroom management. The interview also explored possible factors contributing to having naive or sophisticated personal epistemologies of teaching and factors related to obtaining low or high self-efficacy regarding culturally responsive classroom management.

According to Cohen et al. (2018), the interview questions must adequately reflect the study's aim and theoretical basis. Therefore, the pre-service teacher semi-structured interview formatting was designed based on the purpose and theoretical framework of the present study

(Appendix D). The interview questions were designed based on the literature on the two constructs: personal epistemologies of teaching and culturally responsive classroom management self-efficacy. According to Morse (2012), the semi-structured interview questions can be planned when a researcher has adequate knowledge about the topics under investigation in a mixed-methods approach. Therefore, the researcher created 23 questions that represent the current study and provide a clarification of the quantitative data (Appendix E). Zoom was used to video record and transcribe the interview. Each interview took approximately 90 minutes.

Validity and Reliability of the Semi-Structured Interview. The initial step in conducting content validity was done through a collaborative revision between the dissertation chair and the primary researcher. The revision was an essential initial step to ensure the clarity of the interview questions. Another reason was that the researcher speaks English as a second language, so there was a need for feedback from a native English speaker who is an expert in the educational field to ensure that the interview questions' concepts and formats were accessible for pre-service teachers.

The second step was preparing the interview transcripts. The primary researcher used the automatic Zoom transcript to conduct the first draft of the interview transcripts. Then the primary researcher examined each pre-service teacher's transcript by comparing and checking the Zoom video recording with the transcript. Therefore, the primary researcher corrected some words in every transcript caused by the automatic generator. After that, a second draft of the interview transcript was sent to each pre-service teacher for member checking. Finally, all the six pre-service teachers agreed with the interview transcripts, which led to the third draft of the interview transcripts used for the analysis.

The third step was obtaining inter-rater reliability by using the percentage agreement approach. An assistant researcher received 33% of the interview transcripts divided by the

interview questions and categorized based on the developed categorization matrix of the current study. Then, the assistant researcher was asked to independently code the interview transcripts and formulate codes that fit under the predetermined subcategories. According to Creswell (2014), the inter-coder agreement needs to be 80% or more to ensure qualitative reliability. The percentage of agreement between the primary and the assistant coders was 90%, indicating a high rate of qualitative reliability.

Procedures

The interview was conducted in October 2021. An email was sent to each pre-service teacher who agreed to participate in Phase II of the study. The email had the consent form and a link to the Doodle booking website, so each pre-service teacher selected a suitable time for the interview. The pre-service teachers were interviewed through Zoom, which took about 90 minutes. However, the pre-service teachers were allowed to take as much time as needed to complete the interview. In addition, each pre-service teacher received a \$20 Amazon gift card to demonstrate appreciation for their participation. As mentioned earlier, the primary researcher conducted, video-recorded, and transcribed the semi-structured interview. An assistant researcher coded 33% of the transcripts, and the results showed a 90% agreement between the primary and assistant researchers.

Analysis of the Interview Data

The pre-service teacher's semi-structured interview was analyzed using a content analysis method (Morse, 2012). The purpose of content analysis was to explain the meaning of written or visual sources by systematically assigning their text to pre-determined, detailed categories and then quantifying and interpreting the findings (Payne & Payne, 2004). The content analysis method has two approaches: inductive content analysis (data-driven) and deductive content

analysis (concept-driven). "Deductive content analysis is used when the structure of analysis is operationalized on the basis of previous knowledge" (Elo & Kyngäs, 2008, p. 107). Therefore, the primary researcher chose the deductive content analysis because the interview questions were designed to test existing categories that include personal epistemologies of teaching and culturally responsive classroom management self-efficacy in a new context.

The deductive content analysis was performed in the following manner. First, the primary researcher read the interview transcripts many times to become immersed and familiar with the data. Then the primary researcher developed a structured categorization matrix to code the data according to the categories. Table 1 displays the interview categorization matrix of the current study. Elo and Kyngäs (2008) stated that the structured categorization matrix is developed based on the previous knowledge of a research construct, including theories and literature review.

After the primary researcher selected the interview question as a unit of analysis, the interview transcript of the six pre-service teachers was gathered and divided into 23 sections. For example, the first interview question had the answers of the six pre-service teachers, which allowed the primary researcher to compare the answers between the pre-service teachers and provide a deep understanding of the data. Then the data were reviewed and coded into the structured categorization matrix by choosing the unit of meaning or the text unit that represented the coding and fit under the identified categories. Next, the primary researcher coded the data in Microsoft Word using the comment feature to highlight the unit of meaning or the text unit and add the code as comments. Then an add-on feature to Microsoft Word called DOCTools was used to extract comments automatically in tables. After that, the primary researcher rechecked the tables, made changes, and transferred the data into Excel for easy navigation. Table 2 illustrates an example of the analysis process of the interview data.

Table 1*The Interview Categorization Matrix that Guided the Deductive Content Analysis Process*

Content-Driven	The five main identifiable categories	The sub-identifiable categories
<p>The epistemological framework of Hofer and Pintrich (1997)</p> <p>&</p> <p>Piaget's theory of cognitive disequilibrium</p>	<p>[1] Epistemological beliefs of teaching</p> <p>[2] Factors that affect pre-service teachers' beliefs about teaching</p>	<p>(1) Sophisticated beliefs of teaching knowledge</p> <p>(2) Source of teaching knowledge</p> <p>(3) The personal approach to evaluating new teaching knowledge</p> <p>(4) Changing epistemological beliefs about teaching knowledge</p> <p>(1) The influence of positive personal experience on teaching beliefs</p> <p>(2) The influence of negative personal experience on teaching</p> <p>(3) The influence of positive professional experience on teaching beliefs</p> <p>(4) The influence of negative professional experience on teaching beliefs</p>
<p>Gay's (2002) view on preparing teachers for culturally responsive classroom</p>	<p>[3] Pre-service teachers' view of culture</p>	<p>(1) Cultural awareness</p> <p>(2) Recognizing the cultural influence on behavior</p>
<p>Bandura's social cognitive theory (1982)</p> <p>&</p> <p>Weinstein et al.'s (2004) theory of culturally responsive classroom</p>	<p>[4] Self-efficacious beliefs on culturally responsive classroom management</p>	<p>(1) Awareness of culturally responsive classrooms</p> <p>(2) Self-efficacy in the culturally responsive classroom</p> <p>(3) Sources of culturally responsive classroom management self-efficacy</p>
<p>Weinstein et al.'s (2004) theory of a culturally responsive classroom</p> <p>&</p> <p>Gay's (2002) view on preparing teachers for a culturally responsive classroom</p>	<p>[5] Factors that impact pre-service teachers' views toward culturally responsive classroom management</p>	<p>(1) Preparedness for culturally responsive classroom management</p> <p>(2) Positive factors that impact pre-service teachers' views toward culturally responsive classroom management</p> <p>(3) Negative factors that impact pre-service teachers' views toward culturally responsive classroom management</p>

Table 2

An Example of the Analysis Procedure of the Interview Data

The interview questions/ the Unit of analysis	Concept-Driven	The main categories	The subcategories	Example of the Unit of meaning	Coding
<p>1- Do you think there is one “right” way of teaching? A universal method that works for everyone or do you think that teaching is situational (e.g., depends on the student, the setting, etc.)? a) Could you elaborate?</p>	<p>Hofer and Pintrich (1997), theory</p>	<p>Epistemological beliefs of teaching</p>	<p>Sophisticated beliefs of teaching knowledge: A pre-service teacher believes that teaching has multiple correct approaches to apply in a different learning environment and requires an understanding of students' needs to create a learning experience that supports and enables student's success.</p>	<p>“I don't think there is like any way you could use a universal method and I think that could even vary from like day-to-day instruction in your own classroom or just like across different schools and things like that”.</p>	<p>Teaching is situational and complicated</p>
<p>2- How do you evaluate new knowledge or strategies that you learn about teaching? In other words, what “lens” do you view teaching through to help you decide if the knowledge or strategy is correct?</p>			<p>The personal approach of evaluating new teaching knowledge: It means the processes that pre-service teachers use to ensure the credibility of the new teaching knowledge.</p>	<p>“I think having textbooks that do have like specific sections on being culturally responsive, including students with disabilities and everything like that has been really, really helpful”.</p>	<p>Comparing the new teaching knowledge to reliable resources.</p>
			<p>“I think like hearing experiences from my professors”.</p>	<p>Discussing new teaching knowledge with a teacher who has long teaching experiences.</p>	
	<p>“I’m still trying to learn that a lot and, as you can imagine, but I think, for me, a lot of that like filtering has to do with just like my own experience”.</p>	<p>Filtering new teaching knowledge via previous teaching knowledge and experiences</p>			

Chapter 4. Results

This explanatory sequential mixed-methods study aimed to investigate the relationship between pre-service teachers' personal epistemologies of teaching and their self-efficacy regarding culturally responsive classroom management. The study also evaluated whether early childhood pre-service teachers hold different personal epistemologies of teaching and culturally responsive classroom management self-efficacy beliefs than elementary pre-service teachers. Additionally, the study investigated if being in earlier versus later stages of teacher preparation programs may influence the development of pre-service teachers' beliefs. Lastly, the study explored factors that may contribute to pre-service teachers' personal epistemological beliefs of teaching and their self-efficacious beliefs about culturally responsive classroom management. This chapter reported the results of the current study in two sections:

1. Phase I, survey data analysis
2. Phase II, interview data analysis

Research Questions and Hypotheses

The research questions and hypotheses guiding this study included:

1. What is the nature of pre-service teachers' personal epistemologies of teaching?
2. What are pre-service teachers' self-efficacy levels regarding culturally responsive classroom management?
3. Is there a positive relationship between pre-service teachers' personal epistemological beliefs of teaching and their self-efficacious beliefs regards culturally responsive classroom management?

- Research hypothesis: There will be a positive correlation between pre-service teachers' personal epistemological beliefs of teaching and their self-efficacious beliefs regards culturally responsive classroom management.
4. Is there a significant difference in personal epistemologies of teaching between pre-service teachers in early childhood education (PreK-3) and elementary education (K-5) programs?
 - Research null hypothesis: There is no statistically significant difference between pre-service teachers in early childhood education (PreK-3) and elementary education (K-5) programs in terms of personal epistemologies of teaching.
 5. Is there a significant difference in pre-service teachers' epistemological beliefs in the early stage and those in the later stage of the teacher preparation programs?
 - Research hypothesis: The pre-service teachers in the later stage (seventh semester) will have more sophisticated personal epistemological beliefs than those in the early stage (fifth semester) of the teacher preparation programs.
 6. Is there a significant difference in culturally responsive classroom management self-efficacy beliefs between pre-service teachers in early childhood education and elementary education programs?
 - Research null hypothesis: There is no statistically significant difference between pre-service teachers in early childhood education (PreK-3) and elementary education (K-5) programs regarding culturally responsive classroom management self-efficacy.
 7. Is there a significant difference in pre-service teachers' self-efficacious beliefs about culturally responsive classroom management between the early stage and those in the later stage of the teacher preparation programs?

- Research hypothesis: The pre-service teachers in the later stage (seventh semester) will have high confidence in their abilities to implement culturally responsive classroom management tasks than those in the early stage (fifth semester) of the teacher preparation programs.
8. What are the factors that influence pre-service teachers' personal epistemological beliefs of teaching?
 9. What are the factors that influence pre-service teachers' culturally responsive classroom management self-efficacy?

Phase I-Survey Data Results

In Phase I of the study, quantitative data were collected using survey methods. A total of 211 surveys were collected. The Pre-service Teachers' Personal Epistemologies of Teaching Scale (PT-PETS) was used to assess the epistemological beliefs of pre-service teachers. In addition, the Culturally Responsive Classroom Management Self-Efficacy Scale (CRCMSE) was employed to evaluate pre-service teachers' confidence levels in implementing culturally responsive classroom management tasks. The quantitative data collected from both surveys were analyzed using the Statistical Package for the Social Sciences (SPSS).

The unit of analysis for this study was the pre-service teacher. The dependent variables were the PT-PETS and the CRCMSE. The independent variables included the semesters and the type of programs.

Demographic Characteristics of Survey Respondents

In Phase I of the study, a total of 111 early childhood and elementary pre-service teachers participated in one or both of the PT-PETS and the CRCMSE surveys. While 111 pre-service teachers completed the CRCMSE, only 100 pre-service teachers completed the PT-PETS survey. In addition, five participants were excluded from the data collection because they were not in the fifth or seventh semesters. The demographic data showed that most pre-service teachers were white females aged 18 to 22. Also, most pre-service teachers reported having some teaching experience. Table 3 displays more details about the demographic data of the participants.

Table 3

Demographic Information of Phase I Participants


Category	Participants in the PT-PETS		Participants in the CRCMSE	
	<i>n</i>	%	<i>n</i>	%
Gender				
Female	92	92.0	103	92.8
Male	8	8.0	8	7.2
Age				
18~22	80	80.0	86	77.5
23~26	13	13.0	15	13.5
27~31	4	4.0	6	5.4
32~	3	3.0	4	3.6
Ethnicity				
Caucasian / White	92	92.0	101	91.0
African American / Black	3	3.0	3	2.7
Hispanic / Latino	2	2.0	2	1.8
Multiracial	3	3.0	5	4.5
Major				
Early childhood PreK-3 Licensure program	33	33.0	36	32.4
Elementary Education K-5 program	67	67.0	75	67.6
Semesters				
Fifth semester	58	52.3	58	52.3
Seventh semester	52	46.8	52	46.8
Teaching experiences				
Yes	59	59.0	63	56.8
No	41	41.0	48	43.2

The Nature of Pre-Service Teachers' Personal Epistemologies of Teaching


The PT-PETS was used to evaluate pre-service teachers' conceptualizations of the nature of knowledge and the process of knowing in teaching (Yu, 2013). The PT-PETS has three factors (1) construction of teaching knowledge, (2) contextuality of teaching knowledge, and (3) complexity of teaching knowledge. The PT-PETS encompassed 20 items, and each item contained two opposite statements about teaching knowledge. The pre-service teachers were asked to choose the degree to which the statement matched their thinking. The PT-PETS scores 1, 2, or 3 represented naive beliefs, and 3, 4, or 5 symbolized sophisticated beliefs. Table 4 provides mean and standard deviation scores for each item of the PT-PETS

Table 4

Descriptive Statistics for PT-PETS (n = 100)

	(A) Naive beliefs	1	2	3	VS.	4	5	6	(B) Sophisticated beliefs			
												
	(A)							(B)	<i>M</i>	<i>SD</i>		
1-	Learning to teach is a process in which I read relevant information, record it in memory, and retrieve it appropriately							Learning to teach is a process in which I personally construct understandings and gain experiences about how to teach.	4.90	1.41		
2-	It is better to study the answer keys in the textbooks than to find relevant experiences, when solving common teaching problems.							It is better to find relevant experiences to solve common teaching problems.	5.45	.82		
3-	Depending on the knowledge from textbooks is more useful than reflecting on personal experiences, when solving a teaching problem.							Reflecting on personal experiences is more useful than depending on the knowledge from textbooks, when solving teaching problems.	4.98	1.20		
4-	Memorizing what the textbooks say is more important than forming my own ideas about teaching							Forming my own ideas about teaching is more important than memorizing what the textbooks say.	5.17	1		
5-	Students need to learn what the experts know							Students should question what the experts know.	4.41	1.43		

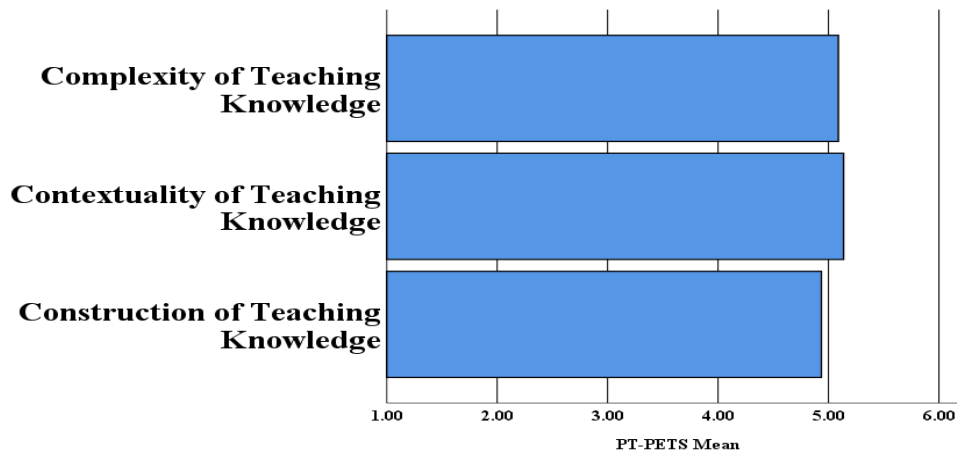
	(A)	1	2	3	VS.	4	5	6	(B)			
	Naive beliefs							Sophisticated beliefs				
	—————→											
	(A)							(B)	<i>M</i>	<i>SD</i>		
6-	I try to find out general rules and follow them when I deal with new teaching cases.							I try to apply general principles used in similar teaching contexts, but allow for flexibility.	5.02	1.03		
7-	Development of teaching knowledge is a process of collecting information from research studies							Development of teaching knowledge is a process of building up your own knowledge based on personal experiences.	4.65	1.32		
8-	Teaching knowledge is generated by traditional university-based researchers.							Teaching knowledge is constructed through my own experiences.	4.52	1.15		
9-	There is usually one right answer to every teaching problem.							There is never one right answer to a teaching problem.	5.33	.94		
10-	Memorizing what the textbooks say about teaching and learning is more important than combining information across chapters or even across classes.							Combining information about teaching and learning across chapters or even across classes is more important than memorizing what the textbooks say.	5.44	.75		
11-	Most teaching problems have only one ideal solution.							Most teaching problems have several ideal solutions.	5.58	.65		
12-	Most teaching problems, if they are well-studied, have a single certain answer applicable to all situations.							Even if they are well-studied, no teaching problems could have a certain answer applicable to all situations.	5.16	.95		
13-	The best way to learn about teaching is to gather information and organize it in a straightforward manner.							The best way to learn about teaching is to investigate various cases of teaching and then to integrate the different perspectives.	5.11	1.09		
14-	Possible solutions to a teaching problem can be gained from what the authorities say.							Possible solutions to a teaching problem can be investigated by reflecting on personal experiences.	4.84	1.05		
15-	Most principles and theories about teaching are unchanging.							Most principles and theories about teaching have changed over time.	5.31	.96		
16-	There is an absolute truth in education.							There is no absolute truth in education.	4.56	1.23		
17-	Students should simply accept what the textbooks say.							Students should critically evaluate what the textbooks say.	5.10	.92		
18-	Teaching knowledge is simple, consistent, and orderly, rather than complex and value-driven.							Teaching knowledge is complex and value-driven.	5.26	.96		

	(A)	1	2	3	VS.	4	5	6	(B)		
	Naive beliefs							Sophisticated beliefs			
											
	(A)							(B)	<i>M</i>	<i>SD</i>	
19-	Teaching knowledge is organized as isolated, distinct pieces of information, rather than as highly integrated concepts.							Teaching knowledge is organized as highly integrated concepts.	5.01	1.12	
20-	When solving a teaching problem, the most important thing is to understand core concepts that are always true.							When solving a teaching problem, the most important thing is to justify my understandings with observable evidence.	5	.99	

The pre-service teachers, on the whole, selected sophisticated statements to represent their thinking in the three factors of the PT-PETS. Figure 4 displays the average for each factor. The first factor of the PT-PETS indicated that pre-service teachers believed that teaching knowledge was a complex process constructed by personal experience and understanding ($M = 4.94$, $SD = .63$). The second factor showed that pre-service teachers hold a constructivist view about the nature of teaching knowledge with $M = 5.14$, $SD = .5$. Finally, the last factor revealed that pre-service teachers viewed teaching knowledge as highly interconnected concepts ($M = 5.09$, $SD = .75$). These results suggested that pre-service teachers held sophisticated personal epistemological teaching beliefs.

Figure 4.

The PT-PETS Three Factors Means



The Effect of Stages and the Type of Programs on Personal Epistemological Beliefs

A two-way ANOVA was used to examine the effect of the type of programs and the semester levels on pre-service teachers' epistemological beliefs. The results showed there was no significant main effect of type of programs [$F(1, 95) = 1.701, p = .195, \eta^2 = .018$] with early childhood education ($M = 5.10; SD = .54$) and elementary education ($M = 5.01; SD = .43$) producing similar PT-PETS scores. Figure 5 shows the difference in PT-PETS mean scores between early childhood and elementary programs. In contrast, there was a significant main effect of semester level on PT-PETS scores [$F(1, 95) = 6.836, p = .010, \eta^2 = .067$]. Pre-service teachers in the seventh semester performed significantly higher ($M = 5.16, SD = .42$) than those in the fifth semester ($M = 4.94, SD = .49$). Figure 6 displays the difference in PT-PETS scores between the fifth and seventh semesters in both programs. In addition, no significant interaction was found between the two variables [$F(1, 95) = .856, p = .357, \eta^2 = .009$]. The findings suggest that being at the later stage of the teacher preparation programs may enhance pre-service teachers' sophisticated personal epistemologies of teaching and that this enhancement is similar for both early childhood and elementary teacher preparation programs.

Figure 5

The PT-PETS Mean Scores Between the Programs

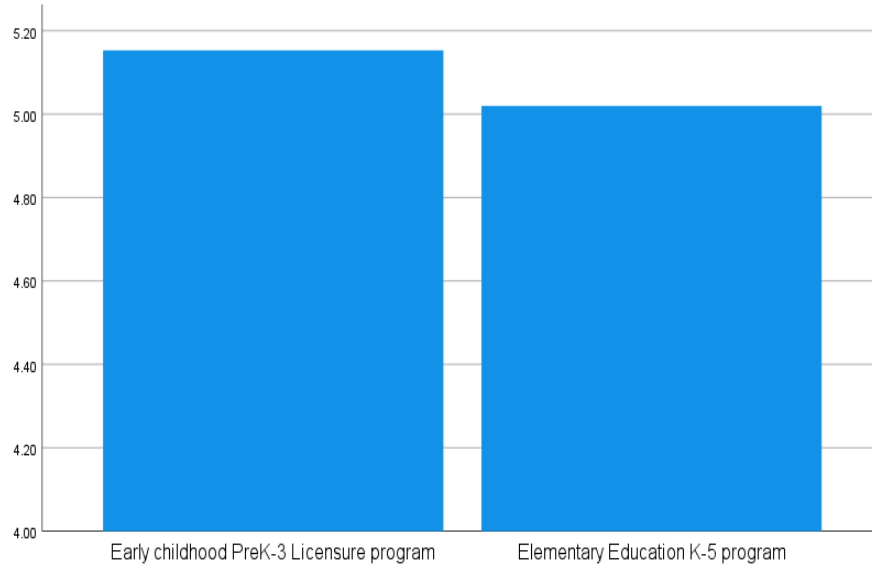
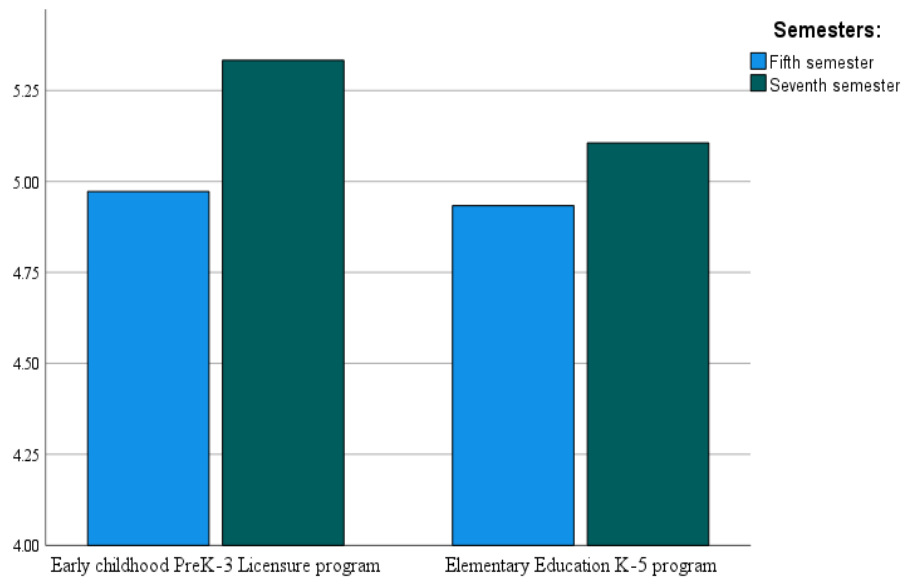


Figure 6

The PT-PETS Mean Scores Between Early and Later Stages of the Programs

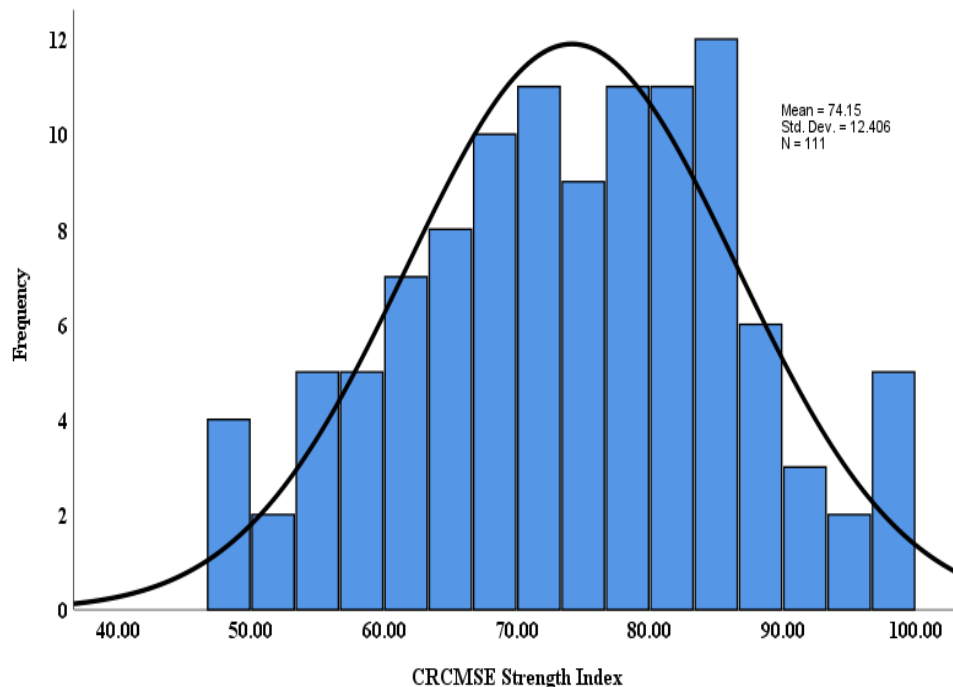


Pre-Service Teachers' Self-Efficacious Beliefs About Culturally Responsive Classroom Management

The CRCMSE was employed to assess pre-service teachers' confidence levels in culturally responsive classroom management (Siwatu et al., 2017). The pre-service teachers were asked to rate their confidence level from 0 (no confidence at all) to 100 (completely confident). Figure 7 represents the distribution of CRCMSE strength index scores of the 111 pre-service teachers. The data showed that most pre-service teachers rated themselves in the 62 to 87 range. The average index score was 74.15 ($SD = 12.4$), which leaned toward feeling moderately confident rather than completely confident.

Figure 7

Pre-Service Teachers' CRCMSE Strength Index Scores



Most pre-service teachers were less confident in their ability to implement complex culturally responsive classroom management tasks such as “use culturally responsive discipline practices to alter the behavior of a student who is being defiant” with ($M = 58, SD = 24$) and “critically analyze students’ classroom behavior from a cross-cultural perspective” with ($M = 63, SD = 22$). On the other hand, pre-service teachers were most confident in their ability to perform easier culturally responsive classroom management tasks, including “clearly communicate classroom policies” with ($M = 90, SD = 12$) and “encourage students to work together on classroom tasks, when appropriate” with ($M = 90, SD = 11$). Table 5 demonstrates pre-service teachers’ confidence levels in performing 35 culturally responsive classroom management tasks.

Table 5

Descriptive Statistics for CRCMSE (n = 111)

I am able to:	<i>M</i>	<i>SD</i>
1- Assess students’ behaviors with the knowledge that acceptable school behaviors may not match those that are acceptable within a student’s home culture.	68	18
2- Use culturally responsive discipline practices to alter the behavior of a student who is being defiant.	58	24
3- Create a learning environment that conveys respect for the cultures of all students in my classroom.	82	16
4- Use my knowledge of students’ cultural backgrounds to create a culturally compatible learning environment.	78	17
5- Establish high behavioral expectations that encourage students to produce high quality work.	81	16
6- Clearly communicate classroom policies	90	12
7- Structure the learning environment so that all students feel like a valued member of the learning community	87	14
8- Use what I know about my students’ cultural background to develop an effective learning environment.	76	17
9- Encourage students to work together on classroom tasks, when appropriate.	90	11
10- Design the classroom in a way that communicates respect for diversity.	86	13
11- Use strategies that will hold students accountable for producing high quality work.	76	17
12- Address inappropriate behavior without relying on traditional methods of discipline such as office referrals.	72	18
13- Critically analyze students’ classroom behavior from a cross-cultural perspective.	63	22

I am able to:	<i>M</i>	<i>SD</i>
14- Modify lesson plans so that students remain actively engaged through- out the entire class period or lesson.	72	18
15- Redirect students' behavior without the use of coercive means (i.e., consequences or verbal reprimand).	73	18
16- Restructure the curriculum so that every child can succeed, regardless of their academic history.	68	21
17- Communicate with students using expressions that are familiar to them.	80	17
18- Personalize the classroom so that it is reflective of the cultural background of my students.	81	16
19- Establish routines for carrying out specific classroom tasks.	87	15
20- Design activities that require students to work together toward a common academic goal.	83	17
21- Modify the curriculum to allow students to work in groups.	81	16
22- Teach students how to work together.	87	14
23- Critically assess whether a particular behavior constitutes misbehavior.	75	18
24- Teach children self-management strategies that will assist them in regulating their classroom behavior.	74	18
25- Develop a partnership with parents from diverse cultural and linguistic backgrounds.	70	22
26- Communicate with students' parents whose primary language is not English.	56	23
27- Establish two-way communication with non-English speaking parents.	57	24
28- Use culturally appropriate methods to relate to parents from culturally and linguistically diverse backgrounds.	60	24
29- Model classroom routines for English Language Learners.	71	21
30- Explain classroom rules so that they are easily understood by English Language Learners.	72	21
31- Modify aspects of the classroom so that it matches aspects of students' home culture.	67	21
32- Implement an intervention that minimizes a conflict that occurs when a students' culturally based behavior is not consistent with school norms.	63	23
33- Develop an effective classroom management plan based on my understanding of students' family background.	69	20
34- Manage situations in which students are defiant.	69	21
35- Prevent disruptions by recognizing potential causes for misbehavior.	72	18

The Effect of Stages and the Type of Programs on Self-Efficacious Beliefs

A two-way ANOVA was used to investigate the effect of the type of programs and the semester levels on pre-service teachers' confidence levels regarding culturally responsive classroom management. The results revealed there was no significant main effect of type of programs [$F(1, 106) = .585, p = .446, \eta^2 = .005$] with early childhood education ($M = 73.65; SD = 14.15$) and elementary education ($M = 74.74; SD = 11.20$) generating similar CRCMSE scores. Figure 8 presents the difference in CRCMSE mean scores in early childhood and elementary programs.

Additionally, there was no significant main effect of semester levels on CRCMSE scores [$F(1, 106) = 2.323, p = .130, \eta^2 = .021$]. Pre-service teachers in the fifth semester had similar confidence levels ($M = 75.77; SD = 12.72$) to those in the seventh semesters ($M = 72.84; SD = 11.50$). Figure 9 shows the CRCMSE mean scores between pre-service teachers in the fifth and the seventh semesters.

Besides, no significant interaction was found between the two variables [$F(1, 106) = .553, p = .459, \eta^2 = .005$]. These findings suggested that pre-service teachers' confidence levels toward culturally responsive classroom management tasks were not significantly affected by the semester levels or the type of programs. That effect was similar for both early childhood and elementary teacher preparation programs.

Figure 8

The CRCMSE Mean Scores Between the Programs

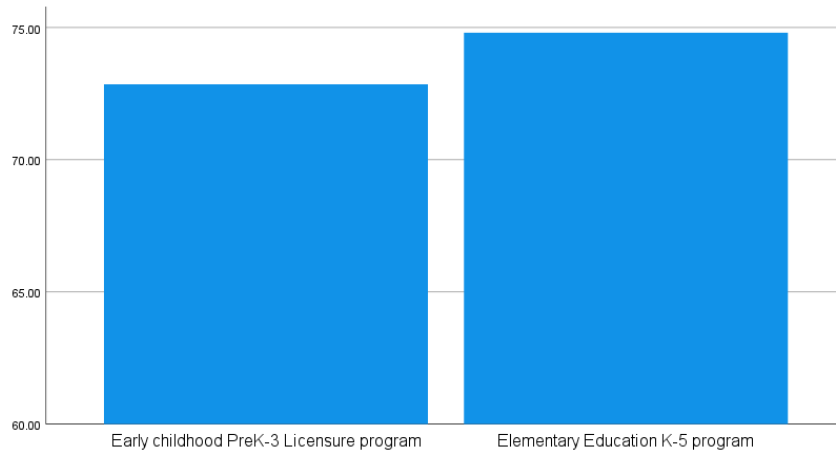
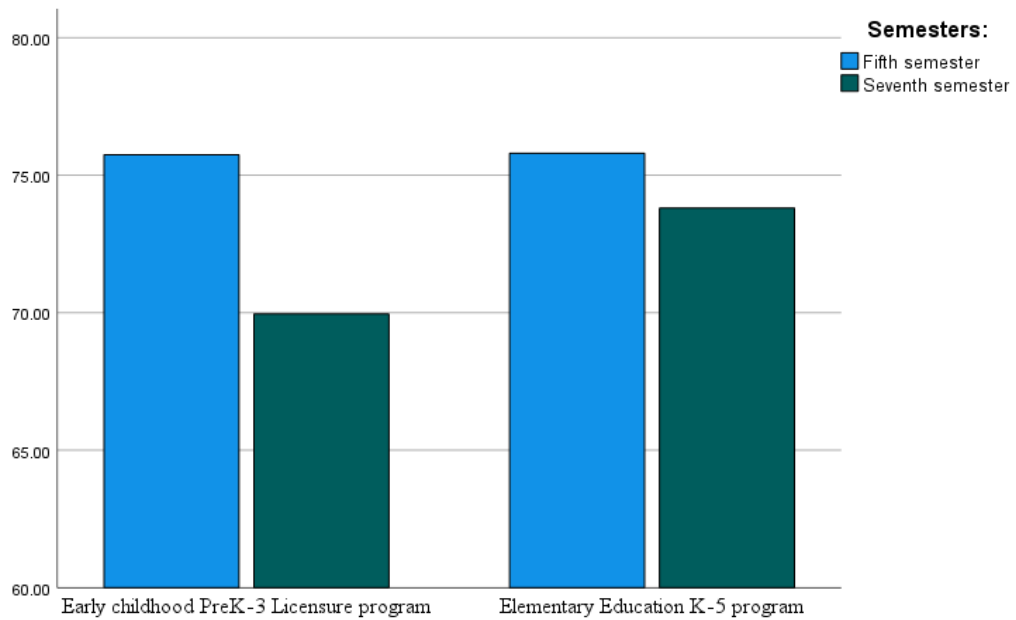


Figure 9

The CRCMSE Mean Scores Between Early and Later Stages of the Programs



The Relationship Between Personal Epistemologies and Self-Efficacy Beliefs

A Pearson correlation was chosen to test the relationship between the two variables: pre-service teachers' personal epistemological beliefs of teaching and their culturally responsive classroom management self-efficacy. To test the normality assumption of measured variables, skewness and kurtosis were examined. The skewness of PT-PETS and CRCMSE were -.457 and -.155, respectively, indicating a normal distribution of the variables. Likewise, the kurtosis of PT-PETS and CRCMSE were -.125 and -.539, respectively, indicating a normal distribution of the variables. The results of the analysis showed an uncorrelated relationship between the epistemological beliefs ($M = 5.04, SD = .47$) and culturally responsive classroom management self-efficacy beliefs ($M = 74.14, SD = 12.41$), and the correlation was not statistically significant [$r(99, 110) = .024, p = .812$]. The results suggested no significant linear correlation between pre-service teachers' sophisticated personal epistemological beliefs and their confidence to employ culturally responsive classroom management. Therefore, there is no relationship between pre-service teachers' personal epistemological beliefs and their culturally responsive classroom management self-efficacy beliefs.

Phase II-Interview Data Analysis

In Phase II of the study, qualitative data was collected using a semi-structured interview. The primary researcher used a deductive content analysis approach to analyze the interview.

Characteristics of Interview Participants

A total of six early childhood and elementary pre-service teachers participated in the interview. All the participants were White females in different semesters and programs. Table 6 highlights information about the interviewees. The following sections illustrate the five main categories of the interview data analysis.

Table 6*Characteristics of Pre-Service Teachers Who Participated in the Interview*

Interviewees' Pseudonym	Age	Teaching experience	Semesters & Programs	PT-PETS's Scores	CRCMSE's Scores
Sarah		Yes		Sophisticated beliefs ($M = 5.25, SD = 1.07$)	High confidence ($M = 96.71, SD = 6.06$)
Amanda		No	5 th ECE	Sophisticated beliefs ($M = 4.65, SD = 1.23$)	Low confidence ($M = 47.71, SD = 20.45$)
Nicole	18~22	Yes	7 th ECE	Sophisticated beliefs ($M = 5.35, SD = .93$)	Moderately confident ($M = 50.86, SD = 20.35$)
Julia		No	7 th EE	Sophisticated beliefs ($M = 5.10, SD = 1.07$)	Moderately confident ($M = 72.29, SD = 16.29$)
Morgan		Yes	5 th EE	Sophisticated beliefs ($M = 5.05, SD = .89$)	Moderately confident ($M = 60.86, SD = 26.83$)
Emily	23~26	No		Sophisticated beliefs ($M = 5.40, SD = .99$)	Moderately confident ($M = 76.14, SD = 14.66$)

Note. Early Childhood Education Program (ECE-PreK-3) and Elementary Education Program (EE-K-5)

Main Category 1: Epistemological Beliefs of Teaching

All pre-service teachers showed sophisticated personal epistemological beliefs, which aligned with the results of the PT-PETS survey. Table 7 displays the deductive content analysis outcomes of pre-service teachers' epistemological beliefs of teaching. In addition, the four subcategories are explained in the following sections.

Table 7

The Deductive Content Analysis Outcomes of the First Main Category

Concept-Driven & Unit of Analysis	The First Identifiable Main Category	The identifiable sub-categories and their definitions	The formulating Codes That Fit Under the Predetermined Categories
The epistemological framework of Hofer and Pintrich (1997) & Interview Question #1	Epistemological beliefs of teaching	(1) Sophisticated beliefs of teaching knowledge: A pre-service teacher believes that teaching has multiple correct approaches to apply in a different learning environment and requires an understanding of students' needs to create a learning experience that supports and enables students' success.	1. Teaching is situational and complicated
The epistemological framework of Hofer and Pintrich (1997) & Interview Questions # 3, 4, 5		(2) Source of teaching knowledge: It means the different approaches that pre-service teachers use to learn about teaching knowledge.	<ol style="list-style-type: none"> 1. Learning from teachers with long teaching experience 2. Learning to teach is an individual constructive, active process that involves all the developmental domains. 3. Reflecting on teaching knowledge from practicing with children 4. Using and evaluating teaching knowledge from the textbook 5. Using reliable online resources and learning from teachers on social media
The epistemological framework of Hofer and Pintrich (1997) & Interview Question # 2		(3) The personal approach to evaluate new teaching knowledge: It means the processes that pre-service teachers use to ensure the credibility of the new teaching knowledge.	<ol style="list-style-type: none"> 1. Comparing the new teaching knowledge to reliable resources. 2. Discussing new teaching knowledge with a teacher who has long teaching experiences 3. Filtering new teaching knowledge via previous teaching knowledge and experiences 4. Reasoning and testing the new teaching knowledge with students' abilities and needs
Piaget's theory of cognitive disequilibrium & Interview Question #6		(4) Changing epistemological beliefs about teaching knowledge: It means the pre-service teachers' experiences change their epistemological beliefs about teaching.	Entering teacher preparation programs

Subcategory 1: Sophisticated Beliefs of Teaching Knowledge. The pre-service teachers believed that teaching has multiple correct approaches to apply in a different learning environment and requires an understanding of students' needs to build a learning environment that supports and enables students' success. For example, Amanda stated, "[Teaching] is situational; children learn differently." Also, Sarah said, "I do not think it is possible that there is only one way to teach." Additionally, all the pre-service teachers agreed that teachers need to assess the teaching situation and create a relevant learning experience for all students, demonstrating their sophisticated teaching beliefs.

Subcategory 2: Source of Teaching Knowledge. Pre-service teachers used different sources to learn teaching knowledge, including professional environment (e.g., teacher preparation programs) and general settings (e.g., social media and the internet). One of the primary resources that pre-service teachers used to explore new teaching knowledge was learning from a teacher with extensive teaching experiences. Julia described her way of expanding her teaching knowledge, "I think, watching my mentor teacher and other teachers at the school and trying things myself and just learning how they were in the context of like with students um yeah just taking advice and talking to my teacher at school."

The pre-service teachers also depended on textbooks and reliable online websites as resources for teaching knowledge. They also followed teachers on social media to explore new teaching practices. Morgan clarified how she used social media to enhance her teaching knowledge:

I do utilize social media a lot, I would say, specifically like tick-tock is one of those things where like you do see teachers showing like their classroom management plans and how they form out their lesson plans and it does almost feel like more like a community way to

learn new things for someone to be like this is what works for me or, this is why something didn't work for me, and I think there's that comes like a lot of grace in that with a teacher like being honest about things that do work for them.

Despite the fact that pre-service teachers used a variety of external sources to learn teaching knowledge, they believed that learning to teach is an internal constructive process that depends on the individual pre-service teacher. They also emphasized that many factors play a role in constructing teaching knowledge, including individual differences and previous experiences. For example, Sarah demonstrated that “learning is like finding it out for yourself and talking about it and discussing it and then evaluate what you learned and its purpose and meaning.” In addition, a common denominator that pre-service teachers used to learn and evaluate teaching knowledge was reflecting on teaching knowledge from practicing with children.

Subcategory 3: The Personal Approach to Evaluate New Teaching Knowledge. The pre-service teachers used different approaches to ensure the credibility of the new teaching knowledge. For example, some pre-service teachers compared the new teaching knowledge to reliable textbooks. Morgan explained, “I think having textbooks that do have like specific sections on being culturally responsive, including students with disabilities and everything like that has been really, really helpful.” Another approach that pre-service teachers applied was discussing new teaching knowledge with a teacher with many years of teaching experience.

Also, some pre-service teachers filtered the new teaching knowledge through their previous teaching knowledge and experiences. For example, Amanda explained, "I guess, some [new teaching knowledge] I validate it from my limited experience with children, and I guess how much it makes sense to me as a person." In addition, Nicole argued that accepting the new teaching knowledge was restricted by her own experience, "if you like, a research method, for

instance, or saying Oh, you should do this, but it is like, in my experience that just never has worked I probably would not find it to be very valid and would not use it." Another common personal approach to learning teaching knowledge among the pre-service teachers was testing the new teaching knowledge with students' abilities and needs. For example, Julia described her approach to filtering the new teaching knowledge, "how would that work with the students that I have sitting there like testing it out at school or just thinking about like when my students respond to that just from like how I know them." All the six pre-service teachers showed different personal approaches to evaluating the validity of the new teaching knowledge.

Subcategory 4: Changing Epistemological Beliefs About Teaching Knowledge. All the pre-service teachers agreed that the teacher preparation program significantly impacted their teaching views. They had naive beliefs about teaching through their experience as students, but after joining the teacher preparation programs, they learned from the teacher's perspective and understood the teaching complexity. Nicole explained how her epistemological beliefs changed after the teacher program:

I just think like I always assumed like it wasn't that hard. It wasn't and it like the teacher I guess the teaching knowledge like wasn't that broad it was kind of like oh okay you do this, you do this and then you're good and, but then like actually getting into my like the program and student teaching and everything like you just realize how much teachers really do need to know.

Main Category 2: Factors That Affect Pre-Service Teachers' Beliefs About Teaching

Pre-service teachers talked about positive and negative factors that impacted their beliefs about teaching. Table 8 shows the deductive content analysis outcomes of factors that influence

pre-service teachers' beliefs about teaching. Then the four subcategories of the second factor are demonstrated.

Table 8

The Deductive Content Analysis Outcomes of the Second Main Category

Concept-Driven & Unit of Analysis	The Second Identifiable Main Category	The identifiable sub-categories and their definitions	The formulating Codes That Fit Under the Predetermined Categories
The epistemological framework of Hofer and Pintrich (1997) and Piaget's theory of cognitive disequilibrium & Interview Question #18	Factors that affect pre-service teachers' beliefs about teaching	(1) The influence of positive personal experience on teaching beliefs: It means any personal experiences that pre-service teachers had outside their teaching training have a positive impact on their views about teaching.	<ol style="list-style-type: none"> 1. Personal experiences with good and kind teachers 2. Personal learning experiences that inspire change
The epistemological framework of Hofer and Pintrich (1997) and Piaget's theory of cognitive disequilibrium & Interview Question #20		(2) The influence of negative personal experience on teaching beliefs: It means any personal experiences that pre-service teachers had outside their teaching training harm their views about teaching.	<ol style="list-style-type: none"> 1. Negative personal experience with some teachers
The epistemological framework of Hofer and Pintrich (1997) and Piaget's theory of cognitive disequilibrium & Interview Question #19		(3) The influence of positive professional experience on teaching beliefs: It means any professional experiences that pre-service teachers have in their teacher preparation programs positively impact their views about teaching.	<ol style="list-style-type: none"> 1. The positive impact on children 2. Professional learning experiences in the teacher preparation program 3. Professional, positive teaching experience with children
The epistemological framework of Hofer and Pintrich (1997) and Piaget's theory of cognitive disequilibrium & Interview Question #21		(4) The influence of negative professional experience on teaching beliefs: It means any professional experiences that pre-service teachers have in their teacher preparation programs negatively impact their views about teaching.	<ol style="list-style-type: none"> 1. Dealing with misbehavior 2. A long time of preparing teaching materials 3. Teachers' negative reaction toward students 4. The challenge of classroom management 5. The negative impact of external factors on school

Subcategory 1: The Influence of Positive Personal Experience on Teaching Beliefs.

The pre-service teachers discussed the influence of having an effective teacher as students in their professional careers. They believed that a great teacher impacted their personal and learning journey. For example, Julia stated, “I think just being in school and having teachers who cared a lot about teaching made me believe that I could be a teacher too.” In addition, the impact of a caring and loving teacher changed the lives of some pre-service teachers. For example, Amanda talked about the inspiration of the teachers’ guidance in her life, “I can point to my second or third-grade teacher who made sure I got to see a speech pathologist. My kindergarten teacher was kind, and my fifth-grade teacher helped me get a scholarship.”

Subcategory 2: The Influence of Negative Personal Experience on Teaching Beliefs.

The pre-service teachers explained that negative teacher characteristics such as yelling and impatience negatively impacted their views toward teaching. For example, Nicole described the impact of ineffective teachers on her views about teaching:

I would say, and I’m sure like a lot of people probably would agree with this just having those teachers that didn't care. It like I don't know that were just kind of rude. I think that really gave me like a very negative mindset of like oh like this is what teachers are then I don't want to do this.

Also, the pre-service teachers agreed that seeing some students mistreated by their teachers made them feel uncomfortable about joining the teaching profession. Another negative personal experience that some pre-service teachers had was seeing their teachers exhausted from overwork or hearing them complain about their teaching careers.

Subcategory 3: The Influence of Positive Professional Experience on Teaching

Beliefs. The pre-service teachers illustrated that being in the teacher preparation programs and

seeing a positive impact on students' development and achievement were the two leading professional experiences that positively influenced their beliefs about teaching. For example, Amanda described her positive professional experiences, "I suppose it is a lot of what I read in my textbook and what my teachers lecture on. What experiences do they share with us as a lecture?" In addition, Julia clarified how her experience with children impacted her teaching view, "some experience with teaching and learning and interacting with students, so that is another experience that has impacted my belief about my teaching and made me want to be a teacher in the first place." Generally, the pre-service teachers believed that effective teacher preparation programs that lead and provide positive interactions with children had a significant positive impact on their views toward teaching.

Subcategory 4: The Influence of Negative Professional Experience on Teaching

Beliefs. All the pre-service teachers believed that classroom management, especially dealing with misbehavior, is the most challenging aspect of their professional experience. For example, Sarah said, "a negative impact on my belief would be like the stress of what do you do when a child was really hard to manage?" In addition, some pre-service teachers stated that observing a teacher who mistreated the students impacted their teaching beliefs. Julia explained how seeing negative behavior toward students influences her teaching views:

I see teachers again, even in my school that are doing things that I do not agree with, and so like I am thinking like if teachers are acting this way to their students like I do not want to be seen as someone who does that too.

Moreover, Morgan explained that the division in the society toward various subjects, such as the Covid-19 mask policy, had negatively impacted her teaching view. She believed that schools were

not focused on students’ learning for a while; instead, they were trying to bring different views together, and schools should always be about students’ education.

Main Category 3: Pre-Service Teachers’ View on Culture

All the pre-service teachers believed that culture has a significant impact on development.

Table 9 presents the deductive content analysis outcomes of pre-service teachers’ views on culture. The next section illustrates the two subcategories of the third main category.

Table 9

The Deductive Content Analysis Outcomes of the Third Main Category

Concept-Driven & Unit of Analysis	The Third Identifiable Main Category	The identifiable sub-categories and their definitions	The formulating Codes That Fit Under the predetermined categories
Gay’s (2002) view on preparing teachers for culturally responsive classroom & Interview Question #10	Pre-service teachers’ view of culture	(1) Cultural awareness: It means the methods that pre-service teachers use to learn about their own cultures and others’ cultures	<ol style="list-style-type: none"> 1. Learning about others' culture 2. Limited cultural resources 3. Limited self-awareness of cultural lens 4. Recognition of one's own culture 5. Learning about culture in teacher preparation program
Gay’s (2002) view on preparing teachers for culturally responsive classroom & Interview Question #11		(2) Recognizing the cultural influence on behavior: It means realizing the impact of cultures on students’ behavior and their understanding of reality.	<ol style="list-style-type: none"> 1. The impact of culture on student 2. The impact of culture on classroom

Subcategory 1: Cultural Awareness. Most pre-service teachers were aware of the differences in values and beliefs between cultures and recognized their strategies to learn about

their own cultures. One of the critical strategies that pre-service teachers used to learn about their own culture was self-reflection. For example, Amanda stated that “learning more about why you do these stuff so what is the reasoning behind these traditions and culture.”

On the other hand, some pre-service teachers had limited self-awareness of how their culture may impact their views. For instance, Sarah said, “I guess. It is easier asking a question about other people's culture, but I guess I have not really thought much about my culture.”

In addition, the pre-service teachers illustrated different ways to learn about other cultures, including learning from diverse students, social experiences, and the internet. For example, Nicole stated, "I use the Internet; I like research and different things and that is like typically just because I think it is so accessible." Also, the pre-service teachers stated they learn about stories of students who come from different cultural backgrounds at the teacher preparation programs.

Subcategory 2: Recognizing the Cultural Influence on Behavior. The pre-service teachers agreed that culture impacts students’ behavior and understanding of reality. The pre-service teachers also believed that culture shapes students’ development, including communication styles and behaviors. Therefore, they think it is the teacher's responsibility to be aware of the students’ culture and provide practical support. For example, Amanda explained that “our culture is who you are; it defines how you are going to react to certain situations, and so we need to be aware of their [students’] culture, so we can help them the best way we can.” The pre-service teachers also acknowledged that teachers need to be aware that some behavior may be acceptable in one culture but rejected in another.

Main Category 4: Self-Efficacious Beliefs on Culturally Responsive Classroom Management

The pre-service teachers revealed different perceptions of how culture impacts classroom management. Table 10 presents the deductive content analysis outcomes of the fourth main category. The following sections explain the three subcategories of the fourth main category.

Table 10

The Deductive Content Analysis Outcomes of the Fourth Main Category

Concept-Driven & Unit of Analysis	The Fourth Main Category	The identifiable sub-categories and their definitions	The formulating Codes That Fit Under the Predetermined Categories
Weinstein et al.'s (2004) theory of culturally responsive classroom & Interview Question #7	Self-efficacious beliefs on culturally responsive classroom management	(1) Awareness of culturally responsive classroom: It means pre-service teachers' knowledge and conception of culturally responsive classroom management.	<ol style="list-style-type: none"> Limited knowledge of culturally responsive classroom management Perception of culturally responsive classroom management
Bandura's social cognitive theory (1982) and Weinstein et al.'s (2004) theory of culturally responsive classroom & Interview Question #8		(2) Self-efficacy in the culturally responsive classroom: It means a pre-service teacher's confidence level regards culturally responsive classroom management	<ol style="list-style-type: none"> High confidence in culturally responsive classroom management Somewhat confident in culturally responsive classroom management No confidence in culturally responsive classroom management
Bandura's social cognitive theory (1982) and Weinstein et al.'s (2004) theory of culturally responsive classroom & Interview Question #12,13,14,15		(3) Sources of culturally responsive classroom management self-efficacy: It means various ways pre-service teachers use to increase their confidence level to implement culturally responsive classroom management.	<ol style="list-style-type: none"> Improvement of the vicarious experience with culturally diverse student Advance to the mastery experience with culturally diverse student Modification to the mastery experience with linguistically diverse student Progress to the vicarious experience with linguistically diverse student Mastery experience with culturally diverse student Mastery experience with linguistically diverse student No experience with linguistically diverse student Vicarious experience with culturally diverse student Vicarious experience with linguistically diverse student

Subcategory 1: Awareness of Culturally Responsive Classroom Management. The pre-service teachers had different information about culturally responsive classroom management conceptions. However, some pre-service teachers had adequate knowledge of culturally responsive classroom management. For example, Julia illustrated her knowledge of culturally responsive classroom management:

I just know that equity is a big thing when it comes to that. Another way we've learned about using like culturally responsive materials and making sure that, like the content and the way that you're teaching stuff is and also like the expectations that you have for students in different cultures might be different like. Maybe like behaviors they have were just like different customs that they have you need to be responsive to those and make sure that everyone feels like respected and like that it's okay to be different and it's not until what other students like have anything to say about it either, so we have learned a little bit about that in our program.

On the other hand, some pre-service teachers had limited knowledge about the concept of culturally responsive classroom management. For instance, Nicole said, “I definitely have heard it [culturally responsive classroom management], but like I don't really know it a ton like I’ve kind of heard it, but no, I don't really know a ton about it.” However, all pre-service teachers generally agreed that students' culture needed to be considered when planning for classroom management.

Subcategory 2: Self-Efficacy in Culturally Responsive Classroom Management. The pre-service teachers showed different confident levels regarding culturally responsive classroom management, which aligned with the results of the CRCMSE survey. Table 11 provides mixed data about pre-service teachers' confidence in implementing culturally responsive classroom management. The mixed data from the two phases of the study showed that most pre-service

teachers felt more moderately confident than completely confident. In addition, most pre-service teachers agreed that they need more knowledge of the context of culturally responsive classroom management.

Table 11

Joint Display Analysis for Pre-Service Teachers' Confident Level on Culturally Responsive Classroom Management

Pre-service teachers Pseudonym	Phase I Survey data CRCMSE	Phase II Interview data How confident are you in managing a classroom with culturally and linguistically diverse (CLD) students?
Sarah	High confidence ($M = 96.71, SD = 6.06$)	“Very confident. Yeah. Because I don't, I don't have a problem with like language, I don't feel the need to only stick to English. And so, I want to send stuff home to their parents in different languages.”
Emily	Moderately confident ($M = 76.14, SD = 14.66$)	“Um I mean I'm not confident right now. I just. I would say I'm definitely wanting to learn more about it that has never been in those situations really yet so I wouldn't say I'm confident.”
Nicole	Moderately confident ($M = 50.86, SD = 20.35$)	“I would say, like. I do think my experience has like made me feel a little bit more confident in managing that just because I, and I was adopted to I'm from Armenia and Good yeah, and so I did I did like some mission work in Central America, and so I feel like that's definitely helped me just in my perspective of like having a little bit of a wider viewpoint than maybe other people.”
Julia	Moderately confident ($M = 72.29, SD = 16.29$)	“I think that I could do it, but I would really like to know more, I feel like that hasn't we haven't been like totally prepared for that, and especially in my classroom I'm not seeing. We do have a diverse classroom but I'm not sure how confident my mentor teachers are in managing that kind of classroom, so I think I am I, like I could do it, but I'm not as confident as I could be.”
Morgan	Moderately confident ($M = 60.86, SD = 26.83$)	“I especially through this semester, I feel much more confident in it, but I probably would not have last year at this time. I do know that, and I need to like continue to be intentional with learning things I think I am getting a good amount of that, from my courses. But I do think as a professional in this field, I will need to take that upon myself as well, so I think that I have learned, but I also know there's so much more that I need to do So I think there's progress.”
Amanda	Low confidence ($M = 47.71, SD = 20.45$)	“Maybe somewhat I don't think I've been exposed to different cultures and all out to be completely aware but thank I'm trying to get a little bit on the way there so.”

Subcategory 3: Sources of Self-Efficacious Beliefs on Culturally Responsive

Classroom Management. According to Bandura (1977), self-efficacy is constructed from four sources of information, including mastery experiences and vicarious experiences. The mastery experience is the most influential source of self-efficacy, which means successfully accomplishing a task. The vicarious experience means observing people who share similar abilities with us succeed in a mission, contributing to our sense of self-efficacy in achieving similar results. Some pre-service teachers had successful teaching experiences with culturally diverse students. For example, Morgan described her teaching experiences in a predominantly Black community, “I really enjoyed that experience a lot, and I think that has made me think more about what my career and education will look like.” Sarah, another successful example of mastery experience, speaks Spanish as a second language. She explained the positive impact of her language skills on Spanish-speaking students, “The students get very excited because a lot of times it has not happened. Like, they did not know that I could speak Spanish, so, I think it is, it is comforting for them to hear their home language at schools.”

Furthermore, many pre-service teachers observed effective teachers who were responsive to students’ culture. For example, Sarah explained, “the teacher really does care about representing the students in the classroom like there is a Hijab in the dress-up area, and there are different books that represent different cultures.” Also, many pre-service teachers stated that they observed teachers who worked with linguistically diverse students and provided needed accommodations to support the English language development of the students.

Main Category 5: Factors That Impact Pre-Service Teachers' Views Toward Culturally

Responsive Classroom Management

The pre-service teachers understood their needs and factors that may enhance or discourage their future culturally responsive classroom management practices. Table 12 presents the deductive content analysis outcomes of the fifth main category. The three subcategories of the fifth main category are explained in the next sections.

Table 12

Deductive Content Analysis Outcomes of the Fifth Main Category

Concept-Driven & Unit of Analysis	The Fifth Identifiable Main Category	The identifiable sub-categories and their definitions	The formulating Codes That Fit Under the Predetermined Categories
Gay's (2002) view on preparing teachers for culturally responsive classrooms and Weinstein et al.'s (2004) theory of culturally responsive classroom & Interview Question #17	Factors that impact pre-service teachers' views toward culturally responsive classroom management	(1) Preparedness for culturally responsive classroom management: It means the knowledge and skills that pre-service teachers need to be prepared for implementing culturally responsive classroom management.	<ol style="list-style-type: none"> 1. Learning about other cultures 2. Course on cultures 3. Learning about culturally responsive classroom management 4. More teaching experience with diverse students 5. Learning how to communicate effectively with people who do not speak English
Weinstein et al.'s (2004) theory of culturally responsive classroom & Interview Question #9, 22		(2) Positive factors that impact pre-service teachers' views toward culturally responsive classroom management: It means factors that positively influence pre-service teachers' beliefs about implementing culturally responsive classroom management.	<ol style="list-style-type: none"> 1. Learning about diversity in teacher preparation programs 2. Positive teaching experience with culturally and linguistically diverse students 3. Speaking another language 4. Listening to positive teaching experience with culturally and linguistically diverse students 5. Resources on teaching culturally and linguistically diverse students 6. Seeing the positive impact on culturally and linguistically diverse students

Concept-Driven & Unit of Analysis	The Fifth Identifiable Main Category	The identifiable sub-categories and their definitions	The formulating Codes That Fit Under the Predetermined Categories
Weinstein et al.'s (2004) theory of a culturally responsive classroom and Gay's (2002) view on preparing teachers for a culturally responsive classroom & Interview Question #16, 23	Factors that impact pre-service teachers' views toward culturally responsive classroom management	(3) Negative Factors that impact pre-service teachers' views toward culturally responsive classroom management: It means factors that negatively influence pre-service teachers' beliefs about implementing culturally responsive classroom management	<ol style="list-style-type: none"> 1. Unfamiliar cultures 2. Language barrier 3. Fear of cross-cultural communication 4. Communicate with parents who do not speak English 5. The individual support that culturally and linguistically diverse students need 6. Afraid of making mistakes 7. Reframing expectations 8. Limited knowledge and experience 9. Fear of not seeing progress 10. Fear of disapproval

Subcategory 1: Preparedness for Culturally Responsive Classroom Management. The pre-service teachers articulated skills and knowledge that they need to enhance their confidence regarding culturally responsive classroom management. They suggested a need for a course on cultures to learn about other cultures and their implications on teaching and classroom management. The pre-service teachers also wanted the course to help them create effective cross-cultural communication, including communicating with parents who do not speak English. For example, Nicole's suggestion was,

Like a cultural class on like things that we need to be more sensitive towards or like things like that, because I feel like it's not talked about very much, but it's like we need to talk about it in order to really like you know, be a good teacher and like love our students well like we got to know what they need, and things like that.

In addition, the pre-service teachers emphasized the need for more knowledge and experiences about culturally responsive classroom management in their teacher preparation

programs. Julia explained that she needed to know “how to pick classroom materials that are culturally responsive is one thing and how to learn about students’ cultures like how to incorporate that just into the classroom and how to teach the other students to be culturally responsive.” The pre-service teachers also illustrated that they wanted to have various teaching experiences that reflect diversity in the classrooms. For example, Morgan stated that

I would love to get the opportunity to see more like culturally diverse classrooms and English language learners as well. I think that would definitely like be helpful to see like what other teachers doing the things I can use for that in my own career.

Subcategory 2: Positive Factors That Impact Pre-Service Teachers’ Views Toward Culturally Responsive Classroom Management. The pre-service teachers demonstrated numerous factors that they believed contribute to their positive view about teaching culturally and linguistically diverse students, including:

- Learning about diversity and how to teach culturally and linguistically diverse students in teacher preparation programs
- Positive teaching experiences with culturally and linguistically diverse students
- Speaking another language
- Listening to positive teaching experiences with culturally and linguistically diverse students
- Having access to resources about teaching culturally and linguistically diverse students
- Seeing improvement in culturally and linguistically diverse students

Subcategory 3: Negative Factors That Impact Pre-Service Teachers' Views Toward Culturally Responsive Classroom Management. The pre-service teachers talked about factors

that may discourage them from teaching culturally and linguistically diverse students, involving:

- Dealing with unfamiliar or unknown cultures
- Language barrier
- Fear of cross-cultural communication
- The incapability of communicating with parents who do not speak English
- The need for individual support that culturally and linguistically diverse students require despite having one classroom teacher
- Afraid of making mistakes or unintentional harm to culturally and linguistically diverse students due to cultural differences
- The challenge of reframing expectations and feelings about a situation that is different from the teachers' cultural norms
- Limited knowledge and experience in teaching culturally and linguistically diverse students
- Fear of not seeing any progress with culturally and linguistically diverse students
- Concern about parents' and leaders' disapproval of implementing culturally responsive classroom management.

Chapter 5. Discussion

Teaching is a complex task and becomes more challenging in a culturally and linguistically diverse classroom. Many pre-service and in-service teachers addressed that they feel unprepared to work with culturally and linguistically diverse (CLD) students (Mills, 2013; Salerno & Kibler, 2013; Yuan, 2017a; Zhang & Peltari, 2014). Despite that, several studies predict that the majority of future American public schools' enrollment will be CLD students, and most of the in-service and pre-service teachers are monolingual, White, middle-class females (Gay, 2002; Hussar & Bailey, 2019; Lewis Chiu et al., 2017; Vázquez-Montilla et al., 2014; Yuan, 2017b). The demographic mismatch between students and teachers highlights a significant challenge that must be addressed in teacher preparation programs (Banks et al., 2005; Gay, 2018; Lewis Chiu et al., 2017; Muñiz, 2019; Yuan, 2017b). Since each culture has different definitions and expectations of appropriate behaviors, a conflict may happen between teachers and students from diverse cultural and linguistic backgrounds (Allen & Steed, 2016; Siwatu et al., 2017; Weinstein et al., 2003).

Unfortunately, several studies reported that too many CLD students are involved in classrooms where they are disconnected from their backgrounds, held to low academic expectations, and more likely to experience rigorous discipline strategies (Ladson-Billings, 2006; Mallett, 2017; Muñiz, 2019). Therefore, pre-service teachers should be equipped with beliefs, knowledge, and skills to help them work effectively with CLD students (Banks et al., 2005; Chen et al., 2009; Miller & Mikulec, 2014).

The purpose of this explanatory sequential mixed-methods study was to examine the relationship between pre-service teachers' personal epistemologies of teaching and their self-efficacy regarding culturally responsive classroom management. The study also evaluated

whether early childhood pre-service teachers held different personal epistemologies of teaching and culturally responsive classroom management self-efficacy beliefs than elementary pre-service teachers. Additionally, the study investigated if being in earlier versus later stages of teacher preparation programs may influence the development of pre-service teachers' beliefs. Lastly, the study explored factors that may contribute to pre-service teachers' personal epistemological beliefs of teaching and their self-efficacious beliefs about culturally responsive classroom management.

Pre-Service Teachers' Personal Epistemologies of Teaching

The first question in this study sought to determine the nature of pre-service teachers' personal epistemologies of teaching. The integration of both quantitative and qualitative data showed that the early childhood and elementary pre-service teachers held sophisticated epistemological beliefs about the nature and the process of teaching knowledge. These results further support the epistemological framework of Hofer and Pintrich (1997). In the current study, the pre-service teachers believed that the construction of teaching knowledge was a complex process that was affected by individual personal experiences and knowledge. They also held a constructivist understanding of the nature of teaching knowledge and viewed teaching knowledge as highly interconnected concepts. What is curious about this result is that all the pre-service teachers showed sophisticated personal epistemological beliefs, which was unexpected.

In contrast, previous studies found that the pre-service teachers held different personal epistemologies, including naive and sophisticated epistemological beliefs (Bondy, Ross, Adams, et al., 2007; Chan, 2004; White, 2000). A possible explanation for this might be that the previous researchers dealt with personal epistemologies as a general domain. However, the current study used the PT-PETS scale, which investigated pre-service teachers' personal epistemologies as a

specific domain in the teaching context. Another possible explanation was that other studies collected data from pre-service teachers in the first and fourth year of their teacher preparation programs which may result in showing naive and sophisticated personal epistemological beliefs. On the other hand, the current study participants were in the fifth or seventh semesters and had relevant, adequate experiences in their teacher preparation programs, which may develop their sophisticated epistemological beliefs.

Moreover, the pre-service teachers stated that teaching is situational and influenced by different factors, including students' abilities and teachers' knowledge and experiences. They also agreed that teachers need to assess the teaching situation and create a relevant learning experience for all students. Furthermore, the pre-service teachers depended on two primary resources to learn and justify teaching knowledge, including an experienced teacher and reliable sources such as textbooks and websites. They also used other approaches to justify teaching knowledge, including (1) comparing teaching knowledge to their previous teaching knowledge and experiences and (2) examining the teaching knowledge with students' abilities and needs. The mixed data of the current study presented that early childhood and elementary pre-service teachers who were in the fifth or seventh semesters in their teacher preparation programs held sophisticated personal epistemological beliefs, which may have a positive impact on their pedagogical practices as stated by previous studies (Fives & Buehl, 2010; Hofer, 2001; Hofer & Bendixen, 2012; Muis et al., 2006; Noddings, 1995).

Another objective of the current study was to identify factors that may impact the pre-service teachers' epistemological beliefs, including the type of programs, semester levels, and other possible factors. Even though the results showed no significant differences between the early childhood and elementary programs, the early childhood pre-service teachers were slightly

higher in their epistemological beliefs. The early childhood pre-service teachers also were higher in their epistemological beliefs in the seventh semester than elementary pre-service teachers. As an early childhood doctoral student, I believe that the early childhood education program is designed based on constructivist learning theory, which may positively influence the epistemological beliefs of the early childhood pre-service teachers. Previous studies showed a link between the constructivist approach to teaching and sophisticated personal epistemological beliefs (Barger et al., 2018; Noddings, 1995; Windschitl, 2002).

Another important finding was that epistemological beliefs of pre-service teachers in the seventh semester were significantly higher than those in the fifth semester. The result is in agreement with the findings by Walker et al. that pre-service teachers' beliefs become more sophisticated toward the end of their teacher preparation programs. In addition, the interview data demonstrated that all the pre-service teachers emphasized the influence of teacher preparation programs on their beliefs about teaching. The pre-service teachers believed they had naive beliefs about teaching before entering the programs due to their experiences as students. This finding broadly supports the work of other studies in this area linking sophisticated personal epistemologies and the learning experience during teacher preparation programs (Gill et al., 2004; Hofer, 2001; Lunn Brownlee et al., 2017; Walker et al., 2012; Yu, 2013).

Other significant findings that pre-service teachers discussed were personal and professional factors that may positively and negatively impact their views about teaching. One of the critical factors that appeared in every part of the current study is the influence of schoolteachers on pre-service teachers' personal and professional learning journeys. This finding is aligned with previous studies that identify a teacher as the most important in-school factor that influences students (Trang & Hansen, 2021; Wang et al., 2018; Workman, 2012).

The school experiences that pre-service teachers had as students seem to impact their vision of themselves as future teachers. For example, the pre-service teachers explained that they wanted their students to see them as they saw their effective teachers. On the other hand, the pre-service teachers explained that seeing some teachers mistreat their students made them feel uncomfortable about joining the teaching profession. Moreover, pre-service teachers illustrated two factors that negatively impact their views about teaching: classroom management, especially dealing with misbehavior, and teachers being overworked. This finding is aligned with previous studies where many pre-service teachers identify classroom management as a significant concern (Dicke et al., 2015; Freeman et al., 2014; Reupert & Woodcock, 2010).

A Positive Direction Toward Diversity

The pre-service teachers demonstrated positive views about culturally and linguistically diverse students and emphasized that home culture and language significantly impact students' development. These results may positively impact preparing pre-service teachers for diversity since previous studies stated that understanding pre-service teachers' disposition toward diversity is the initial phase in preparing culturally responsive teachers (Chen et al., 2009; Gay, 2002; Vázquez-Montilla et al., 2014; Weinstein et al., 2003). Another important finding was that pre-service teachers pointed out that teachers need to be aware that some behavior may be acceptable in one culture but rejected in another, which showed a high level of cultural awareness.

These findings indicated that many educators worked to improve the learning experiences of CLD students. Examples from my personal life were my daughters' school experiences. My daughters, who are culturally and linguistically diverse learners, went to the same elementary school. In 2018, my older daughter had a harsh experience with her math teacher, which I talked about in the introduction of the current study. On the other hand, in 2021,

my younger daughter had a positive experience with her first-grade teacher where she provided different strategies to involve my daughter in the classroom culture and, at the same time, appreciate our culture. I talked about my positive experience with my younger daughter to show that the current study results and my personal experience demonstrated different signs that equity and diversity in education are going in the right direction.

Pre-Service Teachers' Culturally Responsive Classroom Management Self-Efficacy Beliefs

Another aim of the present study was to understand pre-service teachers' self-efficacious beliefs about culturally responsive classroom management. The integration data from surveys and interviews showed that the pre-service teachers have different levels of self-efficacy regarding culturally responsive classroom management. Some pre-service teachers were highly confident in applying culturally responsive classroom management tasks. However, most pre-service teachers had low or moderate confidence in planning culturally responsive classroom management. These findings were somewhat optimistic because they were contrary to previous studies indicating that many pre-service and in-service teachers felt unprepared to work in a diverse classroom environment (Gay, 2002; Mills, 2013; Salerno & Kibler, 2013; Villegas & Lucas, 2002). These findings may be explained by the fact that diversity is rising in teacher preparation programs, and social justice movements may impact pre-service teachers' views about diversity. In addition, I believe that a significant organization such as the National Association for the Education of Young Children (NAEYC) gave more weight to topics related to diversity when they dedicated their 2019 conference to diversity and released a position statement on equity and diversity.

Despite the improvement in preparing pre-service teachers for diversity, there is a need to support pre-service teachers to be confident in implementing complex culturally responsive classroom management tasks. Thus, the data of the current study revealed that pre-service

teachers were less confident in their ability to implement complex culturally responsive classroom management tasks such as “use culturally responsive discipline practices to alter the behavior of a student who is being defiant” and “critically analyze students’ classroom behavior from a cross-cultural perspective”. On the other hand, the pre-service teachers were most confident in performing easier culturally responsive classroom management tasks, including “clearly communicate classroom policies” and “encourage students to work together on classroom tasks, when appropriate”. These findings are similar to that of Siwatu et al. (2017) who discovered that most 380 pre-service and in-service teachers reported high self-efficacy in applying easy culturally responsive classroom management tasks and low self-efficacy in employing complex tasks. The finding from the present and previous studies indicate the need to support pre-service teachers’ practical knowledge about culturally responsive classroom management. For example, Siwatu et al. (2017) recommended using the CRCMSE scale to assess and improve pre-service teachers’ confidence levels in employing culturally responsive classroom management.

Another essential aim of the present study was to examine the effect of the type of programs, semester levels, and other personal and professional factors on the pre-service teachers’ culturally responsive classroom management self-efficacy. Pre-service teachers’ confidence levels toward culturally responsive classroom management tasks were not significantly affected by the semester level or the type of programs. However, one unanticipated finding was that fifth-semester pre-service teachers had higher confidence in implementing culturally responsive classroom management tasks than seventh-semester pre-service teachers. A possible explanation for this might be that seventh-semester pre-service teachers developed enough knowledge about teaching that shapes their understanding of the reality of working in diverse classrooms. On the

other hand, the fifth-semester pre-service teachers might have unrealistic expectations of their current abilities due to their limited knowledge and experiences.

In addition, the pre-service teachers illustrated factors that may support them in working with culturally and linguistically diverse students. For example, they believed that successful teaching and observing experiences with culturally and linguistically diverse students positively impact their self-efficacy. These results corroborate the ideas of Bandura (1977), who suggested that mastery experiences (the successful accomplishment of a task) and vicarious experiences (observing people who share similar abilities with us succeed in a mission) are essential sources of self-efficacy. Other positive factors contributing to pre-service teachers' positive views about teaching culturally and linguistically diverse students include learning about diversity in teacher preparation programs, speaking another language, and accessing resources about teaching diverse students.

On the other hand, the pre-service teachers demonstrated factors that may discourage them from teaching culturally and linguistically diverse students, including dealing with unfamiliar or unknown cultures, language barriers, fear of making mistakes, or unintentional harm to culturally and linguistically diverse students due to cultural differences, and having limited knowledge and experience of teaching in diverse classrooms. These findings suggested that the pre-service teachers need more knowledge and skills in a culturally responsive classroom management context.

The Relationship Between Personal Epistemologies of Teaching and Culturally Responsive Classroom Management Self-Efficacy Beliefs

Previous studies suggested that pre-service teachers' epistemological beliefs may impact their views about teaching and learning (Fives & Buehl, 2010; Hofer, 2001; Hofer & Bendixen, 2012; Muis et al., 2006; Noddings, 1995). For example, some studies demonstrated that a teacher with sophisticated personal epistemologies is more likely to use a constructivist teaching approach, promote a high level of dialogical interactions with students, and think about different perspectives when solving classroom problems (Chan, 2004; Schwartz & Jordan, 2011; White, 2000). Moreover, several researchers called for an investigation to understand whether and how personal epistemologies as guides relate to self-efficacy in the context of teaching (Fives & Buehl, 2017; Muis et al., 2006).

Therefore, the current study proposed that understanding the relationship between pre-service teachers' epistemological beliefs and their culturally responsive classroom management self-efficacy may improve their teaching concept toward diversity. Thus, the current study assumed that pre-service teachers with sophisticated personal epistemologies of teaching were more likely to be highly confident in implementing culturally responsive classroom management.

Surprisingly, no significant linear relationship between pre-service teachers' epistemological beliefs and their culturally responsive classroom management self-efficacy beliefs was found. This finding was unexpected and showed no relationship between pre-service teachers' personal epistemological belief and their culturally responsive classroom management self-efficacy. A possible explanation for these results may be the lack of having a scale that evaluates personal epistemologies of teaching culturally and linguistically diverse students as a specific domain.

Implications of the Study

This study discovered that the early childhood and elementary pre-service teachers in the fifth and seventh semesters held sophisticated personal epistemologies of teaching. According to Brownlee et al. (2009) "personal epistemological beliefs, or beliefs about knowing, provide a way in which to understand learning in a range of educational contexts because they are considered to act as filters for all other knowledge and beliefs" (p. 599). In addition, the study showed that pre-service teachers in the seventh semester performed better than those in the fifth semester. Generally, these results indicated that the early childhood and elementary teacher preparation programs provided meaningful learning experiences that support the epistemological development of the pre-service teachers. However, greater efforts are needed to explore the learning experiences that pre-service teachers receive in the programs that develop their epistemological beliefs in the context of teaching.

Furthermore, the study unexpectedly found no correlation between the epistemological beliefs and culturally responsive classroom management self-efficacy beliefs. This finding is rather disappointing. Hence, understanding pre-service teachers' personal epistemologies of teaching cannot inform our understanding of how confident they are in managing culturally responsive classrooms. That indicated that simply supporting pre-service teachers' epistemological beliefs may not prepare them to work with culturally and linguistically diverse students.

Previous studies emphasized that preparing pre-service teachers to feel efficacious regarding culturally responsive classroom management is a fundamental step in teacher preparation programs because there is a high chance that pre-service teachers will teach CLD students (Gay, 2018; LePage et al., 2005; Muñiz, 2019). Therefore, I recommend that teacher

educators create culturally responsive programs to prepare pre-service teachers for diversity, which is the future of classrooms. Yuan (2017a) described characteristics of effective culturally responsive teacher preparation programs containing a suitable and comprehensive training that positively influences pre-service teachers' attitudes toward diversity, a culturally responsive knowledge base, and practical experiences in various cultural contexts.

In addition, I believe that the cultural lens needs to be the main factor in reforming and shaping teacher preparation programs. Nevertheless, I think that creating meaningful learning experiences for culturally and linguistically diverse students depends on constructivist leaders, effective culturally responsive teachers, and open-minded parents. Therefore, I believe there is a need to provide guidance and workshops on practical strategies that parents of diverse students may need to bridge between home and school language and culture.

Additionally, the study showed that pre-service teachers depend on mastery experiences and vicarious experiences as resources of their self-efficacy. However, Bandura (1977) explained that self-efficacy is constructed from four sources of information: mastery experiences, vicarious experiences, verbal persuasion, and physiological and emotional states. The current study results showed that the pre-service teachers missed two self-efficacy resources: verbal persuasion and physiological and emotional states. Therefore, I recommend that teacher educators use these two resources to improve pre-service teachers' self-efficacy in managing culturally responsive classrooms. For example, an implication of verbal persuasion would be hosting effective culturally responsive teachers who prepared a motivational speech to encourage pre-service teachers to teach in a diverse learning environment. In addition, an implication for physiological and emotional states would be to provide training and guidance to support pre-service teachers in maintaining normal physiological and emotional states in cross-cultural situations.

Limitations of the Study

The findings of the current study are subject to at least three limitations. First, the quantitative data was collected via self-reported surveys; therefore, the participants may choose socially accepted answers rather than reflect their honest beliefs (Creswell, 2015; Fraenkel & Wallen, 2009). Second, most of the participants were white females aged between 18 to 22 and studying in the same university, which may limit the generalizability of these results. Third, the personal epistemologies of teaching and culturally responsive classroom management are emerging research fields that have limited previous studies and assessment tools.

Future Research

Further research could:

- Develop a scale that assesses pre-service teachers' personal epistemologies of teaching culturally and linguistically diverse students.
- Explore perspectives of leaders, teacher educators, and pre-service teachers toward culturally responsive classroom management to understand factors that influence teacher preparation for diversity.
- Study an effective teacher preparation program that reports successful outcomes in preparing pre-service teachers with sophisticated personal epistemologies and high self-efficacy in culturally responsive classroom management.
- Examine pre-service teachers' culturally responsive classroom management self-efficacy progress during the first, second, third, and fourth years of teacher preparation programs.
- Examine the difference between the epistemological beliefs of pre-service teachers who are in the later year of the teacher preparation program and in-service teachers who have

less than five years of teaching experience and understand how those differences impact their pedagogical choices and practices.

- Investigate how pre-service teachers with high, moderate, and low confidence levels on culturally responsive classroom management perform during their first year of teaching in diverse classrooms.
- Create a grounded theory on a cultural framework that prepares an individual with cultural competence to deal with diverse cultures.
- Collect a cross-sectional sample from different USA locations to examine pre-service teachers' culturally responsive classroom management self-efficacy.

Conclusion

The present research aimed to examine the relationship between pre-service teachers' personal epistemologies of teaching and their self-efficacy regarding culturally responsive classroom management. The study also evaluated the effect of programs and semester levels on pre-service teachers' personal epistemologies of teaching and their culturally responsive classroom management self-efficacy beliefs. In addition, the study explored factors that may contribute to pre-service teachers' personal epistemological beliefs of teaching and their self-efficacious beliefs about culturally responsive classroom management.

The results indicated no significant correlation between pre-service teachers' epistemological beliefs and culturally responsive classroom management self-efficacy beliefs. Furthermore, the integrating quantitative and qualitative data showed that pre-service teachers hold sophisticated personal epistemologies of teaching and felt moderately confident in their abilities to perform culturally responsive classroom management tasks. Regarding the program types and semester levels, survey data showed that only semester level affected pre-service

teachers' epistemological beliefs, with seventh-semester pre-service teachers performing significantly higher than fifth-semester teachers. Moreover, pre-service teachers demonstrated different factors that positively and negatively impacted their epistemological teaching beliefs and confidence in managing culturally diverse classrooms.

The current study results provide an insight into understanding factors that may impact pre-service teachers' beliefs. In addition, the study also demonstrates potential areas of development in teacher preparation programs in terms of diversity. Overall, there is a need to develop assessment tools that help researchers to examine and explore pre-service teachers' beliefs about diversity.

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APPENDICES

Appendix A: The Demographic Questionnaire of the Pre-Service Teachers

Directions: The following is intended to provide the researcher with fundamental demographic information about you. All information will be used for the research purpose only and will be kept confidential. Your participation is voluntary and appreciated.

Your ETSU email:

Gender:

- Male
 Female

Age:

- 18~22
 23~26
 27~31
 32~

Race or Ethnicity:

- Caucasian / White
 African American / Black
 Asian
 Hispanic / Latino
 Native American
 Pacific Islander
 Multiracial

Department:

- Early Childhood Education (ECED)
 Curriculum and Instruction (CUAI)

Program:

- Early childhood PreK-3 Licensure program
 Elementary Education K-5 program

Semesters:

- Fifth semester
 Seventh semester

Do you have any teaching experience?

- Yes
 No

Appendix B: Pre-service Teachers' Personal Epistemologies of Teaching Scale

Directions:

Each of the following items contains two opposing statements in terms of teaching knowledge. Imagine that you teach your subject matter (e.g., science, math, etc.) and select the degree to which statement matches how you think. There is no right or wrong answer, and we just want to know how you think. Your responses are anonymous and confidential.

Only One Option ON Each Item (Or Line) Can Be Selected.

For example, if you think that you are moderately agree with the statement at the left side:

(A) Most teaching problems have only one ideal solution.	Strongly agree with (A)	Moderately Agree with (A)	Somewhat agree with (A)	Somewhat agree with (B)	Moderately Agree with (B)	Strongly agree with (B)	(B) Most teaching problems have several ideal solutions.
	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

(A)		(B)
1-Learning to teach is a process in which I read relevant information, record it in memory, and retrieve it appropriately.	○ ○ ○ ○ ○ ○ ○ ○	Learning to teach is a process in which I personally construct understandings and gain experiences about how to teach.
2- It is better to study the answer keys in the textbooks than to find relevant experiences, when solving common teaching problems.	○ ○ ○ ○ ○ ○ ○ ○	It is better to find relevant experiences to solve common teaching problems.
3-Depending on the knowledge from textbooks is more useful than reflecting on personal experiences, when solving a teaching problem.	○ ○ ○ ○ ○ ○ ○ ○	Reflecting on personal experiences is more useful than depending on the knowledge from textbooks, when solving teaching problems.
4-Memorizing what the textbooks say is more important than forming my own ideas about teaching.	○ ○ ○ ○ ○ ○ ○ ○	Forming my own ideas about teaching is more important than memorizing what the textbooks say.
5- Students need to learn what the experts know.	○ ○ ○ ○ ○ ○ ○ ○	Students should question what the experts know.
6- I try to find out general rules and follow them when I deal with new teaching cases.	○ ○ ○ ○ ○ ○ ○ ○	I try to apply general principles used in similar teaching contexts but allow for flexibility.
7- Development of teaching knowledge is a process of collecting information from research studies.	○ ○ ○ ○ ○ ○ ○ ○	Development of teaching knowledge is a process of building up your own knowledge based on personal experiences.

8- Teaching knowledge is generated by traditional university-based researchers.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Teaching knowledge is constructed through my own experiences.
9- There is usually one right answer to every teaching problem.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	There is never one right answer to a teaching problem.
10- Memorizing what the textbooks say about teaching and learning is more important than combining information across chapters or even across classes.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Combining information about teaching and learning across chapters or even across classes is more important than memorizing what the textbooks say.
11- Most teaching problems have only one ideal solution.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Most teaching problems have several ideal solutions.
12- Most teaching problems, if they are well-studied, have a single certain answer applicable to all situations.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Even if they are well-studied, no teaching problems could have a certain answer applicable to all situations.
13- The best way to learn about teaching is to gather information and organize it in a straightforward manner.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	The best way to learn about teaching is to investigate various cases of teaching and then to integrate the different perspectives.
14- Possible solutions to a teaching problem can be gained from what the authorities say.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Possible solutions to a teaching problem can be investigated by reflecting on personal experiences.
15- Most principles and theories about teaching are unchanging.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Most principles and theories about teaching have changed over time.
16- There is an absolute truth in education.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	There is no absolute truth in education.
17- Students should simply accept what the textbooks say.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Students should critically evaluate what the textbooks say.
18- Teaching knowledge is simple, consistent, and orderly, rather than complex and value-driven.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Teaching knowledge is complex and value-driven.
19- Teaching knowledge is organized as isolated, distinct pieces of information, rather than as highly integrated concepts.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Teaching knowledge is organized as highly integrated concepts.
20- When solving a teaching problem, the most important thing is to understand core concepts that are always true.	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	When solving a teaching problem, the most important thing is to justify my understandings with observable evidence.

Appendix C: Culturally Responsive Classroom Management Self-Efficacy Scale

Directions:

Rate how confident you are in your ability to successfully accomplish each of the tasks listed below. Each task is related to classroom management. Please rate your degree of confidence by recording a number from 0 (*no confidence at all*) to 100 (*completely confident*).

No confidence at all					Moderately confident					Completely confident
0	10	20	30	40	50	60	70	80	90	100

(Remember That You May Write Any Number Between 0 And 100)

I am able to:

1- Assess students’ behaviors with the knowledge that acceptable school behaviors may not match those that are acceptable within a student’s home culture.	-----
2-Use culturally responsive discipline practices to alter the behavior of a student who is being defiant.	-----
3-Create a learning environment that conveys respect for the cultures of all students in my classroom.	-----
4-Use my knowledge of students’ cultural backgrounds to create a culturally compatible learning environment.	-----
5-Establish high behavioral expectations that encourage students to produce high quality work.	-----
6-Clearly communicate classroom policies.	-----
7-Structure the learning environment so that all students feel like a valued member of the learning community.	-----
8-Use what I know about my students’ cultural background to develop an effective learning environment.	-----
9-Encourage students to work together on classroom tasks, when appropriate.	-----
10-Design the classroom in a way that communicates respect for diversity.	-----
11-Use strategies that will hold students accountable for producing high quality work.	-----
12-Address inappropriate behavior without relying on traditional methods of discipline such as office referrals.	-----
13-Critically analyze students’ classroom behavior from a cross-cultural perspective.	-----
14-Modify lesson plans so that students remain actively engaged throughout the entire class period or lesson.	-----
15-Redirect students’ behavior without the use of coercive means (i.e., consequences or verbal reprimand).	-----

16-Restructure the curriculum so that every child can succeed, regardless of their academic history.	-----
17-Communicate with students using expressions that are familiar to them.	-----
18-Personalize the classroom so that it is reflective of the cultural background of my students.	-----
19-Establish routines for carrying out specific classroom tasks.	-----
20-Design activities that require students to work together toward a common academic goal.	-----
21-Modify the curriculum to allow students to work in groups.	-----
22-Teach students how to work together.	-----
23-Critically assess whether a particular behavior constitutes misbehavior.	-----
24-Teach children self-management strategies that will assist them in regulating their classroom behavior.	-----
25-Develop a partnership with parents from diverse cultural and linguistic backgrounds.	-----
26-Communicate with students' parents whose primary language is not English.	-----
27-Establish two-way communication with non-English speaking parents.	-----
28-Use culturally appropriate methods to relate to parents from culturally and linguistically diverse backgrounds.	-----
29-Model classroom routines for English Language Learners.	-----
30-Explain classroom rules so that they are easily understood by English Language Learners.	-----
31-Modify aspects of the classroom so that it matches aspects of students' home culture.	-----
32-Implement an intervention that minimizes a conflict that occurs when a students' culturally based behavior is not consistent with school norms.	-----
33-Develop an effective classroom management plan based on my understanding of students' family background.	-----
34-Manage situations in which students are defiant.	-----
35-Prevent disruptions by recognizing potential causes for misbehavior.	-----

Appendix D: The Process of Creating and Formatting the Interview Questions

Research question (RQ)	RQ1
Theory influences question formatting	<p>Hofer and Pintrich (1997),</p> <ul style="list-style-type: none"> ❖ The nature of knowledge <ul style="list-style-type: none"> • Simplicity of knowledge • Certainty of knowledge ❖ The process of knowing <ul style="list-style-type: none"> • The sources of knowledge • Justification of knowing <p>Piaget theory of cognitive disequilibrium Note: the interview question 1-5 were adopted and modify from the work of (Brownlee et al., 2009)</p>
Interview questions	<ol style="list-style-type: none"> 1. Do you think there is one “right” way of teaching? A universal method that works for everyone or do you think that teaching is situational (e.g., depends on the student, the setting, etc.)? <ol style="list-style-type: none"> a) Could you elaborate? 2. How do you evaluate new knowledge or strategies that you learn about teaching? In other words, what “lens” do you view teaching through to help you decide if the knowledge or strategy is correct? 3. Do you think textbooks are a reliable resource for “teaching knowledge”? <ol style="list-style-type: none"> a) Could you elaborate? 4. How would you describe learning? 5. What is your approach to learn a new “teaching knowledge” that would help you to become a better teacher? 6. Do you think your beliefs of “teaching knowledge” changed after entering the teacher preparation programs? <ol style="list-style-type: none"> a) Could you explain?

Research question (RQ)	RQ2
Theory influences question formatting	<p>Self-efficacy, Bandura’s social cognitive theory</p> <p>Sources of self-efficacy</p> <ul style="list-style-type: none"> • Mastery experiences • Vicarious experience • Verbal persuasion • Physiological and emotional states. <p>Weinstein et al., (2004),</p> <ul style="list-style-type: none"> • Recognizing ethnocentrism and biases • Understanding knowledge of students’ cultural backgrounds • Realizing the border of social, economic, and political context • Develop desires and abilities to implement (CRCM) • Building caring classroom communities
Interview questions	<ol style="list-style-type: none"> 7. What do you know about culturally responsive classroom management? 8. How confident are you in managing a classroom with culturally and linguistically diverse (CLD) students? 9. Did you learn about diversity in your teaching preparation programs? <ol style="list-style-type: none"> a) Could you elaborate? 10. What strategies do you use to learn about yourself and others in terms of culture? 11. Do you believe students’ culture plays a role in your classroom management? <ol style="list-style-type: none"> a) Could you elaborate? 12. Have you ever worked with children who come from different cultural backgrounds? <ol style="list-style-type: none"> a) How was your experience? b) What would you do differently? 13. Have you ever worked with children who speak English as a second language? <ol style="list-style-type: none"> a) How was your experience? b) What would you do differently? 14. Have you ever observed a teacher who works with children who come from different cultural backgrounds? <ol style="list-style-type: none"> a) Can you tell me about your experience? b) What would you do differently? 15. Have you ever observed a teacher who works with children who speak English as a second language? <ol style="list-style-type: none"> a) Can you tell me about your experience? b) What would you do different than the teacher? 16. What challenges do you think you may have in managing a diverse classroom? 17. What skills you would want to learn or enhance to support your confidence about teaching diverse students?

Research question (RQ)	RQ3 & RQ4 & RQ5 & RQ6 & RQ7	(Only quantitative data)
Research question (RQ)	RQ8	
Theory influences question formatting	Hofer and Pintrich (1997) and Piaget theory of cognitive disequilibrium which both explained above	
Interview questions	18. What personal experiences have positively impacted your beliefs about teaching? 19. What professional experiences have positively impacted your beliefs about teaching? 20. What personal experiences have negatively impacted your beliefs about teaching? 21. What professional experiences have negatively impacted your beliefs about teaching?	
Research question (RQ)	RQ9	
Theory influences question formatting	Bandura's social cognitive theory and Weinstein et al., (2004) which both explained above.	
Interview questions	22. What factors positively influence your view about teaching culturally and linguistically diverse (CLD) students? 23. What factors negatively influence your view about teaching culturally and linguistically diverse (CLD) students?	

Appendix E: The Pre-Service Teacher Semi-Structured Interview Questions

1. Do you think there is one “right” way of teaching? A universal method that works for everyone or do you think that teaching is situational (e.g., depends on the student, the setting, etc.)?
 - b) Could you elaborate?
2. How do you evaluate new knowledge or strategies that you learn about teaching? In other words, what “lens” do you view teaching through to help you decide if the knowledge or strategy is correct?
3. Do you think textbooks are a reliable resource for “teaching knowledge”?
 - a) Could you elaborate?
4. How would you describe learning?
5. What is your approach to learn a new “teaching knowledge” that would help you to become a better teacher?
6. Do you think your beliefs of “teaching knowledge” changed after entering the teacher preparation programs?
 - a) Could you explain?
7. What do you know about culturally responsive classroom management?
8. How confident are you in managing a classroom with culturally and linguistically diverse (CLD) students?
9. Did you learn about diversity in your teaching preparation programs?
 - a) Could you elaborate?
10. What strategies do you use to learn about yourself and others in terms of culture?
11. Do you believe students’ culture plays a role in your classroom management?
 - a) Could you elaborate?
12. Have you ever worked with children who come from different cultural backgrounds?
 - a) How was your experience?
 - b) What would you do differently?
13. Have you ever worked with children who speak English as a second language?
 - a) How was your experience?
 - b) What would you do differently?

- 14.** Have you ever observed a teacher who works with children who come from different cultural backgrounds?
 - a) Can you tell me about your experience?
 - b) What would you do differently?
- 15.** Have you ever observed a teacher who works with children who speak English as a second language?
 - a) Can you tell me about your experience?
 - b) What would you do different than the teacher?
- 16.** What challenges do you think you may have in managing a diverse classroom?
- 17.** What skills you would want to learn or enhance to support your confidence about teaching diverse students?
- 18.** What personal experiences have positively impacted your beliefs about teaching?
- 19.** What professional experiences have positively impacted your beliefs about teaching?
- 20.** What personal experiences have negatively impacted your beliefs about teaching?
- 21.** What professional experiences have negatively impacted your beliefs about teaching?
- 22.** What factors positively influence your view about teaching culturally and linguistically diverse (CLD) students?
- 23.** What factors negatively influence your view about teaching culturally and linguistically diverse (CLD) students?

Appendix F: A Recruitment Email for The Online Survey, Phase I

Subject Heading: Invitation to Participate in a Research Study! An Online Survey!

Dear pre-service teachers,

My name is Tahani Ahmed, and I am a doctoral candidate under the direction of Dr. Amy Malkus in the Department of Early Childhood Education at East Tennessee State University. I am currently working on my dissertation.

The research study aims to

- (1) understand the relationship between pre-service teachers' beliefs about the nature of teaching knowledge and the ability to manage a culturally responsive classroom.
- (2) explore factors that may contribute to pre-service teachers' beliefs.

Your thoughts and perspectives can make a significant impact, so please consider participating in the study. You will be asked to fill out surveys which will take about 20 minutes. By completing the survey, you will have a chance to enter a random drawing of two \$ 50 Amazon gift cards.

Your participation in the study is completely voluntary and you can withdraw at any time. Your responses will be kept confidential and will only be viewed by the investigator. Each participant will be assigned a case number to help ensure that personal identifiers are not revealed. A separate data file will be used to store your email address and responses, so there will be no way of connecting your survey responses to your email address.

Please make sure to include your ETSU email address at the survey. Your email will be used for the random drawing. Also, you might receive a research invitation to participate in Phase II of the study.

If you are a Pre-K-3 licensed early childhood or an elementary pre-service teacher in the fifth or seventh semester at ETSU, I would greatly appreciate your thoughts and perspectives. If you decide to participate in this study, you must be an adult over the age of 18, physically present in the U.S.

Please click on the link below, and you will be directed to the online survey.

<https://www.qualtrics.com>

Thank you in advance for your time and participation! If you have any questions about this study, feel free to contact me at ahmedtm@etsu.edu.

Sincerely

Tahani Ahmed,
PhD Candidate
ahmedtm@etsu.edu

Dr. Amy Malkus,
Associate Professor and Graduate
Coordinator, ECE

Appendix G: A Consent Form for The Paper Survey, Phase I

Dear pre-service teachers,

My name is Tahani Ahmed, and I am a doctoral candidate under the direction of Dr. Amy Malkus in the Department of Early Childhood Education at East Tennessee State University. I am currently working on my dissertation.

The research study aims to

- (1) understand the relationship between pre-service teachers' beliefs about the nature of teaching knowledge and the ability to manage a culturally responsive classroom.
- (2) explore factors that may contribute to pre-service teachers' beliefs.

Your thoughts and perspectives can make a significant impact, so please consider participating in the study. Your participation is completely voluntary, and you can withdraw at any time.

You will be asked to fill out surveys which will take about 20 minutes. By completing the survey, you will have a chance to enter a random drawing of two \$ 50 Amazon gift cards.

Your responses will be kept confidential and will only be viewed by the investigator. Each participant will be assigned a case number to help ensure that personal identifiers are not revealed. A separate data file will be used to store your email address and responses, so there will be no way of connecting your survey responses to your email address.

Please make sure to include your ETSU email address at the survey. Your email will be used for the random drawing. Also, you might receive a research invitation to participate in Phase II of the study.

By signing below, I confirm that I am a Pre-K-3 licensed early childhood or an elementary preservice teacher in the fifth or seventh semester at ETSU. I confirm that I have read and understand this Informed Consent Document. I also confirm that I had the opportunity to have the study explained to me verbally. I confirm that I was able to ask questions and that all my questions have been answered. By signing below, I confirm that I am 18 years or older and I freely and voluntarily choose to take part in this research study.

Signature of Participant

Date

Tahani Ahmed,

PhD Candidate

ahmedtm@etsu.edu

Dr. Amy Malkus,

**Associate Professor and Graduate
Coordinator, ECE**

Appendix H: A Recruitment Email for the Virtual Interview, Phase II

Subject Heading: Invitation to Participate in a research study! A virtual Interview via Zoom!

Hi

This is Tahani Ahmed again; I am reaching out to thank you for participating in Phase I of my research study. Also, I want to invite you to the final phase of my study, a 90-minute virtual interview via Zoom. All participants will receive a \$ 20 Amazon gift card at the end of the interview session.

The research study aims to

- (1) understand the relationship between pre-service teachers' beliefs about the nature of teaching knowledge and the ability to manage a culturally responsive classroom.
- (2) explore factors that may contribute to pre-service teachers' beliefs.

Your participation is voluntary and confidential. With your permission, I will record the interview. The researcher will be the only one to have access to the interview video or audio recording, which will be saved in a secure location. Your responses to the questions will be kept confidential. Each interview will be assigned to a case number to help ensure that personal identifiers are not revealed. You will also receive a copy of your interview transcript, and you may request any changes.

About the Zoom interview: You and the researcher will be the only ones in the Zoom meeting. The Zoom link for the interview will be sent to you a day before the Zoom meeting. The Zoom interview will have a username and password. If you agree to participate, please click the link below to book a meeting time that suits you.

<https://doodle.com/en/>

If you have any questions, please do not hesitate to ask me.

Sincerely,

Tahani Ahmed,
PhD Candidate
ahmedtm@etsu.edu

Dr. Amy Malkus,
Associate Professor and Graduate
Coordinator, ECE

VITA

TAHANI AHMED

- Education: M.A. Curriculum and Instruction in Classroom, Ashland
University, Ashland, Ohio, 2014
B.A. Child Studies, King Abdul-Aziz University, Jeddah, Saudi
Arabia, 2008
Public Schools, Jeddah, Saudi Arabia
- Professional Experience: Program Assistant, Arab Bureau of Education for the Gulf States;
Online, Saudi Arabia, 2009-2010
Lecturer, King Khalid University, College of
Education, 2014-2016
- Honors and Awards: Outstanding Student Reward, Ashland University, Ohio, 2014