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From Knowledge about Trauma to Classroom Application: A Mixed Methods Examination of Pre-Service Teacher Perspectives of Trauma-Informed Practice

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From Knowledge about Trauma to Classroom Application: A Mixed Methods Examination

of Pre-Service Teacher Perspectives of Trauma-Informed Practice

A dissertation submitted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy at Virginia Commonwealth University.

by

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Abstract

From Knowledge about Trauma to Classroom Application: A Mixed Methods Examination of Pre-Service Teacher Perspectives of Trauma-Informed Practice

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The high prevalence, cognitive impact, and behavioral consequences of trauma have been heavily studied during the past few decades. The ways that teachers can ameliorate the effects of trauma have also been established, although mostly in K-12 contexts. The purpose of this explanatory sequential mixed methods study was to examine pre-service teachers' knowledge, beliefs, and attitudes toward trauma-informed practices and to determine what salient experiences, courses, and understanding about trauma influenced the development of their knowledge, beliefs, and attitudes. Findings from the quantitative data demonstrated that pre-service teachers ($n = 67$) generally have a positive attitude toward trauma-informed practices. Two clusters emerged within the pre-service teachers in this sample, a High and Low Cluster. Findings from the qualitative interviews ($n = 8$) revealed that classroom experiences were the most salient learning experiences for trauma, that most pre-service teachers desired more knowledge about trauma-informed practices, and that secondary traumatic stress is generally not understood. Implications for research include identifying and studying empirically the practices that can be labeled as trauma-informed as well as using Social Cognitive Theory for future trauma-informed research. Pre-service teacher preparation programs should consider ways to

make explicit connections between practicum experiences and trauma-informed practices as well as teach and model the importance and need for self-care within the education context.

Keywords: trauma-informed practices, pre-service teachers, mixed-methods, teacher preparation programs, K-12 students

Chapter I: Introduction

Student 1 sits quietly in the back of the classroom, head down for the fourth day in a row.

Student 2 flips the chair over and storms out of the classroom.

A new teacher stands helplessly in front of the classroom, knowing that previous trauma could be behind both students' behaviors but not knowing what to do to support these students today. The state test is looming, college teacher preparation feels disconnected from these problems, and the teacher feels overextended. Are teachers allowed to ask for help? How do teachers take responsibility for the mental health of the students who have experienced trauma while also ensuring content knowledge acquisition?

As many as half the students in the U.S. will experience a traumatic event before their sixteenth birthday (Copeland et al., 2007; Sacks et al., 2014). *Traumatic events* include experiencing economic hardship, experiencing parental divorce, living with someone who is abusive, witnessing violence, living through a disaster, experiencing the death or incarceration of a parent, living with a parent who struggles with a mental illness, living with a parent who has substance abuse problems, or several other adverse childhood experiences. In addition to short-term consequences like behavioral problems and disturbed sleep (Anda et al., 2005), the long-term consequences of these experiences include post-traumatic stress disorder, increased alcohol use, obesity, and health complications (Sacks et al., 2014; Saxe et al., 2016). In addition, the school consequences include poor self-control, decreased social confidence, increased likelihood of failing a grade, increased discipline problems, lower math and reading scores, decreased likelihood of graduating from high school, and a lower likelihood of attending college (Duplechain et al., 2008; Grogger, 1997; Ometto et al., 2015; Robles et al., 2019; Wolpow et al., 2009) because the adversity often alters brain development (Anda et al., 2005). Results from

stressors include fewer new neurons, decreased memory function, dysregulation of the sympathetic nervous system, and reduction in brain volume (Anda et al., 2005; Glaser, 2000). Experiences of trauma can lead to strained relationships, while supportive adult relationships are a protective factor for adolescents who have experienced trauma (Torgerson et al., 2018). The presence of a caring and stable adult is one of several protective factors for students who have experienced childhood trauma (Saxe et al., 2016). Teachers could ameliorate the effects of trauma by filling these roles within their classroom walls and providing safe places that foster feelings of belonging for students who have been through trauma (Saxe et al., 2016). Schools are an essential part of the social environment that can support healing or add to students' risk after experiencing trauma (Saxe et al., 2016). Classroom teachers care for students in their classrooms for up to seven hours each day and can support all students by using trauma-informed practices.

To date, several studies have examined the positive impact that teacher, school, or district trauma-informed interventions can have on student emotional and academic outcomes (e.g., Baweja et al., 2016; Christian-Brandt et al., 2020; Hutchison et al., 2020). While schools and districts seek professional development and services to address the impact of trauma, teacher preparation programs should also provide future teachers with the knowledge and experiences to carry out trauma-informed practices (Stipp, 2019). *Pre-service teachers*, students seeking state licensure through a teacher training program, are trained to meet their students' psychological, cognitive, and social needs through college courses and practicum experiences. While it is likely that many of the students in a K-12 classroom will have experienced trauma (Copeland et al., 2007; Sacks et al., 2014), the training future teachers receive about how to support students during their teacher preparation programs is generally unexplored through empirical study (Opiola et al., 2020; Stipp, 2019; Thomas et al., 2019). Strong attitudes toward trauma-informed

care will remain constant, resist change, and influence trauma-informed behaviors regardless of the trauma policies in the future school of the teacher (Baker et al., 2016; Miller & Peterson, 2004). In other words, if pre-service teachers have both knowledge and positive beliefs and attitudes toward the use of trauma-informed practices, they will be more likely to use these practices once they complete the teacher preparation programs and have their own classrooms. Therefore, the current study seeks to understand knowledge, beliefs, and attitudes toward the need and use of trauma-informed practices and examine the experiences that shape pre-service teachers' knowledge, beliefs, and attitudes. Using an explanatory sequential mixed methods design, this study will first collect quantitative data to examine knowledge, beliefs, and attitudes and then explain the results by collecting qualitative data from a purposeful selection from the same group of pre-service teachers.

Statement of Problem

The following sections will introduce trauma, its prevalence, incidence, and impact on students. Presented next is a brief overview of current ways in which schools and districts attempt to meet the needs of students who have experienced trauma, as well as ways that states and research are entering the conversation for teaching about trauma for pre-service teachers.

Prevalence, Incidence, and Impact of Trauma

Although reported to be about half of the students, ascertaining precisely how many students, what type of trauma, and how much trauma students have been through in any given classroom is complex. Several factors complicated the clear and consistent documentation of trauma's prevalence (i.e., percentage of students) and incidence (i.e., number of traumatic events) for youth. For example, traumatic events are inconsistently defined, report and surveillance of abuse is inadequate, biased and inaccurate information from the providers of

information (e.g., child, systems, or caregivers), and the location where a sample is collected all affect the prevalence and incidence reported for trauma (Saunders & Adams, 2014). In a review of the literature of national samples for children age 0-17, Saunders and Adams (2014) calculated the rates of trauma for nine categories. In the average U.S. classroom, 1 in 6 females and 1 in 25 males are likely to have experienced sexual assault. Physical abuse or assault is likely to have been experienced by 19% to 71%, depending on the definition used for abuse (e.g., the inclusion of threats, weapons). When asked about witnessing community violence or violence between caregivers, student rates ranged from 38% to 70%. Students also frequently reported the traumatic death of a loved one (18%), internet-assisted victimization (9%), teasing or bullying (29%), disaster (22%), car accident (10-21%), accidents, and polyvictimization (20-48%). Though the measurement of prevalence and incidence is complex, every classroom in the United States likely contains students who have experienced trauma. Additionally, the effects of trauma are cumulative, so the more psychosocial stress experienced will lead to a greater risk of problems later in life (Anda et al., 2005; Duplechain et al., 2008). Studies have found that the number of traumatic experiences negatively predicts academic achievement when measured by completing homework, passing each grade level, and caring about school (Robles et al., 2019). Therefore, early intervention and support from schools are vital.

Trauma-Informed Interventions and Training

In the past several years, as the impact of trauma has become widely understood to communities, numerous studies have explored schools and districts' journeys to adopting trauma-informed frameworks (for reviews, see Champine et al., 2019; Herrenkoh et al., 2019; Yohannan & Carlson, 2019). These reviews demonstrate that a large body of work supports students who need specific intervention due to traumatic experiences. Yohannan & Carlson

(2019) examined 41 studies to understand the effectiveness of school-based trauma-informed interventions. Although they found that studies do not frequently measure the acceptability perspective of teachers and students for trauma interventions, they concluded that psychoeducation increases administration and school staff buy-in for trauma interventions. Specifically, buy-in is necessary to implement sustainable mental health services. The professional development to increase sustainability suggested by Yohannan and Carlson (2019) should help teachers identify trauma symptoms, provide trauma-informed care, teach self-care, reinforce the need for psychological services, and provide "pertinent information about how to work with students with experiences of trauma" (p. 460). However, despite the prevalence of trauma in all schools, most of these studies were in Title I, urban, or rural schools. Additionally, most were led and implemented by outside organizations rather than from the teachers who desired the knowledge. Additionally, it follows that pre-service teachers should receive similar training before they enter the classroom.

The Virginia Board of Education promotes understanding how trauma impacts students and how teachers can respond to these students. Institutions offering teacher licensure programs are required to train teachers in human development and learning, specifically, "trauma, including child abuse, and neglect and other adverse childhood experiences; and family disruptions" (Virginia Register, 2018, 8VAC20-543-90). However, researchers have not studied the information delivered or the beliefs and attitudes pre-service teachers have toward the use of trauma-informed practices (Stipp, 2019). Several studies of teachers of record have indicated that knowledge about trauma is not enough to promote the use of trauma-informed practices in the classroom; teachers must also have self-efficacy to support their behavior and believe that the practices have value (e.g., Anderson et al., 2015; Baweja et al., 2016).

Rationale for the Study of the Problem

Teacher preparation programs train practitioners to be effective classroom instructors and managers within a school. The school is an integral part of the trauma system because schools have access to youth exposed to traumatic events; additionally, school-based interventions consistently and positively impact students who have been through trauma (Yohannan & Carlson, 2019). The following sections outline the opportunity presented by utilizing the Social Cognitive Theory to discuss trauma, briefly overview how trauma is currently addressed in K-12 schools, and present the relevance between instructional practice and teacher beliefs and attitudes. Finally, the section concludes with the importance of the current study during COVID-19 for pre-service teachers.

Social Cognitive Theory

Following Bandura's Social Cognitive Theory (2000), reciprocal relationships between environmental, behavioral, and personal factors explain how personal experiences, classroom-gained knowledge, and practicum experiences affect teachers' knowledge, beliefs, and attitudes about using trauma-informed practices. In other words, the effective implementation of supportive practices depends on teachers holding trauma knowledge, positive attitudes, and self-beliefs. Teachers' trauma-informed practices within a classroom also affect a child's resilience and healing. One of the beliefs held by teachers is their self-efficacy for performing tasks such as using trauma-informed practices. Self-efficacy is an important determinant of teacher practices (Fives & Buehl, 2012). Chapter II (Theoretical Framework) presents greater detail about these beliefs and Social Cognitive Theory.

Trauma-Informed Framework

Within the school, psychologists, social workers, outside child services, and school counselors often work with students who exhibit trauma exposure symptoms. However, Saxe and colleagues (2016) state that the whole school is an "important part of every child's social ecology and an essential element of intervention in the lives of traumatized children" (p. 76). Educators outside mental health professionals can be an integral part of the group of adults working with children to promote healing and resilience after trauma if they receive training, support, and purpose as a part of this system responding to trauma (Saxe et al., 2016). They can offer valuable insight into what triggers students' trauma responses if they know what to look for and share their experiences with students. While numerous studies have examined school-wide shifts toward these practices (e.g., Baweja et al., 2016; Blitz & Mulcahy, 2017; Blitz et al., 2016, 2020; Dorado et al., 2016; Perry & Daniels, 2016), pre-service teachers must also understand their role in this system to become competent teachers upon completing a program.

A clear understanding of what is considered trauma, its effects on physical and behavioral health, and organizations' possible responses are necessary for intervention and prevention inquiries. The Substance Abuse and Mental Health Service Administration (SAMHSA) provides one of the most commonly referenced definitions of trauma and a framework for responding to people who have experienced trauma. *Trauma* is the result of "an event, series of events, or set of circumstances that is experienced by an individual as physically emotionally harmful or life-threatening and that has lasting adverse effects on the individual's functioning and mental, physical, social, emotional or spiritual well-being" (SAMHSA, 2014, p. 7). The practices, organizational culture, policies, and staff within a school should be trauma-informed in that they are able to respond to the effects of trauma. Specifically, *trauma-informed practices* are the actions resulting from school personnel who (a) *realize* the impact and possible recovery from

trauma; (b) *recognize* common symptoms in someone who has experienced trauma; (c) *respond*

by allowing trauma-knowledge to inform policy, procedure, and practice of the school; and (d)

resisting causing re-traumatization (SAMHSA, 2014).

Using the SAMHSA framework, the National Child Traumatic Stress Network (NCTSN,

2017) has produced a group of essential elements of trauma-informed schools that explain the

wide-reaching effects of trauma in a school. The ten core areas include

- Identifying and assessing traumatic stress,

- Addressing and treating traumatic stress,

- Teaching trauma education and awareness,

- Having partnerships with students and families,

- Creating a trauma-informed learning environment (e.g., social/emotional skills),

- Being culturally responsive,

- Integrating emergency management & crisis response,

- Understanding and addressing staff self-care and secondary traumatic stress,

- Evaluating and revising school discipline policies and practices, and

- Collaborating across systems and establishing community partnerships (NCTSN,

2017, p. 6-12).

By using this list of essential elements, educators are called on to routinely consider how

trauma experiences may affect children's behavior or other functioning, as well as monitor

policies and resources in place to support all students. Professional development and student-

centered lessons on traumatic stress support all students and educators in addition to

destigmatizing mental health services. The core areas of culture, crisis, families, discipline

policies, and community partnerships demonstrate that becoming trauma-informed is not a

process that can happen quickly or without a systematic approach (NCTSN, 2017; Herrenkohl et al., 2019; Sundborg, 2019). However, some core elements of this list (e.g., culturally responsive teaching, social and emotional skills, and staff-self-care) can and should happen at the classroom level. Therefore, pre-service teachers should be prepared to use trauma-informed practices during their teacher preparation programs.

Attitude Leads to Practice

Engaging pre-service teachers in learning and then using trauma-informed practices necessitates buy-in to increase acceptability and sustainability in applying their knowledge after they graduate. The frameworks by SAMHSA (2014) and NCTSN (2017) both demonstrate that knowledge about the effects of trauma is only the first step in implementing practices inside a classroom. However, the long-term and desired effects of trauma-informed practices can be measured through student reported outcomes (Perry & Daniels, 2016; von der Embse et al., 2018), programmatic outcomes (e.g., the number of suspensions decreasing; Sajnani et al., 2019; Wall, 2020), or organizational outcomes (e.g., environment; Baker et al., 2016; Tabone et al., 2020). While these outcomes would be impossible to measure for pre-service teachers, a proximal trauma-informed outcome is a teacher's attitude toward the need for and practice of trauma-informed care. To this end, adult human social behavior and training transfer research have found that knowledge and positive attitudes are associated with behavior change and acceptability of new programs (Ajzen, 1991; Baker et al., 2010; Cheng & Hampson, 2008; Sundborg, 2019). Therefore, pre-service teachers' attitudes toward trauma-informed practices serve as a proxy for their future use of trauma-informed practices.

COVID-19 and Trauma

Addressing trauma is especially vital in light of the unprecedented and sudden end of traditional in-person schooling and rapid shifts to virtual learning, social distancing, and change in daily routines for students resulting from the spread of COVID-19 during the spring of 2020. According to recent literature reviews, the possible accumulated trauma experiences include increased exposure to domestic violence, reduced protective factors, increased social and economic stressors, and lack of access to mental health treatment (Bryce, 2020; Naff et al., 2020). Additionally, these reviews found that the pandemic and the measures taken to prevent its spread have exacerbated the effects of adverse experiences before the beginning of COVID-19. For example, if a student had experienced abuse prior to COVID-19, social distancing measures taken to prevent the spread of COVID-19 increased their exposure to potential abusers. Additionally, parents and guardians were under stress (e.g., loss of employment, fear of illness, boredom), which led to increased domestic violence reports (Froimson et al., 2020; Naff et al., 2020). The Council on Foreign Relations has described reports such as the 15% increased call volume for domestic abuse as evidence of a "double pandemic" (Fegert et al., 2020; National Domestic Violence Hotline, 2020). In the years following the pandemic, teachers who enter the classroom will teach students who may need support to overcome adversities faced during the pandemic and its aftermath. Therefore, the training of pre-service teachers now and in the near future will need to be especially purposeful in developing practical knowledge about and positive beliefs and attitudes toward the use of trauma-informed practices.

Teacher Preparation Programs

Little is known about how to introduce pre-service teachers to trauma issues and how to support their future students. Beginning teachers who know about trauma will be better equipped to begin this type of intervention and support immediately if they learn before they enter a

classroom; the current model of schools and districts seeing problems resulting from trauma, gaining buy-in from teachers and administrators, training, and then arriving at practices that support students delays this process. Leveraging teacher preparation programs could be the missing piece to promote trauma-informed practices in classes and schools rapidly.

In a recent study, a university professor created a course to help pre-service teachers "understand what happens in the brains and bodies of students from difficult home circumstances" (Stipp, 2019, p. 216). Although not the only focus, the course included information about how trauma can affect youth and how teachers support students (Stipp, 2019). The semester-long course had positive effects on student understanding of the importance of relationships, social-emotional learning, and opportunities to see these practices in action through a practicum. Despite the increasing acceptance of the need to teach in-service and pre-service teachers about trauma, this is the only study to the author's knowledge that specifically focused on how universities structure this training within their teacher preparation programs.

Purpose of Study

The purpose of the study is to examine pre-service teachers' knowledge, beliefs, and attitudes toward trauma-informed practices and to determine what salient experiences and knowledge influenced the development of their beliefs and attitudes. Pre-service teachers must know the effects of trauma according to Virginia requirements. However, in addition to this knowledge, many of these pre-service teachers may have had personal experiences, practicum experiences, or experiences in other classes in the educator training program that shape their knowledge, beliefs, and attitudes about trauma.

Research to date has mostly taken place in K-12 contexts (i.e., not focused on pre-service teachers) and contains mixed application and details about when, how, and what should be taught

to teachers regarding trauma. The current study attempts to answer these gaps in research by capturing knowledge, beliefs, and attitudes about trauma symptoms, self-care, and practical strategies, as well as examining how pre-service teachers conceptualize trauma. The study sheds light on which experiences and course assignments helped shape these knowledge, beliefs, and attitudes so that teacher preparation programs can leverage existing structures to promote more positive attitudes toward trauma.

Research Questions

To better understand how universities can prepare pre-service teachers to be knowledgeable and have positive beliefs and attitudes about trauma-informed care and act as protective factors for students who have experienced trauma, the study seeks to examine the knowledge, beliefs, attitudes, and experiences of pre-service teachers. This study seeks to answer the following questions to understand these relationships:

1. *(Quantitative)*: What are pre-service teachers' knowledge, beliefs, and attitudes toward trauma-informed practices, and to what extent do homogeneous clusters of pre-service teachers emerge based on a survey of their knowledge, beliefs, and attitudes about trauma-informed practices?

2. (*Qualitative*): What personal and school experiences do pre-service teachers perceive to affect their knowledge, beliefs, and attitudes about trauma and its effects?

3. (*Qualitative*): What personal and school experiences do pre-service teachers perceive to affect their knowledge, beliefs, and attitudes toward trauma-informed practices?

4. (*Qualitative*): What practices do pre-service teachers think they will use that they perceive to be trauma-informed?

5. (*Mixed*): In what ways do the interview data reporting views and experiences of pre-service teachers help to explain the quantitative results about knowledge, beliefs, and attitudes toward trauma-informed practices?

Design

An explanatory sequential mixed methods design will be employed to first quantitatively understand pre-service teachers' attitudes using the frameworks from NCTSN (2017) and SAMHSA (2014) and then explain the quantitative results with in-depth qualitative data. The design involves collecting quantitative data first and then using qualitative data to follow up and further explain quantitative findings. The strengths of both qualitative and quantitative data will provide insights and explanations and offset the weaknesses of the other (Creswell & Plano Clark, 2018). A mixed-methods design is especially appropriate for this population (i.e., pre-service teachers) because it has been underexplored. This relationship could help focus future programmatic decisions to support pre-service teachers in learning trauma-informed practices. The common themes found in the qualitative interviews will help focus future practicum and classroom experiences to increase those that positively shape knowledge, beliefs, and attitudes. Likewise, experiences and themes that negatively shape knowledge, beliefs, and attitudes can be avoided or changed.

In the first quantitative phase of the study, the Attitudes Related to Trauma-Informed Care (ARTIC) Scale data was collected from pre-service teachers at a large Mid-Atlantic state university to examine whether courses completed relate to beliefs and attitudes about trauma-informed practices. The ARTIC scale provides a validated measurement for examining a person's beliefs and attitudes toward trauma-informed practices through questions categorized into five subcategories (Baker et al., 2016). These categories include how teachers feel about the

sources of problem behavior, how they feel that they should respond to problem behavior, attitudes toward teacher behavior, self-efficacy for meeting student needs, and appreciation for self-care. Additionally, and Trauma-Informed Knowledge scale (McIntyre et al., 2019) was given to provide a validated measurement for examining knowledge about trauma using the SAMHSA (2014) guidelines.

The second qualitative phase was conducted as a follow-up to the quantitative results to explain practicum and course experiences that affect knowledge, beliefs, and attitudes about trauma-informed practices. In this exploratory follow-up, the tentative plan explores several students from each group created using cluster analysis to explain experiences leading to various knowledge, belief, and attitude profiles at the university. Four students from each group were asked to participate in a semi-structured interview asking about their experiences related to their knowledge, beliefs, and attitudes about trauma-informed practices. Results of the quantitative ARTIC scale and qualitative interview themes were interpreted to better understand how the university can support pre-service teachers to use trauma-informed practices in their future classrooms.

Summary

The prevalence of trauma in the lives of the K-12 population of students has been well-established. Although studies of whole-school interventions have demonstrated that teachers can support students through the use of trauma-informed practices, the instruction of these practices for pre-service teachers has been largely unexplored in research (Stipp, 2019; Thomas et al., 2019). The goal of the present study is to explore pre-service teachers' knowledge, beliefs, and attitudes toward trauma-informed practices, as well as the experiences and knowledge that have influenced those beliefs and attitudes.

Chapter II: Literature Review

History of the Need to be Trauma-Informed

Officially recognizing the effects of traumatic stress is relatively new in research and culture. The American Psychiatric Association has defined and updated diagnostic criteria for traumatic stress disorders through several editions of the *Diagnostic and Statistical Manual of Mental Disorders,* beginning with Posttraumatic stress disorder in 1980, and most recently updated to include a whole category of trauma- and stressor-related disorders across the lifespan in 2013 (Pai et al., 2017; SAMHSA, 2014). The groundbreaking adverse childhood experiences (ACEs) research by Felittii and colleagues (1998) brought public attention to the relationship between ACEs and later health risk factors. Medical, mental health, and social service fields have worked diligently to increase public awareness around childhood trauma's effects through research, policy, and advocacy during the past two decades (American Institute for Research, 2016; Thomas et al., 2019). SAMHSA has pushed for public mental health and substance abuse treatment to adopt a trauma-informed care system since the 1990s.

In 2001, SAMHSA funded NCTSN, which has increased the understanding and treatment of children exposed to trauma. Particular attention has been given to child welfare and juvenile justice systems because the effects of trauma often result in behaviors that lead a child to be involved in these systems because of their difficulty in school, jobs, and primary care. Increasingly, counties and states have led efforts to promote trauma-informed approaches in juvenile justice, adult mental health, child welfare, workforce development, and community health programs (SAMHSA, 2014). Countless studies have examined how nurses, juvenile justice systems, social workers, and others in contact with children can adopt and utilize a

trauma-informed approach to ameliorate the effects of childhood trauma (e.g., Moreland & Ressler, 2021; Stokes et al., 2017)

The greater context and theory behind responding to trauma slowly shifted from one-on-one therapy to a systems approach that included all people and community organizations who support a person who has experienced trauma (Saxe et al., 2016; Thomas et al., 2019). Schools are a natural place to implement the expanding mental health programs because of their access to children, ability to help students regain feeling secure, promotion from reports such as the New Freedom Commission on Mental Health (Hogan, 2003), and increased attendance rates when compared to clinical locations (Jaycox et al., 2006; Rolfsnes & Idsoe, 2011). According to a review of trauma interventions by Rolfsnes and Idsoe (2011), the first studies to examine the effects of trauma and subsequent treatment within school buildings were in 1997 and 2001 (Goenjian et al., 1997; Layne et al., 2001). However, both these studies were in other countries. The introduction of Cognitive Behavioral Intervention for Trauma in Schools (CBITS) in 2000 (Stein et al., 2011) and the earliest study of trauma treatment within a school (Levondosky & Buttenheim, 2001; Saltzman et al., 2001) were the earliest school-based interventions within the United States. Interestingly, the inclusion of teachers as actors within the trauma system responding to children after trauma was not present in empirical studies until 2012 (Brody & Cohen, 2012; Thomas et al., 2019). Support from school administration and training for school staff continued to be the obstacles noted by these early studies within the school context (Rolfsnes & Idsoe, 2011; Thomas et al., 2019).

The focused attention to children has led to discussions within the last decade surrounding how trauma may relate to teaching practices, school climate, and teacher preparation programs (Stipp & Kilpatrick, 2021; Thomas et al., 2019). While the new attention given to

trauma within schools is positive, the work has thus far been siloed and mainly focused on how schools or districts can adopt the practices (Thomas et al., 2019). Attitudes are often measured before and after professional development, but the national shift in understanding the teacher's role is largely unknown. Additionally, current state Department of Education agencies vary widely on the resources and connection to empirical validity for trauma-informed practices (Thomas et al., 2019). Additionally, the recent push for Positive Behavior Interventions and Supports and social and emotional learning have helped shape teacher attitudes toward the inclusion of the teacher's role within mental health (Thomas et al., 2019).

Because the school-focused trauma-informed research has been primarily within individual schools or districts, there is little context or knowledge for how teacher preparation programs can best prepare future educators for supporting students who have experienced trauma. As a result, the following literature review mainly focused on how schools and districts have answered the call to address the effects of trauma. While these studies primarily focus on teachers of record, the available literature on trauma-informed practices will still be instrumental in understanding what pre-service teacher education can and should include.

Constructs of Interest

Several constructs are essential to clearly describe because of their complicated and often contradictory uses in practice and study. The following section will examine the conceptualization and research of trauma-informed practices, attitudes, and pre-service teachers.

Trauma-Informed Practices

Conceptualizing the application of trauma-informed practices remains a complicated task. However, what remains constant is that the trauma lens is both needed and positively impacts students (NCTSN, 2017; Yohannan & Carlson, 2019). Many empirical studies of trauma-

informed practices in schools incorporate the principles set out by SAMHSA (2014), focusing on realizing the impact, recognizing the signs and symptoms, responding by integrating knowledge into practices, and resisting re-traumatization (e.g., Báez et al., 2019; McIntyre et al., 2019; Mendelson et al., 2015; Rishel et al., 2019; Sajnani et al., 2019; Tabone et al., 2020; Wall, 2020). However, the most difficult step may be the last principle that asks organizations to resist re-traumatization through policies or practices that may inadvertently cause a student who has experienced trauma previously to relive the event (SAMHSA, 2014).

In the present study, *trauma* is the result of "an event, series of events, or set of circumstances that is experienced by an individual as physically or emotionally harmful or life threatening and that has lasting adverse effects on the individual's functioning and mental, physical, social, emotional, or spiritual well-being" (SAMHSA, 2014, p. 7). *Trauma-informed practices* are any actions or thoughts by an adult that are informed by the knowledge that students may have experienced trauma or promote resilience (e.g., through social, cognitive, or emotional supports, parent-involvement, or discipline practices) in students. Specifically, this will be operationalized by NCTSN's ten essential elements which supports schools in applying the four principles by SAMHSA.

Attitude

Attitude is simply defined as an evaluation (Albarracin et al., 2018). An attitude's target can be any entity, including products, politicians, people groups, or ideas (Albarracin et al., 2018). Attitudes are consistently found in research to be a good predictor of behavior, or the actions of a person (e.g., Albarracin et al., 2018). Attitudes can be positive or negative, and people form attitudes using affective (e.g., feelings about the subject), cognitive (e.g., beliefs about a topic), and behavioral (e.g., past experiences with an issue) information (Albarracin et

al., 2018). These three are the bases for attitudes, but they are not the attitude itself (Albarracin et al., 2018). Importantly, attitude strength is affected by the degree to which an attitude will remain constant, resist change, and influence thoughts and behavior (Miller & Peterson, 2004). In addition, the strength of an attitude informs when and which attitude will predict behavior (Miller & Peterson, 2004). Taken together, pre-service teachers' attitude toward trauma-informed care predicts future action in the classroom, and they use affective, cognitive, and behavioral information in forming their attitudes.

Multi-Tiered Prevention and Intervention

Many researchers of mental health in schools have used a three-tiered (i.e., triangle) approach to describe mental health services that are universal (Tier 1), more selective (Tier 2), and indicated (Tier 3; Reinbergs & Fefer, 2018). Multi-tiered systems in schools allow for prevention-focused services (Chafouleas et al., 2016). In a recent review, Chafouleas et al. (2016) synthesize studies and ways that schools could adopt trauma-informed interventions with existing multi-tiered frameworks for mental health services. They define Tier 1 practices as those that are "designed to build positive adaptive skills for all students" (Chafouleas et al., 2016, p. 149). Reinbergs & Fefer (2018) reviewed interventions, assessments, and practitioner supports for trauma-informed multi-tiered schools. The interventions suggested included social-emotional learning, Positive Behavior Interventions and Supports, and the book, *Helping Traumatized Children Learn* (Cole et al., 2005; Reinbergs & Fefer, 2018).

In a systematic review of 13 trauma-informed intervention studies in schools, Berger (2019) found that many schools used a three-tiered approach. Tier 1 supports can be positive and proactive, as well. For the present review, *Tier 1* refers to universal policies, family outreach, education, and programming provided to all students in trauma-informed schools. By this

definition, all educators and staff in a school building are responsible for SAMHSA's (2014) trauma-informed approach (realize, recognize, respond, and resist re-traumatization). In other words, Tier 1 knowledge and practices should extend to custodial staff, librarians, administrators, cafeteria staff, bus drivers, and teachers. Supporting this change necessitates the use of a common trauma language in teacher preparation programs.

Pre-Service Teacher Education

Learning to teach has been described as cognitively challenging, complex, emotionally demanding, and uncertain (Whitcomb, 2003). Prior beliefs, content knowledge, mentors, colleagues, and context influence the process of learning to teach (Whitcomb, 2003). Teacher preparation programs are widely researched and guided by national and state policies (Darling-Hammond, 2010). Pre-service teachers, the students attending these programs, learn the craft of teaching. Their training often includes teaching experiences such as practica or student teaching, but they are not yet the teacher of record.

Some recent trends include the attention to teacher quality and accountability, a focus on how people learn and what they need to know, and the need to prepare teachers to work with diverse student populations and inequality (Cochran-Smith & Villegas, 2015). Within this context, many universities have added mental health and specifically trauma to the knowledge that teachers need to be prepared to understand how students who have experienced trauma learn (SAMHSA, 2014). However, Jennings and Greenberg (2009) note a lack of training for pre-service teachers to develop the social-emotional competence necessary to perform the wide range of tasks needed to be an effective teacher. Social-emotional competence is necessary to promote a supportive environment, establish relationships with students, parents, administrators, and

fellow teachers, uphold academic standards, and manage disruptive student behavior with self-regulation (Jennings & Greenberg, 2009).

Researcher Identity

Despite my excellent training from my undergraduate degree about diversity, lesson plans, and the development of my students, I began my own teaching career without any knowledge of trauma-informed practices because trauma-informed practices were not discussed as part of the teacher's responsibility in 2005. I taught for nine years before I learned that responding to and understanding that the trauma my students had experienced was my responsibility as a teacher. The professional development sessions I attended shed light on my previous experience in the classroom and inspired me to seek ways of applying this knowledge in my interactions with students each day. During my five years teaching in a juvenile detention facility, I began to see hourly applications of using a trauma-informed lens in how I interacted with students and planned my lessons. Additionally, secondary traumatic stress and self-care were a deep part of the culture of my school that allowed me to recognize and cope with times when the behaviors or stories of my students were affecting me. These experiences of learning, reflection, and practicing trauma-informed practices influenced my conceptual framework for this study. I often felt that I knew about trauma, but I was unsure how to apply it in the classroom. Trauma trainings were led by social workers or psychologists, and I noticed a disconnect between the trauma knowledge and the practical application.

The stark difference between the first nine years and the most recent five years of my teaching career could be seen in my classroom climate and my own mental health. Broadly, it was due to the training I received from experts in the field about how trauma affects the brain. Because of the positive ways that my knowledge about trauma affected my career decisions,

student relationships, and focus on my classroom instruction, I have a bias toward desiring all teachers to understand the positive impact that trauma-informed practices can have within the classroom. I also know that it is possible to teach without knowledge about trauma and still instinctively support the social and emotional needs of students without formal trauma training.

I am a parent, former teacher, and researcher, but as a White woman, I am unable to fully understand the racial disparities demonstrated by trauma research nor the trauma caused by racism. Therefore, I have worked throughout this study to amplify the voices of others who do have these experiences and examine the ways that the studies referenced account for context, including the racially oppressive systems, policies, and practices (Alvarez, 2020).

Theoretical Framework

According to the tenets of the social cognitive theoretical perspective, people act, feel, and think due to an interaction between personal, environmental, and behavioral factors (Bandura, 2000). In this view, both internal and external influences affect motivation, or the process of starting and sustaining goal-directed actions (Schunk & DiBenedetoo, 2020). Human behavior occurs in the context of three dynamic and reciprocal relationships. Specifically, a person's environmental, behavioral, and personal factors influence one another (Bandura, 1986). The relationships between each of the three elements explain how personal experiences and beliefs, classroom-gained knowledge, and practicum experiences will affect teachers' behavior and knowledge about trauma-informed practices. Applying this theoretical perspective to trauma-informed practices, both internal and external factors affect a teacher's ability to use trauma-informed practices in the classroom. The models, instruction, and opportunities for self-evaluation (i.e., environmental processes) affect behavior and personal processes for a pre-service teacher's use of trauma-informed care (Schunk & DiBenedetto, 2020). Likewise, a pre-

service teacher's persistence, choice of how to respond, and environmental regulation will affect personal and environmental processes (Schunk & DiBenedetto, 2020).

One personal belief that is particularly salient is *self-efficacy*, or a judgment about one's capability to perform (Bandura, 1986). Self-efficacy is a consistent and powerful predictor of motivation, engagement, risk, persistence, performance, and behavior (Usher, 2015). This generative capability is different from knowledge alone in that it is often achieved through testing alternative behavior and strategies before achieving a mastery experience that improves self-efficacy (Bandura, 1986). One must have knowledge in addition to the underlying judgments about one's ability to accomplish a certain level of performance (Bandura, 1986). According to Bandura (1986), these beliefs are a "significant determinant of performance" (p. 391) through behavior, effort, emotional reactions, and judgments. Specifically, understanding teachers' self-efficacy for using trauma-informed practices will explain whether they think they can perform the necessary actions to support students who have experienced trauma.

While Social Cognitive Theory has been used to explain how self-efficacy has a positive impact on posttraumatic recovery (Benight & Bandura, 2004), it has not been applied in any known study to the teacher's role in supporting students who have experienced trauma through trauma-informed practices. This framework offers a valuable contribution toward understanding the reciprocal nature of the environment, behavior, and personal factors shaping teacher beliefs, attitudes, and behaviors about trauma. It sheds light on the relationships between these factors instead of looking at each factor individually. Understanding the salient factors in this triadic relationship using this model could be especially helpful in creating trauma-informed interventions that are sustainable.

Conceptual Framework

The following conceptual framework builds on Social Cognitive Theory by connecting behavior (i.e., teachers' practices), personal (i.e., self-efficacy, attitudes, and knowledge), and environmental (i.e., teacher licensure program and practicum experience) factors. My own identity and experiences, in addition to literature, helped shape the framework. Previous research has informed the framing of beliefs such as self-efficacy, attitudes, and trauma. Therefore, the literature search focuses on how these constructs are combined in the instruction and application of trauma-informed practices. The 4R's framework from SAMHSA (2014) can be divided between knowledge-focused (i.e., realize and recognize) and practice-focused (i.e., respond and resist) actions. NCTSN (2017) published ten practical ways that schools can implement SAMHSA's framework, connecting knowledge and practice, six of which are applicable to this present study and listed in the center box.

Figure 1

Conceptual Framework of Pre-Service Teacher Trauma-Informed Practices
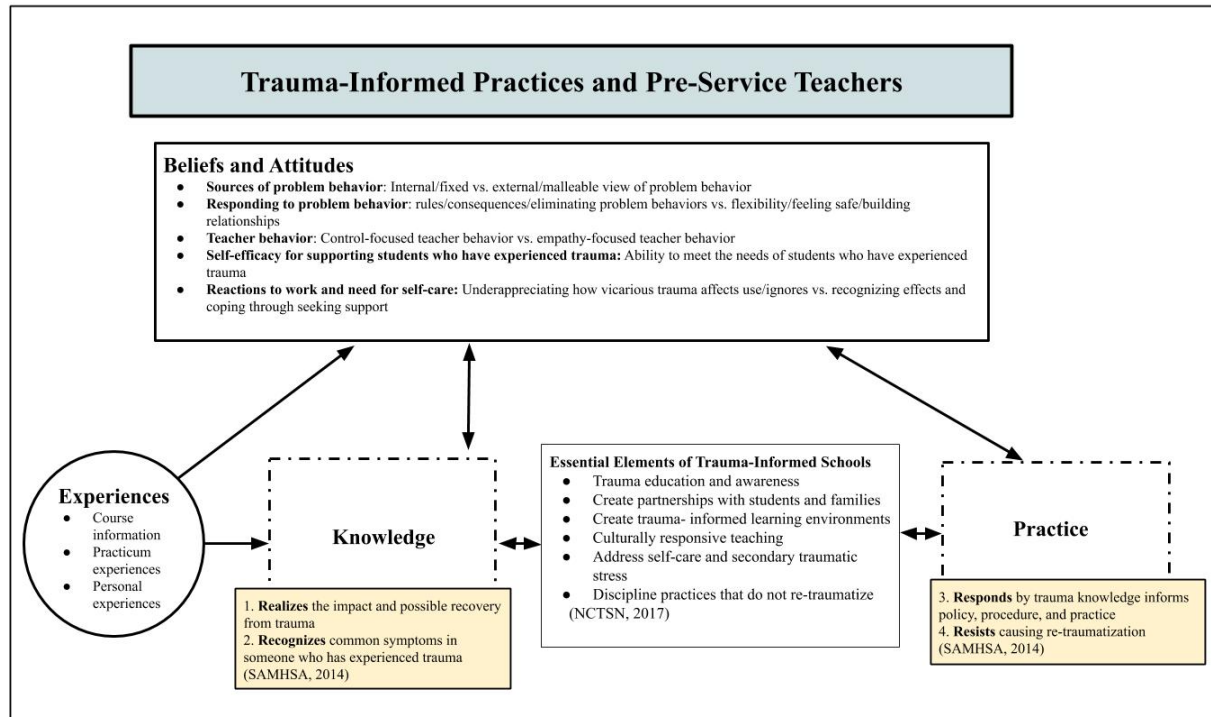
Review of Literature

Pre-Service Teachers and Trauma

The conceptual framework and focus of the present study are on pre-service teachers'

understanding of trauma-informed practices; however, only three studies have examined trauma-

informed practices with pre-service teachers specifically (Stipp, 2019; Bixler-Funk, 2018; Miller

& Flint-Stipp, 2019). In a qualitative dissertation examining pre-service teacher perceptions of

preparedness to support students who have experienced trauma, Bixler-Funk (2018) found that

seven pre-service teachers in several Midwest universities did not feel adequately prepared to

support students. Findings demonstrate the need to increase competence and confidence through

teaching pre-service teachers to recognize the effects of trauma and instructing pre-service

teachers in the importance of the teacher role for supporting students through relationships (Bixler-Funk, 2018).

In another qualitative study of Midwest pre-service teacher perceptions of trauma-informed instruction, Miller and Flint-Stipp (2019) found that pre-service teachers often experienced burnout during their practicum experiences as a result of relationship-building with students who had experienced trauma. The course under investigation in the study included discussions about self-care, but the pre-service teachers often saw it as disconnected from teaching and identified many barriers to practicing self-care. This study demonstrates that instructing pre-service teachers in trauma-informed practices reaches farther than knowledge about the prevalence and impact of trauma. Pre-service teachers must know and have adequate self-efficacy to put the practices into use in a sustainable way.

Finally, Stipp (2019) reported findings from a mixed methods evaluation of a social and emotional learning course offered to pre-service teachers. Participants learned a therapeutic approach called Trust-Based Relational Intervention, which provides a framework and strategies to support students after experiencing trauma (Stipp, 2019). The pre-service teachers reported that they appreciated the skills to build connections with students, grounded in principles of empowering students, connecting with students, and correcting students. Of particular interest is how the pre-service teachers were taught to emphasize "observational awareness, self-awareness, attachment skills, playful engagement, and attunement" (Stipp, 2019, p. 207). Other practices included de-escalation techniques, how tone and pitch influence our messages, and how to set limits (Stipp, 2019). Pre-service teachers were trained in ways to provide consequences that were "immediate, direct, efficient, action-based, and leveled-at behaviors" (Stipp, 2019, p. 207). Part

of the course included pre-service teachers shadowing a licensed teacher to complete several

assignments that helped teachers in training apply trauma-informed knowledge (Stipp, 2019).

Need for Additional Literature

Because there are few empirical studies relating to pre-service teacher trauma training

specifically, the literature review sought to examine how K-12 interventions conceptualize and

measure trauma-informed training outcomes (e.g., student behavior or teacher attitude). The lack

of empirical study with pre-service teachers also necessitated a closer examination of the

precursors and practical specifics of how schools and districts attempt to change teacher behavior

in the classroom in studies done in the K-12 setting. Finally, pre-service teachers may be

learning skills and pieces of trauma-informed practices throughout courses and practicum

experiences (e.g., classroom management course or a practicum experience). Examining the

particular practices that are perceived to be trauma-informed in empirical studies will help

interpret pre-service teacher experiences.

Method of Review

A systematic review of the literature was conducted in several phases following the

PRISMA guidelines recommended by Moher et al. (2009) and systematic review guidelines by

Alexander (2020). The goal was to synthesize empirical findings related to the core areas of

trauma-informed knowledge and practices. The following sections detail the inclusion and

exclusion criteria, the search procedure, and the coding process for content.

Inclusion Criteria. The following inclusion criteria were used to select articles for

review: (a) empirical studies that were published in peer-reviewed journals, (b) the researchers

indicated that the treatment for the effects of trauma was studied, (c) the study context included a

K-12 education or teacher education program, and (d) the study was from the United States.

Because the frameworks used in this study are based on frameworks created under the U.S. Department of Health and Human Services (SAMHSA, 2014), it was appropriate to limit studies to U.S. K-12 schools and universities that may be using these frameworks. Additionally, because the economic and policy structure in responding to trauma influences the types of interventions, narrowing the scope of study was appropriate. Studies that examined screening procedures for students who had experienced trauma were considered outside the scope of this review.

Additionally, residential facilities and schools in other countries have a different set of contextual concerns, funding sources, cultural considerations, and staff training; studies in residential schools or outside the United States were excluded. Studies were not excluded based on criteria related to design, as this review hopes to examine how researchers define, conceptualize, and measure trauma-informed practices. The years of studies were not restricted.

Search Procedures. Full texts were searched in three databases, Academic Search Complete, PsychINFO, and Web of Science. The following search terms were used to locate studies: *trauma-informed* OR *trauma-responsive* AND *education* OR *classroom* OR *school* OR *teaching*. The initial search was limited to peer-reviewed studies in English. Next, journals deemed likely to publish relevant studies were hand searched, including *School Mental Health, Preventing School Failure, Psychology in the Schools, Emotional and Behavioural Difficulties*, and *Children & Schools*. Additionally, a legacy search was conducted using the reference lists of included articles and four literature reviews of trauma-informed practices (Champine et al., 2019; Herrenkohl et al., 2019; Perfect et al., 2016; Yohannan & Carlson, 2019).

The database, backward, and legacy searches yielded 1153 unique possible articles in June 2020. A review of the abstracts of these articles using Abstrackr (Byron et al., 2012, January) narrowed the search to 69 studies that were retained for additional review. After reading

the full text of these articles, 30 articles were retained that met the inclusion criteria (See Appendix A for the PRISMA diagram of the search process and results).

Data Extraction and Coding of Included Studies. The studies were downloaded, stored, and categorized using a citation manager, Zotero (www.zotero.org). Before beginning the coding process, a set of conceptual, descriptive, and thematic variables and a codebook were established. The definition of trauma-informed, the theoretical framework(s) utilized, and purpose (or research questions) were recorded in a Google Sheets document. Because pre-service teachers could potentially teach in a variety of school types upon graduation, codes were created for descriptive characteristics of the samples for each study including, (a) the design of study (e.g., case study, mixed methods, correlational); (b) the population of interest (e.g., student, teacher, school district); (c) location classification (e.g., rural, urban); (d) sample size; (e) sample age; and (f) sample description (e.g., race/ethnicity, free or reduced lunch). Finally, thematic codes were created by recording verbatim quotes for (a) measurement used for trauma-informed practices, (b) other variables measured, (c) reasons for and success of change to classroom trauma-informed practices, (d) how trauma knowledge and practices were taught, (e) findings, (f) future research suggested. Following thematic analysis guidelines, the quotes were copied and collated by themes (Alexander, 2020; Braun & Clarke, 2006). Through a process of careful reading, rereading, annotating, several themes were noted that connect to pre-service teacher preparation, including a need for professional development of practicing teachers, the common use of in-classroom coaching as a way to learn trauma-informed practices, the importance of buy-in for effective implementation, the importance of self-care for those trying to use these practices, and the importance of making connections with family or parents. Appendix B displays the studies examined in this review and how trauma was operationally defined and

measured. The coding and analysis were used to examine how K-12 interventions conceptualize and measure trauma-informed training, how studies measure or change teacher behavior, and what practices are perceived to be trauma-informed so that the pre-service teacher experiences can be interpreted through these lenses.

Creating and Sustaining Trauma-Informed Classrooms

NCTSN has taken the four principles of trauma-informed practices from SAMHSA and created a framework for schools to address the effects of trauma. These ten suggestions are a helpful lens to use when synthesizing the current literature about trauma-informed schools. Thus the following sections will synthesize how the literature addresses the areas that NCTSN suggests are most helpful for schools to implement trauma-informed practices at all three levels of the multi-tiered response framework. In reference to the conceptual framework in Figure 1, the focus of the literature review will be on examining empirical studies that explicate the list of NCTSN suggestions located between knowledge and practice. Specifically, the core elements of interest include

1. Trauma education and awareness,

2. Partnerships with students and families,

3. Trauma-informed learning environments,

4. Culturally responsive teaching,

5. Staff self-care and school discipline policies and

6. Discipline practices that do not re-traumatize.

For the study, identifying and assessing traumatic stress (i.e., evaluating school-wide practices or protocols), addressing and treating traumatic stress (i.e., making students aware of resources available for treatment), cross-system collaboration (i.e., mapping resources and sustaining

policies), and crisis response (i.e., creating an emergency plan) are not addressed as they fall outside the scope of the present study's research questions. The present research focuses on pre-service teachers; the latter core areas are specific to a school or district. Finally, the last part of this section will focus on studies that examine the acceptability and sustainability of trauma-informed organizational changes. These elements build the foundation of knowledge and practices that pre-service teachers need to have before entering their classrooms.

Trauma Education and Awareness

The first element of the trauma-informed framework focuses on beginning trauma-informed work through knowledge about the impact of trauma and ways to ameliorate its effects. Trauma-informed practices used by teachers and the specific components of professional development were not described in all studies. However, two themes emerged from empirical studies around the method of instruction for trauma-informed practices (i.e., information and classroom coaching).

Professional Development for Trauma-Informed Practices. The need for quality professional development around trauma was discussed frequently throughout the literature. The need for more knowledge is unsurprising considering the first two of SAMHSA's (2014) assumptions of trauma-informed practices stating that the organization "realizes the widespread impact of trauma and understands potential paths for recovery" (p. 9). Fifteen of the studies examined (52%) included a professional development opportunity for educators about the impact of trauma as part of the intervention. The focus was frequently on educating school staff with information about the impact trauma can have on learning (Anderson et al., 2015; Blitz & Mulcahy, 2017; Broussard et al., 2019; Christian-Brand et al., 2020; Dorado et al., 2016; Matlin et al., 2019; McIntyre et al., 2019; Post, Grybush, Elmandani et al., 2020; Rishel et al., 2019; von

der Embse et al., 2018; Wall, 2020). Other studies simply stated that educators were provided with an opportunity to understand trauma (Frydman & Mayor, 2017; Hutchison et al., 2020; Opiola et al., 2020; Perry & Daniels, 2016; Stipp, 2019).

Several studies concluded that prior training or the study's training was inadequate, and teachers frequently requested more training. Specifically, staff requested guidance on balancing the social-emotional needs with academic demands (Baweja et al., 2016) and how to respond to students who have experienced trauma (Anderson et al., 2015; Blitz & Mulcahy, 2017; Blitz et al., 2016, 2020). Findings from several studies supported the positive impact of trauma-informed professional development opportunities for teachers in their classrooms through an understanding of the need for these practices and some specific ways to respond to students (Anderson et al., 2015; Baweja et al., 2016; Stipp, 2019; Wall, 2020). Additionally, training improved relationships between teachers and parents and addressed stereotypes impeding these relationships (Blitz et al., 2013). A common theme throughout the literature was that staff is not adequately trained. In addition to understanding the impact of trauma, specific trauma-informed practices should be introduced to teachers earlier and often. Several studies also called for the inclusion of trauma-informed practices in pre-service teacher courses and early career training (Opiola et al., 2020; Stipp, 2019). This early introduction may help close the "gap between teachers' desire to learn and implement SEL strategies and their training to do so" (Stipp, 2019, p. 215).

Classroom Coaching for Trauma-Informed Practices. In-classroom coaching as a form of professional development is not unique to trauma-informed practices, but it was a common way of implementing these practices for the studies examined. Twelve of the studies (41%) included coaching teachers in their classrooms for trauma-informed practices. Though

similar in the concept that teachers learn by applying the concepts in a classroom, the structure and support offered through this model varied widely through the literature. For example, some interventions had a liaison or specialist available at the school who could provide support as requested (Broussard et al., 2019; Dorado et al., 2016; Rishel et al., 2019). Another had social workers delivering the content in a teacher's classroom, where the teachers learned by participating in the curriculum and seeing the social worker's skilled model with their students (Ijadi-Maghsoodi et al., 2017). Coaching dosages ranged from one time per year (Wall, 2020), 45-minutes once per week (Opiola et al., 2015), to two 30-minute observation sessions per week (Post, Grybush, Elmandani et al., 2020).

The coaching increased sustainability as well as aided in identifying students who may need Tier 2 or Tier 3 support in addition to the universal support of Tier 1 (Perry & Daniels, 2016). Additionally, coaching helped teachers transfer knowledge and skills into their classrooms (Post, Grybush, Elmandani et al., 2020; von der Embse et al., 2018).

Create Partnerships with Students and Families.

The second of the NCTSN 10 core areas of trauma-informed schools is about relationships with students and families. Many studies addressed ways that teachers could promote these positive partnerships. Two studies specifically taught the positive impact of building connections with students. The Child Teacher Relationship Training intervention taught specific skills to help teachers develop their capacity to understand and respond to the needs of their students (Post, Grybush, Flowers et al., 2020).

Trauma systems working to support children and adolescents who have experienced trauma include many people and groups, including the school, mental health providers, community partners, and parents/guardians. In fact, 31% of the studies examined ($n = 9$)

included a specific parent/family component as a part of the trauma-informed intervention. Methods to engage families included home visits (Baez et al., 2019; Blitz et al., 2013), family events (Baez et al., 2019; Hutchison et al., 2020; Matlin et al., 2019), and parenting/trauma workshops (Rishel et al., 2019; Sajnani et al., 2019; Tabone et al., 2020; Wall, 2020).

Another method for engaging parents was called "care coordination," which existed to bridge the communication gap between parents and schools (Perry & Daniels, 2016). Unfortunately, this communication gap between parents and schools is common in many high-need communities. One study addressed the gap by creating parent support groups for marginalized families that built feelings of "empowerment through mutual aid" and, in turn, positively impacted students and schools (Blitz et al., 2013, p. 163). The lack of communication is evident through the admitted teacher's perception of lack of support for education from parents (Blitz et al., 2016) and teachers desiring a way to bridge the home-school connection (Blitz & Mulcahy, 2017). However, Broussard and colleagues (2019) describe that 86% of parents support a sex education program focusing on mental wellness using trauma-informed practices. These studies demonstrate the need for including family support in trauma-informed interventions. Teachers need to be trauma-informed in the ways they communicate with parents, and likewise, parents need support to build and continue trauma-informed practices at home.

Create Trauma-Informed Learning Environments

Responding to Students' Social-Emotional Needs. Many studies examined trauma-informed practices that mirrored social-emotional learning techniques. For example, in Wall's (2020) study, teachers empowered students with choices, shared control, provided a place for calming, turned the lights out, played music, offered consistent routines, and cultivated a growth mindset (Wall, 2020). Post, Grybush, Elmandani et al. (2020) reported that the teachers learned

to give students responsibility, encourage their self-esteem, provide choices, and set limits. Skills were taught to the students in several studies, including problem-solving, decision-making (Ijadi-Maghsoodi et al., 2017; Wall, 2020). Other studies demonstrated that trauma-informed practices caused an increase in social-emotional competencies (Hutchison et al., 2020; Mendelssohn et al., 2015) and improved self-concept, self-regulation, and peer relationships (Sajnani et al., 2019). In Rishel and colleagues' (2019) study, teachers were taught to use and then provided with a sensory toolbox and prompts to use with students (e.g., a stress ball, fidget toy, and stretches).

The results of using trauma-informed practices in a classroom were widely varied throughout the literature. Improved social-emotional competence was explicitly named as a positive outcome from trauma-informed interventions (Baweja et al., 2016; Hutchison et al., 2020; Mendelson et al., 2015), while others measured improvements in individual components of SEC such as empathy (Ijadi-Maghsoodi et al., 2017), problem-solving (Ijadi-Maghsoodi et al., 2017), confidence (Baweja et al., 2016; Sajnani et al., 2019), and managing emotions (Baweja et al., 2016; Perry & Daniels, 2016; Sajnani et al., 2019). Peer relationships were shown to improve in several studies as well (Baweja et al., 2016; Powell & Davis, 2019; Sajnani et al., 2019). Notably, academic achievement outcomes, such as engagement, were also measured and showed improvements (Baweja et al., 2016; Dorado et al., 2016; Sajnani et al., 2019).

Blitz & Mulcahy (2017) included a curriculum where students learned about the effects of trauma on emotional regulation. In turn, teachers could help students build resilience through teaching skills such as "goal-setting, decision-making, planning, and cause-and-effect relationships" (p. 177). Teachers' efficacy to respond to students' social-emotional needs improved over time as well.

Responding to Students' Physical Needs. Two studies acknowledge that students' physical needs are part of trauma-informed practices that will help students feel safe and secure. Wall (2020) used snacks, naps, and flexible seating. Stipp (2019) taught that students' nutrition and physical health were vital to building relationships. In another study, math lessons used a social justice and trauma-informed approach (Kokka, 2019). They found that teaching students to examine the structural issues of social inequities allowed students to manage their trauma experiences and feel empowered. Baweja et al. (2016) found that peer relationships also improved through the use of trauma-informed practices.

Responding to Students' Cognitive Needs. Because trauma impacts cognitive functioning, it makes sense that trauma-informed practices would address students' cognitive needs. Wall (2020) suggested using brain breaks for students, where instruction pauses so students can move. Assignments were also differentiated (e.g., type, video, or hand-write a response).

Culturally Responsive

Culturally responsive teaching practices were included with trauma-informed practices in several studies (e.g., Blitz et al., 2016), which is in line with the SAMHSA (2014) and NCTSN (2017) recommendations. However, an interesting addition to this shift in teaching practices is a school encouraging project-based learning. Through project-based learning, students could engage with each other and problems grounded in real-life culture; Blitz et al. (2020) credited this shift to project-based learning to bridge the cultural gap between students and teachers. In another study, the shift toward trauma-informed practices created a cultural change where students felt supported while in school (Ijadi-Maghsoodi et al., 2017). Teachers also felt this cultural shift leading to support. Wall (2020) reported that the teachers began thinking of the

students more collectively and had a group text to communicate about student concerns and support one another personally.

Self-Care and Secondary Traumatic Stress

The importance of self-care is well-documented for professionals who are working with people who have experienced trauma. For example, both NCTSN (2017) and SAMHSA's (2014) policy documents about trauma-informed practices suggest self-care and teaching about secondary traumatic stress (STS) are essential components of a trauma-informed approach. However, only 20% (*n* = 6) of the studies addressed self-care or STS in the professional development portion. These studies taught the importance of self-care, practiced self-care activities, discussed how working with students who have experienced trauma could impact teachers, ensured access support, and described STS (Broussard et al., 2019; Christian-Brandt et al., 2020; Dorado et al., 2016; McIntyre et al., 2019; Perry & Daniels, 2016; Wall, 2020). Self-care is often offered as the antidote to compassion fatigue, burnout, and stress; however, what that looks like is often vague or done outside of school time.

Although these studies supported the inclusion of self-care as a part of trauma-informed practices, no studies in the present review addressed any practical applications of educator self-care. However, several studies showed that the trauma-informed intervention was also able to increase mental health and perception of the quality of life for teachers. In one study, Post, Grybush, Elmandani et al. (2020) found that the improved relationship between a teacher and student also caused a teacher's decrease in stress level. Post, Grybush, Flowers et al. (2020) found that teachers in the intervention group fared better in their reports of their attitudes toward trauma-informed practices than the teachers in the control group. Finally, one study showed that

the intervention caused a cultural shift within the school that offered a sense of support (Ijadi-Maghsoodi et al., 2017).

Discipline Practices that do not Re-Traumatize

One of the common catalysts for schools or systems to begin implementing a trauma-informed intervention is students' negative behaviors. Therefore, it is unsurprising that many of the studies included practices centered on student behavior. Interestingly, the teachers' increased trauma-awareness led them to interpret problem behaviors as an effect of prior experiences (Baweja et al., 2016; Dorado et al., 2016; Opiola et al., 2020). This shift led teachers to respond calmly and position themselves in ways that were not causing the student more anxiety (Wall, 2020). Responses to behavior shifted as well, including the provision of differentiated discipline (Wall, 2020). The change in the way teachers responded was evident in the decreased administrator discipline and increased student engagement, demonstrated in several studies (Blitz et al., 2016; Dorado et al., 2016; Sajnani et al., 2019).

While the student challenges that make trauma-informed practices essential and the benefits offered to students when applied were not the purposes of the present review, it is impossible to ignore social-emotional and behavioral needs when reviewing the studies. Each study in this review was rooted in the social-emotional and behavioral needs of students who have experienced trauma. The student needs have been well documented; however, the specific need of each study varied widely. Several studies noted the interrelated cause and effect between the catalyst for trauma-informed professional development and student outcomes. Problem behaviors were often the cause for trauma-informed interventions; the new staff knowledge led to a view of student behaviors as a reflection of trauma, which led to a decrease in problem behaviors (Baweja et al., 2016; Dorado et al., 2016; Mendelson et al., 2015; Opiola et al., 2020).

These studies credited the improved behavior to how teachers learned to reframe problem behaviors as a possible symptom of a trauma experience.

The most common student outcome measured was decreased problem behaviors or school discipline incidents ($n = 6$; Baez et al., 2019; Baweja et al., 2016; Blitz et al., 2016; Post, Grybush, Elmandani et al., 2020; Powell & Davis, 2019; Rishel et al., 2019; Sajnani et al., 2019; von der Embse et al., 2018). The interventions varied among these studies, but the positive effect of trauma-informed practices on student behavior was evident. Beyond the reframing of teacher perception, students learned to accept authority, which may have improved behavior problems in school (Mendelson et al., 2015). In another study, teachers focused on helping students learn to accept responsibility for their decisions (Post, Grybush, Elmandani et al., 2020). Relatedly, some studies focused on healing trauma by increasing student feelings of independence and empowerment (Kokka, 2019; Opiola et al., 2020).

Synthesis of Practices

Taken together, the research has a wide variety of specific and general ways to implement trauma-informed practices across most of the essential elements of trauma-informed schools suggested by NCTSN (2017). Many included professional development to help teachers engage in the four principles created by SAMHSA (2014). A shared understanding of the problem with trauma and how it may influence classroom behaviors and ability to learn is in line with the SAMHSA guidelines, so it is encouraging to note how many studies included these opportunities. Beyond following best practices from SAMHSA, several studies offered rationales for providing professional development. For example, trauma-informed learning opportunities for teachers were hoped to improve classroom climate, improve the accuracy of mental health referrals (Baweja et al., 2016), improve school disciplinary problems (Baweja et al., 2016;

Broussard et al., 2019), and improve buy-in for a trauma-informed system within the school (Perry & Daniels, 2016).

The wide array of strategies listed in these studies mirror the breadth of trauma's impact on student development. Trauma affects a student's behavioral, social-emotional, physical, cognitive, and relational development. While no studies measured these practices as an outcome, many of the teachers' techniques came from understanding how trauma affects students learned as a part of the research intervention. While the reviews by Yohannan & Carlson (2019) and Herrenkohl et al. (2019) demonstrated the effectiveness of Tier 2 and Tier 3 trauma-informed interventions, the effectiveness of Tier 1 interventions and practices remains to be examined. The studies in the present review show some techniques associated with positive student and teacher outcomes; however, collectively, there is a lack of clarity in these studies about what Tier 1 practices should look like in application. Anderson et al. (2015) described the juxtaposition between knowledge of the "ubiquitous role that trauma and chronic stress play in children's learning" and "how to provide optimal support" (p. 114). Many teachers struggle to know what the research was not very detailed in laying out. How do teachers transition from the first two stages of SAMHSA's (2014) principles (i.e., realize the impact of trauma and recognize symptoms in someone who has experienced trauma)? The second two are much more application-driven as teachers are called to respond by allowing trauma-knowledge to inform their practices and resist causing re-traumatization. Although the studies varied widely in design and intervention, taken together, they demonstrate that the issues of culture, crisis, families, discipline policies, and community partnerships require a systematic approach. Pre-service teachers will be a part of this system during their practica and in their future careers, so they need to understand the issues, policies, practices, and approaches.

Acceptability and Sustainability

Engaging teachers in a new practice necessitates buy-in to increase acceptability and sustainability. McIntyre et al. (2019) found that the knowledge about trauma that teachers had before beginning the intervention "was significantly and positively associated with acceptability" (p. 100). As teachers' understanding of how trauma affects learning increases, so does their desire to use trauma-informed practices and increased system fit scores as well (McIntyre et al., 2019). Interestingly, Christian-Brandt et al. (2020) found that teachers who exhibited higher secondary traumatic stress levels found trauma-informed practices to be effective, indicating that perhaps teachers who are exposed or more sensitive to their students' trauma see the value in the methods. Baweja et al. (2016) called for future research to investigate ways to increase buy-in from teachers who negatively perceive mental health services. Other studies found that buy-in led to improved communication with social workers (Ijadi-Maghsoodi et al., 2017), parents (Blitz et al., 2013), and students (Post, Grybush, Flowers et al., 2020).

In responding to common problems to staff buy-in, several studies included intervention components specifically to improve buy-in or suggested research questions to address issues encountered. For example, one problem was teacher attendance to training because of a lack of coverage available (Post, Grybush, Flowers et al., 2020). The inclusion of buy-in components speaks to the importance of administrator buy-in and systemic support for trauma-informed practices. Blitz et al. (2020) suggested that motivation could be improved and reasons for resistance addressed by creating professional learning communities composed of teachers at varying trauma-informed readiness stages. Alternatively, Ijadi-Maghsoodi et al. (2017) suggested future research should include incentives for teachers to participate. Issues of funding were

mitigated in a study by Matlin et al. (2019) by connecting the trauma-informed practices to a community-wide effort.

The ARTIC scale is an effective way to evaluate beliefs and attitudes toward trauma-informed practices, which is a good starting point for informing professional development and making a systems change plan (Baker et al., 2016). No matter how it is measured or addressed, staff buy-in is increased through psychoeducation about trauma and is also vital for the sustainability of a trauma-informed approach for a school or community.

Summary

Pre-Service Teacher Beliefs and Attitudes about Trauma-Informed Practices

Measuring teacher beliefs and attitudes about trauma-informed practices in K-12 settings is a common and effective way to understand what further training was needed, what school climate improvements had been made, and how students were affected by the inclusion of trauma in school policy planning (e.g., Baker et al., 2016; Matlin et al., 2019; Post, Grybush, Flowers et al., 2020). Several studies reported improved teacher self-efficacy for responding to students who were sad and withdrawn, increased confidence and attitude toward the symptoms of trauma, and increased self-efficacy for supporting students working as a protective factor against teacher burnout (Blitz & Mulcahy, 2017; Christian-Brandt et al., 2020). Teachers in the reviewed studies almost always had a positive attitude about training, and in fact, they often requested more training (e.g., Baweja et al., 2016; Matlin et al., 2019). In one control intervention trial, all teachers decreased in their attitudes, but the teachers with the trauma training decreased only minimally in their attitude toward trauma-informed care despite the significant changes in the school system during the year (Post, Grybush, Flowers et al., 2020).

Taken together, the training provided to teachers is tied to their self-efficacy and attitudes in using the practices to support students who have experienced trauma.

However, only two studies specifically addressed how these practices could be introduced to pre-service teachers (Miller & Flint-Stipp, 2019; Stipp, 2019). This gap leaves a heavy burden of instruction on K-12 schools to implement training for teachers and support for students. While Virginia requires an introduction to the effect trauma can have on students, no study has evaluated pre-service teachers' beliefs and attitudes toward these practices or the outcome of trauma instruction requirements.

Experiences that Affect Trauma Knowledge, Beliefs, and Attitudes

Teachers in the reviewed studies often cited student behavior problems as the source of their desire to learn more about trauma and how to implement practices that could support students who had experienced trauma. However, pre-service teachers may not witness the effects of trauma firsthand. Beliefs such as self-efficacy are connected to knowledge and contexts (Pajares, 1992). Because of this, the amount of exposure a pre-service teacher has to the effects of trauma will change their self-efficacy for responding. It is possible that a lack of exposure could lead to inflated self-efficacy beliefs because they think they know how to apply this lens. Likewise, a lack of experience with problem behaviors could cause negative attitudes or self-efficacy because they do not see the need for a trauma-informed lens. While these pre-service teachers may think that trauma-informed practices are a positive addition to a classroom, they may not know the long-term effects of trauma or the experiences with students who need this type of support. Beliefs can be held without knowledge, as shown when a pre-service teacher performed well on classroom assessments of knowledge, but she held beliefs that prevented her from applying this knowledge in the classroom (Holt-Reynolds, 1994). Similar to how the in-

classroom coaching provided teachers of record opportunities to debrief as they learned to apply the trauma-informed framework with their students, it will be important to understand the ways in which experiences of pre-service teachers shape their understanding of trauma.

Additionally, it is essential to know the types of experiences that shape the knowledge, beliefs, and attitudes of pre-service teachers. For example, how has classroom-based instruction about trauma-affected pre-service teachers? How have practicum experiences shaped pre-service teachers' understanding of how to apply trauma-informed practices? Do pre-service teachers often bring awareness of trauma from previous experiences or courses outside of the school of education?

Practices Perceived to be Trauma-Informed

The first component of SAMSHA (2014) involves an explicit understanding of the prevalence and impact of trauma on students. However, the behavior teachers adopt to respond and support students who have experienced trauma are often best practices that are not explicitly labeled as trauma-informed. It is important to know if there are overlapping evidence-based best practices already taught in schools of education that may be useful for pre-service teachers who want to implement trauma-informed practices. For example, the present review showed that culturally responsive practices (Blitz et al., 2016; 2020) and social-emotional learning (Stipp, 2019) are both meaningful and necessary components of trauma-informed practices. Additionally, such practices as classroom climate, disciplinary responses, and home-school communication are included throughout many teacher licensure programs and were also included in the reviewed literature as trauma professional development for in-service teachers (e.g., Baweja et al., 2016; Blitz et al., 2013; Dorado et al., 2016). Through interviews with pre-service teachers, the present study examined what positive practices pre-service teachers have learned

about in various courses, whether or not the practices were explicitly labeled as trauma-informed. The perceived knowledge of these practices extends our understanding of the quantitative knowledge of pre-service teacher knowledge, beliefs, and attitudes about trauma-informed practices.

The Present Study

The reviewed studies examined specific strategies that help teachers respond to student needs and improve relationships. Practices such as shifting understanding of the source of behavior, promoting social-emotional competencies, offering brain breaks, providing flexible seating, or empowering students through offering choices could be implemented by all teachers (Baweja et al., 2016; Hutchison et al., 2020; Mendelssohn et al., 2015; Wall, 2020). However, the present review also demonstrated that when and how these practices are taught is largely under-researched and dependent upon a school or district adopting a program. Because Tier 1 supports should be practiced by all educators, pre-service teachers need the opportunity to learn about the need for and practical steps to implement trauma-informed practices. Virginia's requirements for what pre-service teachers should know reflect this as well.

The conceptual framework shown in Figure 1 guided this study using the trauma-systems framework, Social Cognitive Theory, knowledge, beliefs, and attitude to inform research questions and methodology. Understanding pre-service teachers' perspectives using the frameworks from NCTSN (2017) and SAMHSA (2014) sheds light on beliefs and attitudes. Secondly, the qualitative follow-up portion of the study sheds light on the experiences and knowledge that affect pre-service teachers' knowledge, beliefs, and attitudes.

Terms

- *Trauma:* Trauma is the result of a physically or emotionally harmful event or multiple events that a person that affects mental, physical, social, emotional, or spiritual well-being (SAMHSA, 2014). Of particular interest in the present study is the effects on a child's ability to learn and function in a classroom and the positive support a teacher can have after the trauma has occurred.

- *Trauma-informed Practices*: This set of teaching practices refer to any actions or thought by an adult that is informed by the knowledge that students may have experienced trauma or promote resilience. All school staff can do this through social, cognitive, or emotional supports, parent involvement, and discipline practices. Specifically, this will be operationalized by the NCTSN (2017) ten essential elements meant to help schools apply the four principles by SAMHSA (2014).

- *Secondary-Traumatic Stress*: This type of stress is often experienced by school personal because of working with students who have experienced trauma. Recognizing the need for self-care and practicing self-care regularly can prevent burnout because of secondary-traumatic stress.

- *Pre-Service Teachers*: Pre-service teachers are students enrolled in a teacher licensure program who are learning the craft of teaching. Their training often includes teaching experiences such as practica or student teaching, but they are not yet the teacher of record.

- *Self-Efficacy:* Self-efficacy is a judgment about one's capability to perform (Bandura, 1986). Specifically, in the present study, self-efficacy is focused on pre-service teachers' judgment about their capability to support students who have experienced trauma.

- *Attitude*: Attitude is a positive or negative evaluation based on cognitive, affective, and behavioral information. Specifically, in the present study, attitudes toward the effects of trauma and a teacher's role in supporting students who may have experienced trauma will be used as a predictor of future action in the classroom.

Conclusion

All students deserve to have a caring adult who supports them regardless of a student's experience of trauma. The prevalence and impact of trauma are well-documented. The teacher's ability to moderate the effect of trauma is also well-supported by the studies reviewed. Following calls for more research about the inclusion of trauma-informed practices in pre-service teacher courses and early career training (Jennings & Greenberg, 2009; Opiola et al., 2020; Stipp, 2019), the present study examines potential experiences to improve the likelihood of future teachers adopting these practices.

Chapter III: Method

Many studies have examined the knowledge, beliefs, and attitudes of the teachers of record as schools and divisions attempt to become more trauma-informed because it is likely that several students in every classroom will have experienced trauma. However, despite knowing that teachers can act as a protective factor for students, little is known about how pre-service teachers gain this knowledge before entering their classrooms. the present study sought to answer five research questions discussed in Chapter I. The purpose was to gain an understanding of pre-service teacher knowledge, beliefs, and attitudes toward these practices as well as an understanding of what experiences shaped the knowledge, beliefs, and attitudes. Table 1 shows the ways that methodologies align with research questions.

Table 1

Research Questions, Methodology, and Phase

Research Question	Methodology	Phase of Research during which it was answered
What are pre-service teachers' knowledge, beliefs, and attitudes toward trauma-informed practices, and to what extent do homogeneous clusters of pre-service teachers emerge based on a survey of their knowledge, beliefs, and attitudes about trauma-informed practices?	Quantitative	Phase 1
What personal and school experiences do pre-service teachers perceive to affect their knowledge, beliefs, and attitudes about trauma and its effects?	Qualitative	Phase 2
What personal and school experiences affect pre-service teachers' knowledge, beliefs, and attitudes toward trauma-informed practices?	Qualitative	Phase 2
What practices do pre-service teachers think they will use that they perceive to be trauma-informed?	Qualitative	Phase 2
In what ways do the interview data reporting views of pre-service teachers help to explain the quantitative results about knowledge, beliefs, and attitudes toward trauma-informed practices?	Quantitative and Qualitative	Phase 3

Research Design

Specifically, this study used an explanatory sequential mixed-methods design. This type

of design is particularly helpful when a construct has not been adequately explored in a particular

context, so there is a need to not only obtain quantitative results but to explain such results in

more detail. Quantitative data were collected first. Data integration first occurred when

participants for the qualitative stage were purposefully selected using the quantitative data

results. Accordingly, a second integration occurred after the data from the qualitative phase were

analyzed, as seen in Figure 2. During this phase, findings from the qualitative phase were used to explain quantitative results (Creswell & Plano Clark, 2018).

Figure 2

Mixed-Methods Design and Data Collection
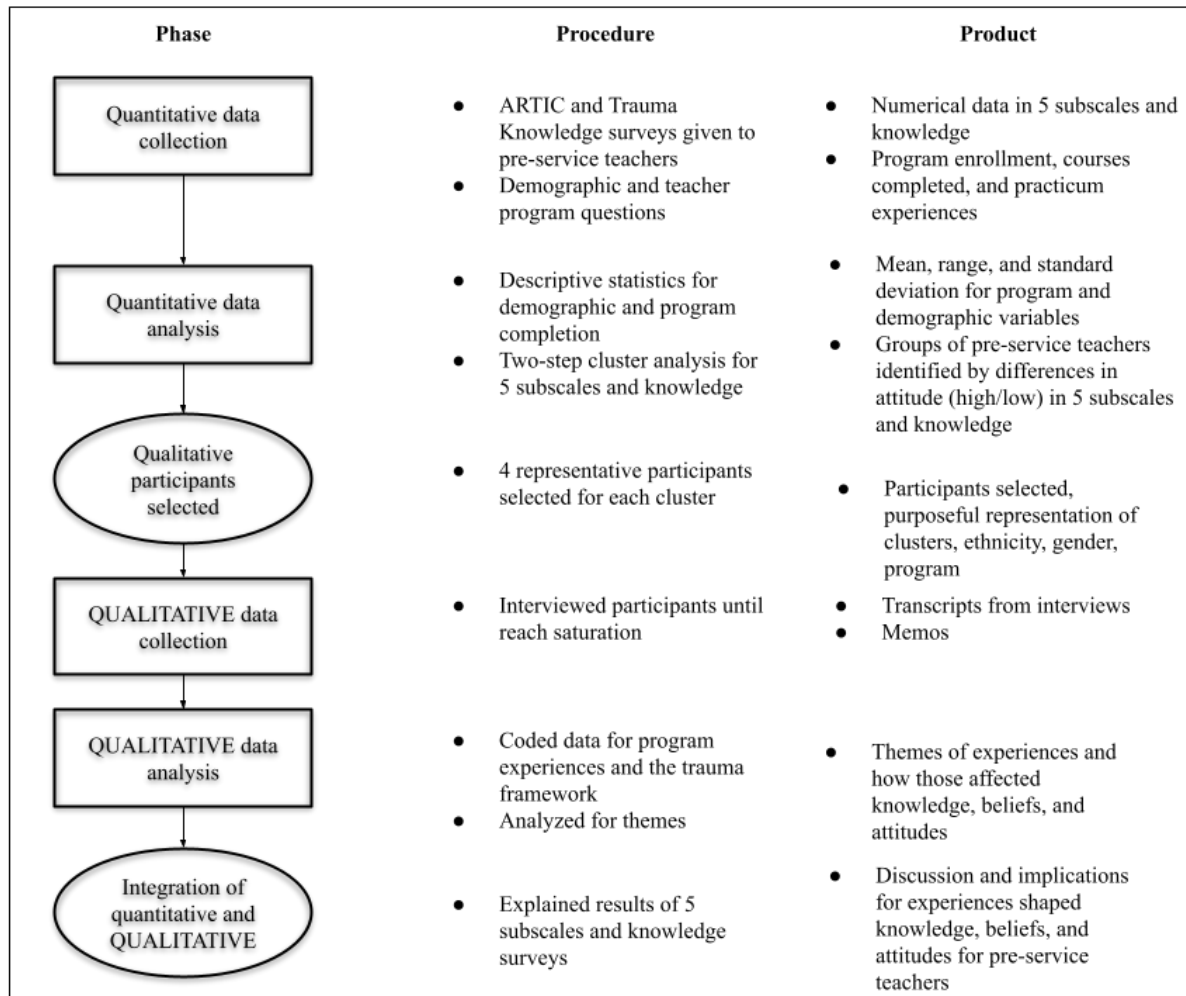
The study was quan → QUAL, where the qualitative phase had greater emphasis in addressing the purpose of this study and occurred second to explain further and provide context for the quantitative results.

Mixed methods designs are particularly useful for exploring problems where more than one type of data can be used to "examine overlapping but different aspects" (DeCuir-Gunby & Schutz, 2017, p. 53), and one method can inform the other. The strengths of both qualitative and quantitative data provide insights and explanations and offset the weaknesses of the other (Creswell & Plano Clark, 2018). A mixed methods design was especially appropriate for this population because it has been underexplored. The three studies known to have examined this population used qualitative and single-class intervention designs (Bixler-Funk, 2018; Miller & Flint-Stipp, 2019; Stipp, 2019). In the present study, a mixed methods design was used to explain how knowledge, beliefs, and attitudes about trauma-informed practices were formed through validated instruments and gave context to each of the resulting representative clusters of pre-service teachers. Situating the findings from the quantitative data about knowledge, beliefs, and attitudes toward trauma-informed practices within specific experiences from the pre-service teachers has the potential to be a powerful tool for making changes in how this population is taught moving forward. A wide sample showed trends in knowledge, beliefs, and attitudes, while the qualitative follow-up provided context for pre-service teachers with differing perspectives.

The goal was to discover what experiences positively or negatively shape pre-service knowledge, beliefs, and attitudes toward trauma-informed practices. Consequently, the worldview of pragmatism guided the inquiry. This worldview allowed the negative and positive experiences shaping knowledge, beliefs, and attitudes to surface. Implications for future practice and research were drawn from quantitative, qualitative, and mixed data. The research questions warrant both an understanding of the quantifiable knowledge, beliefs, and attitudes toward teaching students who have experienced trauma as well as the pre-service teacher descriptions

about experiences that shaped their knowledge, beliefs, and attitudes. Hence, pragmatism allows a combination of these methods.

Quantitative Phase

Participants and Setting

The target population for this study was students who are enrolled in a teacher-preparation program at one university in the Mid-Atlantic United States. The sampling strategy was purposeful nonprobability, in that students were purposefully selected for recruitment based on their enrollment in a teacher preparation course during the Spring semester of 2021.

Recruitment. Emails were sent to professors of human development, educational psychology, and classroom management courses in January of the Spring 2021 semester inviting them to send an informational email to their students about the study. No extra credit was offered, but several professors allowed participation to replace a course grade. Willing professors sent an email to students with the language I provided and a link to the survey (Appendix D).

Sample. The university's teacher preparation programs include five undergraduate teacher licensure programs, 17 graduate licensure programs, and one residency program, all accredited by the Southern Association of Colleges and Schools and the National Council for Accreditation of Teacher Education. Additionally, all programs are approved by the state's Department of Education. All students who are over 18 and enrolled in one of the programs were eligible to participate. Though there are no set rules for minimum sample size, the recommended minimum sample size for cluster analysis with six variables is 64 (Dolnicar, 2002). Professors of education courses sent the survey to 330 students who were enrolled in their courses during the Spring 2021 semester. Demographic information for all eligible participants ($n = 67$) can be found in Chapter IV.

Measures

In one online measurement given through RedCap (Harris et al., 2009), a secure electronic data capture tool, students were asked to report several demographic items, program information, and a 58-question survey about their knowledge, beliefs, and attitudes around trauma-informed practices. All items can be seen in Appendix E.

Demographic Items. After reading the Information Sheet (Appendix F), participants responded to eight demographic items. Participants self-reported teacher preparation program enrollment, gender, age, and ethnicity. They were also asked how many practicum experiences they had completed and how many education-related courses they have completed. Participants also reported if they had completed courses for human development, educational psychology, or classroom management. Finally, participants were asked to provide their name, phone number, and email if they were willing to be contacted for a follow-up interview.

ARTIC Scale. An adapted version of the Attitudes Related to Trauma-Informed Care (ARTIC; Baker et al., 2016) was used to measure pre-service teachers' beliefs and attitudes around the effects of trauma and their self-efficacy for responding. Some language was modified to reflect that they *will* teach students *in the future* instead of the present tense language of the original scale. Each subscale in the ARTIC-35 for education has seven items. Studies have found this measure to have acceptable reliability for the composite ARTIC-35 ($\alpha = .91$; Baker et al., 2016). Additionally, the test-retest consistency was strong at less than 120 days ($\alpha = .84$). The measure was highly correlated with familiarity with trauma-informed practices in previous studies ($r = .42$; Baker et al., 2016) as well as in the present study with pre-service teachers ($r = .53$). Each question is scored on a Likert-type scale from 1 to 7, with the two anchors each being an unfavorable or favorable attitude related to trauma-informed care, where a low number is the

low attitude. Nineteen items are reverse coded. In a pilot test with pre-service teachers (n = 7), the modified version showed adequate variability with pre-service teachers (Furman, 2020). Each of the five subscales is described in the following sections.

Underlying Causes of Problem Behavior and Symptoms. These seven questions measure a person's perspectives about whether student behavior is adaptable and malleable or as an intentional and unchangeable problem. The subscale was found to have acceptable reliability (α = .78; Baker et al., 2016). An example item includes "I believe that (1) students' learning and behavior problems are rooted in their behavioral or mental health condition" to (7) "students' learning and behavior problems are rooted in their history of difficult life events."

Responses to Problem Behavior and Symptoms. This subscale measures whether a person feels that relationships, safety, and kindness are more important for making changes or rules, consequences, and accountability. The reliability was also acceptable (α = .76; Baker et al., 2016). An example item includes "I believe that (1) it's best to be very strict at first so students learn they can't take advantage of me" to (7) "it's best to treat students with respect and kindness from the start so they know I care."

On-The-Job-Behavior. The attitudes measured in this subscale include a focus on empathy toward students versus control of students. The reliability was acceptable (α = .72; Baker et al., 2016). An example item includes "I believe that (1) when I have my own classroom, it will reflect badly on me if my students are very upset" to (7) "being very upset is normal for many of the students I have observed in my practica."

Self-Efficacy at Work. This subscale measures a pre-service teacher's belief that they will be able to meet the demands of working with students who have experienced trauma. The reliability was found to be acceptable (α = .79; Baker et al., 2016). An example item is "I believe

that (1) I don't have what it takes to help my future students" to (7) "I have what it takes to help my future students."

Reactions to the Work. This subscale measures whether pre-service teachers endorse positive attitudes toward the need for self-care in light of the effects of secondary or vicarious trauma. The reliability was found to be acceptable (α = .71; Baker et al., 2016). An example item includes "I believe that (1) sometimes I think I'm too sensitive to do this kind of work" to (7) "the fact that I'm impacted by my work means that I care."

Trauma-Informed Knowledge. The Trauma-Informed Knowledge measure consists of 14 multiple choice items measuring the knowledge around the four principles of trauma-informed practices from SAMHSA (2014). Questions cover topics such as the prevalence of trauma, impact of trauma, the need for learning supports, and secondary stress. The items were adapted from McIntyre and colleagues' (2019) study of in-service teacher professional development, which was adapted from Brown et al. (2012). The language was modified to reflect the pre-service teacher context and national statistics. Previous studies found adequate internal reliability (α = .82) in teachers who had not experienced training specific to the measure. Scores were calculated as a total of correct responses. An example item is "Which of the following ideas is NOT central to the trauma-informed approach?

- Behavioral and emotional problems are common symptoms of exposure to trauma.
- We need to know a student's full trauma history before we can work with him or her effectively.
- Working with traumatized students affects adults through vicarious trauma.
- Understanding a child's trauma history tells us that child's brain might have been changed by trauma.

- Don't know.

In this question, participants need to understand that behavior is affected by trauma, vicarious trauma is an effect of working with students who have been through trauma, and that the child's brain is affected. The answer is that teachers do not need to know a child's specific trauma history to use trauma-informed practices. The answer choice of "Don't know" is offered for all 14 questions so that forced response is not an issue for reliability.

Data Collection Procedures

Prior to collecting data, the Institution Review Board approval was received. Students were sent a link in the Survey Recruitment Email (Appendix D) to a 58-question survey on an online device of their choosing through RedCap (Appendix E). An information sheet was provided during the first question on the online survey (Appendix F) because of the unique situation and lack of in-person classes during Spring 2021.

Analysis

Preliminary Analysis. Prior to running primary analysis, data were screened for a variety of assumptions, outliers, and missing data. The data were cleaned, and seventeen items were reverse coded according to the ARTIC procedures so that 1 represented the least trauma-informed response, and 7 represented the most trauma-informed response (Baker et al., 2016). Missing data was determined by running frequencies for each survey item. Cases where more than half the survey responses were missing were excluded before analysis. Composite and subscale totals were also calculated. Seventeen participants who started the survey but then did not complete any of the ARTIC or knowledge scales were excluded. Additionally, of the 96 participants who responded, 30 were excluded because they did not meet the initial criteria of being enrolled in a teacher preparation program. Next, descriptive statistics were run to observe

any significant information and determine any outliers. Outlying cases were also identified using histograms and eliminated for this cluster analysis. Four cases were eliminated: one because it was a duplicate response (matching email address), three because they were extreme outliers based on histograms and greater than two standard deviations from the mean. With these exclusions, there were 67 in the final sample used for the primary analysis.

Using Stata (version 15), missing data were analyzed, and median imputation was used for six missing values before the analysis was performed. Although MCAR could not be determined because of the sample size, the missingness was small and median imputation was used to handle the six missing values (Acuña & Rodriguez, 2004). The median for each item was determined and imputed into the missing value. All analyses were run with and without these imputed values to compare solutions and add validity for the use of median imputation. Imputation using the median for each item did not drastically change the analysis results, so imputation with median was used for all subsequent analyses.

Descriptive statistics, including frequencies, means, and standard deviations, were run for the total attitude composite score of the ARTIC scale to answer research question one. The five ARTIC subscale scores (i.e., underlying causes of behavior, responses to behavior, on-the-job behavior, self-efficacy, and reactions) were totaled, and means and standard deviations were calculated for each. Additionally, descriptive statistics were run for ethnicity, gender, teacher preparation program, and completion of education courses to provide frequencies, means, and standard deviations as appropriate.

Several assumptions for cluster analysis were checked prior to running the analysis (Everitt et al., 2010; Pastor & Erbacher, 2018). First that there were no outliers or missing data. Next, that all variables were on the same scale. This step required creating standardized variables

for each of the five ARTIC subscales as well as the knowledge scale. The final assumption was met in that all six variables were continuous and that there were fewer variables than participants, both of which were met.

Cluster Analysis. A cluster analysis was run to create homogeneous groups of students with similar knowledge and attitudes based on the subscales. The purpose of cluster analysis is to classify participants "according to their similarity on one or more dimensions and producing groups that maximize within-group similarity and minimize between-group similarity" (Henry et al., 2005; p. 121). Specifically, pre-service teachers were grouped by the five subscale scores of the ARTIC and the knowledge scale so that each group's members have similar characteristics in knowledge, beliefs, and attitudes for each of the five subscales and the one knowledge scale. Creating these groups helped reduce the data, expose how the variables are commonly related, and target groups of students for follow-up qualitative interviews (Pastor & Erbacher, 2018). Therefore, grouping students by these six variables has value for untangling how the university guides students into knowledge and experiences that shape pre-service teacher beliefs and attitudes toward trauma-informed practices through a succinct and purposeful method.

An agglomerative hierarchical cluster analysis was run using Euclidean distance, first with average linkage and then with Ward's method to compare for the best solution. In this method of clustering, participants are grouped together on the basis of their similarity hierarchically so that a series of fusions of the participants into groups from the bottom-up results in a set number of clusters (Everitt et al., 2010). Visual inspection of the dendrogram resulted in selecting the final solution of two groups. Next, another agglomerative hierarchical cluster analysis was run using Euclidean distance and Ward's method to confirm the same number of clusters. Based on the benefits of this analysis, that the same solution can be reached

each time, the Ward's method results were chosen to represent the final solution (Schmidt et al., 2018).

Finally, a k-means cluster analysis was used to confirm the number of clusters found from both hierarchical cluster analyses. In k-means cluster analysis, the participants were grouped based on the algorithm that calculates the centroid (i.e., mean) of each group (Everitt et al., 2010). Using this three-step process of establishing the clusters makes use of the strengths of each type of analysis (Everitt et al., 2010). The process of arriving at the final solution is described, and other possible solutions considered is in Appendix C for transparency (Everitt et al., 2010; Pastor & Erbacher, 2018).

Once profiles were created based on the agglomerative hierarchical cluster analysis using Ward's method, the groups were compared for differences in educator preparation programs, courses completed, ethnicity, and gender. Table 7 in Chapter IV describes the clusters with the proportion of the sample in each cluster, program enrollment percentages, mean number of courses completed, the numbers represented of each ethnicity, and the number of each gender represented. Additionally, the analysis of these clusters considered the literature, possible explanations, surprising results to be investigated during the qualitative phase.

Validity

Validity, or the degree to which evidence and theory support the interpretations of a score for a proposed use, is a fundamental component of study design both in the measurement and the analyses (*Standards for educational and psychological testing*, 2014). Although the ARTIC survey has been previously validated, several steps were taken to ensure evidence to support the ARTIC's use for the inferences made. Content and internal structure were supported through a pilot test given to pre-service teachers in Fall 2020 and two experts in the field who helped

modify the language to be appropriate for pre-service teachers. The scores from the ARTIC were used to assess knowledge, beliefs, and attitudes in five subcategories. Convergent evidence was established through the number of courses taken. After the completion of the interviews, the qualitative data provided convergent evidence to support the quantitative data as participants explained their knowledge, beliefs, and attitudes in their own words. The use of this measurement for this inferential grouping purpose was supported by the scale. At least two techniques were used to form the clusters to increase quantitative measurement and analysis validity. Using cross-validation techniques showed internal validity of the identified clusters (Everitt et al., 2010).

Need for Follow-Up Data

In line with Creswell and Plano Clark's (2018) description of the purpose for the intermediate phase, the next phase was used to examine the quantitative results carefully to highlight a subset of the original sample of pre-service teachers. Quantitative data were analyzed for any trends or specific details that will be helpful to explain. These clusters represented distinct groups of differing teachers holding high and low knowledge, beliefs, and attitudes. These clusters guided qualitative data gathering in which specific beliefs, attitudes, and experiences of pre-service teachers were explored in greater depth. The data was analyzed for surprising trends that would not be explained through the interview questions. However, the existing sixteen interview questions adequately sought rich data about the generally high and generally low knowledge, beliefs, and attitudes, so no new questions were added to the interview protocol. Stratified purposeful sampling was used to form a representative sample of program enrollment from each of the clusters.

Qualitative Phase

Students enrolled in a teacher preparation program have had various personal experiences, coursework, interactions with professors, and practicum experiences. Trends of positive or negative beliefs and attitudes about trauma-informed practices within each group identified by the quantitative data were explained by common experiences. Interviews through Zoom were used to gather data about student experiences and perspectives on results of trauma, how to support students who have experienced trauma, and how to resist re-traumatization.

Participants and Recruitment

The target sample for the qualitative phase was a distribution of pre-service teachers who had a range of knowledge, beliefs, and attitudes about trauma-informed practices. The cluster analysis from the quantitative phase provided two distinct groups of pre-service teachers from which to select a representative sample. After the selection (i.e., cluster analysis described in the intermediate phase), four pre-service teachers from each cluster were purposefully selected for interviews. The first five participants from the Low Cluster who had originally stated they would participate in a follow-up interview did not respond to the email or text. All the remaining pre-service teachers from the Low Cluster who had selected willingness to be interviewed were then selected, contacted, and interviewed. Although no additional Low Cluster participants were willing to complete the interview, two additional participants from the High Cluster were interviewed. Pre-service teachers from the High Cluster were selected to represent a range of quantitative results as well as a variety of courses completed, number of practica completed, race/ethnicity, and gender. All four participants selected for the High Cluster responded and participated in an interview.

The eight interviews were transcribed and coded to determine if saturation had been reached with a sample size of eight. Because no new information was gained from these

additional two interviews, it was determined that saturation had been reached with a sample size

of eight (Merriam, 2009; Robinson, 2014). A minimum sample size of eight was selected

because of the purposeful nature of the participant selection from two distinct clusters

(Sandelowski, 1995). The final sample size was dependent on the number of clusters found in the

quantitative phase ($n = 2$) and the point at which saturation was reached (Merriam, 2009;

Robinson, 2014). Saturation, when no new information is being gained, was be determined

through memos taken throughout the interview process (Merriam, 2009; Robinson, 2014). A

breakdown of the participants and those who were willing to be interviewed from each cluster

can be seen in Table 2.

Table 2

Breakdown of Potential Qualitative Participants

	Low Knowledge, beliefs, and Attitudes	High Knowledge Beliefs, and Attitudes
Total from sample	33	34
Willing to participate in follow-up interview	14	17

Prior to participating in the interview, the pre-service teachers had several opportunities

to learn that their participation was voluntary, decline participation, and ask the researcher

questions. First, students were contacted by the researcher through email to explain the voluntary

nature of the research and ask if the student was willing to participate in a follow-up interview

(Appendix G). Pre-service teachers who were willing to be interviewed selected from a choice of

times on Google Calendar to meet through Zoom. A second informed consent document was

reviewed with participants before they verbally agreed. A copy of the information sheet

(Appendix H) was provided to the participant through the calendar invitation. Additionally, a

script (Appendix I) was read before beginning the recording to explain the purpose. The script

provided another opportunity for participants to ask questions and prepare for the audio

recording. Every effort was made to keep personal information confidential, including using a

password-protected computer to store audio files, using pseudonyms for participants, using

pseudonyms for people mentioned, and removing places mentioned in the transcripts. Lastly,

participants had the option of not answering a question or ending the interview if they became

uncomfortable with the discussed topics.

Instruments

Interview Protocol. In line with Maxwell (2013), questions were created which were of

genuine interest rather than contrived questions seeking after a particular answer. Interview

questions were created based on the literature and SAMHSA's framework (2014; see Appendix

J) and were used to guide the semi-structured interviews ranging from 23 to 57 minutes to gain

rich data. Interviews aimed to gain data about specific experiences that affected participant

knowledge, self-efficacy, and attitudes about understanding the impact of trauma, recognizing

trauma symptoms, using practices to address the effects of trauma, and resisting re-

traumatization. No questions were added during the intermediate phase. Sixteen questions asked

students for specific experiences to provide information about actions and events that took place

before knowledge, beliefs, and attitudes were formed and reported in the quantitative phase

(Maxwell, 2013).

Data Collection Procedures

Open-ended questions were used to seek episodic accounts of experiences explaining their knowledge, beliefs, and attitudes about trauma. The use of active interviewing techniques such as sharing a bit of my personal interest in this topic before asking questions led to rich narratives and perspectives that exemplified both negative and positive aspects of belief and attitude formation (Holstein & Gubrium, 1995). Taking notes about facial expressions that provide information about the emotional state attached to stories will be an important secondary data set to explain how students perceive the experiences they are describing (Maxwell, 2013).

Preliminary Analysis

Of the quantitative sample of 67 participants, 31 students reported they were willing to be a part of the follow-up qualitative phase. My goal was to interview students from each cluster representative of pre-service teachers' knowledge, beliefs, and attitudes about trauma-informed practices. All nine participants in the Low Cluster were contacted by email and a follow-up text to schedule an interview. Four responded and participated. Four participants were selected from the High Cluster to represent a range of quantitative results as well as a variety of courses completed, the number of practica completed, race/ethnicity, and gender. All four who were contacted from this cluster responded to the email and/or text to participate in the interview. Thus, a representative sample from both the High and Low Clusters was interviewed.

Analysis

Otter.ai was used to record and initially transcribe interviews. The researcher then listened and corrected all transcriptions. Each interview was transcribed from the audio recording verbatim, making sure that names of people, specific facilities, or other recognizable details were de-identified. A transcript was emailed to each participant for member checking (Guba, 1981).

Each participant was informed that they could request a follow-up interview, reply to the email with changes or additions, or leave everything as it is recorded within seven days.

All transcripts, notes, and memos were organized and updated frequently throughout the data collection phase. All interview transcripts, observation notes, and memos written during the interview process were read for preliminary themes throughout the interview process. Tentative ideas and observations were recorded and analyzed in memos to help establish a point of saturation (Maxwell, 2013). Using hypothesis coding from the NCTSN (2017) framework and the conceptual framework in addition to inductive analysis of the interviews, quotes from the interview transcripts were coded in ATLAS.ti (version 9.0.7), a qualitative data analysis software. Codes included (a) student behavior, (b) teacher behavior, (c) self-efficacy for trauma-informed care, (d) traumatic stress, (e) relationships, (f) responding to trauma, (g) secondary traumatic stress, (h) learning about trauma, and (i) COVID-19 related trauma. In addition, 26 subcodes allowed for data to be coded in greater detail. Process and analytical memos taken throughout the interviews and coding led to the addition of several subcodes, that were not part of the conceptual framework. For example, based on a memo taken after the first two interviews, a mixed self-efficacy and knowledge of trauma-informed practices code was added in addition to a code for job training source for learning about trauma. To calibrate the codebook, a second researcher with extensive knowledge in the trauma education literature coded a portion of two transcripts (one from the High Cluster and one from the Low Cluster) with the established codebook. After each researcher coded the two transcripts, they met to debrief and suggested changes to the codebook (Guba, 1981). At this point, two codes were collapsed because of high rates of co-occurrence during interrater discussions (i.e., teacher empathy and a trauma-informed learning environment), and three new codes were added. A code for trauma systems outside of

school and an expression of a lack of knowledge were added. A matrix was created to analyze the frequency of codes, look for themes across participants, select exemplary quotes for themes, and take note of counterexamples for themes (Braun & Clarke, 2006; Maxwell, 2013). An iterative process was used to code the eight interviews that included writing memos to record emergent themes and note evidence of saturation. Some codes were observed as having been used only once or twice, but these codes were retained because of their importance to the study (Saldana, 2014). Taking note of counterexamples, debriefing with the second researcher, process memos, and analytical memos were all used to prevent confirmation bias.

Trustworthiness. The design increased trustworthiness by addressing validity threats throughout the design, study, and analysis phases. Credibility was increased by ensuring intensive semi-structured interviews of at least 20 minutes, allowing interviews to go longer as needed, creating verbatim transcripts, taking notes during interviews, and asking participants to member check by requesting feedback about the transcripts (Maxwell, 2013). Through both conversations before the interview and as a part of the interview protocol script, an effort was made to ensure that the pre-service teachers understood the purpose of the interview and that I built trust to elicit authentic stories about their experiences (Holstein & Gubrium, 1995). A second coder allowed for increased data analysis reliability. Purposefully seeking other viewpoints through memos, debriefing with other researchers, and counterexamples in the qualitative data kept the researcher's bias in check as the data was interpreted (Maxwell, 2013). The quantitative data provided triangulated evidence that established trustworthiness and are presented in Chapter IV: Findings. Finally, data were triangulated using thick narratives of multiple pre-service teachers to ensure more than one person supported the conclusions. Although these steps do not eliminate validity threats, awareness minimized their impact on the

conclusions. Returning to questions about how researcher bias and the students' reactivity influenced conclusions helped the continual revision of the design and establishment of appropriate conclusions within the context of this study.

Mixed Methods Data Analysis

During the final phase of this mixed methods study, the qualitative findings were used to explain the quantitative results. Focusing on pre-service teachers who were representative of the homogeneous groups provided a helpful narrative description of the specific experiences affecting trauma knowledge, beliefs, and attitudes. To help synthesize findings, a joint display of the qualitative and quantitative data is presented in Chapter IV: Findings.

Validity

In addition to the validity threats for each separate strand, three validity threats are specific to an explanatory sequential design (Creswell & Plano Clark, 2018). One possible threat is that important quantitative results are not be identified for further study. All possibilities for an explanation and consideration of necessary additional interview questions were be considered during the intermediate phase to minimize this threat. Additionally, the qualitative data collection could fail to explain what is surprising about the quantitative results. To mitigate this threat, care was taken to create interview questions aligned with the specific results found. Finally, if studies of this design do not have a connection between the quantitative results with the qualitative follow-up data, a threat to validity can be created (Creswell & Plano Clark, 2018). To minimize this threat, participants from the clusters created during the quantitative phase were purposefully selected who were able to provide explanations for their experiences in teacher preparation programs that explain differing levels of knowledge, beliefs, and attitudes.

Institutional Review Board Considerations

After gaining the approval of the dissertation committee, the study was approved by the university's Institutional Review Board (IRB; HM20021164). All guidelines set up by the IRB and protocols submitted as a part of this study were followed throughout the study process. Participants responded to an informed consent process for the survey (Appendix F) as well as the follow-up interview (Appendix H). An amendment was submitted to the IRB, and permission was granted to offer a raffle for three $50 gift cards for interview participants because the pre-service teacher response was initially low.

Delimitations

The study was delimited to one university to focus on pre-service teachers within a particular context and a limited number of experiences that influence their understanding of trauma. Additionally, the sample was delimited to students who were enrolled in a teacher education program, which excluded pre-service teachers seeking licensure in some other way. This focus allowed a deeper examination of the particular teacher preparation program components that are salient in shaping the knowledge, beliefs, and attitudes toward trauma. Finally, I chose to delimit the measurement of knowledge beliefs and attitudes to pre-service teachers who have possibly not yet practiced within a classroom. Understanding the knowledge, beliefs, and attitudes of this population is important, yet measuring their practices is not yet possible. Therefore, the ARTIC, a self-report survey, was chosen. It does not show the actual practice of a trauma-supportive lens, but it instead showed a readiness to use such practices in the future (Baker et al., 2016).

Chapter IV: Findings

The purpose of the present study was to examine the trauma-informed knowledge, beliefs, and attitudes of pre-service teachers as well as the experiences and knowledge that helped shape those beliefs and attitudes. Five specific research questions guided the study, with the first guiding the quantitative phase, second, third, and fourth guiding the qualitative research, and then the fifth guiding the mixed methods data integration. The research questions are as follows:

1.   (*Quantitative*): What are pre-service teachers' knowledge, beliefs, and attitudes toward trauma-informed practices, and to what extent do homogeneous clusters of pre-service teachers emerge based on a survey of their knowledge, beliefs, and attitudes about trauma-informed practices?

2.   (*Qualitative*): What personal and school experiences do pre-service teachers perceive to affect their knowledge, beliefs, and attitudes about trauma and its effects?

3.   (*Qualitative*): What personal and school experiences do pre-service teachers perceive to affect their knowledge, beliefs, and attitudes toward trauma-informed practices?

4.   (*Qualitative*): What practices do pre-service teachers think they will use that they perceive to be trauma-informed?

5.   (*Mixed*): In what ways do the interview data reporting views and experiences of pre-service teachers help to explain the quantitative results about knowledge, beliefs, and attitudes toward trauma-informed practices?

Using an explanatory sequential mixed methods design, I collected and analyzed quantitative data and qualitative data separately. First, the quantitative data were collected using

the ARTIC scale of pre-service teacher beliefs and attitudes (Baker et al., 2016) and the knowledge scale (McIntyre et al., 2019). Cluster analysis was used to create groups from the sample. The qualitative phase was then conducted to explain the results of the qualitative phase. Finally, data from both phases were analyzed together to provide the context and explanations for the quantitative results. The following chapter presents the findings from each of the three phases.

Quantitative Results

Preliminary Analysis

Before quantitative analysis was conducted, data were examined for missingness and extreme outliers using Stata (Version 15). A total of 116 participants responded to the survey (approximately a 35% response rate of the 330 enrolled in the courses for which professors were contacted). Forty-four who did not meet the initial criteria were excluded because they were not in a teacher preparation program. Additionally, five more participants were excluded because they only completed the demographic items. The remaining sample ($N = 67$) was then analyzed for missing data and extreme outliers. Missing data was found in one item for each of eight separate participants and appeared to be random. MCAR could not be determined because of the small sample size, so in order to retain the eight participants median imputation was used for the eight missing items. The median for each item was determined and imputed into the missing values. A sensitivity analysis was conducted, where all analyses were run with and without these imputed values to determine the effect on the results (Robins et al., 2000). Imputation using the median for each item did not drastically change any analysis results, so imputation with median was used for all subsequent analyses.

Before beginning the analysis, I reverse-coded several items from the ARTIC as described in Chapter III. Additionally, six new variables were created for the subscales in the ARTIC as well as a composite knowledge score: underlying causes, responses, job behavior, self-efficacy, reactions, and knowledge. The composite knowledge score was created by summing the total number of correct knowledge responses for a score between 0 and 14.

Data Screening

Data was tested prior to the start of subsequent analysis for several assumptions, as discussed in greater detail in Chapter III. All assumptions were met, which was also addressed in Chapter III.

Research Question One

The first research question was about pre-service teachers' knowledge, beliefs, and attitudes toward trauma-informed practices and what clusters that emerged from these measures. Descriptive statistics were run for all items and subscales, and then a cluster analysis was conducted to examine groupings.

Descriptive Analysis. Descriptive statistics were run for the total and subscale scores of the sample ($N = 67$). The sample consisted of males ($n = 12$), females ($n = 54$), and transgender males ($n = 1$) who were enrolled in a teacher preparation program during the spring semester of 2021. The mean composite ARTIC score was 5.27 on a 1 to 7 scale, with a standard deviation of .65. The five subscales and the knowledge scale for mean, standard deviation, skewness, kurtosis, and range are displayed in Table 3. The lowest subscale attitude was teachers' responses to students' behavior ($\bar{x} = 4.97$). The highest subscale category was teachers' attitudes toward self-care ($\bar{x} = 5.50$).

Table 3

Descriptive Statistics for Pre-Service Teachers

	n (percent)
Pre-service teachers	67
Gender	
Male	12 (17.91)
Female	54 (80.60)
Transgender Male	1 (1.49)
Race/Ethnicity	
White, non-Hispanic	38 (56.72)
Black or African American	8 (11.94)
Asian	7 (10.93)
Latinx	10 (14.93)
Indigenous	1 (1.49)
Other/Not listed	3 (4.48)
Age range	
18-20	16 (23.88)
20-22	24 (35.82)
23-30	20 (29.85)
>30	7 (10.45)
Number of education courses completed	
<5	45 (67.16)
6-10	9 (13.43)
10-15	5 (7.46)
15-20	4 (5.97)
>20	4 (5.97)
Number of practica completed	
0	40 (60.61)
1	12 (18.18)
2	10 (15.15)
3	2 (3.03)
>3	2 (3.03)
Program enrollment	
B.S. Early Childhood	7 (10.85)
B.S. Elementary	15 (22.39)
B.S. Secondary Engineering	2 (5.88)
B.S. Special Education	1 (2.94)
M.T.	18 (26.87)
M.Ed. Reading	2 (5.88)
M.Ed. Special Education	7 (10.45)
Teacher Residency	1 (1.49)

Table 4

Descriptive Statistics for Quantitative Measures

	Mean	SD	Skewness	Kurtosis	Range
Knowledge	7.04	3.14	-.27	2.33	0-13
ARTIC composite	5.27	.64	-.76	3.30	3.54-6.28
Underlying behavior causes	5.18	.59	-.24	2.79	3.86-6.29
Teacher behavior	5.26	.87	-.43	2.73	3.00-6.86
Empathy vs. control	4.97	.81	-.59	2.62	3.00-6.43
Secondary trauma and self-care	5.50	.81	-.65	3.23	3.00-6.86
Self-efficacy	5.42	.95	-.88	2.67	3.00-6.57

Note. Knowledge subscale range is 0 (low) to 14 (high). All other subscales are from the ARTIC with a 1 (low) to 7 (high) range.

The knowledge score ($\bar{x}$ = 7.04) was just over 50% correct for the pre-service teachers in this sample, meaning that they knew at least half of the 14 questions about trauma, trauma-informed practices in the classroom, and how school systems can respond to students who have experienced trauma. Questions 1 through 4 of the knowledge measurement were generally about the impact and prevalence of trauma. Questions 5 through 7 were about the connection between trauma and behavior as well as the teacher's response. Trauma-informed practices and principles were the topics of questions 8 through 11. Finally, questions 12 through 14 covered secondary trauma and self-care. Table 5 displays the item scores for the knowledge measurement.

Table 5

Trauma-Informed Knowledge Measurement Means by Question and Topic

Items and Topic Grouping	Question Percent Correct	Topic Percent Correct
Impact and prevalence of trauma		*38*
1. Prevalence	27	
2. Type of trauma	30	
3. Survival brain	64	
4. Brain and chronic stress	30	
Trauma, behavior, and teachers		*75*
5. Causes of behavior	58	
6. School response to trauma	82	
7. Teachers and trauma	84	
Trauma-informed principles		*39*
8. Trauma-informed assumptions	13	
9. Trauma-informed principles	25	
10. Trauma-informed principles	57	
11. Trauma-informed principles	61	
Secondary trauma and self-care		*58*
12. Vicarious trauma	49	
13. Vicarious trauma	55	
14. Self-care	69	

Note. Percent correct is from quantitative phase sample of $N = 67$.

As shown by Table 5, the total quantitative sample knew the most about trauma's effect on student behavior and how teachers can respond. They knew the least about the impact and prevalence of trauma and trauma-informed principles.

Cluster Analysis. Profiles were created based on the agglomerative hierarchical cluster analysis using Ward's method. In general, one group had high mean scores for knowledge,

beliefs, and attitudes, while the second group had low mean scores. A bar graph showing the two groups can be seen in Figure 3.

Figure 3

Two Cluster Solution by Ward's Method

Graph by Ward's Method
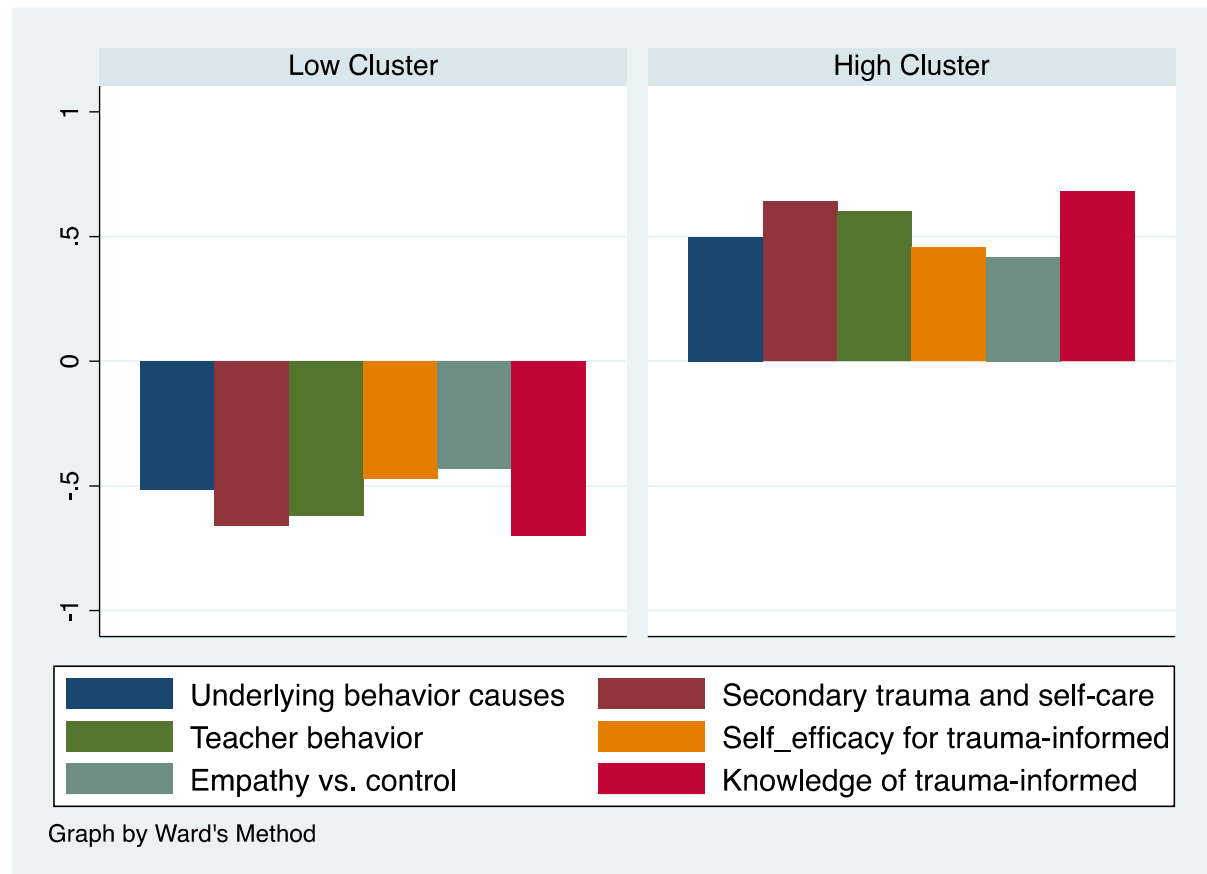
Note. All subscales are based on the standardized means of each group.

Two clusters were determined based on Ward's method. Upon examination of the subscale means, the groups were labeled *Low Knowledge, Beliefs, and Attitudes* (Low Cluster; $n = 33$) and *High Knowledge, Beliefs, and Attitudes* (High Cluster; $n = 34$). The Low Cluster was labeled low because the means of each of the subscales were low in relation to the High Cluster. It

should be noted that the Low Cluster participants reported medium to high mean ranges for all subscales.

The groups were then compared for differences in educator preparation programs, courses completed, ethnicity, and gender. The groups were similar in all areas except that the High Cluster had slightly more practicum experiences than the Low Cluster. Table 6 displays the descriptive statistics for each of the two clusters. Table 7 describes the groups from the final solution with the proportion of the sample in each cluster, program enrollment percentages, mean number of courses completed, the numbers represented of each ethnicity, and the number of each gender represented.

Table 6

Two Cluster Solution Descriptive Statistics

	Low Cluster		High Cluster	
	Mean (*SD*)	Min-Max	Mean (*SD*)	Min-Max
Knowledge	4.85 (*2.27*)	0-9	9.18(*2.17*)	3-13
ARTIC composite	4.83 (*.59*)	3.54-5.66	5.69(*.35*)	5.09-6.29
Underlying behavior causes	4.88 (*.61*)	3.86-6.29	5.48 (*.41*)	4.71-6.43
Teacher behavior	4.68 (*.73*)	3.00-6.00	5.82 (*.59*)	4.57-6.86
Empathy vs. control	4.47 (*.76*)	3.00-5.57	5.45 (*.51*)	4.29-6.43
Secondary trauma and self-care	4.97 (*1.06*)	3.00-6.57	5.85 (*.57*)	3.71-6.43
Self-efficacy	5.15 (*.85*)	3.00-6.57	5.84 (*.61*)	4.14-6.86

Note. Knowledge subscale range is 0 (low) -14 (high). All other subscales are from the ARTIC with a 1 (low) -7 (high) range.

Table 7

Descriptive Statistics for Two Cluster Solution Based on Ward's Method

	Low Cluster	High Cluster
	n (cluster percent)	*n* (cluster percent)
Pre-service teachers	33	34
Gender		
Male	6 (18.18)	6 (17.65)
Female	27 (81.82)	27 (79.41)
Transgender Male	0 (0)	1 (2.94)
Race/Ethnicity		
White, non-Hispanic	18 (54.55)	20 (58.85)
Black or African American	5 (15.15)	3 (8.82)
Asian	6 (18.18)	1 (2.94)
Latinx	3 (9.09)	7 (20.59)
Indigenous	0 (0)	1 (2.94)
Other/Not listed	1 (3.03)	2 (5.88)
Age range		
18-20	8 (24.24)	8 (23.53)
20-22	13 (39.39)	11 (32.25)
23-30	7 (21.21)	13 (39.24)
>30	5 (15.15)	2 (5.88)
Number of education courses completed		
<5	24 (72.73)	21 (61.76)
6-10	2 (6.06)	7 (20.59)
10-15	2 (6.06)	3 (8.83)
15-20	3 (9.09)	1 (2.94)
>20	2 (6.06)	2 (5.88)
Number of practica completed		
0	22 (68.7)	18 (52.94)
1	7 (21.88)	5 (14.71)
2	1 (3.12)	9 (26.47)
3	2 (6.25)	0 (0)
>3	0 (0)	2 (5.88)
Program enrollment		
B.S. Early Childhood	5 (15.15)	2 (5.88)
B.S. Elementary	9 (27.27)	6 (17.65)
B.S. Secondary Engineering	0 (0)	2 (5.88)
B.S. Special Education	0 (0)	1 (2.94)
M.T.	8 (24.24)	10 (29.41)
M.Ed. Reading	0 (0)	2 (5.88)
M.Ed. Special Education	5 (15.15)	2 (5.88)
Teacher Residency	0 (0)	1 (2.94)

Qualitative Results

The following qualitative phase was necessary to examine the experiences and knowledge that pre-service teachers perceived to have shaped their knowledge, beliefs, and attitudes they reported in the quantitative phase. The goal was to obtain information that could explain the results and hear about the personal experiences that helped shape beliefs about trauma and how teachers can respond.

Participants

The final qualitative sample consisted of eight pre-service teachers from the High Cluster ($n = 4$) and the Low Cluster ($n = 4$). Table 8 displays the demographic information for the qualitative sample with the pseudonym by which each is referred to in this study.

Table 8

Demographic Data for Qualitative Sample

Name	Cluster	Gender	Race/Ethnicity	Practica completed	Education courses completed	Program
Mai	low	female	Asian	0	<5	M.T.
Emily	low	female	White, non-Hispanic	0	<5	M.T.
Nicole	low	female	White, non-Hispanic	0	<5	B.S. Early Childhood
Maria	low	female	White, non-Hispanic	0	<5	M.T.
Allison	high	female	White, non-Hispanic	0	<5	B.S. Special Education
Daniela	high	female	Latinx	2	20+	M.T.
Ricardo	high	male	Latinx	0	<5	B.S. Secondary Engineering
John	high	male	White, non-Hispanic	2	10-15	M.Ed. Special Education

Note. All names are pseudonyms.

Despite initially stating that they would participate in a follow-up interview, five pre-service teachers who were contacted did not set up a time for an interview, all of whom were members of the Low Cluster. Because of the low response rate for the Low Cluster, two additional interviews were completed with participants from the High Cluster to check for saturation. The two interviews were transcribed, coded, and analyzed in the same process as the first eight. No new themes or codes emerged, thus determining that saturation had been reached with the first eight interviews. The last two interviews from the High Cluster were not included in the analysis so that the sample was evenly distributed between the two groups.

Taken together, two groups of pre-service teachers emerged based on the quantitative dimensions of knowledge about trauma-informed practices, beliefs about the underlying causes of student behavior, attitudes about teacher behavior, attitudes about empathy-focused responses, self-efficacy, and attitudes about secondary traumatic stress and self-care. The two groups were overall characterized by high or low scores collectively on the scales.

Research Question Two

The second research question for this study was about the personal and school experiences that pre-service teachers perceive to affect their knowledge, beliefs, and attitudes about trauma. While the quantitative data above demonstrates what knowledge, beliefs, and attitudes pre-service teachers have, an integral part of this study was examining the antecedents to these knowledge, beliefs, and attitudes. The qualitative data were examined for themes relating to what experiences, training, or courses they perceive to have led to how they think about trauma.

Theme 1: Coursework. All eight participants in the interviews were enrolled in one of the university's human development, educational psychology, or classroom management courses, and a theme of learning about trauma through teacher preparation coursework was evident. Half of the pre-service teachers reported learning about the causes of trauma, the effects of trauma, the connections between trauma and poverty, how to identify a student who exhibited signs of trauma, and the teacher's role in helping students build resilience.

Beginning with the causes and effects of trauma, only two of the pre-service teachers interviewed discussed learning this in a class. Allison (pseudonym) referenced learning about the effects of fetal alcohol syndrome as well as how "trauma can affect the brain for years later, or even delay how children develop" during the human development course. Emily added that the

human development course helped them understand "what environmental influences have on children, especially at a young age. When it comes to language development, reading all, just those basic skills that you learn early on in school." In addition to these effects of environmental influences, Emily discussed an article they read in human development that linked early puberty to students developing "depression, eating disorders, drug and alcohol abuse, just because they're more likely to be sexualized," which Emily identified as a "form of trauma." Additionally, Allison discussed that in human development she had learned about the generational effects and connections between poverty, crime, and trauma. Allison stated that:

> when [the human development professor] found out another girl and I worked at a Title I school, he made us very much aware that throughout the entire course, we were going to talk about how trauma can affect childhood development, and starting at a very young age, starting even at conception.

Next, several pre-service teachers shared several salient class discussions that helped them learn about the role of the teacher in identifying a student who is exhibiting signs of trauma as well as knowing how to respond to the student. Mai spoke several times about a course she took in high school where one of the assignments was to care for a baby doll for several weeks. She reported that "Classes like that, they cover mental health pretty well, and how to identify people who are exhibiting certain symptoms or a behavioral change and whatnot." The teacher's role in promoting resilience was made clear by one class assignment in an educational psychology course for Emily. She stated that

> I read in [professor's] class, it was actually talking about resilience and it was a different things that helped promote resilience. It was like the seven Cs of resilience … And I think connection and coping were really big ones because coping, for example, you know

if you have something bad happen to you, you can't let that beat you up. You know, being

able to cope as in like finding an outlet, whether that be like doing something to distract

you or doing something like self-care, or connection, like making sure that you have

some kind of support system.

In addition to connection and coping, Ricardo added growth mindsets. He stated,

I think I would need to address those sort of harmful paradigms that not everyone is a

math person, and sort of something that we touched in class [human development], which

is fixed mindsets about intelligence. So I think I would also need to address that so that

way my students feel that their efforts aren't in vain.

Taken together, half of the interviews revealed that course experiences in high school and

college have shaped their views of the causes, effects, and teacher's role for trauma.

Theme 2: Personal Trauma. The interview questions did not explicitly ask about

participant experiences of personal trauma. However, when asked about their experiences and

thoughts about *trauma-informed practices*, six of the eight participants shared their personal

trauma stories. The two who did not share any personal trauma were both in the High Cluster.

Personal traumas included a range from parental divorce, parent mental health disorders, anxiety,

depression, eating disorder, PTSD, the death of a family member, and racial trauma.

School and Trauma. Many of the pre-service teachers' experiences took place while they

were in primary or secondary school, so their stories were connected with models for

understanding the role that teachers can play in responding to students who are experiencing

traumatic stress. For example, Allison reported that her teachers' "positive relationships got me

into knowing how much people can make a difference, especially in that type of setting." One

teacher told her later that the reason she did not remember anything from his class was that he

allowed her to sleep and moved her "desk was right next to his. . .I found out later on in life, it wasn't, it was so they were right there." Her teachers showed her that her well-being was more important than the curriculum and that she was safe at school despite her personal hardships at home. Another story of teachers responding to signs of trauma was when Mai's teachers

> noticed that my grades weren't doing well and whatnot and they kind of figured out what was going on and so they helped me. They helped me out with setting up different deadlines for similar assignments and stuff that way you know I wasn't behind. That something that I can't control wasn't bringing me down.

She stated that the reason her schoolwork was suffering was because of ongoing trauma at home, so this story illustrates the power of teachers to notice the signs and symptoms and respond in a way that left a lasting impact on Mai. Finally, Ricardo shared how his teachers also responded to a personal trauma experience after his grandmother passed away.

> I stepped outside of the classes because I felt this overwhelming sadness … one of my teachers … saw me and, she spoke to me and I remember that a lot, just because I really appreciated it. And she really just leveled with me.

Taken together, these personal stories of trauma show the salient connection between a teacher's influence on a student when going through a traumatic experience. These quotes also demonstrate that pre-service teachers' understanding of trauma often comes from their own experiences of trauma and the role that the school or teachers played in supporting them.

Learning from Trauma. In addition to sharing their experiences and teachers who influenced them, several pre-service teachers made explicit connections from trauma to things they learned as a result. They discussed learning as an adult how to label an experience as trauma, feeling like they gained insights and skills that will help them with their future students,

and the need to work through their own trauma so that they can be in a healthy mindset when working with future students who may be experiencing trauma.

Allison stated that she "didn't really realize it was trauma until I started in my school system" because she was never physically harmed. Several pre-service teachers including Allison, Emily, Nicole, and Ricardo noted that their own experiences will make them more aware of signs that a student may be experiencing trauma and more prepared to speak with and understand their students. For example, Emily stated that,

> I think my own insecurities and my own depression and anxiety, all that sort of stuff kind of makes me have more interpersonal knowledge, … on what to recognize in students if they're having the onset, like red flags of depression or self-harm … I know what they're feeling.

Additionally, Nicole stated that "I feel like I'm prepared to like talk to them about it." She shared that she has often used her art to cope with her trauma and that she thinks "people's traumas can be fueled into their artwork," which will be one benefit of her role as a teacher. Finally, Ricardo stated that "I think it really helped me having that experience just because I feel that it will allow me to understand my students a lot more too … I can level with them." This theme of a personal experience leading to an enhanced understanding and ability to support students who experience trauma was evident in six of the eight interviews.

Theme 3: Classroom Experiences. Three pre-service teachers spoke extensively about their experiences in a classroom setting and working with students as the place where they learned about trauma and its effects on student learning and behavior. The types of knowledge gained included the types of trauma, the types of training offered, the intersectionality of trauma and culture, and building relationships with students who have experienced trauma. The types of

experiences included working at a private school for students with autism, working as an aid in a public-school classroom, a high school class that worked with the Headstart program, babysitting, and summer camp staff. All these experiences offered the pre-service teacher's insight into how trauma affects students.

Some of the types of trauma Allison learned about included witnessing students "who have people come stay with them on a nightly basis. It's new people all the time." John added that he had seen custody battles, food insecurity, and students being placed in foster care. Both Allison and John also talked about witnessing the positive changes that students had in the classroom, including fewer behavior problems and increased happiness. Including parents through communication and meeting parent needs was a salient part of both of their classroom experiences as well. Nicole also added that she has learned how to build "mutual respect" that led to better behavior through her experiences babysitting. Allison focused on the changes in parent communication that have resulted from COVID-19 and virtual instruction. During instructional time, a student typed a racially offensive word into the chat, and she was able to learn from the teachers who responded to the student who typed the word, the students who witnessed and were possibly traumatized by the action, and the parents who possibly witnessed the behavior because of the nature of virtual instruction. This type of learning through modeling in real situations was a common element of several other interviews. Maria shared that in her high school early childhood class

> there were sometimes when something would happen with a kid, and we'd have to like take care of it, and later it'd be explained to me that like this kid has some problems at home and like that's why they acted this way.

Taken together, these experiences working with students were salient learning experiences for pre-service teachers about trauma and its effects on students.

Daniela did not mention a classroom experience despite the two practica completed for the teacher preparation program. Daniela remarked that she did not have experiences that shaped her knowledge about trauma because her "practicum experiences were all affected by COVID so far, so I think it's just like we're on like the baseline, you know, not really getting deep into things".

Research Question Three

The third research question of this study was what personal and school experiences affect pre-service teachers' knowledge, beliefs, and attitudes toward trauma-informed practices? It is similar to the second research question but differs in one important aspect. Being aware of trauma is the first step, but having the skill set to respond using trauma-informed practices is equally important.

Theme 4: Modeling. Like the salient learning place about trauma being classroom experiences that showed the effects of trauma in students, the predominant place for learning how to respond was by having teachers model responses to students experiencing trauma. Five of the pre-service teachers listed experiences of teachers supporting them during trauma, current professors who have modeled how to support students during COVID-19, and even non-examples they have witnessed that help them know what they do and do not want to do in their future classrooms.

When going through a difficult situation, Allison, Daniela, Mai, and Ricardo all shared specific strategies that their teachers used that helped them. Allison's teacher knew that she was "either exhausted, hungry, and you just needed to sleep," so he often allowed sleeping or time to

do something else during his class. He also moved her desk next to his, stating that he did things

that "helped you get through the day." Allison stated, "I understand how important those

relationships are, because they saved me." Daniela also remembers an elementary school teacher

who supported her by keeping in touch with her mom and being involved in her life. Mai added

that teachers changing assignment deadlines after they noticed a change in her academic

performance was an example of teachers responding to trauma in a way that helped comfort and

support. Ricardo shared a specific memory when a teacher noticed him in the hallway and spoke

to him. He noted that his teachers "treated us with respect," which is what made the biggest

impact on him. This type of modeling trauma-informed practices was all done prior to entering a

teacher preparation program, but pre-service teachers noted the impact, and Allison noted that

"most teachers strive to make that difference because someone did it for them."

Trauma-informed practices are also learned through college courses and through the

professors who focus on building relationships. The experience of COVID-19 has caused many

students to experience traumatic stress, and Mai noted that "I feel like I've witnessed it from all

my teachers and professors that they're willing - they understand COVID's happening - and

they're willing to work with you." Maria added to this by explaining that changes professors

have made to build relationships has had a positive impact and she could see how it would make

students more willing to share emotions with teachers. Maria stated that professors are

> talking to students about like how they're doing… I have a lot of teachers who spend a lot
>
> of time at the beginning of class especially since COVID just talking to students about
>
> how their week's been and what their highs and lows are… I think that's a really good
>
> way to open up a class… And then, kids are a lot more comfortable to bring things up
>
> when you make emotions a normal topic.

Noticing changes in student achievement, offering space to listen to students, and balancing class learning objectives with relationships are all important components of trauma-informed practices that these students have learned by watching them modeled.

Although it was not asked, three students discussed experiences that taught them that re-traumatization and harm could be caused by the teacher. These *non-examples* (i.e., modeling of practices that are not trauma-informed and may retraumatize) are also salient learning experiences that can help students learn what not to do as well as the importance of using positive trauma-informed practices in their future classrooms. For example, Emily shared about her mom's statements that she needed to grow up and her mom putting her "foot down." She stated that her mom's lack of mental health awareness could be something that a teacher could help balance. Additionally, Nicole spoke of trauma that her teachers did not respond to when she wished they had. Finally, Ricardo was volunteering in a classroom when the teacher told the students that they were "unappreciative of the time and effort that these teachers are giving." He stated that this type of language might make the students feel like a burden instead of being supported in whatever issues they are having.

Whether by example or non-example, learning how to respond to a student who has experienced trauma was mostly talked about from seeing it modeled. These pre-service teachers have an urgency in their desire to support students because of what they witnessed.

Theme 5: Noticeable Gap. Despite pre-service teachers having quite a bit of knowledge about trauma, when asked about how to respond to students or what trauma-informed practices they had seen or experienced, four pre-service teachers (i.e., Daniela, Nicole, Maria, and Ricardo) stated that they had never heard or been introduced to trauma-informed practices. A salient theme of expressing concern over their inability to handle problems in the classroom

came up in statements like this from Daniela "I can just imagine it, you know, especially as a first- or second-year teacher, I can imagine just running to a teacher next door because I have no idea what to do." While all the participants were able to answer questions about trauma, many (such as Daniela) struggled to answer how they think they will respond with statements about their learning such as "I feel like it just could be more in depth because of the fact that students are affected every single day by it, and it affects their learning." John added that

> I feel like it's always theoretically talked about and not practically talked about yet. … I think that would be awesome if they could more practically teach it, I don't know if they do, maybe they do, and I just didn't understand it. But I think that would be a cool thing to practically talk about how to do that more.

Adding to the gap between classroom knowledge about trauma and how to respond in practice, Maria stated that "I don't feel super confident about it, but I think the only way that I could is if I had to practice." She wanted to learn healthy boundaries, what resources she could offer students, and what she should say to students who share with her. Nicole also had anxiety around boundaries. The request for knowing what resources to share with students was echoed by Ricardo.

This explicit admittance of not knowing what trauma-informed practices are and requesting more training and understanding was clear in about half the sample. Additionally, many of these pre-service teachers made the connection from their lack of knowledge and experiences with trauma-informed practices to low self-efficacy for supporting students and a desire to learn more in the future. They expressed a lack of confidence that they will be able to handle the demands of meeting the needs of students who have experienced trauma.

Research Question Four

Finally, the last qualitative question asked what practices pre-service teachers think they will use that they perceive to be trauma-informed? Four themes emerged from the data. Pre-service teachers had clear ideas about strategies that would help them be trauma-informed, connections between culturally responsive teaching and trauma, the importance of self-care, and the effects of COVID-19.

Theme 6: Classroom Strategies.

Pre-service teachers had some general and specific ways that they predicted applying trauma-informed practices in their future classrooms. The strategies they identified as trauma-informed included relationships, safety, asking why about student behavior, and calming strategies.

Relationships. All eight pre-service teachers stressed the importance of empathy and building relationships with students even if they were unable to identify these strategies as *trauma-informed*. Several had positive comments about the teacher's overall role within the classroom that support trauma-informed, such as Ricardo sharing why he would respond to trauma symptoms he saw in students.

> If the problem is significant enough, I think it's necessary to address it, because… a lot of teachers feel pressure to meet these standards, but I think at the same time we also have to ensure the care of our students, their mental health, and stuff like that. So, I think that needs to be addressed first and foremost, because otherwise, they won't be able to focus in class and, again, I want to ensure that they get the best care.

All eight pre-service teachers were able to identify the importance of relationships with students as a way to support students who may have experienced trauma. Allison stated that her "biggest focal point is relationships," and Daniela stated that "focusing on my relationships with my

students probably going to be like my first thing in the classroom." Common words used to describe these relationships in many of the interviews included *encouragement*, *trust*, *talking*, *support, connecting*, *caring*, *respect*, and *comfort*. Specifically, Maria stated that she wanted to be "more than just somebody who grades their work. Being a support system and somebody that they feel like they can lean on."

In addition to relationships with students, all eight pre-service teachers were able to identify that establishing positive relationships with parents, families, and caretakers can promote resilience in students who have experienced trauma. Communication and trust were both important parts of how pre-service teachers thought these relationships would be built. However, the reasons for the importance of these relationships did not all include trauma. For example, Ricardo stated that he would "get in contact with the parents and guardians to see what I can do to make sure that their student meets the standards." And Mai stated that parent communication is important so that "the kid is obligated to kind of do what they were supposed to do, because then the teacher knows what parents know."

Safety. Interestingly, three pre-service teachers added the word *safety* to their descriptions of positive and supportive relationships. Allison stated that "making children feel safe at least eight hours a day, five days a week can make a huge difference," while Emily noted that students who do not feel safe will not want to come to school or will not feel comfortable with the teacher and their peers.

Asking Why. Another common way that the pre-service teachers described their future classroom environments is that they will ask about the cause of student behavior and be responsible for adjusting instruction and consequences accordingly. If a student does not turn in homework, Emily noted that instead of immediately providing consequences or accusing a

student of being lazy, she would ask, "Why don't you do your homework? Or, you know, why aren't you coming in for help? Why do you not ask questions? I want to find out the reasoning behind it." In a similar way, John stated that "if you see students that are down, you know, make sure to reach out and just say, what's going on? … best case scenario they just say 'Nothing. I'm good to go.' But you never know with that group." Ricardo also noted that the student might be going through something that requires attention, and blaming the student is not the best way to support them. Finally, Allison also had a similar philosophy about student behavior, saying that

> instead of immediately going to judge and fix the behavior, I'm going to stop and go, Whoa, what's going on at home that I'm not aware of? It could be as simple as that childhood eat since lunch yesterday. And I think it's definitely gonna be, I'm gonna stop before I react.

Five pre-service teachers recognized that behavior could be a symptom of trauma experienced by a child and a way of communicating a need for a child.

Calming Strategies. While the practices listed so far were broad and general, some strategies discussed were concrete and showed great insight into supporting students who have experienced trauma. For example, Allison discussed using the *54321 Strategy* to help calm students and utilizing student placement in the classroom to support students. Daniela said that she wanted to have a space in the classroom for students to calm down when they needed a break. Ricardo and Daniela recognized the importance of incorporating movement into lessons. Several discussed the importance of knowing when and how to make referrals to the school counselor, outside resources, or other teachers.

Theme 7: Culturally Responsive Teaching. Every pre-service teacher was able to speak about the importance of culturally responsive teaching. Although two pre-service teachers

described not knowing the term, everyone had some experience that illustrated an understanding of the teacher's important role of being culturally responsive. For example, Ricardo shared about being the only Latino in his class and feeling discouraged because of this. He has used this experience to plan for his future classroom, saying that

> I understand that it's no easy task, but I think just based on like my own experience, but then also the experience of peers that sometimes may have also had experiences where their cultural needs may have been neglected, I kind of want to address them in a respectful manner.

He plans to do this by helping them see ways they are represented and making them feel a part of the math community. Others such as Allison, Mai, and Daniela described the importance and responsibility that the teacher has to welcome all cultures and individual student needs through the teacher's actions and planning.

Allison and Daniela, who have both had experience in classrooms, were able to connect the need for culturally responsive teaching toward specific actions that a teacher could take. Daniela said she would start by "staying up to date with social issues and doing my own research." Allison made the particular connection from culturally responsive teaching to being trauma-informed through discussing the materials a teacher chooses to use. As an example, she gave, "If I were to read *It happened on mulberry street*, and it has those racial stereotypes - well, can that bring trauma back to a situation that my children had gone through." Nicole also made the connection to materials and assignments given by a teacher, saying that she would adapt assignments and guidelines to help students work on art that may be specific to a culture or that a student feels connected to.

Several pre-service teachers also noted the overlap between trauma-informed practices and culturally responsive teaching by saying that "maybe in some cultures, some things wouldn't seem trauma traumatic, and for the culture that we live in here it is. Or the other way around." Ricardo noted that some cultures have stigmas or neglect mental health, so the teacher would need to be sensitive when working with the student. Allison noted that students could do things that are culturally inappropriate, so how the teacher handles it can make a difference for the rest of the class who are watching. Similarly, Mai described that helping students form cohesive groups and work together could help students who may be struggling.

While all were able to speak to the connection, it is worth noting that four pre-service teachers stated that they did not know what culturally responsive teaching was (two from the High Cluster and two from the Low Cluster). Additionally, John stated that while "every course that I think I've taken they've gone over different cultures," there seems to be a lack of practical application as to what that means he should do in the classroom. He stated that "there's no real like playbook you know for that." Additionally, Maria stated that she also has some concerns about how to put this into practice. She stated that

> I think it may be hard for me to understand some students' trauma, and upbringing, but with practice, I will be better at, because I've been like in a very affluent area my whole life … just gonna be a learning curve, I think, relating to a whole different set of people, but I'm gonna have to do the extra research to make up the difference.

However, despite these particular concerns, the connections pre-service teachers made between culturally responsive teaching were overall both broad and specific.

Theme 8: Self-Care. Five of the pre-service teachers explicitly stated that they had not heard the term *secondary traumatic stress*. However, all were able to discuss self-care in general,

and the two who had some classroom experience through practica or jobs were able to provide examples about how secondary traumatic stress can affect teachers. Allison attributed the stress of working with students leading her to cry in her car or turning her camera off. She stated that "trauma isn't always your own personal experiences." John shared how he had seen teachers worn down by the behaviors and problems of students in the classroom.

Because one does not have to know the term *secondary traumatic stress* to understand why self-care is important, seven of the eight were able to list ways that they intended to practice self-care as a teacher. Mai talked about sleeping, eating, and taking care of herself. Allison and Daniela listed several strategies they have used, including turning the camera off, spending focused time with family, talking to a friend, communicating with co-workers when something difficult happens, dancing, or hobbies. Importantly, over half the participants listed personal therapy as something they may incorporate as a part of their self-care.

However, some pre-service teachers introduced some hesitancy around the concept of self-care. For example, Daniela responded with confusion, stating that although "teachers and professors always say self-care is so important," they do not often follow that up with any practical support for incorporating it into their routine or class. Additionally, Maria stated that self-care is easier to know than to "actually practice" on a regular basis.

Theme 9: COVID-19 and Trauma. Half of the qualitative sample discussed the mental health challenges related to social isolation in the effort to stop the spread of COVID-19. For example, Ricardo, Allison, Emily, and Mai discussed the probable rise in depression and anxiety among students in addition to the increased demands that have been placed on students in virtual learning environments. The possible lack of food, connectivity, and inequitable distribution of resources was noticed by the two participants who are currently in classrooms. For example,

John stated that he has "a couple students that just don't have access, due to, you know their home life or whatnot. Maybe they'll have somebody to watch over them throughout the day. They just don't have these opportunities that everyone's given, and it's setting them back."

In answer to how they would support these students who have experienced possible trauma during the pandemic, the most salient responses centered around building opportunities for students to build relationships, team building, and communicating with parents. Ricardo also discussed movement and engaging topics as ways to support students after the pandemic. Mai mentioned that the ways that her professors have modeled being "willing to work with you" has set an example for how she may respond to students next year. Although Nicole acknowledged that finding ways to connect with students may be more difficult moving forward, she said that she has plans to "allow students to talk and making groups for art critiques." She saw this as a positive way to build social skills, allow conversations, and connect with individual students to support them.

However, not all responses were positive. For example, Daniela responded, "I'm not too sure how I'll be able to support them as I will, too, be trying to like figure it out." The impact of COVID-19 on the practicum experiences and the general unknown information about how to support students after this concerned her. Personal concerns like not knowing how to teach in person after so long learning through Zoom resonated with Maria as well.

Mixed Methods Findings

Research Question Five

The final research question was included in this study to help analyze the ways that the qualitative data provided context and explain the quantitative data. It asks, in what ways do the interview data reporting views of pre-service teachers help to explain the quantitative results

about knowledge, beliefs, and attitudes toward trauma-informed practices? While the purpose of the clusters from the quantitative phase was to make ensure equal representation of types of knowledge, beliefs, and attitudes toward trauma, it is also interesting to note that most themes were equally created by both High and Low Cluster participants. There were a few exceptions where there was a difference in the High or Low Cluster participant creation of a theme. However, the remaining seven themes were about equally supported by both groups. Table 9 displays the cluster means for each dimension of the quantitative data, along with an example quote from the High and Low Clusters for each section. This table shows how the High and Low Clusters differed on the quantitative and qualitative data as well as how the quantitative data can be further explained using the qualitative interviews.

Table 9

Mixed Findings of Quantitative ARTIC and Knowledge with Qualitative Interview Exemplar Quotes

Subscale	High Cluster		Low Cluster	
	Mean (SD)	Exemplary Quote	Mean (SD)	Exemplary Quote
Knowledge about trauma and trauma-informed practices	9.18 (2.17)	"I'm currently in human development with Dr. M. And a couple weeks ago, when we first started discussing the development, … how trauma can affect childhood development, and starting at a very young age, starting even at conception, you know, fetal alcohol syndrome, things like that." (Allison)	4.85 (2.37)	"I think trauma means something abrupt and too hard to handle happens to somebody and they can't process it in the correct way because they don't have the tools to. And that happens a lot with younger kids often trauma happens within a family unit, so it's hard to seek help within that unit. Often times it's on the school to help the kid in some way and identify that." (Maria)
Behavior and symptoms as adaptations and malleable versus intentional and fixed.	5.48 (.41)	"Then, of course I will reach out to [parents], make sure that, and then also not in a way that places blame on the student, but more so that perhaps their child is going through some things that, that the child needs, needs attention. … and of course, to handle that with care. Just because some students are..., I guess just in general, people that we don't cope the same, so it's unreasonable to expect students to hold that standard of coping…" (Ricardo)	4.89 (.61)	"Students who won't be completely fully invested in the topic that they're learning, who just have to take the course there'll be students who will be turning in their work late, there will be students who are on top of their stuff." (Mai)

(Table 9 cont.)

Subscale	High Cluster		Low Cluster	
	Mean (*SD*)	Exemplary Quote	Mean (*SD*)	Exemplary Quote
Relationships and flexibility to change behavior versus rules and accountability	5.82 (*.59*)	"If the child is going through hard time and you know they got a divorce just telling them what the student is going through in the classroom. probably fixing or not fixing but like changing assignments or due dates and stuff like that just being more flexible and caring overall." (Daniela)	4.68 (*.73*)	"I think you shouldn't have to adjust your curriculum on the types of students you have, I think it shouldn't really matter, you should. It shouldn't make a difference like your curriculum should be strong enough, where no matter who's in your class, everyone's understanding it the same way, and nobody's getting singled out or anything like that." (Maria)
Empathy vs. control-focused	5.45 (*.51*)	"You have no idea exactly what everybody is going through, so finding all that stuff out, and then going into the classroom and realizing not everyone's going to learn the same way. It's a big step. I feel like grew self-awareness as the teacher. I think it's hard because, you know, if the teacher has a certain set way of doing things, and that's what they want, when a student comes in that isn't willing to conform necessarily due to outside factors that can lead to more of a power struggle than what it needs to be. When it could easily open up a new outlet for the teacher on how to teach." (John)	4.47 (*.76*)	"I need more resources in order to, like I don't have the capability to reach them on that internal level to see what's going on in their head as to why they're behaving this way, if they're distracted, they're disrupting the class or whatever is going on." (Emily)

(Table 9 cont.)

Subscale	High Cluster		Low Cluster	
	Mean (*SD*)	Exemplary Quote	Mean (*SD*)	Exemplary Quote
Endorses feeling able to meet the demands of working with a traumatized population versus unable to meet demands	5.85 (*.57*)	"So part of me wants to say that I feel adequately prepared but at the same time, there's a sort of humility to that, I want to make sure that that I reach out to fellow teachers as well for guidance as well as other resources available online, just to make sure I'm giving them the best care, my students the best gear I can." (Ricardo)	4.97) (*1.06*)	"I'm like I'm kind of nervous about I like want to show them that like, they can get it out. You know in a healthy way. I'm not exactly sure like how to, because you know you don't wanna like overstep boundaries, with trauma but like, I know. I'm not sure." (Nicole)
Secondary trauma/vicarious traumatization and coping by seeking support versus minimizing the effects	5.84 (*.61*)	"just letting people know what's going on. Communicating, talking. … just having a support system, not even at school, but at home as well. You know, do you have a friend you can talk to? find a hobby. I dance in my room, I do crafts, … It helps with my mental health." (Allison)	5.15 (*.85*)	"I think it's really important to not like let everything like bog you down. You know like you should be worried and like proactive with your students, but like you can't let every single one of their issues just like cloud you because then you're just gonna not be able to be helpful, you can be like a bad teacher, you're just kind of like be bogged like stressed out." (Nicole)

Note. Knowledge Measure range is 0-14. All other subscales are from the ARTIC with a 1-7 range. Means and standard deviations are from the High cluster (*n* = 36) and the Low Cluster (*n* = 37). Exemplary quotes are from the High Cluster (*n* = 4) and the Low Cluster (*n* = 4).

High Cluster Trends. The group that scored high on average for knowledge, beliefs, and attitudes had several commonalities. The four members of the High Cluster offered experiences from courses, working in summer camps, and working in classrooms. They drew from these experiences often simultaneously when answering questions about their knowledge and beliefs about trauma-informed practices. They had some explicit ideas about how they will put these practices into their future classrooms.

Low Cluster Trends. The five respondents who initially stated they would be willing to participate in an interview but did not follow up to schedule a time were in the lowest group according to hierarchical cluster analysis using average linkage for knowledge, beliefs, and attitudes toward trauma-informed practices. The four members of the Low Cluster who participated in interviews were, on average, closer to the high trauma-informed Likert scale score of 7 than they were to 0 (low). Their responses in the interviews show a similar trend. They often had many insights about knowledge and specific practices that they believed were trauma-informed. However, none of the pre-service teachers in this group had any practicum experiences to draw from in their responses. They, instead, had experiences from high school, how their teachers had modeled, or from babysitting. There were only a few responses mixed in that were coded as control-focused teacher behaviors ($n = 3$) or views of student behavior as fixed ($n = 5$). However, all of these codes were in interviews from the Low Cluster.

General Mixed Trends. Pre-service teachers from the High Cluster described several more classroom strategies in Theme 6 than the Low Cluster. For example, no pre-service teachers from the Low Cluster described calming strategies they would use with their students, and only one Low Cluster participant was able to name student relationships, parent relationships, or safety as related to supporting students who have experienced trauma.

Additionally, the two participants who did not speak about their own personal trauma for the second theme were both from the High Cluster. Explaining the medium range quantitative data with the qualitative data is especially enlightening for those who used their own stories to explain their knowledge, beliefs, and attitudes of trauma. Learning from personal trauma is not the same as learning about trauma-informed principles or understanding the prevalence of trauma.

Of the 37 quotations coded for stating a lack of knowledge or desire to learn more about trauma-informed practices, 20 were from the Low Cluster, and 17 were from the High Cluster, showing that perceiving a need for more training is not correlated with the knowledge measurement, which was high or low by the two groups. The average knowledge score was 7.04 out of a possible 14 points for the full sample. Pre-service teachers in both the High and Low Clusters expressed not having experiences that would have taught them about secondary traumatic stress ($n = 13$), how to identify students who are experiencing traumatic stress ($n = 6$), and culturally responsive teaching ($n = 2$). These expressions of desiring more knowledge were also not correlated with the number of courses taken.

The knowledge measurement included three questions asking pre-service teachers to connect trauma to emotional and behavioral problems in students as well as identify how and why teachers can be a part of the response. These three questions had the highest percentage correct for the knowledge measurement. The interviews revealed that this group of pre-service teachers had personal experiences, classroom experiences, and course experiences that helped them understand this connection. Interestingly, the most missed questions (i.e., 13% and 25% of the total sample answered correctly) asked specifically about the trauma-informed approach components. Similarly, only Allison was able to identify explicit trauma-informed training as a

part of her experiences thus far. The other seven had gained knowledge about trauma through their own life experiences, courses that included trauma as only one small component, or through classroom practica.

Conclusion

Taken together, these quantitative data demonstrate that pre-service teachers in this sample have mostly positive attitudes and beliefs as well as some knowledge about trauma-informed practices. The qualitative data explain that pre-service teachers from both the High and Low Clusters gained their attitudes and beliefs about trauma through their own traumatic experiences, courses that included sections about trauma, and witnessing the effects of trauma during in-classroom K-12 experiences. The qualitative data also explained that pre-service teachers from both the High and Low Clusters gained their attitudes and beliefs about responding to trauma by watching how other teachers responded. Most importantly, pre-service teachers from both groups discussed the need for further training in responding and supporting students who have experienced trauma. Many of the pre-service teachers were able to list relationships with students and parents, the importance of understanding the reasons behind a child's behavior, safety within the classroom, and culturally responsive teaching to support students. However, not all pre-service teachers in the qualitative sample felt equally confident or had an accurate understanding of what trauma-informed practices should look like in the classroom. Chapter V: Discussion considers each of these themes in light of the literature.

Chapter V: Discussion

The purpose of the present study was to examine the trauma-informed knowledge, beliefs, and attitudes of pre-service teachers as well as the experiences and knowledge that helped shape those beliefs and attitudes.

Using the ARTIC scale of pre-service teacher beliefs and attitudes (Baker et al., 2016) and the knowledge scale of trauma-informed practices (McIntyre et al., 2019), pre-service teachers' knowledge, beliefs, and attitudes were analyzed, and participants were grouped through cluster analysis. The qualitative phase was then conducted based on the High and Low Clusters. Finally, data from both phases were analyzed together to show the context and analysis for the quantitative results.

The following chapter is divided into six major sections: (a) the results and interpretation of the quantitative phase, (b) the findings and interpretation of the qualitative phase, (c) the findings and interpretations of the mixed methods phase, (d) the implications, (e) the limitations and future directions, and (f) a brief conclusion.

Summary of Quantitative Results

During the first phase of the study, descriptive statistics were run for the pre-service teachers ($N = 67$) using data from the knowledge scale (McIntyre et al., 2019) and the five ARTIC subscales (i.e., underlying behavior causes, teacher behavior, empathy versus control, secondary trauma and self-care, and self-efficacy; Baker et al., 2016). The purpose was to examine pre-service teachers' knowledge, beliefs, and attitudes about trauma-informed practices as well as to discover if clusters emerged to generalize the ways that pre-service teachers viewed trauma. Generally, the pre-service teachers had positive beliefs and attitudes about trauma-informed practices, with attitudes toward self-care being the highest. Likewise, the knowledge

score was just over 50% correct, showing that generally, pre-service teachers had some understanding of trauma in schools. Next, a cluster analysis was performed to examine profiles of pre-service teachers using the same quantitative data. The resulting two clusters were described as *Low Knowledge, Beliefs, and Attitudes* ($n = 33$) and *High Knowledge, Beliefs, and Attitudes* ($n = 34$). Each group generally had high scores or generally low scores on all subscales (i.e., knowledge of trauma, causes of behavior, responses to behavior, teacher behavior, self-efficacy for trauma-informed practices, and attitudes toward self-care). The two groups were similar to one another in gender, race/ethnicity, age range, number of education courses completed, and program enrollment. However, the High Cluster had completed more practica, meaning that they had more in-classroom experiences.

Interpretation of Results

Adult human social behavior and training transfer research have found that knowledge, positive self-beliefs, and positive attitudes are associated with behavior change and acceptability of new programs (Ajzen, 1991; Baker et al., 2010; Cheng & Hampson, 2008; Sundborg, 2019). Therefore, understanding pre-service teachers' knowledge, beliefs, and attitudes toward trauma-informed practices can help predict their future use of trauma-informed practices in their classrooms upon graduation from the teacher preparation program. In line with the literature, pre-service teachers generally had positive beliefs and attitudes toward trauma-informed practices (i.e., above the median of the scale; Stipp, 2019). There was enough variability in the composite score to support the examination of subscales in more detail. Additionally, several pre-service teachers reported above the median and several below, showing that individual pre-service teachers had varying beliefs and attitudes toward trauma-informed practices and that examining the particular beliefs and attitudes would be meaningful.

The individual subscale scores were examined for means and variation in pre-service teacher (a) attitude toward the underlying causes for student behavior and symptoms, (b) attitude toward responses to problem behavior and symptoms, (c) attitude toward teacher behavior and role in the classroom, (d) teacher self-efficacy for meeting the needs of students, and (e) attitude toward reactions to the work including self-care. In line with the standards that pre-service teachers are required to learn about the effects of trauma, the pre-service teachers in this sample showed a high attitude toward the underlying causes for problem behavior (Virginia Register, 2018, 8VAC20-543-90). SAMHSA's (2014) first trauma-informed framework tenet is that to respond to trauma, people need to recognize the impact and possible recovery from trauma. The pre-service teacher response in the attitude subcategory is heartening as the full sample average shows a positive attitude toward understanding that problem behaviors in their future classrooms could be caused by trauma. It is also supported by the high mean score on the knowledge subcategory pertaining to trauma, behavior, and how teachers can respond.

However, pre-service teachers reported a less favorable attitude toward responding to problem behavior and on the job behavior. This could be symptomatic of the extant trauma-informed literature that reports teachers often do not know what to do with their knowledge about trauma (Anderson et al., 2015; Blitz & Mulcahy, 2017; Blitz et al., 2016, 2020). However, the pre-service teachers in this sample reported low knowledge about the impact and prevalence of trauma and trauma-informed principles. It could be that they have not had enough exposure to the prevalence and consequences of trauma or the trauma-informed principles to develop a positive attitude. According to Bandura's (2000) Social Cognitive Theory, the environmental, behavioral, and personal factors work together in a reciprocal relationship. In other words, the cognitive factors may not be enough to shape pre-service teacher attitudes toward using trauma-

informed practices. Several studies have called for the inclusion of trauma-informed practices in pre-service teacher courses and early career training (Opiola et al., 2020; Stipp, 2019). Relatedly, SAMHSA (2014) is clear in the second, third, and fourth tenets of trauma-informed practices that knowledge about trauma is not enough. Several studies have emphasized the positive impact of practical training in addition to understanding the impact of trauma (Anderson et al., 2015; Baweja et al., 2016; Wall, 2020; Stipp, 2019). Taken together, the current study and prior research suggest that specific trauma-informed practices should be introduced to teachers earlier and often. This early introduction may help close the "gap between teachers' desire to learn and implement SEL strategies and their training to do so" (Stipp, 2019, p. 215).

Contrary to previous research, self-efficacy for meeting students' needs and attitudes toward self-care had a medium to high attitude range despite the relatively low knowledge scores (Zimmermann et al., 2012). It could be that pre-service teachers do not yet have enough experience to self-report their self-efficacy and feelings about seeking help; however, the variability within each of these subscales on the individual items supported a further investigation into which specific aspects of self-efficacy and self-care elicited positive or negative beliefs and attitudes. The qualitative interviews were helpful in providing context for these findings and are discussed in the mixed methods findings. These findings demonstrate that perhaps the pre-service teacher population does not have enough experience for their beliefs and attitudes to be fully formed about self-care or self-efficacy.

Summary of Qualitative Findings

A group of pre-service teachers ($n = 8$) was purposefully selected from the two clusters that emerged from the first phase to answer research questions 2 through 4. From coding these eight interviews, several themes emerged to explain the formation of knowledge, beliefs, and

attitudes around trauma and teacher responses to trauma. These themes included: coursework, personal trauma, classroom experiences, modeling, a noticeable gap, classroom strategies, culturally responsive teaching, self-care, and COVID-19.

Interpretation of Qualitative Findings

Theme 1: Coursework. Half of the interviews revealed that pre-service teachers learned about the causes of trauma, effects of trauma, and teacher's role in responding to trauma through high school and college coursework. Trauma was infused into the conversations and course materials as students learned about language development, child development, resilience, mental health, and growth mindset. The first two of SAMHSA's (2014) assumptions of trauma-informed practices stated that the organization "realizes the widespread impact of trauma and understands potential paths for recovery" (p. 9). In line with the curriculum that pre-service teachers are required to learn about the effects of trauma, the pre-service teachers in this sample discussed learning about trauma through their coursework in human development, classroom management, and educational psychology (Virginia Register, 2018, 8VAC20-543-90). SAMHSA's first trauma-informed framework tenet is that to respond to trauma, people need to realize the impact and possible recovery from trauma. Many studies have expressed the need for quality professional development to educate school staff with information about the impact trauma can have on learning (Anderson et al., 2015; Blitz & Mulcahy, 2017; Broussard et al., 2019; Christian-Brand et al., 2020; Dorado et al., 2016; Matlin et al., 2019; McIntyre et al., 2019; Post, Grybush, Elmandani et al., 2020; Rishel et al., 2019; von der Embse et al., 2018; Wall, 2020). However, all these studies are with in-service teachers. To date, only two studies have demonstrated that pre-service teachers can learn about trauma through college coursework (Miller & Flint-Stipp, 2019; Stipp, 2019). Also, unlike Bixler-Funk (2018), many of the pre-

service teachers in this sample felt somewhat prepared to understand trauma and its effects. The present study extends the current literature by examining the salient classroom experiences that influenced pre-service teachers' understanding of trauma. Pre-service teachers can explain the prevalence and impact of trauma as a result of high school and college coursework. Unfortunately, four of the eight pre-service teachers in this sample were not able to do so, which shows that there is still some room for continued course content refinement.

Theme 2: Personal Trauma. About 66% of university students have experienced at least one traumatic event (Read et al., 2011). In line with this high prevalence of trauma on college campuses, it is unsurprising that six of the eight pre-service teachers shared their personal traumatic experiences in answering how they learned about identifying trauma, the effects of trauma, and the ways to support students who have been through trauma. However, it was not expected that pre-service teachers would share their stories as a part of the interview where personal trauma was not a question asked. While it was hypothesized that pre-service teachers could learn about trauma from personal experiences, it was surprising that so many would associate their understanding of trauma with their own experiences of trauma.

This surprising finding could have several possible causes. According to the research by Bethell and colleagues (2019), positive childhood experiences show a dose-response association with mental and relational health in adulthood. In other words, even if a child experiences multiple adverse childhood experiences, positive experiences such as relationships, being able to talk to family, and a sense of belonging in school could reduce adult mental and relational problems. Not only did the pre-service teachers share their stories of trauma, but they also shared the ways that teachers were able to offer a supportive environment. Positive support by former teachers included creating new deadlines for work, allowing a student to sleep, supporting

emotions with art, and listening to students' problems. It is possible that the pre-service teachers in this sample see the positive effects of relationships from their own experiences, and they are now choosing to be a part of the solution for future students by becoming teachers. This is supported by the four pre-service teachers who said that their trauma experiences would make them more aware of signs and prepared to speak with students as well as the generally positive attitudes despite the apparent lack of knowledge about trauma-informed practices.

The second possible cause is that those who have experienced trauma are more likely to be interested in participating in a study about trauma. For example, in a study of medical students, those who were willing to assess their own ACE scores were more likely to endorse and understand trauma-informed practices (Strait & Bolman, 2016). In the present study, there were several opportunities for participants to choose to respond resulting from the mixed methods study design (i.e., quantitative response, marking that they were willing to participate in a follow -interview, and responding to the interview invitation). It is possible that those who took both the quantitative and then responded to a request for an interview were more personally invested in the topic of trauma. They had some knowledge and positive attitudes toward the topic. Supporting this possibility is the lack of interview participation from the lowest knowledge, beliefs, and attitudes group of pre-service teachers who originally said they were willing to participate in an interview but ultimately did not respond. However, the ranges of knowledge, beliefs, and attitudes of those who responded were similar to the overall quantitative sample. Additionally, the range of knowledge, beliefs, and attitudes was substantial for all participants. Finally, the two who did not offer their personal stories were from the High Cluster. Taken together, this possibility of response bias does not seem likely. It may be some combination of these possibilities, but personal stories of trauma were inextricably linked with

understanding trauma for this sample. Unlike other teaching topics covered in the interview, such as relationships with families, the topic of trauma could not be discussed without sharing the personal connection for the majority of this sample.

Theme 3: Classroom Experiences. Pre-service teachers who had experience in classrooms, including current work or practicum experiences, were able to explain their knowledge, beliefs, and attitudes about trauma-informed practices through their classroom experiences. They shared experiences of watching teachers respond to student behaviors. In fact, all four pre-service teachers in the High Cluster who were interviewed had experiences in the classroom, even if they were not formal university practica. They drew from their interactions with students to demonstrate the ways they believed trauma-affected students to include behavior, mood, and academics. Witnessing problem behaviors as a catalyst for wanting to learn trauma-informed practices is similar to the literature reviewed in Chapter II. In the literature reviewed, schools or systems began implementing a trauma-informed intervention as a result of needing a solution to students' negative behaviors. In these studies, the teachers' increased trauma-awareness led them to interpret problem behaviors as an effect of prior experiences (Baweja et al., 2016; Dorado et al., 2016; Opiola et al., 2020), which changed their responses to students (Wall, 2020).

The present study supports the literature in that the pre-service teachers who had experience in the classrooms where they saw problem behaviors were able to identify the need the value of using trauma-informed practices. It also extends our understanding of how practicum experiences may be a valuable place to discuss trauma and teacher responses purposefully. Similar to the work of Stipp (2019), who integrated the SEL and trauma course knowledge with a practicum experience for pre-service teachers, the interviews with the teachers

in the present study demonstrate the value of the in-classroom experiences for connecting real in-classroom discipline practices with trauma-informed knowledge. Those without practicum experiences were able to know about trauma from their own personal experiences, but they lacked the understanding of how to identify a student who had experienced trauma or how it may affect their daily life as a teacher. The quality of the practicum experience matters as well, as shown by the one participant who had virtual in-classroom practicum experiences, but because of the changes resulting from COVID, she had not been in person with students.

Theme 4: Modeling. In a similar manner of how pre-service teachers learned about trauma and its impact on students, the most salient place they credited learning about how to respond to students experiencing traumatic stress was through watching other teachers model responses. However, in a different way, the modeling often came from their college professors, non-examples of how they witnessed adults causing re-traumatization, or their personal K-12 experiences with teachers responding to their trauma. Interestingly, the literature on how trauma-informed practices are taught to in-service teachers often included in-classroom coaching as a component of professional development. Interventions used liaisons, specialists, and social workers to support, provide feedback, or model trauma-informed practices in the teachers' classrooms (Broussard et al., 2019; Dorado et al., 2016; Rishel et al., 2019; Ijadi-Maghsoodi et al., 2017; Wall, 2020; Opiola et al., 2015; Post, Grybush, Elmandani et al., 2020). Coaching was shown to help teachers transfer knowledge and skills into their classrooms (Post, Grybush, Elmandani et al., 2020; von der Embse et al., 2018). Social Cognitive Theory explains and extends previous literature and the present study in that vicarious experiences have a positive influence on self-efficacy, which in turn improves the likelihood that a teacher will use trauma-informed practices with students (Bandura, 1986; Usher & Pajares, 2008).

Because trauma affects a student's behavioral, social-emotional, physical, cognitive, and relational development, the response from teachers is equally varied and deep. The effectiveness of particular Tier 1 interventions and practices remain to be studied and remain overwhelming to many (Anderson, 2015). It is quite possible that the modeling these pre-service teachers credited with how they learned trauma-informed responses is similar to the coaching models because of this gap between the large task and the practical application to individual students. Observing the language, actions, and planning may be an important instructional tool not just for in-service teachers but for pre-service teachers as well. The present study demonstrates how a professor labeling an action as trauma-informed within a college course helps pre-service teachers understand how to implement these practices in their future classrooms.

Additionally, the present study extends the literature by adding non-examples as a learning tool for trauma-informed practices. The pre-service teachers in this study were able to reflect on their own personal experiences of teachers being too stern, making students feel like a burden, or not noticing the signs of trauma to verbalize what they thought a teacher's response to trauma should be. Nonexamples provide learners the means to understand the structures of a given definition when used purposefully (Fukawa-Connelly & Newton, 2014). Learning by nonexample has been noted to be a learning tool of pre-service teachers when they were able to leverage the non-examples of pedagogical techniques observed during a fieldwork placement (Dack, 2019). However, it has not been widely explored in the literature, and no study to date has examined how reflecting on witnessing or being the recipient of a teacher causing re-traumatization may, in fact, be a salient teaching tool.

Theme 5: Noticeable Gap. Separate from Themes 1 through 4, the following themes explained how pre-service teachers learned to *respond* to students who have experienced trauma.

When asked about what trauma-informed practices they had seen or experienced, two pre-service teachers from the High Cluster and two pre-service teachers from the Low Cluster stated that they had never heard or been introduced to trauma-informed practices. The mix of High and Low Cluster participants demonstrates the complicated nature of trauma-informed practices within the schools. The mix of high knowledge about trauma and yet lack of knowledge about how to support those students demonstrates that one can know the impact of trauma but remain unsure how to respond to students and support them within the classroom as a part of the trauma-informed system.

Similarly, the literature reviewed in Chapter II demonstrated that there is a lack of clarity in current studies about how Tier 1 practices should be applied and that in-service teachers often have difficulty with figuring out the details of daily practice (Anderson et al., 2015). Even in Thomas and colleagues' (2019) review of trauma-informed practices in schools, they found that in many of the "recommended practices promoted on DOE websites as well as in some of the research literature, authors and advocates were unclear or not explicit in providing evidence that the guidance offered was rooted in an empirical base" (p. 443). Therefore, it is not surprising that the pre-service teachers expressed low self-efficacy and concern over the tasks of responding to students who have experienced trauma. The present study extends the literature by showing that pre-service teachers have these same fears despite not having classroom experience yet. They were able to intuitively know that they lacked practical response knowledge even if they had some understanding of trauma in general.

It is also possible that there are pre-service teachers in the present study who did not express this noticeable gap in their trauma knowledge because they are not able to assess their ability to respond to trauma if they do not yet understand the impact of trauma. Beliefs such as

self-efficacy are connected to knowledge (e.g., trauma's impact) as well as the context (e.g., seeing a student misbehave who has experienced trauma; Pajares, 1992). Studies with in-service often educate school staff with information about the impact trauma can have on learning before teachers are asked to implement trauma-informed practices in their classrooms (Anderson et al., 2015; Blitz & Mulcahy, 2017; Broussard et al., 2019; Christian-Brand et al., 2020; Dorado et al., 2016; Matlin et al., 2019; McIntyre et al., 2019; Post, Grybush, Elmandani et al., 2020; Rishel et al., 2019; von der Embse et al., 2018; Wall, 2020). It may be that explicit trauma, brain, and response training is inadequate or had not yet been a part of these pre-service teachers' studies.

Finally, the explicit statements from half of the pre-service teachers explaining that they have not had exposure to trauma-informed practices could reflect a lack of knowledge from professors about trauma-informed practices and how to integrate them authentically throughout the pre-service teacher courses. Several studies in higher education have observed that trauma and trauma-informed practices need to be integrated throughout all university courses, not just the teacher-preparation courses (Carello & Butler, 2014; Courtois & Gold, 2009). It is heartening that professors at the university where this data were collected were offered a one-day course on trauma-informed practices during the semester these data were collected. Because the empirical study of trauma-informed practices in schools is a relatively new concept starting in 2012, professors may be unsure how to implement them in their own teaching (Thomas et al., 2019). The state in which this study took place only requires that the impact of trauma is learned, but the timing of this study could have allowed for pre-service teachers to have participated in this study before they learned about it in coursework. In other words, just because they expressed wanting to know more does not mean that this university will not teach it before these pre-service teachers enter the classroom. That said, this study demonstrates that knowing about the

impact of trauma may not be enough for teachers to implement supportive practices confidently within a trauma system. Finally, as some of the pre-service teachers in this sample are early in the program, and trauma is only required to be taught in one course, it could be that they will continue to gain exposure and knowledge about how to respond before they enter their teaching careers.

Theme 6: Classroom Strategies. Pre-service teachers in the present study were able to list several strategies they believed to be part of responding to students who have experienced trauma. Building relationships with students, parents, and guardians, providing a safe environment, asking *why* about student behavior, and using several calming strategies were all recognized as positive responses to students. These responses demonstrate that there are some overlapping evidence-based best practices already taught in schools of education that may be useful for pre-service teachers who want to implement trauma-informed practices. As shown by the literature that such practices as classroom climate and home-school communication are included throughout many teacher licensure programs and were also included in the reviewed literature as trauma professional development for in-service teachers (e.g., Baweja et al., 2016; Blitz et al., 2013; Dorado et al., 2016).

Despite these positive findings of classroom strategies that pre-service teachers were able to name, it is concerning that none of the pre-service teachers was able to make connections between discipline practices and trauma. Several spoke about asking *why* about student behaviors, but they did not make the connection that teachers may still need to address behavior in a trauma-informed way. While the literature based in K-12 settings demonstrates that negative student behaviors are often the catalyst for introducing trauma-informed practices (Baweja et al., 2016; Dorado et al., 2016; Mendelson et al., 2015; Opiola et al., 2020), the pre-service teachers

generally did not articulate any concern over problem behaviors they thought may exist in their future classrooms. While they were generally aware of the impact of trauma, they did not make the explicit connection to how they would respond to problem behavior. It is possible that without strong classroom management skills, trauma-informed practices can seem irrelevant (B. Stipp, personal communication, May 19, 2021). The present study extends the current literature base showing that pre-service teachers may have a different reason for learning about trauma and therefore may need the instruction of such practices grounded differently than with in-service teachers. According to Lindeman's (1926) theory of adult learning, adults are motivated to learn as they see needs and gain interests that new learning will satisfy. Understanding the problem is an important component of learning new information and processes. While in-service teachers see the problem behavior as an issue that may require learning trauma-informed practices, it may be worth considering that pre-service teachers do not yet see problem behavior as a concern.

Theme 7: Culturally Responsive Teaching. It is heartening that all pre-service teachers in this sample were able to discuss the importance of culturally responsive teaching, even if not aware of the term. They listed explicit ways that they would use these practices, such as improving representativeness in curriculum, staying up to date on cultural issues, examining materials and assignments critically, and supporting students in their cultural identities within the classroom. However, only two pre-service teachers discussed how structural racism could be a part of trauma within the classroom and, therefore, within the teacher's role to address it. Neither gained this perspective from college courses as one was recounting his own high school experience, and one spoke from her job experience.

Both culturally responsive teaching and trauma-informed practices contain strategies meant to support student success through a focus on the whole child. NCTSN (2017) explicitly

suggests culturally responsive teaching to be part of the trauma-informed responses within schools. Several studies accomplished this through project-based learning or providing professional development around culturally responsive teaching within trauma training (Blitz et al., 2016; 2020). Specifically, Blitz and colleagues (2016) found that teachers' understanding of structural racism was correlated with their willingness to discuss equity-centered discipline practices to support students who have experienced trauma. Therefore, while it is positive that the present study demonstrates some understanding of culturally responsive teaching, it also exposes some areas where more explicit connections should be made so future teachers can support all students.

This finding is supported by Alvarez' (2020) review of trauma-informed practices in schools, where he states that "these practices should be enhanced with a deeper understanding of race and its relationship to the sociocultural and historical contexts where students live and attend school" (p. 612). His review of literature also demonstrates the dangers of pathologizing underrepresented minority students when trauma-informed studies and practices do not include the impact of structural racism. Some of the effects of systematic racism include segregation, policing, educational opportunities, and economic policies. The present study extends this literature by demonstrating that pre-service teachers may need explicit instruction about how to make these connections and practical suggestions for acknowledging the impact of systematic racism on their students. Recognizing and addressing contextual factors "such as current social discourse and activism related to systemic racism and police brutality" (Harper & Neubauer, 2021, p. 21) can be accomplished through reflective practice and are necessary for becoming trauma-informed. Additionally, reflecting on the lack of connections between trauma and culturally responsive teaching, pre-service teachers may need explicit instruction to promote

strengths-based perspectives and actions and disrupt the deficit views that often shape the trauma-informed narrative (Alvarez, 2020; Thomas et al., 2019).

Theme 8: Self-Care. Although there was a general lack of knowledge about secondary traumatic stress, the pre-service teachers had a general understanding of self-care and ways that it may be important as a teacher. Pre-service teachers listed specific self-care strategies they would use such as supportive relationships inside and outside school, hobbies, and physical health. Increased amounts of classroom experiences appeared to be related to having an increased understanding of secondary traumatic stress and the importance of prioritizing self-care.

Trauma and self-care are inextricably linked in the NCTSN (2017) framework. Numerous studies have noted the increasing teacher burnout and stress of in-service teachers, as well as the important roles that trauma-education and self-care have in building resilience for educators (Berger et al., 2016; Hydon et al., 2015; Lawson et al., 2019; Stipp & Kilpatrick, 2021). The lack of familiarity with the term *secondary trauma* in the present study's sample echoes several calls for secondary trauma to be considered at every level of the system (Hydon et al., 2015; Thomas et al., 2019). According to Thomas and colleagues' (2019) literature review, self-care should be embedded for all adults in schools from a systemic perspective. This would include the ways that pre-service teachers are educated and made aware of the reasons that self-care matters. Miller and Flint-Stipp (2019) found that pre-service teachers had difficulty making connections between self-care and secondary traumatic stress even after learning about it through coursework. The current study supports this finding in that the pre-service teachers did make connections between student trauma and the importance of self-care. However, in the present study, pre-service teachers had a higher understanding of self-care practices and how they may

use them even if they were not specifically aware of secondary traumatic stress. This is perhaps a result of the growing international conversations around self-care as a result of COVID-19 (Bennett, 2020; Mills et al., 2020). Miller and Flint-Stipp (2019) also found relationships to burnout as the pre-service teachers worked with students who had experienced trauma during the practica. While the present study did not find evidence of burnout, it is worth noting that the lack of understanding of secondary traumatic stress could lead to burnout later.

Promoting social and emotional competencies, self-care, and an understanding of secondary traumatic stress could prevent teacher burnout and improve teacher efficacy (Ansley et al., 2021; Miller & Flint-Stipp, 2019; Thomas et al., 2019). Although teachers rarely receive training to handle the social and emotional stressors presented in the classroom, promoting social and emotional competence could prevent burnout (Jennings, 2011). The pre-service teachers in this sample support this statement as they did not discuss any expected social and emotional stressors or express an understanding of secondary stress. However, a previous study has shown that improved social and emotional competence could improve student-teacher relationships, lead to a healthier classroom environment, and support teacher efficacy (Jennings, 2011). Pre-service teacher efficacy and improved mental health can also be supported through positive emotional experiences such as joy and satisfaction and through fostering healthy coping skills (DeMauro & Jennings, 2016; Zimmermann et al., 2012).

Theme 9: COVID-19 and Trauma. The social isolation resulting from the efforts to stop the spread of COVID-19 has dramatically changed the lives of the K-12 population as well as the pre-service teacher population. Interestingly, many of the pre-service teachers were already concerned about the increasing rates of depression and anxiety as well as the possible

consequences of inequitable distribution of resources throughout the pandemic. Many pre-service teachers felt prepared to support students after the pandemic by supporting relationships.

Harper and Neubauer (2021) have noted the importance of trauma-informed education in the wake of the stressors related to COVID-19 in addition to the other trauma exacerbated by the pandemic. Although the effects of COVID-19 and the place of trauma-informed practice in response is not fully known at this time, we are able to learn from previous natural disasters. After Hurricane Katrina, community-, teacher-, and school-providers were facing similar challenges as their students, so the trauma-informed responses were difficult to implement (Taylor et al., 2012).

Similarly, in the present study, some of the pre-service teachers seemed overwhelmed and aware that they, too, were facing the effects of COVID-19, including a lack of in-classroom experiences. However, the present study extends the previous understanding of implementing trauma-informed practices after a disaster because the pre-service teachers noted that university professors had modeled ways to respond to trauma. Modeling has been a positive learning tool as pre-service teachers have been students through the pandemic. They reflected on personalized check-ins before instructional time that were incredibly supportive for them as students, and they hoped to continue to implement similar strategies in their classrooms as teachers. However, what was notably absent from most of the pre-service teachers' understanding was the possible increased domestic abuse, lack of supervision, lack of resources, and increased risk for certain student groups (Froimson et al., 2020; Naff et al., 2020). The two participants who have been working in a classroom during this past year were more aware of the double pandemic resulting from the increase in domestic violence reports. These teachers will enter K-12 schools as teachers in the coming years, and their understanding of trauma and its effects will be important

based on the current rates of depression and anxiety for K-12 students (Murata et al., 2021). The understanding of trauma experienced by students during the pandemic will continue to change since COVID-19 has been such an unprecedented event. The present study extends the literature to demonstrate what pre-service teachers have been aware of and what training may be necessary in the years ahead.

Summary. Collectively, the themes from the qualitative phase of this study extend our understanding of the experiences that shaped pre-service teacher knowledge, beliefs, and attitudes about trauma and trauma-informed practices. Coursework, personal trauma, K-12 classroom experiences, and modeling from other teachers shaped their perspectives. Increased time in a K-12 classroom and positive modeling experiences seemed to be the most salient influences on knowledge about trauma and how to respond. Additionally, several areas of strength and areas for growth were revealed in how pre-service teachers reported they would respond to students who have experienced trauma in general and trauma specific to COVID-19. They identified culturally responsive teaching strategies, self-care practices, and specific classroom strategies related to trauma-informed practices, but the connections between these practices and trauma seemed to be lacking overall. Again, the increased exposure to a K-12 classroom seemed to increase the connections between the need for trauma-informed practices and the particular strategies.

Discussion of Mixed Methods Findings

Mixing the findings from the quantitative and the qualitative phases of this study allowed me to examine how the interviews explained the results of the ARTIC scale and trauma knowledge scales. Without the qualitative phase, the quantitative results would only offer a surface-level understanding of the knowledge, beliefs, and attitudes of pre-service teachers

(DeCuir-Gunby & Schutz, 2017). The qualitative findings helped explain the experiences that shaped their perspectives. It was through analyzing the findings from both phases together that the complex nature of knowledge, beliefs, and attitudes of pre-service teachers was revealed to answer the final research question.

Experience with students emerged as a key component for learning about trauma, how to respond, and increased beliefs and attitudes about trauma-informed practices. As expected, practicum experiences are one way that pre-service teachers increased self-efficacy (Stipp, 2019; Miller & Flint-Stipp, 2019). However, several pre-service teachers in the High Cluster drew from other experiences, including working at summer camps, volunteering in K-12 classrooms, and working in a K-12 classroom. The structure and mentoring that comes from practicum experiences created by the university did not seem to matter as much as having experiences with trauma in group child settings. Once the understanding of trauma's effects had been witnessed, course content related to trauma resonated with personal observations of students. Social Cognitive Theory and our understanding of cognitive processes within reciprocal determinism may be a helpful tool to understand the reasons that classroom experience is a salient learning opportunity. It may be that the context is not as important as the opportunity for developing the interest and social experience for trauma-informed practices (Bandura, 1986). Contrary to these experiences that promoted trauma-informed knowledge, beliefs, and attitudes, the pre-service teachers in the Low Cluster did not have any practicum experiences. This supports the idea that classroom experiences were a key experience that increased trauma knowledge, beliefs, and attitudes for the High Cluster. Additionally, the only qualitative responses coded with a control-focused teacher belief or a fixed-behavior student belief came from the low knowledge, beliefs, and attitudes group. It may be that without the understanding of the neuroscience of trauma in

addition to strong classroom management, these pre-service teachers were more focused on controlling what they saw as only external behavior. This extends studies that have shown that classroom management is one of the biggest stressors during the first years of teaching (Rieg et al., 2007).

Both the low and high quantitative groups expressed a lack of knowledge about trauma-informed practices or a desire to learn more about trauma-informed practices almost equally during the qualitative interviews. This explains the particularly low scores in the trauma-informed principles subsection of the knowledge measurement, given that the pre-service teachers expressed knowledge of trauma but had not had formal training in trauma-informed practices. Participants expressing a desire for more knowledge was surprising in light of their relatively high scores for self-efficacy for using trauma-informed practices from the ARTIC. Studies have shown that beliefs like self-efficacy are connected to knowledge and contexts (Pajares, 1992). According to Bandura (1986), the sources for self-efficacy are mastery experiences, vicarious experiences, social persuasion, and emotions. It is possible that pre-service teachers need training about trauma (i.e., knowledge of impact and prevalence was 38%), modeling of how others respond to trauma well, and positive experiences to gain self-efficacy. In a study with in-service teachers, authentic mastery experiences were found to be the most influential in increasing teacher self-efficacy (Tschannen-Moran & McMaster, 2009). The self-efficacy of pre-service teachers may be inflated due to the calibration of their knowledge and experiences being limited (Cunningham et al., 2004). Without mastery experiences to support self-efficacy, pre-service teachers may not be able to apply their knowledge in the classroom (Holt-Reynolds, 1994). This finding supports and extends the findings from trauma studies with K-12 teachers of record which found that knowledge about trauma was not enough to promote

classroom use (Anderson et al., 2015; Baweja et al., 2016). Pre-service teachers need

opportunities to see why trauma-informed practices are needed, observe modeling of application,

and process their own role in this trauma-informed system. The present study demonstrates that

these classroom experiences are a salient teaching tool for future teachers and can make a

difference in knowledge, beliefs, and attitudes before they become the teacher of record.

Implications

Building on the work in pre-service teacher trauma-informed research, the present study

extends our understanding of what pre-service teachers know and believe about trauma-informed

practices without an intervention (Bixler-Funk, 2018; Miller & Flint-Stipp, 2-19; Stipp, 2019).

Additionally, this study sought to examine the experiences that shaped the knowledge, beliefs,

and attitudes of pre-service teachers guided by Social Cognitive Theory. As such, there are

several practical implications for teacher education, trauma-informed systems, as well as

research implications.

Teacher Preparation Programs

Following positive outcomes from studies that implemented trauma-informed practices in

classrooms, schools, and districts, this study shows the strong potential of assessing pre-service

teacher beliefs and attitudes toward adopting a trauma-informed lens (Baweja et al., 2016;

Christian-Brandt et al., 2020; Hutchison et al., 2020). Pre-service teachers generally had positive

attitudes toward using trauma-informed practices, but their attitudes were not as high about

relationships, flexibility, kindness, and safety as a possible way to support students and

ameliorate the effects of trauma. It is possible that the focus on consequences and accountability

is affecting these attitudes. Notably absent from interview data were strategies to handle

classroom discipline that will not retraumatize (NCTSN, 2017). Teacher preparation programs

can support future teachers moving forward by teaching them how to address to problem behavior and boost self-efficacy for trauma-informed practices. For example, following Stipp (2019), pre-service teachers may need a practicum experience connected to behavior management and social and emotional learning explicitly instead of three separate pieces of their program. Finally, districts and schools where these pre-service teachers will soon get jobs can use this information to guide their mentorships and new teacher training programs, focusing on ways teachers can respond to problem behaviors, build self-efficacy for trauma-informed care, and increase attitudes toward self-care.

Current state requirements imply that pre-service teachers need to know about the effects of trauma (Virginia Register, 2018, 8VAC20-543-90). However, the current study demonstrates that knowledge alone is not enough to shape beliefs and attitudes related to responding with empathy, building self-efficacy for the demands of working with students, or handling the demands in a way that will promote self-coping. The beliefs and attitudes reported by this sample demonstrate that more focused training and experiences are necessary to support pre-service teachers in their roles as educators who can use a trauma-informed lens effectively. Policies around pre-service teacher education should consider using SAMHSA's framework that includes (a) realizing the impact and possible recovery from trauma, (b) recognizing common symptoms in someone who has experienced trauma, (c) responding by allowing trauma knowledge to inform policy, procedure, and practice of the school, and (d) resisting causing re-traumatization (SAMHSA, 2014). Taken together, this study demonstrates that a holistic view of responding to trauma is necessary to improve positive beliefs and attitudes and outcomes for pre-service teachers.

Self-care is often viewed as the antidote to common consequences of working with people who have experienced trauma. Although slightly different by definition, the effects of *secondary traumatic stress*, *vicarious trauma*, *burnout*, and *compassion fatigue* can all lead to teachers being negatively affected at work (Hydon et al., 2015). As a result, Hydon and colleagues (2015) called for pre-service teacher programs to teach the causes and symptoms of secondary traumatic stress. Additionally, pre-service teachers need opportunities to learn healthy ways of building support systems and understanding the need for self-care. Unfortunately, the present study demonstrates that there is still significant room for growth in this area and that teacher preparation programs should assess their students' knowledge of secondary traumatic stress and consider implementing curriculum changes to address these gaps in knowledge.

Trauma-Informed Systems

A recent study of trauma-informed practices called into question if trauma-informed practices will simply be the next educational initiative that will come and fade quickly or whether it will become embedded in the educational system to create lasting change (Stipp & Kilpatrick, 2021). The teachers in the study indicated that they were able to use the tools offered in the trauma-informed training to implement change within their classrooms, schools, and systems. Likewise, the present study demonstrates that the language of trauma-informed practices has entered the teacher preparation program of one university in meaningful ways that can lead to lasting changes as these future teachers enter the job force in the years to come. While the trauma systems approach and cross-discipline research move forward, community and mental health leaders should include universities and pre-service teachers in the system. This will require future investigation and collaboration about what pre-service teachers are taught and how they learn best.

Research of Trauma-Informed Practices

The conceptualization of pre-service teacher knowledge, beliefs, and attitudes about trauma-informed practices is of the utmost importance so that universities and school administrators can adequately prepare and support teachers in teaching all students upon completing the programs. The present study demonstrated that Social Cognitive Theory (Bandura, 1986) is a helpful tool to examine how pre-service teachers learn about trauma and eventually use the tools to support students. The relationships between personal, environmental, and social factors related to trauma within each individual demonstrate that there is no singular way to promote trauma-informed knowledge for pre-service teachers. Rather, it is this triadic reciprocal relationship that builds on a person's previous experiences with trauma, understanding of classroom management, social-emotional competencies, classroom experiences, and knowledge about trauma. Future research should continue to explore how the use of Social Cognitive Theory could help explain and push the work of trauma research forward across disciplines.

Additionally, this study demonstrates that pre-service teachers are unsure of the practical application for responding to trauma. This is not surprising given that reviews of trauma-informed practices have solidified the effectiveness of Tier I and Tier II interventions, but there is a lack of empirical study about what teachers should do to support students as a part of Tier III (i.e., universal) supports (Anderson et al., 2015; Yohannan & Carlson, 2019). Echoing calls by Anderson and colleagues (2015), future research needs to examine which practices are most effective to help teachers partner with students and families, create trauma-informed learning environments, implement culturally responsive teaching practices, practices self-care, and use discipline practices that do not re-traumatize (NCTSN, 2017).

Limitations and Recommendations for Future Directions

The present study has several limitations that should be considered as well as points to future research that should be completed. The study examined pre-service teachers from one university, so the participants had a limited number of experiences that have influenced their understanding of trauma. Although a diverse sample was sought, no African American students participated in the qualitative phase of the study. While some of the students who identified as Latinx were able to provide insight into racial trauma, future research should consider other voices that are absent in the present study to further understand the intersectionality of race and trauma within the classroom. Additionally, the sample was limited to students who were enrolled in a teacher education program, which excluded pre-service teachers seeking licensure in some other way. Nonresponse bias may have occurred in that students who were already somewhat interested in trauma were more likely to respond to the initial recruitment. Students who may have chosen not to participate in the quantitative phase may have caused the data to be skewed toward a more positive attitude than the population of pre-service teachers at this institution. Future research should replicate the quantitative data collection from more than one university and with a larger sample size.

Furthermore, the ARTIC is a self-report survey that does not show actual practice of a trauma-supportive lens, but it instead showed a readiness to use such practices in the future (Baker et al., 2016). The self-report questionnaire means that the pre-service teachers may be subject to social-desirability bias to report what they think is the professionally appropriate answer, but it may not reflect how they feel. Future studies should look at this data in a longitudinal design as pre-service teachers progress through the program and then move into their classrooms as the teacher of record. Triangulating knowledge, beliefs, and attitudes with

classroom observations during their first few years of teaching would be highly valuable for understanding the connection to practice.

Finally, the data were collected during a semester unlike any other where most students were in a virtual learning environment for all classes, including their practicum experiences. It is possible that the change in learning environment and additional stress for all students as a result of COVID-19 caused the sample to report their answers about self-care or student behavior differently. Although the issues of COVID-19 only make trauma a more pressing issue, the data may not be generalizable to other contexts.

Future research should consider the areas for growth noted in the present study to better understand how to support pre-service teachers in learning and applying trauma-informed practices. Specifically, this may include (a) investigation into what pre-service teachers are taught about culturally responsive teaching practices and trauma, (b) the need for self-care in response to secondary traumatic stress, (c) identification of specific practices that are empirically supported as trauma-informed, and (d) the place of practicum experiences in solidifying the coursework about trauma for practical application. Intervention studies with these topics embedded into coursework would help refine how to best integrate these topics into an already robust and full curriculum of teacher preparation.

Conclusion

The prevalence of trauma in the lives of the K-12 population of students has been well-established. Although research for whole-school interventions has demonstrated that teachers can support students through the use of trauma-informed practices, the instruction of these practices for pre-service teachers has been largely unexplored in research (Thomas et al., 2019; Stipp, 2019). The purpose of this study was to gain an understanding of how pre-service teachers

thought about trauma-informed practices. The present study demonstrated that pre-service teacher knowledge, beliefs, and attitudes are generally positive and that there are a few opportunities to shape their education and experiences to be better equipped to support students who have experienced trauma.

I began data analysis with something akin to envy at the generally positive attitudes, beliefs, and knowledge this sample of pre-service teachers demonstrated about trauma-informed practices. Through both the quantitative and qualitative findings, they were able to identify behaviors of students as a symptom of trauma and labeled supporting the student as the teacher's responsibility. However, I soon discovered the complicated nature of moving toward a trauma-informed culture. The six components of the NCTSN (2017) framework for trauma-informed practices in K-12 schools examined throughout this study included:

- Trauma education and awareness,

- Partnerships with students and families,

- Trauma-informed learning environments,

- Culturally responsive teaching,

- Staff self-care and school discipline policies, and

- Discipline practices that do not retraumatize.

While the pre-service teachers had relatively high knowledge about trauma awareness, relationships with students, culturally responsive teaching, and self-care, other pieces of this framework may lead to an unsustainable response to trauma if not developed. Notably low in the knowledge, beliefs, and attitudes of this sample was how to handle discipline problems within the classroom in a way that does not retraumatize students, the impact of secondary traumatic stress on teachers, and creating trauma-informed learning environments.

Although student behavior problems were a common catalyst for introducing trauma-informed practices in the K-12 setting, the knowledge, beliefs, and attitudes about trauma-informed practices may be very different in the pre-service teacher population (Baweja et al., 2016; Dorado et al., 2016; Opiola et al., 2020). The pre-service teacher sample in this study demonstrated that they were aware of the prevalence of trauma and saw student trauma as the reason to support students within the classroom. However, this leaves a gap in practical knowledge for how to handle the discipline problems within the classroom that will certainly occur daily. Studies from the K-12 classroom have included differentiated discipline practices, teaching students to accept responsibility, and increasing of student independence (Kokka, 2019; Post, Grybush, Elmandani et al., 2020; Wall, 2020). Since classroom management will likely be one of the biggest stressors during the first years of teaching, trauma-informed discipline practices should be taught before they enter their own classrooms (Rieg et al., 2007; Stipp, 2019).

While the pre-service teachers were able to identify self-care as important and even list some ways they could use self-care as future educators, they did not have an understanding of secondary traumatic stress. Decreasing teacher burnout, managing stress, and building resilience, may stem from an explicit understanding that secondary traumatic stress is the reason that self-care matters for teachers (Berger et al., 2016; Hydon et al., 2015; Lawson et al., 2019; Miller & Flint-Stipp, 2019; Stipp & Kilpatrick, 2021; Thomas et al., 2019).

Relatedly, teachers need a solid understanding of how to implement trauma-informed practices within the classroom by creating a learning environment that supports students who have experienced trauma (NCTSN, 2017). While the pre-service teachers in this sample were able to talk about the importance of supporting students who had experienced trauma, they were

unable to list many practical ways they would do this beyond talking to their students. This gap is unsurprising given the lack of clarity in research about trauma-informed practices (Anderson et al., 2015; Thomas et al., 2019).

The most salient way that pre-service teachers gained knowledge and improved beliefs and attitudes about trauma was through classroom experiences. Pre-service teachers may benefit from practicum experiences tied to courses that help them reflect on key aspects of discipline practices, secondary traumatic stress, and family relationships.

It is heartening that the pre-service teachers at this university have generally positive beliefs and attitudes as well as some understanding about how trauma affects students. However, in the years to come, it is likely classrooms will have a higher number of students who need trauma-informed practices than ever before as a result of the changes that have occurred because of COVID-19. Without the practical knowledge of how secondary traumatic stress affects teachers, how to implement discipline practices that will not retraumatize, and how to create trauma-informed learning environments, I fear that both teachers and students will face many obstacles. Teacher burnout, increased student discipline problems, and student academic difficulties are some possible effects of this gap in practical knowledge, which will once again place the burden of professional development on the districts.

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Appendix A

PRISMA Flow Diagram

Figure A1

Literature Search and Synthesis Process and Results
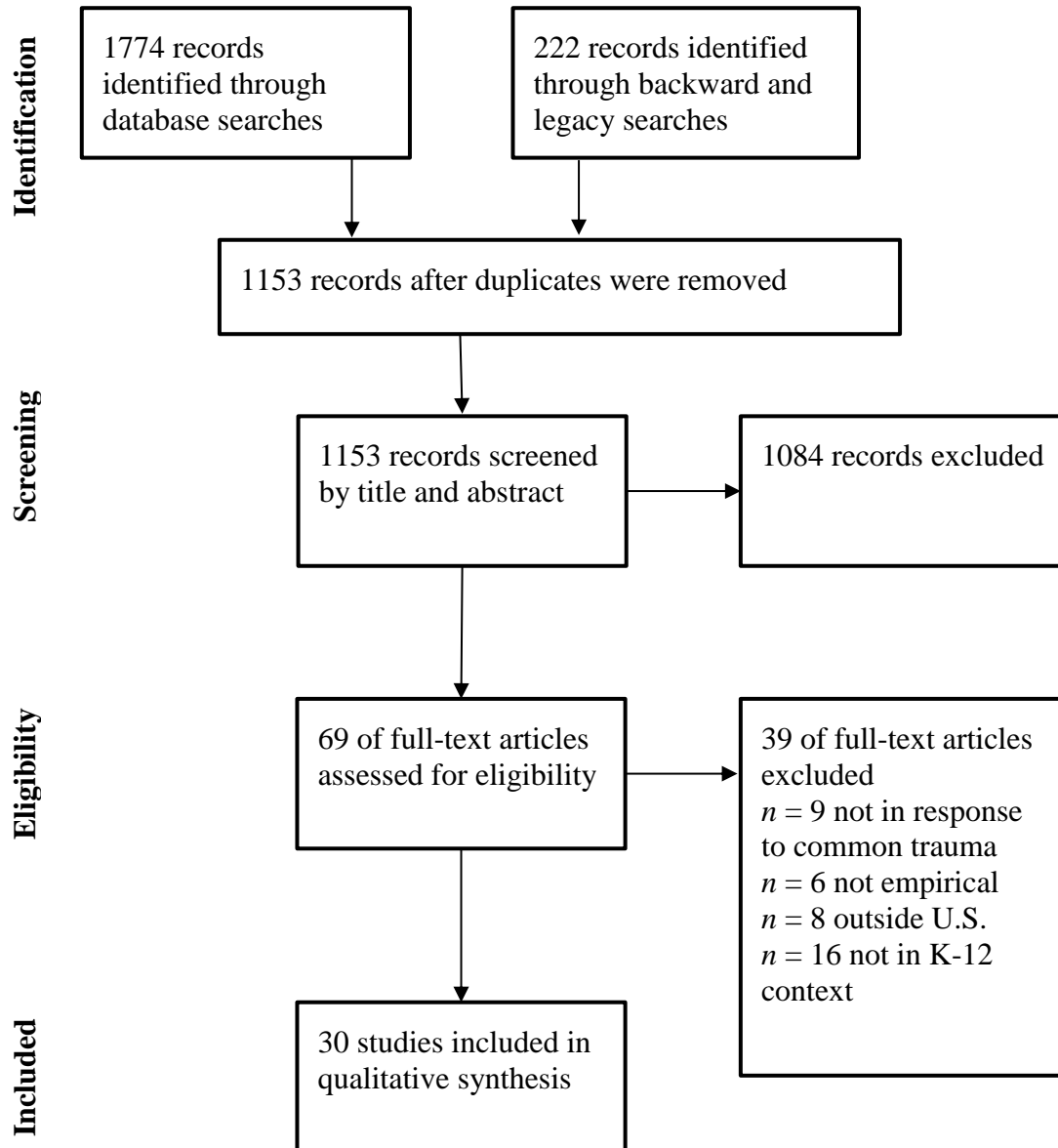
Appendix B

Included Studies and Conceptualization of Trauma-Informed Practices

Table B1

Included Studies

Study	Conceptualization of Trauma- Informed Practices	Measurement	Outcome Focus
Anderson et al. (2015)	Caring environment, collaborative culture, students included in leadership, social-emotional development	Focus groups	teacher
Baez et al. (2019)	Recognize effects of trauma, policies and interventions in place to respond, resist retraumatization, social emotional development	Social skills and problem behaviors	student
Baker et al. (2016)	Recognizes effects of trauma, responds without retraumatization	ARTIC	teacher
Baweja et al. (2016)	Understanding the effects of trauma (specifically PTSD), responds through psychosocial intervention and education	Interview	teacher
Blitz & Mulcahy (2017)	Recognize effects of trauma and respond to promote resilience	Perception of TIP vision statement and perception of student behavior	school
Blitz et al. (2013)	Recognize effects of trauma, respond to promote healing and coping, contextualize within family and poverty	Focus group	parent
Blitz et al. (2016)	Recognizes prevalence of trauma, recognizes impact, responds with support, reduces retraumatization and promotes healing	Perception of student behaviors	school
Blitz et al. (2020)	Recognizes impact of trauma, responds to promote resilience, reduces retraumatization, promotes prosocial behavior	Quantitative survey about social emotional learning, school climate, discipline practices, and cultural responsiveness	school
Broussard et al. (2019)	Recognizes impact of trauma, responds to needs, reduces retraumatization through safety, trustworthiness, peer support, collaboration, empowerment, and cultural responsiveness	Parent survey about need for and benefit of trauma-informed sex education	parent

Study	Conceptualization of Trauma-Informed Practices	Measurement	Outcome Focus
Christian-Brandt et al. (2020)	Responds to trauma through systems and professionals	Trauma-informed care survey (perceived benefits for teachers and students, perceived effectiveness)	teacher
Dorado et al. (2016)	Responds to trauma by promoting supportive environment and by promoting resilience and wellness	HEARTS Program Evaluation Survey	school
Frydman & Mayor (2017)	Recognizes the social, academic, and cognitive effects of trauma and works to promote social-emotional development and academic progress through psychoeducation, cognitive differentiation, and stress reduction	Observation of participatory and somatic indicators	student
Hutchison et al. (2020)	Responds to impact of trauma by promoting social emotional competence	Social-Emotional competence (Devereux Student Strengths Assessment-Mini)	student
Ijadi-Maghsoodi et al. (2017)	Recognizes and responds by promoting protective skills and resilience, especially focused on underserved youth	Social emotional skills, school climate, and student perception of curriculum	student
Kokka (2019)	Recognizes and responds to impact of trauma by promoting physical, psychological, and emotional safety through empowerment	Classroom observations, teacher interview	student
Matlin et al. (2019)	Recognizes and responds to impact of trauma through treatment, training, parenting, schooling, and policy development that minimizes retraumatization	Trauma-related knowledge and ARTIC	teacher
McIntyre et al. (2019)	Recognizes and responds to impact of trauma to promote healing and resist retraumatization	Trauma-informed knowledge	teacher

Study	Conceptualization of Trauma-Informed Practices	Measurement	Outcome Focus
Mendelson et al. (2015)	Responds to trauma through treatment that promotes emotional regulation and decision making	Teacher report of student strengths and difficulties, social competence, teacher report of student internalizing symptoms Student mood and feelings, self-regulatory inventory, and emotional awareness	student
Miller & Flint-Stipp	None provided. Connected to self-care and secondary trauma	Interview	pre-service teacher
Opiola et al. (2020)	Responds to impact of trauma through promoting a stable and caring relationship	Teacher report of student behavioral, emotional, and social problems Teacher interview	teacher
Perry & Daniels (2016)	Recognizes and responds to impact of trauma through creation of policies, procedures, and practices	Trauma symptoms screening and professional development satisfaction survey	school
Post, Grybush, Elmandani et al. (2020)	Responds to impact of trauma by integrating knowledge about trauma into policies, procedures, and practices; positive and safe school climate	Interviews	teacher
Post, Grybush, Flowers et al. (2020)	Recognizes and responds to impact of trauma through relationship and safety; resists re-traumatization	ARTIC	teacher
Powell & Davis (2019)	Recognizes and responds to impact of trauma through implementing multi-level evidence-based practices and resisting re-traumatization such as social and emotional competence and self-control	Teacher report of student strengths and difficulties	student

Study	Conceptualization of Trauma-Informed Practices	Measurement	Outcome Focus
Rishel et al. (2019)	Recognizes the impact of trauma through programs and service delivery	CLASS observation scale of classroom emotional support, organization, and instruction support	student and teacher
Sajnani et al. (2019)	Recognizes and responds to the impact of trauma and resists retraumatization through all staff, practice, and policy promoting healing	Collaborative discourse analysis	teacher
Stipp, (2019)	Responds to impact of trauma through multi-tiered support to students	Teacher preparedness in dealing with student stress survey, focus groups about course impact	teacher
Tabone et al. (2020)	Responds to impact of trauma through the development and implementation of interventions	CLASS observation scale of classroom emotional support, organization, and instruction support	student and teacher
von der Embse et al. (2018)	Prevents trauma from occurring, promotes self-regulation, supports those who have experienced trauma, and resists re-traumatization	DCOT observation of evidence-based classroom practices and direct behavior ratings	school
Wall (2020)	Safe and supportive community, sees behavior through holistic lens that includes the effects of trauma, promotes student ability to be successful in school	School attendance, classroom observations, interviews	teacher

Appendix C

Cluster Analysis Solutions

Three solutions were explored during the cluster analysis which are detailed here.

Average Linkage

First, an agglomerative hierarchical cluster analysis was run using Euclidean distance and average linkage. The possible cluster solutions can be seen in Table C1 and Figure C1.

Table C1

Clusters Solutions using Average Linkage

Number of Clusters	Calinski/Harabasz pseudo-F
2	29.27
3	16.42
4	21.09
5	18.90
6	16.71
7	14.40
8	16.63
9	15.72
10	15.45
11	16.55
12	15.89
13	15.04
14	14.30
15	13.61

Note. $N = 67$ using standardized means of each subscales.

Figure C1

Dendrogram of Hierarchical Cluster Analysis with Average Linkage

Dendrogram for avg cluster analysis
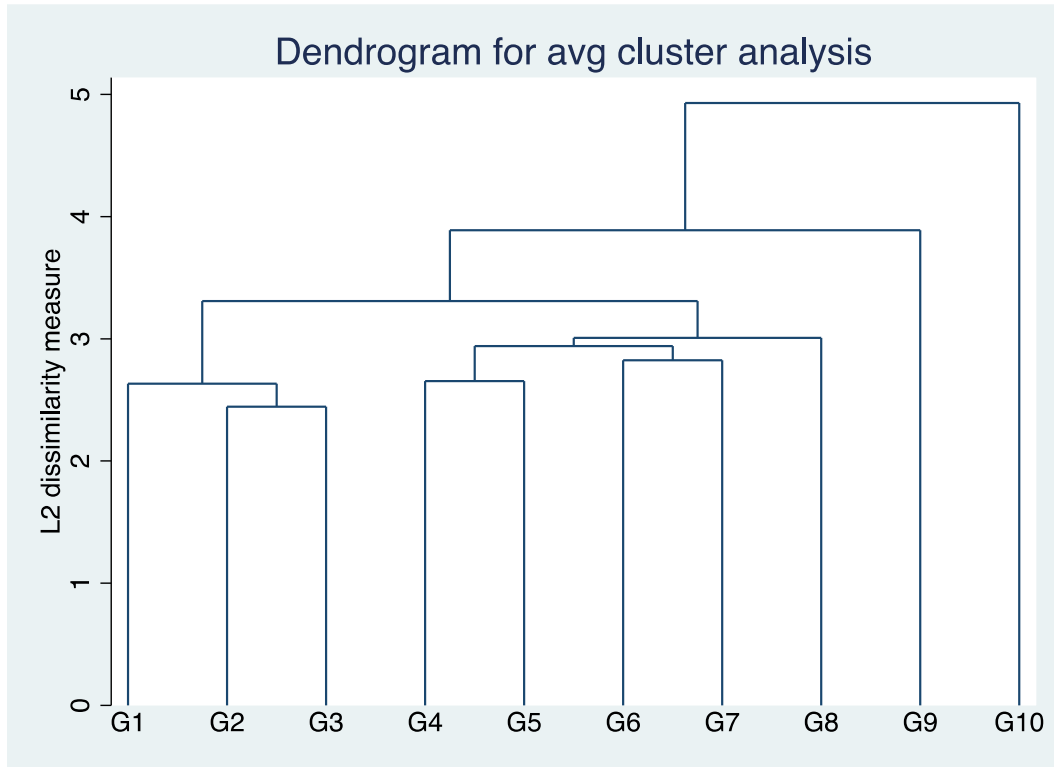
Next, a two-cluster solution was determined to be best based on the highest pseudo-F and visual inspection of the dendrogram. The clusters were distributed between group one ($n = 60$; 89.55%) and group two ($n = 7$; 10.45%). The means of the standardized subscales can be seen in Table C2.

Table C2

Means of Categories Using Average Linkage

Category	Cluster 1	Cluster 2
Knowledge	.11	-.97
Underlying behavior causes	.18	-1.55
Teacher behavior	.21	-1.83
Empathy vs. control	.19	-1.65
Secondary trauma and self-care	.20	-1.75
Self-efficacy	.21	-1.79

Note. All scales are standardized.

Figure C2

Bar Graph of Two-Cluster Hierarchical Cluster Solution with Average Linkage

Graphs by avg2
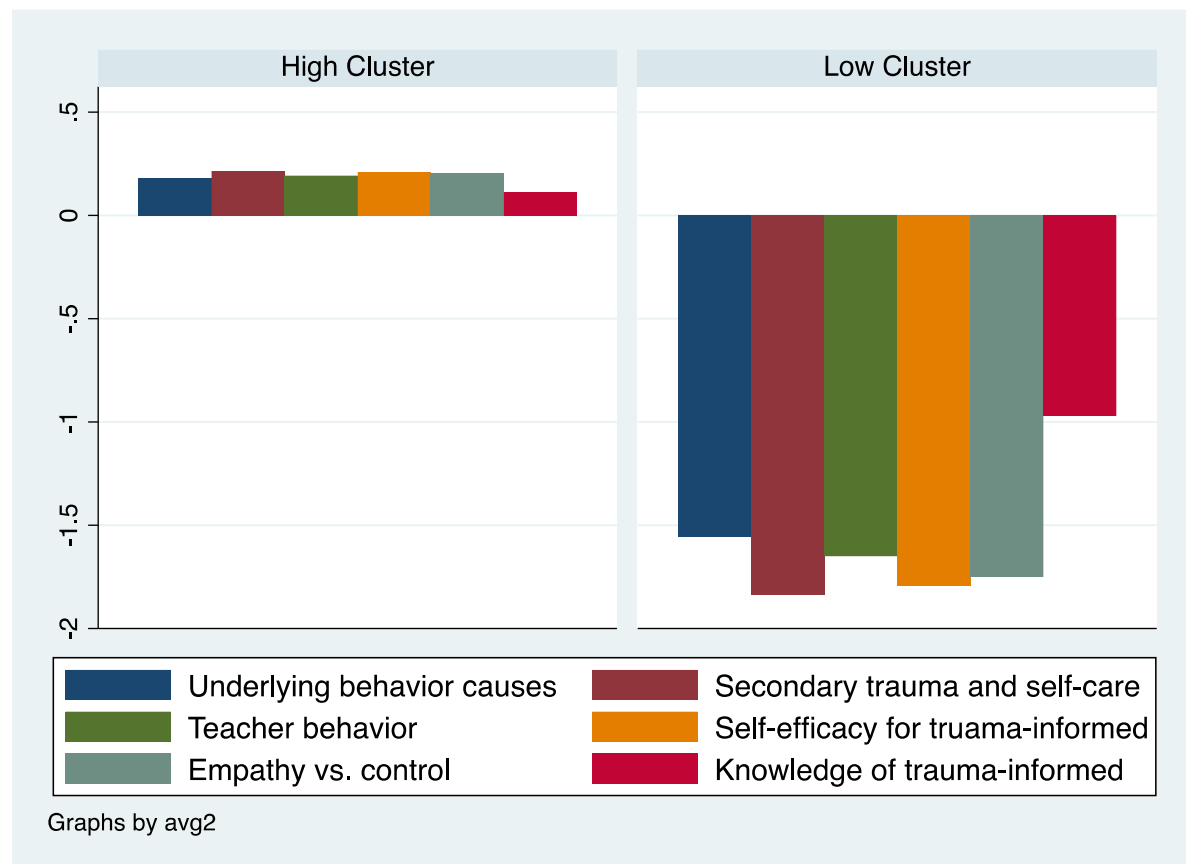
Ward's Method

Next, an agglomerative hierarchical cluster analysis was run using Euclidean distance and

Ward's method to confirm the same number of clusters. The possible cluster solutions can be

seen in Table C3 and Figure C3.

Table C3

Clusters Solutions using Ward's Method

Number of Clusters	Calinski/Harabasz pseudo-F
2	31.30
3	30.04
4	26.94
5	25.17
6	22.53
7	20.52
8	19.34
9	18.66
10	18.32
11	17.50
12	17.05
13	16.62
14	16.26
15	16.14

Note. $N = 67$ using standardized means of each subscales.

Figure C3

Dendrogram of Hierarchical Cluster Analysis with Ward's Method
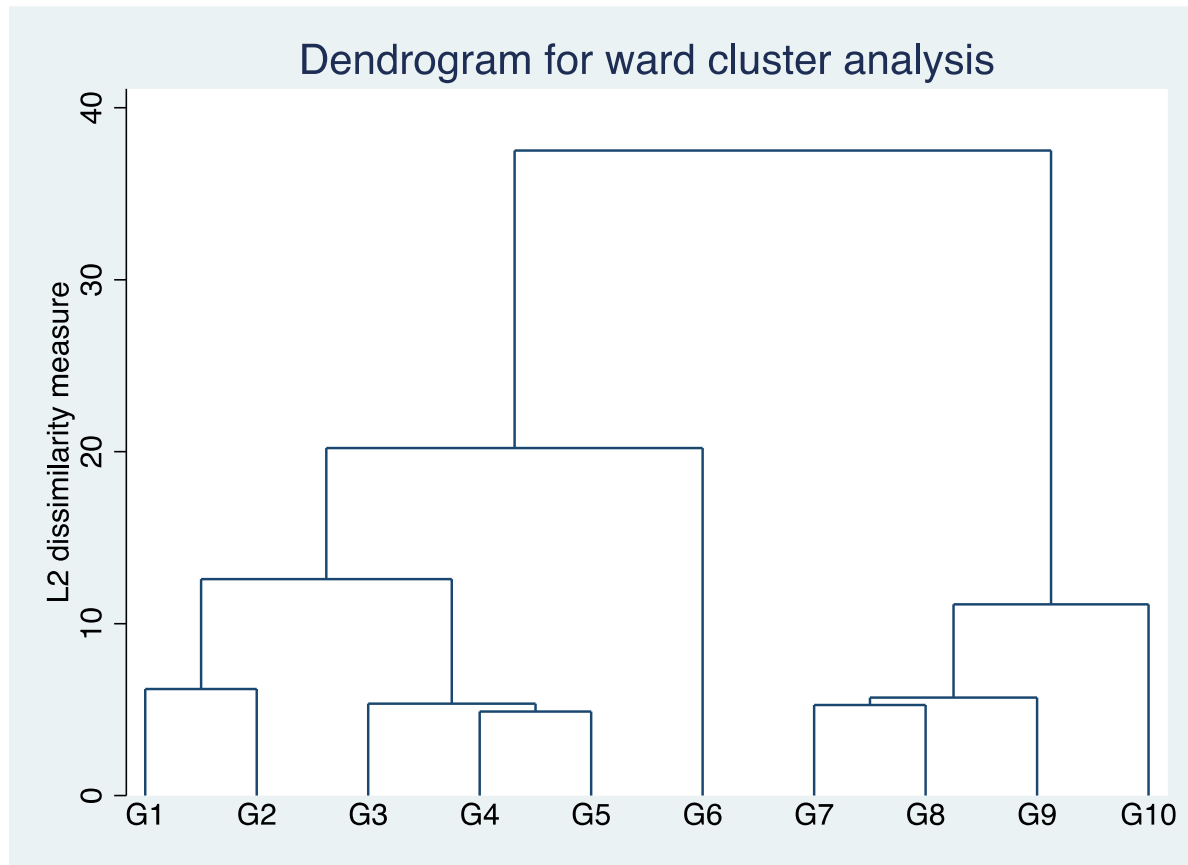
After visual inspection of the dendrogram and the highest pseudo-F at two clusters, a two-cluster solution was once again chosen. The clusters were distributed between group one ($n = 33$; 49.25%) and group two ($n = 34$; 50.75%). The means of the standardized subscales can be seen in Table C4.

Table C4

Means of Categories Using Ward's Method

Category	Cluster 1	Cluster 2
Knowledge	-.70	.68
Underlying behavior causes	-.51	.50
Teacher behavior	-.66	.64
Empathy vs. control	-.62	.60
Secondary trauma and self-care	-.43	.41
Self-efficacy	-.47	.46

Note. All scales are standardized.

Figure C4

Bar Graph of Two-Cluster Hierarchical Cluster Solution with Ward's Method

Graph by Ward's Method
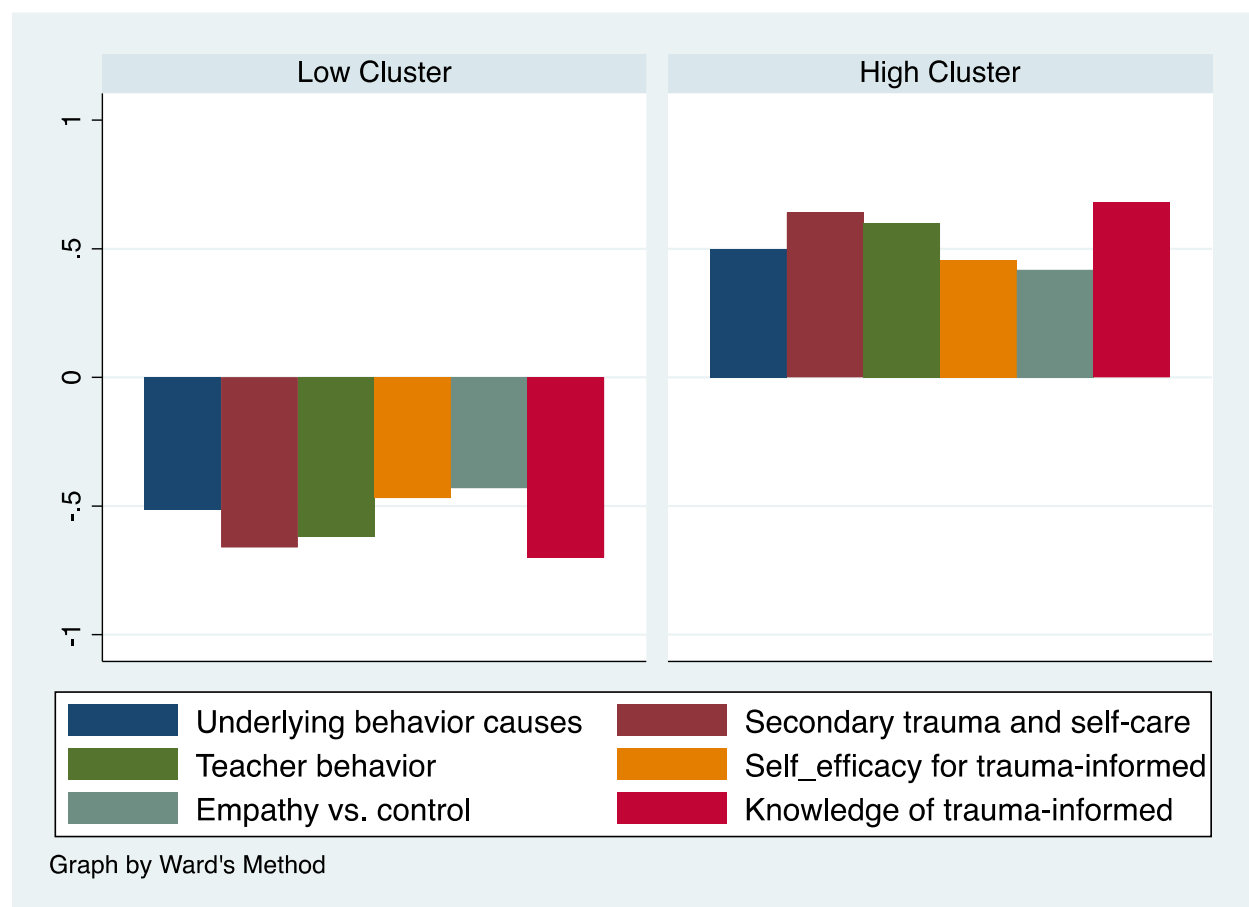
K-Means

Finally, a k-means cluster analysis was used to follow up on the number of clusters found from both hierarchical cluster analyses. The results of a 2-cluster solution had a Calinski/Harabasz pseudo-F of 41.01. The clusters were distributed between group one ($n = 48$; 71.64%) and group two ($n = 19$; 28.36%). A bar graph of the solution can be seen in Figure C5.

Figure C5

Bar Graph of Two-Cluster K-Means

Graphs by clust2
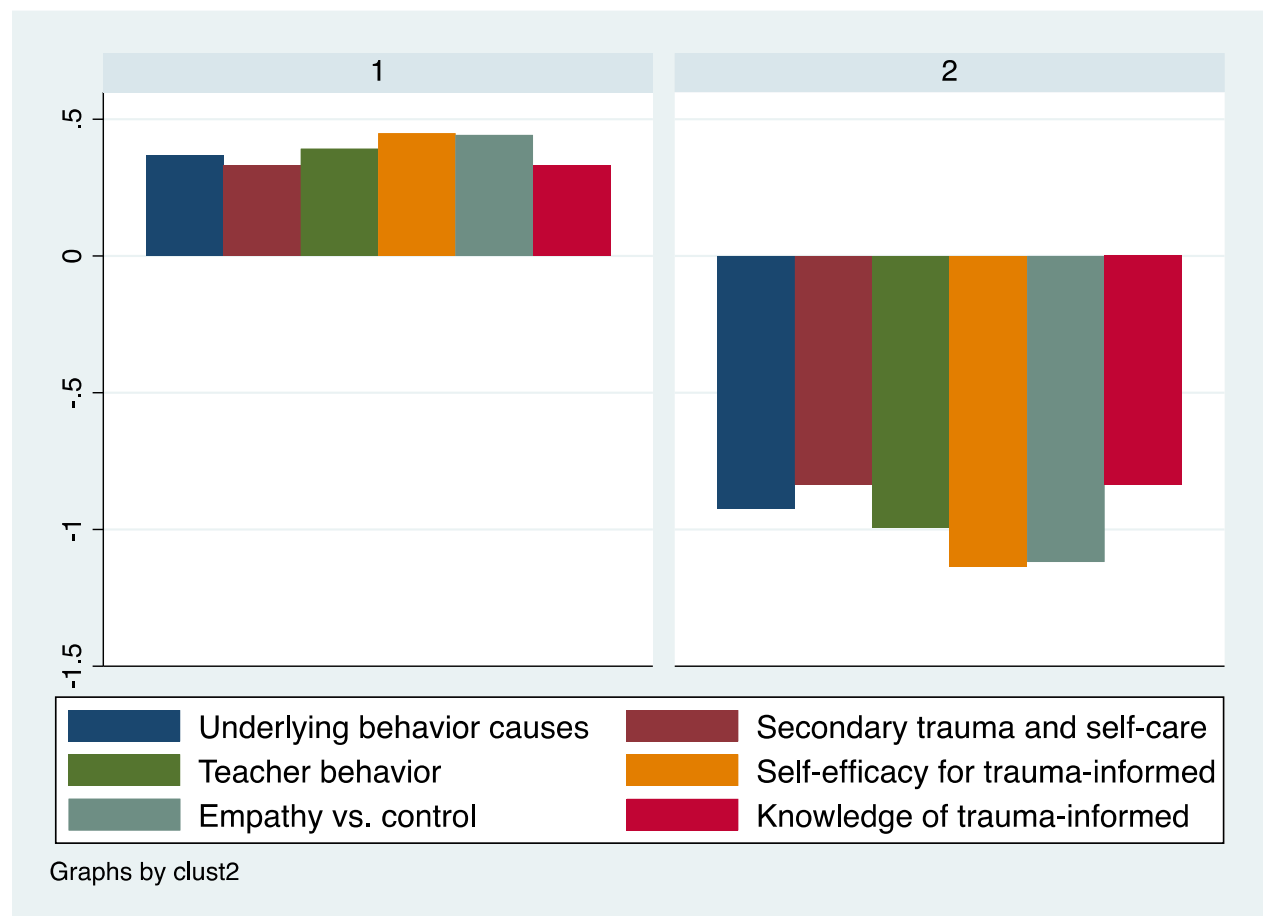
After all analyses were run, all three solutions supported a two-cluster solution. I attempted to use the average linkage solution. However, the five participants in the Low Cluster did not respond to a request for an interview. Both Ward's method and the K-means solution

produced similar groups. After comparison and examination of the solutions, I chose to use

Ward's linkage, which was a bit more evenly distributed and more likely to allow for the Low

Cluster to be represented in the qualitative phase.

Appendix D

Survey Recruitment Email

Hello Future Educators,

My name is Jennifer Furman, and I am a doctoral candidate here at Virginia Commonwealth University, pursuing a degree in Educational Psychology. I am writing to you about a study I'm conducting, in hopes that you will be willing to participate in it.

The study I am conducting focuses on pre-service teacher attitudes about trauma-informed practices. The purpose of this study is to understand better how VCU's pre-service teachers understand the effects of trauma and how to support students who have been through trauma.

It's important to note that your participation in the study is completely voluntary. The study will take place in two parts, the survey that will take approximately 10 – 20 minutes to complete and then a follow-up interview at a later date that will take approximately 45 minutes. If you choose to participate in the survey, you do not have to participate in the interview. Students who choose to participate in the follow-up interviews will be contacted in a separate email/text.

The questions ask about your attitudes about the underlying causes of problem behavior in students, how you respond to those problems, self-care, and how trauma-informed practices fit into schools you've completed observations. All the questions ask you to select between two options that best represent your personal belief during your courses or practicum experiences.

To be eligible for this study, you must be over 18 years old and enrolled in a school of education course during the spring semester 2021.

The link to the survey is provided below. As you access the survey, you will be provided with information about the study to keep for your records. Again, your participation is strictly voluntary, but I sincerely hope you will choose to participate. Your ideas and perceptions are very important to me, and I appreciate your willingness to share them as part of this study. If you have any questions or concerns, please email me.

After completing the survey, or if you would like more information about trauma-informed practices, feel free to check out this resource from the National Child Traumatic Stress Network or reach out for more resources.

Sincerely,
Jennifer Furman
furmanja@vcu.edu

To begin the short survey, click this [link] or copy the following into your browser: [url]

Appendix E

Quantitative Phase Items

Demographic Items

Trauma-Informed Teaching Survey
Page 1

Demographic Questions

Record ID	_____
Are you in a teacher preparation program?	○ yes ○ no
In which teacher preparation program are you enrolled?	☐ B.S. Ed in Early Childhood Education (PK-3) ☐ B.S. Ed. in Elementary Education (PK-6) ☐ B.S. Ed in Health and Physical Education ☐ B.S.Ed. in Secondary Education - Engineering ☐ B.S. Ed in Special Education ☐ M.Ed. Adult Learning ☐ M.Ed. Counselor Education ☐ M.Ed. Curriculum & Instruction ☐ M.Ed. Educational Leadership ☐ M.Ed. Reading ☐ M.Ed. Special Education ☐ M.T. Master of Teaching ☐ RTR Program ☐ None, taking an education course for some other degree
What gender do you identify with?	○ Male ○ Female ○ Transgender male ○ Transgender female ○ Nonbinary ○ Other not listed ○ Prefer not to answer
What is your age?	○ 18-20 ○ 20-22 ○ 23-30 ○ > 30
What ethnicity do you identify with?	○ White, non-Hispanic ○ Black or African American ○ Asian ○ Latinx ○ Indigenous ○ Other not listed
How many formal SOE practicum experiences have you completed?	○ 0 ○ 1 ○ 2 ○ 3 ○ 4 or more
How many education-related courses have you completed (not including the present semester)? (Number of EDUS or TEDU courses, not credit hours)	○ < 5 ○ 6-10 ○ 10-15 ○ 15-20 ○ 20+

Please identify if you are currently enrolled or have already completed any of the following courses:

	No	Currently enrolled	Already completed
EDUS 301 human development	○	○	○
EDUS or PSYC 304, 305 607, or 617 (Educational psychology)	○	○	○
TEDU/SEDP 410 (Building a Community of Learners: Classroom Management)	○	○	○

Are you willing to participate in a follow-up interview through Zoom later this semester?	○ Yes ○ No

Please provide your name to be used only for contacting you for a follow-up interview about trauma-informed teaching.

_____

Please provide your email to be used only for contacting you for a follow-up interview about trauma-informed teaching.

_____

Please provide your phone number to be used only for texting you about a follow-up interview about trauma-informed teaching.

_____

ARTIC Scale

Attitudes Related to Trauma-Informed Care

Record ID

_____

Trauma-informed care is an approach to engaging people with trauma histories in education that recognizes and acknowledges the impact of trauma on their lives.

Instructions: For each item, select a circle 1-7 between the two options that best represents your personal belief during the past two months of education experiences.

I believe that...

Ice cream is delicious 1 2 3 4 5 6 7 Ice cream is disgusting

In this SAMPLE ITEM, if the respondent wanted to report that he/she believes that ice cream is much more delicious than disgusting, they may select the number 2.

I believe that...

Students' learning and behavior problems are rooted in their behavioral or mental health condition 1 2 3 4 5 6 7 Students' learning and behavior problems are rooted in their history of difficult life events.

○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○ 7

I believe that...

Focusing on developing healthy, healing relationships is the best approach when working with people with trauma histories. 1 2 3 4 5 6 7 Rules and consequences are the best approach when working with people with trauma histories.

○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○ 7

I believe that...

Being very upset is normal for many of the students I have observed in my practicums. 1 2 3 4 5 6 7 When I have my own classroom, it will reflect badly on me if my students are very upset.

○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○ 7

I believe that...

I don't have what it takes to help my future students.

1 2 3 4 5 6 7 I have what it takes to help my future students.

○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○ 7

I believe that...

It's best not to tell others if I have strong feelings about the work because they will think I am not cut out for this job.

1 2 3 4 5 6 7 It's best if I talk with others about my strong feelings about the work so I don't have to hold it alone.

○ 1   ○ 2   ○ 3   ○ 4   ○ 5   ○ 6   ○ 7

I believe that...

The students were raised this way, so there's not much teachers can do about it now.

1 2 3 4 5 6 7 The students were raised this way, so they don't yet know how to do what teachers ask them to do.

○ 1   ○ 2   ○ 3   ○ 4   ○ 5   ○ 6   ○ 7

I believe that...

Students need to experience real-life consequences in order to function in the real world.

1 2 3 4 5 6 7 Students need to experience healing relationships in order to function in the real world.

○ 1   ○ 2   ○ 3   ○ 4   ○ 5   ○ 6   ○ 7

I believe that...

If students say or do disrespectful things to me, it will make me look like a fool in front of others.

1 2 3 4 5 6 7 If students say or do disrespectful things to me, it won't reflect badly on me.

○ 1   ○ 2   ○ 3   ○ 4   ○ 5   ○ 6   ○ 7

I believe that...

I have the skills to help my future students.

1 2 3 4 5 6 7 I do not have the skills to help my future students.

○ 1   ○ 2   ○ 3   ○ 4   ○ 5   ○ 6   ○ 7

I believe that...

The best way to deal with feeling burnt out at work is to seek support.

1 2 3 4 5 6 7 The best way to deal with feeling burnt out at work is not to dwell on it and it will pass.

○ 1   ○ 2   ○ 3   ○ 4   ○ 5   ○ 6   ○ 7

I believe that...

Many students just don't want to change or learn.

1 2 3 4 5 6 7 All students want to change or learn.

○ 1   ○ 2   ○ 3   ○ 4   ○ 5   ○ 6   ○ 7

I believe that...

Students often are not yet able or ready to take responsibility for their actions. They need to be treated flexibly and as individuals.

1 2 3 4 5 6 7 Students need to be held accountable for their actions.

○ 1   ○ 2   ○ 3   ○ 4   ○ 5   ○ 6   ○ 7

I believe that...

I realize that students may not be able to apologize to me after they act out.

1 2 3 4 5 6 7 If students don't apologize to me after they act out, I will look like a fool in front of others.

○ 1   ○ 2   ○ 3   ○ 4   ○ 5   ○ 6   ○ 7

I believe that...

Each day will be uniquely stressful in teaching.

1 2 3 4 5 6 7 Each day will be new and interesting in teaching.

○ 1   ○ 2   ○ 3   ○ 4   ○ 5   ○ 6   ○ 7

I believe that...

The fact that I'm impacted by my work means that I care.

1 2 3 4 5 6 7 Sometimes I think I'm too sensitive to do this kind of work.

○ 1   ○ 2   ○ 3   ○ 4   ○ 5   ○ 6   ○ 7

I believe that...

Students have had to learn how to trick or mislead others to get their needs met.

1 2 3 4 5 6 7 Students are manipulative so you need to always question what they say.

○ 1   ○ 2   ○ 3   ○ 4   ○ 5   ○ 6   ○ 7

I believe that...

Helping students feel safe and cared about is the best way to eliminate undesirable behaviors.

1 2 3 4 5 6 7 Administering punitive consequences is the best way to eliminate undesirable behaviors.

○ 1   ○ 2   ○ 3   ○ 4   ○ 5   ○ 6   ○ 7

I believe that...

If I make mistakes with students, it would be best to move on and pretend it didn't happen.

1 2 3 4 5 6 7 If I make mistakes with students, it will be best to own up to my mistakes.

○ 1   ○ 2   ○ 3   ○ 4   ○ 5   ○ 6   ○ 7

I believe that...

The ups and downs are part of the work so I won't take it personally.

1 2 3 4 5 6 7 The unpredictability and intensity of work makes me think I'm not fit for this job.

○ 1   ○ 2   ○ 3   ○ 4   ○ 5   ○ 6   ○ 7

I believe that...

The most effective helpers find ways to toughen up – to screen out the pain – and not care so much about the work.

1 2 3 4 5 6 7 The most effective helpers allow themselves to be affected by the work – to feel and manage the pain – and to keep caring about the work.

○ 1   ○ 2   ○ 3   ○ 4   ○ 5   ○ 6   ○ 7

I believe that...

Students could act better if they really wanted.

1 2 3 4 5 6 7 Students are doing the best they can with the skills they have.

○ 1   ○ 2   ○ 3   ○ 4   ○ 5   ○ 6   ○ 7

I believe that...

It's best to treat students with respect and kindness from the start so they know I care.

1 2 3 4 5 6 7 It's best to be very strict at first so students learn they can't take advantage of me.

○ 1   ○ 2   ○ 3   ○ 4   ○ 5   ○ 6   ○ 7

I believe that...

Healthy relationships with students are the way to good student outcomes.

1 2 3 4 5 6 7 People will think I have poor boundaries if I build relationships with students.

○ 1   ○ 2   ○ 3   ○ 4   ○ 5   ○ 6   ○ 7

I believe that...

I feel I will able to do my best each day to help my students.

1 2 3 4 5 6 7 I feel helping my students each day will get exhausting.

○1 ○2 ○3 ○4 ○5 ○6 ○7

I believe that...

Teachers who are good at their job are deeply affected.

1 2 3 4 5 6 7 If teachers are good, they are not affected much.

○1 ○2 ○3 ○4 ○5 ○6 ○7

I believe that...

Students do the right thing one day but not the next. This shows that they are doing the best they can at any particular time.

1 2 3 4 5 6 7 Students do the right thing one day but not the next. This shows that they could control their behavior if they really wanted to.

○1 ○2 ○3 ○4 ○5 ○6 ○7

I believe that...

When managing a crisis, enforcement of rules is the most important thing.

1 2 3 4 5 6 7 When managing a crisis, flexibility is the most important thing.

○1 ○2 ○3 ○4 ○5 ○6 ○7

I believe that...

When I have my own classroom, if I don't control students' behavior, bad things will happen to property.

1 2 3 4 5 6 7 When I have my own classroom, as long as everyone is safe, it is ok for students to become really upset, even if they cause some property damage.

○1 ○2 ○3 ○4 ○5 ○6 ○7

I believe that...

I dread going to my practicum(s) (or I think I will) because it's just too hard and intense.

1 2 3 4 5 6 7 I expect for my future job that it will sometimes be hard and intense, but I know it's part of the work and it's ok.

○1 ○2 ○3 ○4 ○5 ○6 ○7

I believe that...

How I am doing personally is unrelated to whether I can help my future students.

1 2 3 4 5 6 7 I have to take care of myself personally in order to take care of my future students.

○1 ○2 ○3 ○4 ○5 ○6 ○7

I believe that...

If things aren't going well, it is because the students are not doing what they need to do.

1 2 3 4 5 6 7 If things aren't going well, it is because I need to shift what I'm doing.

○1 ○2 ○3 ○4 ○5 ○6 ○7

I believe that...

I am most effective as a helper when I focus on a student's strengths.

1 2 3 4 5 6 7 I am most effective as a helper when I focus on a student's problem behaviors.

○1 ○2 ○3 ○4 ○5 ○6 ○7

I believe that...

Being upset doesn't mean that students will hurt others.

1 2 3 4 5 6 7 If the teacher doesn't control students' behavior, other students will get hurt.

○1 ○2 ○3 ○4 ○5 ○6 ○7

I believe that...

If I told my future colleagues or current peers how hard my job is, I think they would support me.

1 2 3 4 5 6 7 If I told my future colleagues or current peers how hard my job is, they would probably think I wasn't cut out for the job.

○1 ○2 ○3 ○4 ○5 ○6 ○7

I believe that...

If teachers feel that they are "taking work home," it's best for them to bring it up with colleagues and/or supervisor(s).

1 2 3 4 5 6 7 If teachers feel that they are "taking work home," it's best to not share with others.

○1 ○2 ○3 ○4 ○5 ○6 ○7

Trauma Informed Knowledge Measurement

Please read the questions below and choose one of the answers provided. If you do not know the

answer to a question, you should choose the "don't know" response.

1. What portion of school-aged youth in the United States have experienced at least one trauma (outside of the direct impacts of the recent COVID-19)?
   a. The vast majority
   b. Around half
   c. One in twenty
   d. Don't know
2. The most common traumatic experiences for school age children in the United States are:
   a. Economic hardship
   b. Separation of parent/guardian
   c. Witnessing community violence
   d. A and B
   e. All of the above
   f. Don't know
3. How can the "survival brain" lead to behavioral and emotional problems in children?
   a. Children believe that if they are feeling stressed, others around them should also feel stressed, and they decide to act out.
   b. When the child is using his or her "survival brain," behavioral and emotional responses are an automatic reaction.
   c. A child knows that if she resists doing her homework and acts out enough, she will not have to do her homework that day and can go over to her friend's house instead.
   d. When a child is using his "survival brain," he is trying to figure out different ways he can get through the school day without doing any schoolwork.
   e. Don't know
4. What are the three brain regions that are most affected by chronic stress?
   a. Amygdala, hippocampus, prefrontal cortex
   b. Temporal lobe, hippocampus, hypothalamus
   c. Cerebellum, amygdala, hypothalamus
   d. Prefrontal cortex, hippocampus, occipital lobe
   e. Don't know

5. David is a student who is notorious for talking back to his teachers. He does not follow directions and questions his teachers' authority often. Which of the following examples uses a trauma-sensitive lens to view David's pattern of behavior?
   a. David is disrespectful and needs to learn how to respect adults as authority figures.
   b. David is defiant. He understands his teachers' expectations and chooses not to comply.
   c. David has difficulty trusting adults.
   d. David's family must allow him to behave this way at home.
   e. All of the above
   f. Don't know

6. How can school staff help to "re-sculpt" a student's brain that's been affected by trauma?
   a. By providing the student with strong healthy teacher-student relationships.
   b. By exposing the student to as many different teachers as possible so that he or she can learn adults aren't all bad.
   c. By sending the student to the office whenever he or she seems to be experiencing trauma triggers to limit disruptions in the classroom.
   d. By reacting emotionally whenever the student acts out to show how his or her actions affect others.
   e. Don't know

7. It is important for teachers and school staff who work with traumatized students:
   a. To create a psychologically and physically safe school environment.
   b. To not work with students who have experienced trauma if they have experienced trauma themselves.
   c. To have a self-care plan in place to prevent compassion fatigue and burnout.
   d. A and C
   e. All of the above
   f. Don't know

8. What are the main assumptions of the trauma-informed approach?
   a. React, respond, respect recover
   b. Realization, recognize, respond, resist re-traumatization
   c. Recognize, respond, refer, receive support
   d. Respect, respond, resist re-traumatization, refer
   e. Don't know

9. Which of the following ideas is NOT central to the trauma-informed approach?
   a. Behavioral and emotional problems are common symptoms of exposure to trauma.
   b. We need to know a student's full trauma history before we can work with him or her effectively.
   c. Working with traumatized students affects adults through vicarious trauma.
   d. Understanding a child's trauma history tells us that child's brain might have been changed by trauma.
   e. Don't know

10. A middle school teacher works in partnership with a student to create an individualized behavior plan that lists strategies the student can use when he becomes upset at school. This action illustrates which key principle of a trauma-informed approach?
    a. Safety
    b. Peer support
    c. Collaboration and mutuality
    d. Cultural, historical, and gender issues
    e. Don't know
11. Which of the following is NOT a key principle of trauma-informed care?
    a. Safety
    b. Trustworthiness and transparency
    c. Empowerment, voice and choice
    d. Uncovering trauma memories
    e. Don't know
12. Which of the following terms refers to a possible feature of vicarious trauma if left unaddressed?
    a. Empathy
    b. Vicarious transformation
    c. Self-regulation
    d. Burnout
    e. Self-care
    f. Don't know
13. Which is an example of an individual experiencing vicarious trauma?
    a. A teacher starts having nightmares after one of his students tells him about a violent event she witnessed in the community.
    b. A teacher worries that a students in her class is experiencing neglect.
    c. A father witnesses his child's injury during a motor vehicle accident.
    d. A teacher's family members feel worried about her stress levels at work.
    e. Don't know
14. Self-care strategies:
    a. Cannot be planned until after an individual experiences stress.
    b. Are personal and do not relate to an individual's professional life.
    c. Emphasize reaching out to others to cultivate positive connections.
    d. Can be applied to physical, emotional, and financial aspects of life.
    e. C and D
    f. All of the above
    g. Don't know

Appendix F

Information Sheet for Quantitative Phase

VCU Investigator: Jennifer Furman, M.Ed., furmanja@vcu.edu

Purpose: You are invited to participate in a research study to examine how VCU's pre-service teachers understand the effects of trauma and how to support students who have been through trauma. You are asked to be in this study because you are a teacher preparation program. Your participation is voluntary.

Description of your involvement: If you agree to be part of this study, you will be asked to complete an online survey of your attitudes about the underlying causes of problem behavior in students, how you respond to those problems, self-care, and how trauma-informed practices fit into schools you've completed observations. You will spend approximately 5-20 minutes completing the questionnaire at a place and time that is convenient for you.

Benefits to you and others: Your participation can provide universities with information about attitudes toward trauma-informed practices, which can be used to better teacher preparation.

Costs and compensation: There are no costs for participating in this study other than the time you will spend completing the online survey. No compensation or reward will be offered for participation in this study.

Alternatives: Because participation is voluntary, and there are no costs or consequences of not participating, there are no alternatives for participation.

Confidentiality: Your email address and name will be collected for a follow-up interview. Electronic data files of responses to the survey items will be secured using password protection. The information may be published in scientific journals or presented at professional meetings, but the data will not identify any individual.

Voluntary participation and withdrawal: Your participation in this study is your choice. You are free to decide not to participate at any time without penalty. You may also choose not to answer particular questions that are asked in the study. Your decision to participate or not to participate will not affect your relationship with Virginia Commonwealth University.

Questions: If you have any questions, complaints, or concerns about this research, contact the researcher. If you have any questions about your rights as a participant in this study, you may contact the VCU Office of Research at 804.827.2157. You may also contact the VCU Office of Research for general questions, concerns, or complaints about this research. Please call this number if you cannot reach the research team or wish to talk to someone else. Additional information about participation in research studies can be found at http://www.research.vcu.edu/irb/volunteers.htm.

Appendix G

Follow up for Interview Email and Text Message

Email

Good [time of day], [name],

My name is Jennifer Furman, and I am a doctoral candidate at Virginia Commonwealth University. I would like to thank you for your recent participation in the ARTIC survey about trauma-informed practices. At the end of the survey, you volunteered to participate in a follow-up interview to discuss your experiences.

If you choose to participate in this interview, you will be entered into a raffle for one of three $50 gift cards! All participants in the interviews will have an opportunity to be drawn for the gift card, which will be mailed to you upon completion of all the interviews.

The interview will discuss your experiences and perspectives related to trauma-informed practices. This portion of the study is being conducted to gain a better understanding of your answers from the survey you completed. Participation is voluntary and you are able to participate as little or as much as you wish. You are free to not answer questions. You can discontinue participation in this study at any point without consequence and without giving the researcher notice. If you wish to withdraw your participation any data that was collected will be destroyed.

Precautions will be taken to keep your identity confidential; you may choose a pseudonym to go by or a random name will be assigned to you. The interview will be audiotaped and transcribed. The audiotaped data will be stored in a password protected file, which only the primary investigator will have access. The audio files and transcriptions will be destroyed once the study is completed.

If there are any questions or concerns at any point during the study you are able to contact the primary investigator, Jennifer Furman at furmanja@vcu.edu. If you have questions about your rights as a subject/participant in this research study, or if you feel you have been placed at risk, you can contact: Office of Research Virginia Commonwealth University 800 East Leigh Street, Suite 3000 P.O. Box 980568 Richmond, VA 23298 Telephone: 804-827-2157

Please select a time on this Google Calendar [link] with possible times to complete the interview through Zoom or suggest a different time if you are interested but none of the times work for you.

Thank you,

Jennifer Furman, M.Ed.
Educational Psychology Doctoral Candidate
Virginia Commonwealth University

Text Message

Hello [name]! You took a survey recently about trauma-informed practices. (Thank you!) I (Jennifer Furman from VCU) sent you an email about a voluntary follow-up interview with more details, You can schedule a time that works best by clicking [link] or replying to this text with a good day/time for us to talk. If you participate, you'll have a chance at winning one of three gift cards! Thank you again for your time!

Appendix H

Information Sheet for Qualitative Phase

VCU Investigator: Jennifer Furman, M.Ed.

Purpose: You are invited to participate in a research study to examine how VCU's pre-service teachers understand the effects of trauma and how to support students who have been through trauma. You are asked to be in this study because you are a teacher preparation program and you previously completed the survey. Your participation is voluntary.

Description of your involvement: If you agree to be part of this study, you will be asked to give verbal consent after you have had all your questions answered and understand what will happen to you. You will be asked to participate in one individual interview that should last approximately 45 minutes and will be audio recorded to ensure I accurately capture what you say. Approximately 15 individuals will participate in this study. Individual interview questions will relate to your experience and thoughts about trauma-informed practices. Transcripts of these recordings will be emailed to all participants to review for accuracy confirmation. You will be able to change your responses should you feel that it does not accurately reflect your message. Initial findings will also be emailed to review for accuracy confirmation. No identifying information will be included in either the recordings or the transcripts.

Benefits to you and others: Your participation can provide universities with more information about attitudes toward trauma-informed practices, which can be used to better teacher preparation.

Costs and compensation: There are no costs for participating in this study other than the time you will spend completing the online survey. You will be entered into a raffle with other participants in the interviews for one of three $50 gift cards that, if won, will be mailed to you upon completion of the qualitative data collection.

Alternatives: Because participation is voluntary and there are no costs or consequences of not participating, there are no alternatives for participation.

Confidentiality: There will not be an identifiable information about you in the interview notes, transcripts, or write-up of the study. You will be given a fake name for the transcript and any quotes from your interview that may be included in the write-up of the study. Interviews will be audio-recorded, but no names will be used.

Voluntary participation and withdrawal: Your participation in this study is your choice. You are free to decide not to participate at any time without penalty. You may also choose not to answer particular questions that are asked in the study. Your decision to participate or not to participate will not affect your relationship with Virginia Commonwealth University.

Statement of Consent: I have been provided with an opportunity to read this consent form carefully. All of the questions that I wish to raise concerning this study have been answered. By signing this consent form, I have not waived any of the legal rights or benefits to which I otherwise would be entitled. Verbal acknowledgement to the researcher indicates that I freely consent to participate in this research study. I will receive a copy of the consent form for my records.

Questions: You may have questions about your participation in this study. If you have any questions, complaints, or concerns about this research, contact Dr. Sharon Zumbrunn at 804.827.2625 or skzumbrunn@vcu.edu. If you have any questions about your rights as a participant in this study, you may contact the VCU Office of Research at 804.827.2157. You may also contact the VCU Office of Research for general questions, concerns, or complaints about this research. Please call this number if you cannot reach the research team or wish to talk to someone else. Additional information about participation in research studies can be found at http://www.research.vcu.edu/irb/volunteers.htm.

Name and Email of Researcher: Jennifer Furman, furmanja@vcu.edu

Appendix I

Interview Script

Thank you for agreeing to speak with me today. This interview is a part of a research project studying the experiences of pre-service teachers and their attitudes about trauma-informed practices. I will be asking a series of questions. Your participation and answers are all completely voluntary. I will be audio recording our discussion today so I can transcribe it later for analysis. While I may use direct quotes from our discussion in my reporting, your name will never be attached to anything you say in any research reports. I hope that you will feel comfortable speaking honestly about your experiences, both positive and negative. I also want to acknowledge that we are talking about the topic of trauma which can affect each person differently. Self-care is important, so if you want to turn your camera off, take a break, or skip a question that is perfectly fine. Do you have any questions before we begin?

Appendix J

Interview Questions

1) Tell me about what grade level you hope to teach and where you'd like to start your teaching career.
2) Will you give me some examples of how you think trauma may relate to what you will be doing on a daily basis as a teacher?
3) Describe a snapshot of your future classroom, including how you think you will interact with students, what type of students you may have, and what problems you expect you may have.
   a) How personally responsible are you as the teacher for adjusting your teaching to the needs of your students from different cultural groups?
4) Talk to me about your interactions or experiences with the terms *trauma*, *trauma-informed care*, or *trauma-informed practices*.
   a) Probe: outside of classes
   b) Probe: in practicum experiences
   c) Probe: in ed psych or human development
5) How do you think teachers can support students who have been through trauma (such as their parents got divorced, they witnessed domestic violence, or they have been abused) and how prepared do you feel to work with students in your classroom who have experienced trauma?
6) Tell me about a class or experience that has helped you know how to identify when a student is experiencing traumatic stress and some strategies for responding?
   a) Probe: What are the symptoms of trauma?
   b) Probe: What strategies do you think are helpful to promote resilience?
7) How *often* do you think you will use these strategies?
   a) Probe: Explain why you feel that way
   b) Probe: If you don't have any experiences, how likely do you think you are to need trauma-informed strategies and what training/experiences do you want to have?
8) How could relationships with students and families promote resilience for students who have experienced trauma?
9) Tell me about a personal, class, or practicum experience that helped you learn about how to build these student or family relationships.
   a) Probe: What did you learn?
10) Could you tell me what you think culturally responsive teaching is and how you see culturally responsive teaching and trauma to be related?
11) Tell me about a time when you learned about culturally responsive teaching during this teacher preparation program?
   a) Probe: What did you learn?
12) Tell me about a time from VCU or from your personal experiences when you learned about self-care and secondary traumatic stress.
13) How do you think you will use self-care as a teacher?
   a) Probe: Discipline problems and secondary traumatic stress
14) How do you think COVID-19 will affect students in the years to come and how do you think you'll be able to support your students?
   a) Probe: What courses have prepared you for this type of support?

15) How do you think your identity or experiences may impact your role as a teacher and your relationships with students?

16) What else would you like to share with me about trauma-informed practices and your experiences in the VCU teacher preparation program you're in?