Promoting Trauma-Informed Competencies In Public School Teachers and Staff

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PROMOTING TRAUMA-INFORMED COMPETENCIES IN PUBLIC SCHOOL

TEACHERS AND STAFF

A Dissertation

Submitted to the School of Education

Duquesne University

In partial fulfillment of the requirements for

the degree of Doctor of Philosophy

By

Stephanie L. Stern

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PROMOTING TRAUMA-INFORMED COMPETENCIES IN PUBLIC SCHOOL TEACHERS AND STAFF

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ABSTRACT

PROMOTING TRAUMA-INFORMED CARE COMPETENCIES IN PUBLIC
SCHOOL TEACHERS AND STAFF

By
Stephanie L. Stern
August 2022

Dissertation supervised by Matthew Joseph, Ph.D.

Childhood trauma is prevalent among today’s students. When educators implement trauma-informed practices in schools, student behaviors and learning typically improve. It is thus important that educators are trained in and have positive attitudes, knowledge, and beliefs toward trauma-informed care. However, high proportions of educators report that they do not receive trauma-informed training, and research regarding the effectiveness of professional development in trauma-informed care is limited. The present study examined whether educators’ knowledge, attitudes, and beliefs regarding trauma-informed care differed by grade level of students worked with and previous professional development experiences in trauma-informed care, as well as tested the effectiveness of a professional development program in trauma-informed care. Results revealed significant inverse relationships between grade level of student taught
and attitudes related to trauma-informed care, and some specific trauma-informed attitudes were more positive among educators who had engaged in previous professional development. Additionally, overall attitudes and some specific attitudes related to trauma-informed care improved following the professional development program. Practical implication of these results and recommendations for future research are discussed.
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CHAPTER 1: INTRODUCTION

Overview

From 1995 to 1997, the Adverse Childhood Experiences (ACE) Study was conducted to investigate the effect that childhood abuse and neglect and household challenges had on children’s health and well-being later in life (Felitti et al., 1998). ACEs ranging from physical abuse and neglect to parental incarceration are potentially traumatic events that often have a profound and long-term negative impact on mental health and physical well-being, often into adulthood (Bethell et al., 2014; Felitti & Anda, 2010; Murphey & Sacks, 2019). The findings of the ACE Study suggest that a strong, cumulative relationship exists between adverse childhood experiences and negative outcomes in adults, including smoking, severe obesity, physical inactivity, depressed mood, suicide attempts, alcoholism, use of illicit drugs, sexually transmitted disease, and an increase in health risk factors for leading causes of death. Risk is also greater for various conditions, including ischemic heart disease, cancer, chronic bronchitis or emphysema, history of hepatitis or jaundice, skeletal fractures, and poor self-rated health (Felitti et al., 1998). Additional research has documented the effects of such adversities during childhood as well. Traumatic stress during childhood has been demonstrated to causes significant cognitive, social, emotional, and behavioral issues that can interfere with school functioning (Overstreet & Mathews, 2011; Perfect et al., 2016; Rosen & Hall, 2013). Children whose brains have been affected by ACEs often have difficulty planning, problem solving, regulating their behavior, and using language appropriately (Plumb et al., 2016; Teicher, 2002). Negative outcomes resulting from childhood trauma—such as lower cognitive functioning, academic performance, and school
connectedness, along with higher rates of grade retention, special education placement, and absenteeism—have been documented in the literature (Perfect et al., 2016; Porche et al., 2016).

Because of the wide prevalence of adverse childhood experiences and trauma, they are now considered to be a critical public health epidemic (Children’s Law Center of Washington, DC, 2015; National Center on Safe Supportive Learning Environments, 2015; Women and Trauma Federal Partners Committee & United States of America, 2013). Despite the prevalence of adverse childhood experiences and the negative outcomes in adulthood documented by the ACE study, research has also demonstrated the existence of positive outcomes for children who experience trauma-informed care (TIC) during or following such adversities (Baker, 2006; Berardi & Morton, 2017; Bethell et al., 2014; Rishel et al., 2019; Substance Abuse and Mental Health Services Administration [SAMHSA] 2014; Tabone et al., 2020). Negative or adverse experiences have the ability to change the structure of the brain, but so do positive experiences as well as positive interpersonal relationships (Heim & Nemeroff, 2009; Leeb et al., 2011).

Schools can play a critical role in promoting supportive and caring relationships that foster resiliency in the face of childhood adversity (Harper & Temkin, 2019). It has been demonstrated that children’s responses to adverse experiences are related to their unique resilience and to the nature of their support system. SAMHSA’s framework for TIC purports that when professionals, such as teachers, realize the impact of trauma and the potential for recovery, recognize the signs and symptoms of trauma, and respond in a manner that does not re-traumatize the child, the child’s internal working model can begin to change (SAMHSA, 2014). Because children spend a great deal of time in school,
teachers have the ability to be a major influence in the lives of their students (Stulmaker, 2013). Research demonstrates that the quality of teacher-child relationships is linked to children’s social-emotional development (O’Connor et al., 2011), academic achievement (McCormick et al., 2013), peer reputation (Garner et al., 2014), and overall school adjustment (Silva et al., 2011). A high-quality teacher-child relationship embodies closeness, warmth, and positive affect, and a lack of conflict, discordance, and anger (Baker, 2006; Davis, 2003; Spilt & Koomen, 2009). By building healthy relationships and scaffolding strategies to self-regulate and reduce stress, teachers are at the forefront of building resilience and limiting the adverse effects of trauma (Baker et al., 2020).

Over the past two decades the Substance Abuse and Mental Health Services Administration (SAMHSA) has led the way in prioritizing the need to address trauma as a fundamental obligation in the public services sector and has supported the development and endorsement of trauma-informed systems of care (SAMHSA, 2014). Trauma-informed systems assume that trauma is prevalent and integrate that understanding into policies, procedures, and practices in order to recognize the signs and symptoms of trauma while avoiding re-traumatization. In order for a system to be trauma-informed, individuals within the system must adopt trauma-informed approaches (Brown et al., 2012). However, these approaches are often shaped by and therefore reflect established beliefs and attitudes. Research regarding trauma-informed approaches in schools also suggests that collective classroom behaviors can influence teachers’ attitudes toward individual students (Helton & Oakland, 1977; Silberman, 1969), and that student behavior is, in turn, influenced by teachers’ beliefs and attitudes towards students (Kagan, 1992). A review of the literature failed to return results regarding differences that
exist, if any, in teacher attitudes related to trauma informed-care between grade levels; however, adjacent literature regarding parents' evaluation of children's misbehaviors supports the idea that significant differences exist between age groups. Research has demonstrated that parents’ interpretation of information about children influences their reactions to child behavior (Bugental, 1987). Parents tend to believe that younger children have less control over their misbehavior than older children, who they believe to be more intentional in their misbehavior (Dix et al., 1986; Dix et al., 1989). Preconceived attitudes and beliefs that are not trauma-informed often result in behaviors and interactions that are likely to be negative or re-traumatizing (Hammer et al., 2011). Therefore, increasing knowledge and shifting attitudes is an essential component of developing a trauma-informed system (McIntyre et al., 2019).

**Statement of the Problem**

At the bachelor’s level, teacher training focuses primarily on academics and provides little, if any, formal trauma-informed education (Phifer & Hall, 2016). Students’ emotional lability and attempts to manage unresolved trauma may be expressed in ways that teachers and faculty often view as “bad” behavior (Dorado et al., 2016) or internalized in ways that go unnoticed (National Child Traumatic Stress Network [NCTSN], 2008; Rossen & Cowan, 2013). Regardless of the expression of the trauma—whether internal or external—the consequences for students are very real. These consequences can include poor academic performance or decline, increasingly severe mental health symptoms such as depression or anxiety, as well as an increase in acting out behaviors (SAMHSA, 2014). Additionally, teachers tend to react exaggeratedly to “bad” behaviors (Phifer & Hall, 2016). However, none of the remedies applied will result
in improvement if the underlying trauma is not addressed and will contribute to further decline in academic performance and even to re-traumatization (Berardi & Morton, 2017; Phifer & Hall, 2016). Add in a pandemic to the already existing traumas, and the problem will exacerbate exponentially. Moreover, for many students who do not have a pre-existing trauma history, this pandemic could be the beginning.

Despite the recognized need for teachers to respond to the complex behavioral, cognitive, and social/relational needs of students (Brunzell et al., 2016), most teachers do not receive specific training on how to engage with students to address their social-emotional needs or trauma histories appropriately (Alisic, 2012; Chen & Philips, 2018, Post et al., 2020, Reinke et al., 2011). Additionally, most of the published research examines trauma-informed implications for services providers in human services agencies rather than for teachers in schools (Baker et al., 2016). The research that does explore TIC among teachers and school staff is minimal and mainly evaluates teachers’ temperaments, knowledge, or skills and the implementation of trauma-informed programs (Alisic, 2012; McIntyre et al., 2019). Studies that explore teachers’ attitudes towards TIC have been minimal and have been conducted mostly from the perspectives of classroom teaching in regards to problem behaviors and inclusion of students with special needs or learning difficulties with behavioral issues (Alisic, 2012; Monsen et al., 2014; Sadin, 2018), teachers’ views or perceptions of students or students’ parents (Anderson et al., 2015, Blitz et al., 2016), or teachers’ views about the acceptability of a specific trauma-informed approach they had used (McIntyre et al., 2019). Nonetheless, the research that does exist suggests that teachers with less favorable attitudes to trauma-informed approaches also have the potential to hinder the implementation of TIC (Post et
al., 2020), and trauma-informed professional development has the potential to increase knowledge and create changes in attitudes and behaviors that are more favorable to trauma-informed approaches in human service organizations (Baker et al., 2016; Brown et al., 2011).

Additionally, research exploring differences in teachers’ attitudes toward TIC based on students’ developmental level—which, in schools, is typically aligned with the grade level—is largely absent from the literature. However, such knowledge might be critical toward improving professional development programming, perhaps in terms of specifically tailoring messaging to those teaching at different levels. Given that teachers’ attitudes and perceptions regarding student behaviors can directly affect student outcomes (Kagan, 1992) and that teachers’ perceptions of student misbehavior (which is frequently a manifestation of trauma history) often differ by grade level (Kulinna et al., 2006), there is reason to believe that teachers’ attitudes toward TIC may differ according to the level at which they teach.

With these things in mind, it is clear that TIC in classrooms is important for educating students with trauma histories. However, teachers’ attitudes towards TIC are not well understood, and teacher professional development in TIC is underdeveloped. We know little about what factors that could inform future professional development (such as grade level taught) might influence teachers’ attitudes toward TIC in classrooms.

Moreover, no consensus exists for identifying a preferred framework for TIC in the classroom, nor is there a specific theoretical framework for the professional development of teachers working with traumatized youth (Chafouleas et al., 2016; Thomas et al., 2019). A lack of consensus regarding a dominant or effective framework
very likely contributes to the lack of research supporting a specific theoretical framework for the professional development of teachers working with traumatized youth, making conducting or assessing professional development more difficult. Therefore, it is important to better understand the efficacy of different approaches to professional development training of teachers and school staff (such as the brief constructivist-informed approach used in the professional development intervention investigated herein) on the development of attitudes toward trauma-informed care.

**Purpose of the Study**

A deficit in trauma-informed education currently exists in the school systems for faculty and staff (Baweja et al., 2015). Emerging research regarding the COVID-19 pandemic—which was classified by the Pennsylvania Supreme Court as a natural disaster—suggests that it can be “understood as a traumatic stressor event capable of eliciting PTSD-like responses and exacerbating other related mental health problems (e.g., anxiety, depression, psychosocial functioning, etc.)” (Bridgland et al., 2021, p. 1). Therefore, the COVID-19 pandemic adds a level of urgency to the need for trauma-informed education of school faculty and staff to assure the best possible outcomes for students’ academic success and overall mental health and well-being. The extent to which the school system is trauma-informed is largely dependent on the daily behavior of the school faculty and staff (Metz et al., 2007). Attitudes, knowledge, and beliefs that are aligned with trauma-informed care are important aspects that facilitate trauma-informed behaviors (Baker et al., 2015). The primary purpose of this study was to examine the effectiveness of professional development—in particular, a brief, constructivist approach—for improving the knowledge, attitudes, and beliefs of both teachers and staff.
concerning trauma-informed care in the classroom. A secondary yet still important aim of this study was to explore whether students’ grade level relates to their teachers’ knowledge, attitudes, and beliefs about trauma-informed care in the classroom; if so, this factor would warrant further attention toward improving professional development programming.

**Theoretical Foundations**

**SAMHSAs Framework for Trauma-Informed Care**

Almost half a century of research confirms the negative effects and serious consequences of childhood trauma. Traumatic stress has been documented as affecting a wide range of developmental domains during childhood including emotional, behavioral, interpersonal, physiological, and cognitive functioning (Cook et al., 2005). The body’s response to trauma influences a child’s brain development, which negatively affects self-regulation and the ability to form healthy attachments, to control impulses, and to focus attention (Cook et al., 2005; Perry, 2001; Perry, 2007). Trauma theory pertains to how one perceives and treats trauma. It encourages viewing survivors of trauma as physically and psychologically injured, and therefore in need of support and healing rather than perceiving them as weak, deficient, or possessed of weak moral character (Bloom & Farragher, 2011; Salvey & Sluyter, 1997; van der Kolk, 2014; Williams, 2006).

Recognizing the role that services systems play in helping to resolve or, unfortunately, exacerbate trauma-related issues, the Substance Abuse and Mental Health Services Administration (SAMHSA) developed a trauma-informed framework to assist public institutions and service settings in their day-to-day operations (SAMSHA, 2014). SAMHSA’s (2014) purpose for developing a framework for trauma and trauma-informed
approaches was to cultivate a shared conceptual understanding that would be adaptable to an array of service systems and stakeholders, including but not limited to federal partners, state and local systems, practitioners, researchers, and trauma survivors, families, and their communities. This framework was designed to be adaptable to various aspects as well, such as child welfare, education, criminal and juvenile justice, primary health care, and the military, as well as other areas that may positively or negatively affect an individual’s capacity to cope with traumatic experiences. SAMSHA acknowledges that addressing trauma requires a system-wide approach that includes public education and awareness, prevention and early identification, and effective trauma specific assessment and treatment (SAMHSA, 2014). Their framework, which sought to generate a shared understanding of trauma and a trauma-informed approach, was developed by integrating three important contributions to understanding trauma: trauma-focused research, practice-generated knowledge about trauma interventions, and the valuable information provided by trauma survivors who have been involved in multiple service areas.

The final framework was developed with input from stakeholders and the public via website comments and suggestions. Various stakeholders included federal agencies that oversee work in the field of trauma as well as experts funded through SAMSHA’s grants and initiatives; these include, but are not limited to, the National Child Traumatic Stress Initiative, National Center for Trauma-Informed Care’ Jail Diversion Trauma Recovery grant program, Children’s Mental Health Initiative, Women, Children and Family Substance Abuse Treatment Program, and Offender Reentry and Adult Treatment Court Programs.
SAMHSA’s (2014) framework, variably referred to as its trauma-informed approach or trauma-informed care, is based on four key assumptions and six key principals, and is regarded as “essential to the context of care” (p. 9). The key assumptions are known as the “4 R’s”: realize, recognize, respond, and resist re-traumatization.

A program, organization, or system that is trauma-informed realizes the widespread impact of trauma and understands potential paths for recovery; recognizes the signs and symptoms of trauma in clients, families, staff, and others involved with the system; and responds by fully integrating knowledge about trauma into policies, procedures, and practices, and seeks to actively resist re-traumatization. (SAMHSA, 2014, p. 9)

Rather than a given set of practices or procedures, the SAMSHA (2014) framework has six guiding principles that are generalizable across settings. The six key principles of a trauma-informed approach include safety; trustworthiness and transparency; peer support; collaboration and mutuality; empowerment, voice, and choice; and cultural, historical, and gender issues.

**Constructivist Theory**

Constructivist theory suggests that the optimal learning experience occurs when newly acquired information is integrated with prior information to construct meaning while in social situations with peers (Michael, 2006). Vygotsky’s (1932) theory of social constructivism postulates that social interaction, shared engagement, and discussion about a shared problem or experiences are necessary to create knowledge. Thus, the constructivist approach to professional development is used to align the trainer with the
trainee in order to facilitate learning. The teacher or trainer is the more experienced member whose role is to guide the less experienced trainees in exploring new information through discussion and problem solving in order to assimilate prior knowledge and experiences (Shaw et al., 2012). The focus, therefore, is not to gain answers but to internalize understanding and to construct new meaning.

**Research Questions**

1) How does the grade level of students worked with/taught relate to educators’ attitudes towards trauma-informed care in the school setting?

Sub questions:

a. How does grade level of students worked with/taught relate to educators’ attitudes regarding the underlying causes of problem behaviors and symptoms?

Hypothesis: Educators who work with/teach primary students are more likely to demonstrate attitudes that are consistent with the belief that underlying causes of problem behaviors and symptoms are adaptations and are malleable. Educators who work with/teach secondary students are more likely to demonstrate attitudes that are consistent with the belief that underlying causes of problem behaviors and symptoms are intentional and fixed.

b. How does the grade level of students worked with/taught relate to educators’ attitudes regarding their responses to problem behaviors and symptoms?

Hypothesis: Educators who work with/teach primary students are more likely to demonstrate attitudes that are consistent with the belief that relationships, flexibility, kindness, and safety are the agents of change regarding problem
behaviors and symptoms. Educators who work with/teach secondary students are more likely to demonstrate attitudes that are consistent with the belief that rules, consequences, and accountability are the agents of change regarding problem behaviors and symptoms.

c. How does the grade level of students worked with/taught relate to educators’ attitudes regarding the impact of *their on-the-job behavior*?

Hypothesis: Educators who work with/teach primary students are more likely to endorse empathy focused on-the-job behaviors. Educators who work with/teach secondary students are more likely to endorse control focused on-the-job behaviors.

d. How does the grade level of students worked with/taught relate to educators’ attitudes regarding *their self-efficacy in working with traumatized children*?

Hypothesis: Educators who work with/teach primary students are more likely to endorse feeling able to meet the demands of working with a traumatized population. Educators who work with/teach secondary students are more likely to feel that they are unable to meet the demands of working with a traumatized population.

e. How does the grade level of students worked with/taught relate to educators’ attitudes regarding *vicarious traumatization*?

Hypothesis: Educators who work with/teach primary students are more likely to demonstrate attitudes indicating an appreciation for the effects of secondary trauma/vicarious traumatization and coping by seeking support. Educators who work with/teach secondary students are more likely to minimize the
effects of secondary trauma/vicarious traumatization and coping by ignoring or hiding the impact.

2) Does trauma-informed professional development affect educators’ attitudes towards trauma-informed care in the school setting?

Sub questions:

a. How does trauma-informed professional development affect educators’ attitudes regarding the underlying causes of problem behaviors and symptoms?

Hypothesis: Trauma-informed professional development improves educators’ attitudes regarding the underlying causes of problem behavior and symptoms.

b. How does trauma-informed professional development affect educators’ attitudes regarding their responses to problem behaviors and symptoms?

Hypothesis: Trauma-informed professional development improves educators’ attitudes regarding their responses to problem behaviors and symptoms.

c. How does trauma-informed professional development affect educators’ attitudes regarding the impact of their on-the-job behavior?

Hypothesis: Trauma-informed professional development improves educators’ attitudes regarding the impact of their on-the-job behavior.

d. How does trauma-informed professional development affect educators’ attitudes regarding their self-efficacy in working with traumatized children?

Hypothesis: Trauma-informed professional development improves educators’ attitudes regarding their self-efficacy in working with traumatized children.
e. How does trauma-informed professional development affect educators’ attitudes regarding vicarious traumatization?

Hypothesis: Trauma-informed professional development improves educators’ attitudes regarding vicarious traumatization.

3) How does a constructivist approach to trauma-informed professional development affect educators’ attitudes regarding trauma-informed care in the school setting?

Sub questions:

a. How does a constructivist approach to trauma-informed professional development affect educators’ attitudes regarding the underlying causes of problem behaviors and symptoms?

Hypothesis: A constructivist approach to trauma-informed professional development improves educators’ attitudes regarding the underlying causes of problem behavior and symptoms.

b. How does a constructivist approach to trauma-informed professional development affect educators’ attitudes regarding their responses to problem behaviors and symptoms?

Hypothesis: A constructivist approach to trauma-informed professional development improves educators’ attitudes regarding their responses to problem behaviors and symptoms.

c. How does a constructivist approach to trauma-informed professional development affect educators’ attitudes regarding the impact of their on-the-job behavior?
Hypothesis: A constructivist approach to trauma-informed professional development improves educators’ attitudes regarding the impact of their on-the-job behavior.

d. How does a constructivist approach to trauma-informed professional development affect educators’ attitudes regarding their self-efficacy in working with traumatized children?

Hypothesis: A constructivist approach to trauma-informed professional development improves educators’ attitudes regarding their self-efficacy in working with traumatized children.

e. How does a constructivist approach to trauma-informed professional development affect educators’ attitudes regarding vicarious traumatization?

Hypothesis: A constructivist approach to trauma-informed professional development improves educators’ attitudes regarding vicarious traumatization.

**Definition of Key Terms**

Common terms found in the literature relating to trauma-informed care and used accordingly in this dissertation are as follows.

*Adverse childhood experiences (ACEs)*: These are defined as potentially traumatic events or experiences that occur in childhood (0–17 years) that include violence, abuse, neglect, witnessing violence in the home or community, or having a family member attempts or die by suicide (Centers for Disease Control and Prevention, 2021). Additionally, growing up in a household with family whose members struggle with substance abuse problems, mental health problems, or instability owing to parental
separation/divorce or incarceration can negatively affect a child’s sense of safety, stability, and bonding.

*Trauma:* This is defined as an acute or chronic life event that threatens one’s physical or emotional well-being (National Child Traumatic Stress Network (NCTSN), 2003).

Individual trauma results from 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)

Specific examples of events that are likely to result in trauma include interpersonal violence, accidents, injuries, man-made/natural disasters, seeing violence, a life-threatening illness, or repeated experience with a debilitating medical condition (Perfect et al., 2016).

*Trauma-informed care (TIC).* The trauma-informed care approach seeks to promote healing and avoid re-traumatization through a systems level framework that focuses on the “4 R’s”: realizing, recognizing, responding, and resisting (SAMHSA, 2014). A system or program that is trauma-informed realizes the breadth of the impact of trauma and the potential for recovery; recognizes the signs and symptoms of trauma; and responds by using this knowledge to guide policy, procedures, and practices while striving to actively resist re-traumatization (SAMHSA, 2014).
CHAPTER 2: LITERATURE REVIEW

Childhood Trauma

Childhood experiences that are ongoing, overwhelming, and/or without social support are likely to lead to toxic stress, which occurs when the body’s stress response management system experiences strong, frequent, or prolonged activation (Johnson et al., 2013). Studies have demonstrated that this type of chronic stress has a negative impact on brain functioning and development (Anda et al., 2006; Cohen et al., 2017; Perry, 1998; Shonkoff, 2009). Instances of extreme exposure to toxic stress, such as severe and chronic abuse, can lead to the overproduction of neural connections in the brain that are connected to fear, anxiety, and impulse responses (National Scientific Counsel on the Developing Child, 2014). These changes in the child’s stress management system often increase the frequency and duration of stress responses in the body occurring during situations or experiences that are not considered stressful by same-age peers. The National Child Traumatic Stress Network ([NCTSN] 2018) identifies this type of stress response in children as “child traumatic stress.”

Almost half a century of research confirms the negative effects and serious consequences of childhood trauma. Traumatic stress has been shown to affect a wide range of developmental domains during childhood, including emotional, behavioral, interpersonal, physiological, and cognitive functioning (Cook et al., 2005). Traumatic stress in childhood occurs when a child experiences or witnesses one or more traumatic events and when the result of that experience is a strong emotional and physical reaction that exists long after the event has ended (NCTSN, 2018). A traumatic event is considered to be frightening, dangerous, or violent, which threatens or causes harm to the
child’s emotional and physical well-being (NCTSN, 2008). Traumatic events can include exposure to war, threatened or actual personal violence which includes sexual assault, natural or human-made disasters, and severe accidents (American Psychological Association [APA], 2013). Witnessing events that occur to others—including threatened or serious injury, unnatural death, physical or sexual violence, severe domestic violence, severe accident, war, and disaster—are also considered traumatic events. Young children are extremely susceptible to developing a trauma response to this type of event because their own safety is directly tied to their attachment figure’s ability to care for them (Hornor, 2015; National Scientific Counsel on the Developing Child, 2014). Children who have these types of responses to traumatic events may feel terror, helplessness, or fear, as well as physiological reactions such as heart pounding, vomiting, or loss of bowel or bladder control (SAMHSA, 2014).

Strong evidence has been documented in the literature on the connection between adverse childhood experiences (ACEs) and negative long-term physical and mental health outcomes (Anda et al., 2006; Bader et al., 2007; Felitti et al., 1998; Kalmakis & Chandler, 2014). The Center for Disease Control and Prevention (CDC) and Kaiser Permanente researchers collaborated to study the long-term effects of childhood abuse, publishing their findings in 1998. The ACE scale categorized experiences into three subtypes: abuse (physical, verbal, or sexual), neglect (physical or emotional), and household dysfunction (substance abuse, mental illness, domestic violence, incarceration, and parental separation; Felitti et al., 1998). The ACE scale and study findings were the first of its kind to describe the long-term relationship of childhood experiences to important medical and public health problems. Until this time the existing research
regarding child abuse and long-term consequences had focused on single types of abuse and not on the cumulative influence of multiple experiences. The study findings supported a strong positive relationship between adverse childhood experiences and several of the leading risk factors for death in adulthood: smoking, severe obesity, physical inactivity, depressed mood, suicide attempt, alcoholism, any drug use, injected drug use, more than 50 sexual partners over the lifetime, and a history of sexually transmitted disease. A similar effect/positive relationship was demonstrated between the ACE score and such diseases as heart attack, cancer, stroke, COPD, and diabetes. Since then further research has continued to support and expand on findings demonstrating that the higher the ACE score, the greater the risk of experiencing risky health behaviors, chronic health conditions, low quality of life potential, and early death (Adverse Childhood Experience Resources, 2020).

Kalmakis and Chandler (2014) conducted a systemic review of the literature spanning over 40 years of research on ACEs. Their concept analysis of the literature concluded by operationally defining ACEs as “childhood events, varying in severity and often chronic, occurring in a child’s family or social environment that cause harm or distress, thereby disrupting the child’s physical or psychological health and development” (Kalmakis & Chandler, 2014, p. 1489). To formulate this definition, they identified five prominent characteristics of adverse childhood experiences found in the literature: harmful, chronic, distressing, cumulative, and varying in severity. They noted that harm comes not only from negative experiences but also from lack of positive ones. For example, harm often resulted not only from physical abuse (i.e., negative experience) but also from neglect or lack of supervision (i.e., lack of a positive experience). The typical
pattern of childhood adversity was most often not the result of a single event but rather from prolonged or frequent exposure. Distress, though a direct result of experiencing stress over a period of time, can also follow a single traumatic event. Research has shown a relation between an individual’s stress response and perceived control (Miller et al., 2007). A greater distress response is likely for children who, by the nature of their station in life, are not in a position of power; therefore, they often experience adverse events as uncontrollable (Kalmakis & Chandler, 2014). Nearly all of the literature supports the idea that adverse childhood experiences have a cumulative effect on the health and wellbeing of affected individuals. The term “complex trauma” has been used by many childhood trauma professionals to explain the outcomes of multiple, chronic, and prolonged events (van der Kolk, 2005). Spinazzola et al. (2005) posited that the adverse experiences that lead to complex trauma are most often interpersonal in nature, occur within the child’s caregiving system, and begin to occur early in childhood.

Finally, the review of literature demonstrated a wide range of variation in terms of classifying the severity of experiences (Kalmakis & Chandler, 2014). A relation has been shown between children’s response to adverse experiences and their unique resilience, as well as the nature of their support system. Severity, therefore, was most often determined by the child’s individual interpretation of the experience and not by the event per se. Evidence of adverse childhood experiences and their consequences has been documented in 17 countries, representing both developed and non-developed regions (Kalmakis & Chandler, 2014). Adverse childhood experiences are not limited to race, ethnicity, gender, age, or sexual orientation (Dye, 2018; Kalmakis & Chandler, 2014).
Prevalence of Trauma

The prevalence rates of adverse childhood experiences have not shown significant changes in the past two decades. The original CDC-Kaiser ACE study surveyed over 17,000 health maintenance organization members in Southern California between 1995 and 1997 (Felitti et al., 1998). The participants, who were mostly white (78.4%) with some post-secondary education (75.52%), were asked to complete a confidential survey regarding their childhood experiences and current health status and behaviors during routine physical exams. The prevalence rates of the study are shown in Table 1 (CDC, 2018)

Table 1

ACE Prevalence: 1998 Adverse Childhood Experiences Study

<table>
<thead>
<tr>
<th>ACE category</th>
<th>Women (N = 9,367)</th>
<th>Men (N = 7,970)</th>
<th>Total (N = 17,337)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abuse</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional Abuse</td>
<td>13.1%</td>
<td>7.6%</td>
<td>10.6%</td>
</tr>
<tr>
<td>Physical Abuse</td>
<td>27%</td>
<td>29.9%</td>
<td>28.3%</td>
</tr>
<tr>
<td>Sexual Abuse</td>
<td>24.7%</td>
<td>16%</td>
<td>20.7%</td>
</tr>
<tr>
<td>Household Challenges</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intimate Partner Violence</td>
<td>13.7%</td>
<td>11.5%</td>
<td>12.7%</td>
</tr>
<tr>
<td>Household Substance Abuse</td>
<td>29.5%</td>
<td>23.8%</td>
<td>26.9%</td>
</tr>
<tr>
<td>Household Mental Illness</td>
<td>23.3%</td>
<td>14.8%</td>
<td>19.4%</td>
</tr>
<tr>
<td>Parental Separation or Divorce</td>
<td>24.5%</td>
<td>21.8%</td>
<td>23.3%</td>
</tr>
<tr>
<td>Incarceration (household member)</td>
<td>5.2%</td>
<td>4.1%</td>
<td>4.7%</td>
</tr>
<tr>
<td>Neglect</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional</td>
<td>16.7%</td>
<td>12.7%</td>
<td>14.8%</td>
</tr>
<tr>
<td>Physical</td>
<td>9.2%</td>
<td>10.7%</td>
<td>9.9%</td>
</tr>
</tbody>
</table>
Of the participants surveyed, almost two-thirds (63.9%) experienced at least one ACE, and more than one in five (22%) reported three or more ACEs (CDC, 2018). The ACE scores in Table 2 were documented by the CDC-Kaiser ACE Study (CDC, 2018).

**Table 2**

*ACE Score Prevalence for CDC-Kaiser ACE Study Participants by Sex*

<table>
<thead>
<tr>
<th>Number of adverse childhood experiences (ACE score)</th>
<th>Women (N = 9,367)</th>
<th>Men (N = 7,970)</th>
<th>Total (N = 17,337)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>34.5%</td>
<td>38.0%</td>
<td>36.1%</td>
</tr>
<tr>
<td>1</td>
<td>24.5%</td>
<td>27.9%</td>
<td>26.0%</td>
</tr>
<tr>
<td>2</td>
<td>15.5%</td>
<td>16.4%</td>
<td>15.9%</td>
</tr>
<tr>
<td>3</td>
<td>10.3%</td>
<td>8.5%</td>
<td>9.5%</td>
</tr>
<tr>
<td>4 or more</td>
<td>15.2%</td>
<td>9.2%</td>
<td>12.5%</td>
</tr>
</tbody>
</table>

Almost 20 years later the Behavioral Risk Factor Surveillance System (BRFSS) was employed to collect data from January 2011 to December 2014 on health-related behaviors, health conditions, and use of preventative services (Merrick et al., 2018). The BRFSS is an annual, nationally representative telephone survey of non-institutionalized adults over 18 years old. Twenty-three states included the ACE assessment in their BRFSS survey. Merrick et al. (2018) analyzed the data to provide an updated prevalence estimate of ACEs in the United States, using the largest and most diverse sample to date. Table 3 presents their findings (Merrick et al., 2018).
### Table 3


<table>
<thead>
<tr>
<th>ACE category</th>
<th>Women (N = 110,312)</th>
<th>Men (N = 103,845)</th>
<th>Total (N = 214,157)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Abuse</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional Abuse</td>
<td>33.94%</td>
<td>34.92%</td>
<td>34.42%</td>
</tr>
<tr>
<td>Physical Abuse</td>
<td>17.53%</td>
<td>18.38%</td>
<td>17.94%</td>
</tr>
<tr>
<td>Sexual Abuse</td>
<td>16.33%</td>
<td>6.7%</td>
<td>11.60%</td>
</tr>
<tr>
<td><strong>Household Challenges</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intimate Partner Violence</td>
<td>18.19%</td>
<td>16.79%</td>
<td>17.51%</td>
</tr>
<tr>
<td>Household Substance Abuse</td>
<td>28.72%</td>
<td>26.33%</td>
<td>27.56%</td>
</tr>
<tr>
<td>Household Mental Illness</td>
<td>19.19%</td>
<td>13.71%</td>
<td>16.53%</td>
</tr>
<tr>
<td>Parental Separation or Divorce</td>
<td>27.8%</td>
<td>27.45%</td>
<td>27.63%</td>
</tr>
<tr>
<td>Incarceration (household member)</td>
<td>7.26%</td>
<td>8.58%</td>
<td>7.9%</td>
</tr>
</tbody>
</table>

Of the 214,157 participants in the BRFSS ACE study, 61.55% of the participants experienced at least one ACE, and almost one in four (24.64%) experienced three or more ACEs (Merrick et al., 2018). The ACE scores in Table 4 were documented by the BRFSS ACE study (Merrick et al., 2018).
Table 4

ACE Score Prevalence for BRFSS ACE Study

<table>
<thead>
<tr>
<th>Number of adverse childhood experiences (ACE Score)</th>
<th>Total (N = 214,157)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>38.45%</td>
</tr>
<tr>
<td>1</td>
<td>23.53%</td>
</tr>
<tr>
<td>2</td>
<td>13.38%</td>
</tr>
<tr>
<td>3</td>
<td>8.83%</td>
</tr>
<tr>
<td>4 or more</td>
<td>15.81%</td>
</tr>
</tbody>
</table>

The results of the BRFSS ACE study demonstrated prevalence rates similar to those in the original CDC-Kaiser ACE study. However, owing to the diversity of the sample, this study was able to highlight some important differences among specific demographic characteristics of its participants. Although ACEs are considered to be prevalent, significant differences exist among specific groups, indicating that some populations are at greater risk for childhood adversity than others (Merrick et al., 2018). Those groups reporting significantly higher mean numbers of ACE exposures included those identified as Black (mean score, 1.69), Hispanic (mean score, 1.8), and multiracial (mean score, 2.52); those with less than a high school education (mean score, 1.97); those with income less than $15,000/year (mean score, 2.16); those who were unemployed (mean score, 2.3) or unable to work (mean score, 2.33); and those identifying as gay/lesbian (mean score, 2.19) or bisexual (mean score, 3.14). Although the BRFSS survey included the most diverse collection of ACE data to date, it did not assess all
gender identifications, races, or sexual orientations. Additionally, the BRFSS ACE survey did not include emotional or physical neglect.

The BRFSS is an ongoing national survey with data being collected by individual states annually. The most recent analysis of BRFSS ACE data in Pennsylvania (the state in which the study took place) was done by the Pennsylvania Department of Health, using data collected in 2019. The ACE scores reported by that survey are documented in Table 5 (Pennsylvania Department of Health, 2020).

Table 5

ACE Score Prevalence for BRFSS ACE Study in Pennsylvania

<table>
<thead>
<tr>
<th>Number of adverse childhood experiences (ACE score)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N = 6,606 )</td>
</tr>
<tr>
<td>0</td>
<td>46.0%</td>
</tr>
<tr>
<td>1</td>
<td>19.0%</td>
</tr>
<tr>
<td>2</td>
<td>12.0%</td>
</tr>
<tr>
<td>3</td>
<td>7.0%</td>
</tr>
<tr>
<td>4 or more</td>
<td>16.0%</td>
</tr>
</tbody>
</table>

More than half (54%) of those surveyed in Pennsylvania reported experiencing one or more ACE, and almost one in four (23%) experienced three or more. Emotional abuse, which is also the most prevalent nationally (34.42%; Merrick et al., 2018), was reported in Pennsylvania by 37% of the participants to be the most common adverse experience during childhood (Pennsylvania Department of Health, 2020).

Other nationally representative studies support the prevalence of ACEs and trauma. Finkelhor et al. (2005) surveyed over 2,000 children ages 2–17, assessing the
prevalence rates of a large range of violence, crime, and victimization experiences. These experiences included physical assault of any kind, bullying, sexual victimization, or child maltreatment, and witnessing murder, domestic violence, abuse of a sibling, assault, or the violence of a war zone. Findings showed that more than one half (53%) of the children had experienced physical assault in the study year, 13.6% a form of child maltreatment, 8.2% a sexual victimization; 35.7% had witnessed violence or experienced another form of indirect victimization, and only 29% had not experienced any form of victimization. Additionally, the study found that among those who reported experiencing a victimization, the mean number of victimizations was 3. Those who experienced one victimization were found to be 69% more likely to experience an additional one within a year.

The National Survey of Children’s Exposure to Violence (NatSCEV) is a comprehensive national survey of children’s past-year and lifetime exposure to violence, crime, and abuse in the home, school, and community. It is sponsored by the U.S. Department of Justice (DOJ) and the Centers for Disease Control and Prevention (CDC; Finkelhor et al., 2015). The NatSCEV II was used in 2011 to collect data that assessed the prevalence rates of exposures to violence across a number of categories including conventional crime, child maltreatment, victimization by peers and siblings, sexual victimization, witnessing and indirect victimization (including exposure to community violence, family violence, and school violence and threats), and internet victimization (Finkelhor et al., 2015). From the child and parent report, 57% of the children surveyed reported experiencing at least one exposure to one of the following types of violence in the previous year: physical assault, sexual victimization, maltreatment, property
victimization, and witnessing violence. Additionally, 13.8% reported experiencing child maltreatment, which includes physical, sexual, and emotional abuse, neglect, and custodial interference or family abduction; 22.4% witnessed a violent act; 8.2% witnessed family violence; and 3.7% experienced a bomb or attack/threat against their school. As with the other ACE studies, multiple exposure continues to be prevalent. Almost half (48.4%) of the participants reported more than one type of direct or witnessed victimization, 15.1% reported 6 or more, and 4.9% reported 10 or more experiences within the study year.

The 2016 National Survey of Children’s Health (NSCH) was a nationally representative survey for assessing the prevalence of one or more ACEs among children from birth through age 17, as reported by a parent or guardian (Child and Adolescent Health Measurement Initiative, 2016). The survey found that just under 45% of children have experienced at least one ACE. Economic hardship and divorce or separation were documented as the most common. Additionally, the NSCH supported the disparity between specific groups. Results found that 61% of Black, non-Hispanic children and 51% of Hispanic children have experienced at least one ACE as compared to 40% of white non-Hispanic children and only 23% of Asian non-Hispanic children (Sacks & Murphey, 2018).

**Effects of Trauma**

A growing body of literature has documented the long-term impact that childhood trauma has on adults. The initial ACE study found that persons with multiple adverse childhood exposures were more likely to have multiple health risk factors later in life, including ischemic heart disease, cancer, chronic lung disease, skeletal fractures, and
liver disease (Felitti et al., 1998). Additionally, when compared to those who had none, those who experienced four or more ACEs demonstrated four to 12 times greater health risk for alcoholism, drug abuse, depression, and suicide attempt. Since then additional studies have not only supported these findings but have also expanded the list of negative outcomes in adulthood to include such chronic medical conditions as diabetes, heart disease, and liver disease (Greenfield & Marks, 2009); migraines (Tietjen et al., 2012); insomnia (Bader et al., 2007); obesity and hypertension (Greenfield & Marks, 2009); premature death (Brown et al., 2009); suicidal ideation and substance abuse (Enoch, 2011); depressive disorders, PTSD, and mood disorders (Briere & Scott, 2006); anxiety disorders, self-injurious behaviors, and eating disorders (Yates et al., 2008); and psychosis (Benedetti et al., 2011).

Childhood trauma is also linked to a plethora of other psychological issues in adulthood. Research has demonstrated that child abuse often precedes a pattern of harmful and self-destructive behaviors. Van Der Kolk and Fisler (1994) found that of those adults diagnosed with borderline personality disorder (BPD) and documented self-harm, 80% experienced physical or sexual abuse during childhood and 90% had suffered from parental neglect. Another study found that of those adults with a diagnosis of BPD, 81% had suffered from major childhood trauma, 71% reported experiencing physical abuse, 67% reported sexual abuse, and 62% had witnessed domestic violence (McLean, 2004). Trauma survivors can struggle with sensitivity to rejection, fear of abandonment and unstable relationships, and difficulties with trust (Briere & Jordan, 2009). Post-traumatic stress disorder, which is also common, results in various symptoms, including reckless or destructive behaviors, aggression, sleep disturbances and hypervigilance,
distorted blame of self or others, diminished interest in activities, and memory issues (APA, 2013).

The long-term effects of trauma can be traced back to the structural changes that occur in the brain during childhood. Technological advances, such as functional magnetic resonance imaging (fMRI), have allowed for scientists to examine the brain to identify anatomical and functional changes connected to child abuse and neglect (Heim & Nemeroff, 2009). Chemical and anatomical brain changes resulting from abuse and neglect have a strong negative impact on a child’s development, health, and behavior (Leeb et al., 2011).

An individual’s capacity to handle stress is regulated by a collection of interconnected brain circuits and hormone systems that are designed to respond in an adaptive manner to changes in the environment (National Scientific Council on the Developing Child, 2005/2014). When the stress response system identifies a threat, it signals the brain to trigger the production of chemicals and stress hormones, which in turn cues the brain and body to respond adaptively to the threat. Although it is posited that brain development continues to about 25 years of age (Grabe et al., 2012), a significant and critical period of brain development occurs between birth and age 5. During this critical period, neuron production continues in the hippocampus and the prefrontal cortex—areas responsible for planning, intellectual insight, and judgement—and the brain triples in size (Grogan & Murphy, 2011). The brains of those who are exposed to adverse experiences during childhood are being formed and instructed to function according to their experiences within a toxic environment.
Chronic stress creates neurobiological changes in the brain that affect
development and cause significant issues in brain functioning associated with physical,
mental, and emotional symptoms in childhood (Dye, 2018). When stress is introduced
into the environment, the response is facilitated by two primary systems—the
hypothalamic pituitary adrenal (HPA) axis and the sympathetic nervous system.
Exposure to toxic stress results in continual activation of the HPA axis, which results in
an increase in pituitary sensitivity and cortisol spikes (Grogan & Murphy, 2011). The
chronic activation and subsequent dysregulation of the HPA axis results in modification
of the brain structures and synapses, and has negative effects on the immune and
inflammatory processes in the body (Johnson et al., 2013). The overproduction of cortisol
has been found to hinder the development of the brain’s ability to respond to auditory,
visual, and somatic stimuli. The increase in cortisol is the brain’s attempt to cope with the
stress or threat that is experienced. In the short term, increased cortisol can be helpful for
survival, but the overexposure to cortisol that results from chronic and unrelenting stress
causes significant changes to the brain. Excessive cortisol is responsible for decreasing
the volume of the hippocampus which is vital for memory storage and retrieval (Grogan
& Murphy, 2011). The dysregulation of the HPA axis is known to cause hormonal
abnormalities and a greater risk for depression (de Kloet et al. 2005). As a consequence
of this dysregulation, the brain structures responsible for regulating emotions are
deactivated, resulting in elevated emotional reactions to trauma reminders and
suppression of emotion regulation and behavior control. Several key areas of the brain are
negatively affected by these structural and chemical changes in the brain, including the
prefrontal cortex, the limbic system, and the brain stem (Perry, 2006).
Research has demonstrated that traumatic stress causes significant cognitive, social, emotional, and behavioral issues that can interfere with school functioning (Overstreet & Mathews, 2011; Perfect et al., 2016; Rosen & Hall, 2013). Higher order skills, such as executive functioning and self-regulation, are known to be essential to educational success (Center on the Developing Child, 2018). The prefrontal cortex is responsible for planning and anticipation, sense of time and context, inhibition of inappropriate actions, and empathetic understanding (van der Kolk, 2014). The inflation caused by the stress response system in children who have been exposed to toxic stress has been demonstrated as negatively affecting the development of the prefrontal cortex in the brain (Arnsten et al., 2015). Children whose brains have been affected in this way often have difficulty planning, problem solving, regulating their behavior, and using language appropriately (Teicher, 2002; Plumb et al., 2016). Disruption to the initiation of empathy development can hinder the future development of more complex empathetic responses, which are necessary to the development of interpersonal relationships. The ability to recognize another’s emotional states and intentions is important for navigating peer and teacher relationships successfully in the school setting. Learning and overall school functioning is significantly influenced by a child’s affective expression, empathy, and interpersonal behavior (Perfect et al., 2016). Research has shown that children who have experienced adversity or maltreatment often respond to friendly initiations by peers and adults with avoidance, fear, and anger (Dodge et al., 1994; Main, 1979; Manly et al., 2001; Runyon & Kenny, 2002). Additionally, some of the most common outcomes related to childhood maltreatment involve difficulty with emotions and interpersonal relationships, such as attachment disorders, antisocial
behavior, and aggressive behaviors (Dodge et al., 1994; Hazen et al., 2009; Rogosch et al., 1995).

The limbic system is another area of the brain that is negatively affected by toxic stress during childhood. This system plays an essential role in an individual’s behavioral and emotional responses, especially for basic survival and including the fight-or-flight response (The limbic system, 2019; Perry, 1999; Perry, 2007). The fight-or-flight response is muscular and physiological in nature and does not involve rational cognition, thought, or planning (van der Kolk, 2015). Two of the major structures that make up the limbic system are the hippocampus and the amygdala (The limbic system, 2019). The hippocampus is the memory center of the brain and is responsible for the creation and long-term storage of episodic memory. The amygdala is responsible for one’s emotional responses, including feelings like fear, anxiety, and anger, as well as pleasure. The amygdala is responsible for attaching emotional content to memories, which has a direct impact on how strongly those memories are stored. Strong emotional memories, specifically fearful ones, have a lasting impact and can be formed after only a few experiences.

The limbic system assists the brain in making an internal representation of the external world (Perry, 1999). Children who experience chronic and unrelenting stress develop internal representations of the world based on fearful and unpredictable environments. Traumatic memories are often tied to the senses, which can trigger fight-or-flight responses when no actual threat is present. Children who are exposed to toxic stress often remain in a state of alarm, as their cognition is dominated by the limbic area and trained to assess the environment for threats. Non-verbal information, such as sounds
and smells, is strongly connected to threatening situations or experiences preventing efficient processing of information and the storage of verbal information. This constant state of alarm can prevent a student from being able to pay attention in class, thus hindering the child’s ability to learn.

The brain stem, which is the first part of the brain to develop, controls such basic survival functions as breathing, heart rate, body temperature, blood pressure, sleep, and hunger (Ford & Courtois, 2013; Perry, 2007). However, when subjected to traumatic stress the brain stem responses override and impair the child’s ability to learn, think, reflect, and respond flexibly (Perry, 1999). Because a paired association between innocuous sensory stimuli—for example, smells or sounds—and a traumatic event or stressor has been created in the limbic system, the exposure to such stimuli now causes the brainstem to react with a flight, fight, or freeze response. Thereafter, although the stimuli may occur in a non-threatening situation, the child’s brain reacts as if in survival mode without consulting with the rational or thinking part of the brain. Continued experiences such as these create a positive feedback loop in which the brain is conditioned to respond as if being threatened in situations in which the brain stem is appropriately functioning. For example, many children experience some anxiety before a sporting event or a big exam. These everyday life stressors can increase the heart rate which, in turn, triggers the child to respond to the threat in ways that are out of proportion to the precipitating event. In the classroom, the “fight, flight, or freeze” response is viewed as inappropriate or dysfunctional behavior, such as tantrums, angry outbursts, or refusals. Over time children exposed to adverse experiences develop severe reactivity to
seemingly neutral stimuli, resulting in low frustration tolerance and an inability to tolerate anxiety (van der Kolk, 2005).

The negative effects from traumatic stress on the brain have far reaching consequences for the child’s physical health as well. Research has revealed lower rates of school engagement and higher rates of chronic disease among children with adverse childhood experiences (Bethell et al., 2014): 31.6% of children with two or more reported adverse childhood experiences were likely to qualify as having special health care needs, as compared to 14.6% of children with zero reported experiences. Additionally, a large meta-analysis found that children exposed to toxic levels of stress had increased levels of inflammation in the body, dysregulated or suppressed immune systems, impaired growth, and an increased likelihood of metabolic syndrome (De Bellis & Zisk, 2014). The increased risk for conditions related to metabolic syndrome have been widely documented. Metabolic syndrome is a cluster of conditions such as high blood pressure, high blood sugar/glucose intolerance, excess abdominal fat and abnormal cholesterol or triglyceride levels that occur together and increase the risk of cardiovascular disease, coronary heart disease, stroke, and type 2 diabetes (Ford 2005). Children who have experienced traumatic stress during childhood are more likely to be obese, and experience hypertension (Greenfield & Marks, 2009), have higher resting blood pressure and blunted blood pressure reactivity (Gooding et al., 2016), and diabetes (Ford, 2005).

Children who suffer from toxic stress are also at an increased risk for asthma and other cardiorespiratory diseases or intestinal, bacterial, or viral infections that result in frequent hospital visits (Flaherty et al., 2009; Lanier et al., 2010). They are also more likely to experience unexplained pain and somatic (medically unexplained) symptoms,
such as headache, stomachache, fatigue, or other body pain (Anda et al., 2006; Paras et al., 2009).

**Trauma-Informed Care**

Adverse childhood experiences and trauma are so prevalent that they are considered to be a critical public health epidemic (Children’s Law Center of Washington, DC, 2015; National Center on Safe Supportive Learning Environments, 2015; Women and Trauma Federal Partners Committee & United States of America, 2013). Negative outcomes resulting from childhood trauma—such as lower cognitive functioning, academic performance, and school connectedness; and higher rates of grade retention, special education placement, and absenteeism—have been extensively documented in the literature (Perfect et al., 2016; Porche et al., 2016). Additionally, research demonstrates that those children who experience adversity are more likely to have learning or behavior problems. For example, Burke et al. (2011) found that out of 701 low-income, urban youth surveyed, only 3% of those who experienced no ACEs had a documented learning or behavior problem as compared to 20.7% with one to three ACEs and 51.2% with four or more ACEs. Therefore, addressing the negative impact of traumatic stress has become a national priority in the United States. Over the past two decades, the Substance Abuse and Mental Health Services Administration (SAMHSA) has been a leader in prioritizing the need to address trauma as a fundamental obligation in the public services sector and has supported the development and endorsement of trauma-informed systems of care (SAMHSA, 2014). The trauma-informed approach seeks to promote healing and avoid re-traumatization through a systems level framework that focuses on the “4 R’s”: realizing, recognizing, responding, and resisting. A system or program that is trauma
informed realizes the breadth of the impact of trauma and the potential for recovery; recognizes the signs and symptoms of trauma; and responds by using this knowledge to guide policy, procedures, and practices while striving actively to resist re-traumatization.

Although the negative impact of trauma on a child’s brain development is overwhelmingly documented in the literature (Dye, 2018; Grogan & Murphy, 2011; Heim & Nemeroff, 2009; Johnson et al., 2013; Leeb et al., 2011; Overstreet & Mathews, 2011; Perfect et al., 2016; Perry, 2006; Rosen & Hall, 2013), it is important to note that the brain is incredibly plastic (Stien et al., 2004). While negative or adverse experiences have the ability to change the structure of the brain, so do positive experiences, as well as positive interpersonal relationships. Schools can play a critical role in promoting supportive and caring relationships that foster resiliency in the face of childhood adversity (Harper & Temkin, 2019).

**Trauma-Informed Schools and Associated Outcomes**

Despite the overwhelming need, most schools remain ill-equipped to address the social, emotional, and academic needs of children with trauma histories. However, the trend in the literature reveals that more and more schools are adopting some form of TIC as a result of the overwhelming prevalence of trauma-related behaviors in the school environment (du Mello Kenyon & Schirmer, 2020; Herrenkohl et al., 2019; Thomas et al., 2019). Emerging literature supports a number of school-based trauma-informed programs that demonstrate the potential to ameliorate the academic and behavioral difficulties experienced in the classroom as a result of trauma (Dorado et al., 2016; Hoover et al., 2018; Ijadi-Maghsoodi et al., 2017; McConnico et al., 2016; Santiago et al., 2018; Shamblin et al., 2016).
Herrenkohl et al. (2019) explored the existing literature regarding programs used in schools to address the needs of traumatized children. Included articles endorsed programs that were classified as school-based, utilized trauma-informed interventions, and included research findings that were relevant to program efficacy. The authors summarized characteristics of school-based models from both quantitative and qualitative studies to identify common elements and foci. Specific strengths of the research findings relevant to the impact of each program were considered. Thirty \( (N = 30) \) articles were reviewed and the authors provided information on relevant program components, evaluation elements, and results relevant to student outcomes. The literature included descriptive case studies, pre-experimental or quasi-experimental group-based designs, and a few randomized trials. The majority of the articles included individual and group-based interventions \( (n = 14) \) which targeted the emotional, psychological, and behavioral challenges of students aimed at diminishing the symptoms of trauma. These interventions were therapeutic in nature, mostly utilizing cognitive behavioral therapy, and delivered by trained mental health clinicians who worked with designated students one-on-one or in small groups.

Herrenkohl et al. (2019) found only four studies \( (n = 4) \) that measured outcomes related to classroom level programs. Classroom-based program interventions were mostly delivered by teachers or other school staff with specialized training and focused on increasing awareness of the prevalence and impacts of trauma, improving social skills, and building trust and compassion among students. Findings indicated that at the classroom level, creating a safe and supportive learning environment was a primary focus (Brown et al., 2006; Ijadi-Maghsoodi et al., 2017; McConnico et al 2016; Moore &
Begoray, 2017). Specific topics focused on increasing student awareness of the prevalence and effects of trauma, and on working with students to assist them in learning to manage stress, regulate their emotions, and mitigate conflict with peers. Classroom-based approaches differed from group approaches in that students were not chosen based on identified trauma histories or need, and lessons were more informative and not therapeutic.

Finally, the authors found 12 studies that assessed various aspects at the school level (Herrenkohl et al., 2019). The trauma-informed programs explored in this category were designed to extend throughout the school as well as into the community. Many of these programs were structured around an evidence-based, multi-tiered framework, such as Response to Intervention (RtI) (Chafouleas et al., 2016) or Positive Behavior Interventions and Supports (PBIS). A multi-tiered approach is a way to enhance supports for students that includes interventions at varying levels to best meet the needs of at-risk students. Tier 1 strategies are often universal: that is, they can apply to all students regardless of functioning. Tier 2 and Tier 3 strategies often employ specific interventions for students indicating a need; these can include mental health treatment, behavior modification strategies, and social skills training to reduce conduct issues, increase prosocial behaviors, and promote academic achievement among at-risk students. Multi-tiered strategies are often described as stand-alone strategies, but they are most often implemented together. Most of the school-wide programs found in this literature review consisted of multiple components that included psychoeducation, professional development training for teachers, and targeted services for students with identified trauma histories. These programs were found to contain various interventions, including
trauma-screenings, cognitive behavioral interventions with models such as Cognitive Behavioral Interventions for Trauma in Schools (CBITS), and other elements intended to enhance skills among all students. Some programs included community outreach and partnerships that added supplemental services to identified students and their families (Beehler et al., 2012; Shamblin et al., 2016). Additionally, some studies in this category explored programs that included separate classrooms to deliver such services as counseling and support to assist with emotion regulation and problem solving. Various positive outcomes were noted from the school-wide programs as follows:

- positive reports of the experiences from students, reduction in suspensions following implementation, and reduction in PTSD symptoms (Baroni et al., 2020; Crosby et al., 2018; Day et al., 2015)
- an increase in teachers’ confidence and reduction in hopelessness regarding students’ futures (Shamblin et al., 2016)
- a reduction in PTSD symptoms and improved functioning (Beehler et al., 2012)
- an increased understanding of trauma and trauma-informed practice, increased school-related functioning among all students, and a reduction in trauma-related symptoms for tier 3 students (Dorado et al., 2016)
- a positive impact on implementing a public health trauma intervention model (Frydman et al., 2017)
- a reduction in externalizing behavior and oppositional defiance, increased school readiness and academic performance among students who received
intense therapy, and improved emotional and instructional support and organization in classrooms (Holmes et al., 2015)

- teacher-reported reduction in referrals for fighting and aggressive behaviors (Parris et al., 2015)
- high satisfaction with professional development sessions reported by school staff and community members, and a reduction in PTSD symptoms after intervention for CBITS participants (Perry et al., 2016)
- a reduction in risk factors for social, academic, and emotional disorder, and a reduction in discipline referrals at program’s completion (von der Embse et al., 2019)
- reduced student suspensions and increased student attendance (Waghorn et al., 2012).

Another systematic review conducted by Roseby and Gascoigne (2021) explored the existing literature regarding trauma-informed education programs and their impact on academic and academic-related outcomes for students with a history of ACEs. Studies in the review included schools that had implemented school-wide trauma-informed education programs intended to measure academic or academic-related outcomes in targeted students who spoke English and who had been directly or indirectly exposed to childhood adversity. Academic outcomes measured included grades, attendance, academic achievement, standardized achievement, and discipline. Academic-related outcomes included resilience, behavior, school attachment, and student-teacher relationships. A total of 15 articles were found that met the inclusion criteria for the review. Included studies were conducted in various educational settings—preschools,
primary/elementary schools, and high schools—and included a range of trauma-informed education programs and academic/academic related outcomes. Specifically, eight different trauma-informed theories and models were identified with some overlap, as many studies drew from the same models of implementation. Four (Dorado et al., 2016; Holmes et al., 2015; Mitchell, 2016; Pfenninger Saint Giles, 2016) of the eight studies employed the attachment, self-regulation, and competency model (Blaustein & Kinniburgh, 2010) while the other four (Baroni et al., 2016; Crosby et al., 2017, 2018; Day et al., 2015) used an adapted version of the heart teaching and learning: compassion, resiliency, and academic success program (Wolpow et al., 2009). Three of the identified articles pertained to preschool children with programs assessing academic-related outcomes to promote essential skills, such as emotion regulation and assisting children to control their impulses, which have been found to interfere with later learning (Shamblin et al., 2016). Despite differences in implementation, constructs assessed, and study design, all studies related to preschool students demonstrated significant impacts on some, but not all, academic-related outcomes (Holmes et al., 2015; Pfenninger Saint Giles, 2016; Shamblin et al., 2016). Holmes et al. (2015) found improvements in attention, externalizing, and internalizing behaviors following the Head Start Trauma Smart training and intensive child services for students referred to the program due to chronic trauma histories. Pfenninger Saint Giles (2016) noted that improvements were found in internalizing student behaviors following trauma interventions, such as teacher trainings. However, no improvements were found regarding attention, externalizing behaviors, or protective factors.
Roseby and Gascoigne’s (2021) review identified five articles that pertained to the impact of trauma-informed care on academic and academic-related outcomes in primary/elementary students. Articles in this category included participants in kindergarten through eighth grade. Three of these articles explored the impact of school-based trauma-informed education interventions (Dorado et al., 2016; Perry & Daniels, 2016; Stokes & Turnbull, 2016). Two articles explored the impact of targeted supports, specifically one that provided funding for students who were identified as homeless (Hatchett et al., 2017) and one that used school-based psychotherapeutic services (Mitchell, 2016). Four of the five articles found demonstrated significant improvements in some, but not all, of the academic and academic-related student outcomes. Trauma-informed positive education programs demonstrated positive results for student well-being, achievement, behavior, and engagement, as well as in the development of relationships and improved self-awareness (Strokes & Turnbull, 2016). Noted in addition were positive impacts on students’ literacy and numeracy achievement with decreases in rates of suspensions. Additionally, students who received targeted interventions as part of a school-wide trauma-informed program demonstrated positive changes regarding attendance, ability to learn, time spent in the classroom, on-task time, and reduction of disciplinary infractions (Dorado et al., 2016).

One example of a school-wide approach was described by Shamblin et al. (2016) in a program evaluation that explored the impact of a system-focused, early childhood intervention based in the rural Appalachian counties of Ohio. This study demonstrated both student outcomes and teacher outcomes. The student outcomes will be discussed here, and the outcomes specific to teachers will be discussed in the following section. The
program of study combined the Early Childhood Mental Health Consultation Model (ECMHC), with a SAMHSA-funded program, Project LAUNCH (Linking Action to Unmet Needs), designed for children ages birth to 8 that includes screening, family engagement, and school outreach (Shamblin et al., 2016). The program employed in-house consultants to provide daily supports for teachers, combined with school based mental health interventions delivered to students as needed. This study included 11 preschool classrooms across five elementary schools that included 217 students. Eleven teachers received consultation and workforce development services, and three consultants provided services under the direction of a licensed professional clinical counselor with supervisory credentials. Consultants employed relational approaches to training, team building, modeling, and wellness activities to assist teachers in meeting the social-emotional needs of their students.

Specifically, this program follows a three-tier model of early childhood mental health service including universal consultation, targeted consultation, and intensive services coupled with workforce development trainings. At Tier 1, consultants implemented a social-emotional curriculum with the children on a weekly basis and engaged in training/mentoring with teachers to facilitate understanding of trauma-informed principles, as well as to teach an evidence-based practice based on Parent Child Interaction Therapy, called CARE skills. The teacher training/skill building occurred monthly and topics were teacher generated. Consultants attended to teacher requests and needs daily. Tier 2 provided targeted consultation to address specific needs or challenging behaviors of individual students who had not responded to universal classroom interventions and to initiate home/school communication strategies. At this
tier, teachers and consultants collaborated to develop behavior plans with specific strategies to address trauma related behaviors in the classroom environment. Additionally, special classroom materials were provided to the teachers to assist with curriculum mastery. Tier 3, consisting of intensive services provided by the consultant/specialist, included on-site mental health assessments and treatment for identified children and their families, where appropriate. The consultant used Trauma-Focused Cognitive Behavior Therapy and/or Parent-Child Interaction Therapy based on assessment outcomes. The consultant may also provide recommendations for further services off-site if needed. The goal of this partnership program was to create a trauma-informed school system to facilitate the development of resilience in children, which is correlated with positive caregiver relationships. This program was designed to increase teacher competence and confidence in meeting the social-emotional needs of traumatized students while reducing challenging behaviors in the classroom and increasing reliance in children by targeting initiative, attachment, and self-control. A specific goal of the program evaluation was to assess the impact of consultation and workforce development activities on the resilience of students affected by trauma (Shamblin et al., 2016).

In another program evaluation example, a functional assessment of the social, emotional, and behavioral functioning of the students was conducted using the Devereux Early Child Assessment (DECA; LeBuff & Naglierie, 1999). The DECA is a 37-item standardized behavior rating scale that teachers use to assess resiliency in their students. Child behaviors were rated by the teachers on a scale ranging from “never” to “very frequently.” A score for total protective factors provided findings based on three resilience factors: initiative, attachment, and self-control. To measure this construct, the
partnerships program outcome data was compared to that of a Head Start program that employed as-needed consultation services only.

Findings from this study indicated that the program demonstrated modest but significant positive outcomes in promoting resilience of students in the classroom. The DECA results for the partnership program that employed embedded consultation demonstrated significant improvements when compared to the Head Start Program that used consults on an as-needed basis only. These results included relational resilience as measured by attachment and initiative subscales, and classroom behavior, as measured by increased scores on child self-control. The program evaluation outcomes supported the literature that describes the critical components necessary to create trauma-informed systems. The combination of relationship building and trauma-informed professional development initiatives, including educational training and on-site consultation, demonstrated positive outcomes that may assist others in creating a system of care that is responsive to traumatized students.

Despite positive outcomes, the authors also noted some limitations. First, the partnerships program was created specifically to meet the needs of impoverished, rural, Appalachian school children; therefore, it may not be generalizable to other populations. Additionally, as a program evaluation, the study lacks a control group and was limited in sample size which also limits the generalizability of the results. However, the authors note that this study does offer some real world applications and recommendations for trauma-informed systems of care. The authors stress that it is imperative that others conduct program evaluations and document the results to add to the literature and assist
researchers in discovery of feasible strategies as well as to increase validity of recorded approaches.

**Role of the Teacher in Trauma-Informed Schools**

In order for a system, or school, to become trauma-informed, individuals within the system must personify the principles of trauma-informed care in their everyday actions and interactions (Brown et al., 2012). Therefore, one focus of trauma-informed care is to increase knowledge and shift the attitudes of teachers and staff (McIntyre et al., 2019). Behaviors often reflect established beliefs and attitudes. Research has demonstrated that teachers/educators are shaped by their experiences working with trauma-affected youth (Alvarez, 2017; Morgan et al., 2015), but without appropriate trauma-informed professional development children are at risk of being labeled as behavioral problems. Additionally, if one’s preconceived attitudes towards trauma are not well informed, one’s behaviors are likely to be negative or re-traumatizing to the child (Hammer et al., 2011). For example, being removed from class, suspension, expulsion, restraint, or seclusion have all been documented in the research as means for dealing with problem behaviors in the classroom. However, drastic reductions in student behavior issues, suspensions, and expulsions have been shown to result from using trauma-informed approaches in schools (Dorado et al., 2016).

Research demonstrates that a positive, consistent, and supportive relationship with one or more caring adults is not only crucial but also the most effective protective factor for children who have experienced adversity (Harvard University, 2015; Ludy-Dobson & Perry, 2010; Sciaraffa et al., 2018; Sege & Harper Brown, 2017). Additionally, close relationships assist children with developing self-regulation, emotional security, and
social information-processing skills that promote successful interpersonal relationships and positive adaptation (Buyse et al., 2011; O’Connor et al., 2012; Silver et al., 2005). Children’s self-worth and their expectations of others’ reactions are constructed by interacting with and observing how their caregivers or those with whom they have their primary relationships respond to them (Bowlby, 1980). When primary relationships are emotionally absent, inconsistent, frustrating, violent, intrusive, or neglectful, the child learns that the external world is a dangerous place (van der Kolk, 2005). During times of stress, traumatized children become unable to process, integrate, and categorize what is going on and lose their capacity to regulate internal states. However, when professionals, such as teachers, realize the impact of trauma and the potential for recovery, recognize the signs and symptoms of trauma, and respond in a way that does not re-traumatize the child, the child’s internal working model can begin to change (SAMHSA, 2014). By building healthy relationships and scaffolding strategies to self-regulate and reduce stress, teachers are at the forefront of building resilience and limiting the adverse effects of trauma (Baker et al., 2020).

Because the classroom is often the most stable and predictable daily environment for children, it has the potential to be a healing environment for traumatized children (Cole et al., 2005; Downey, 2007). Owing to the amount of time that children spend in school, teachers have the ability to be a major influence in the lives of their students (Stulmaker, 2013). Research has shown that the quality of teacher-child relationships is linked to children’s social-emotional development (O’Connor et al., 2011), academic achievement (McCormick et al., 2013), peer reputation (Garner et al., 2014), and overall school adjustment (Silva et al., 2011). A high-quality teacher-child relationship embodies
closeness, warmth, and positive affect, and a lack of conflict, discordance, and anger (Baker, 2006; Davis, 2003; Spilt & Koomen, 2009). High quality teacher-child relationships predict low levels of externalizing behaviors and act as protective factors against internalizing behaviors in young children from becoming long-term problems. Additionally, the quality of the early teacher-child relationship has a greater impact on children from low socioeconomic backgrounds, as compared to their more affluent peers (Driscoll & Pianta, 2010). Teachers are in a position to fulfill the much-needed positive relationship role that is necessary to foster resilience and repair negative world views in traumatized youth. Teachers provide coping strategies, routine, and structure which can have a therapeutic effect for students who are experiencing or recovering from traumatic stress (Alisic, 2012; Ludy-Dobson & Perry, 2010; Mortensen & Barnett, 2016; Sciaraffa et al., 2018).

**Trauma-Informed Teacher Preparation and Associated Outcomes**

Despite the recognized need for teachers to respond to the complex behavioral, cognitive, and social/relational needs of students (Brunzell et al., 2016), most teachers do not receive specific training in how to engage with students to address social-emotional needs appropriately (Chen & Philips, 2018). Educators for Excellence (2020), a teacher-led organization, conducted a survey titled “Voices from the Classroom 2020: A Survey of America’s Educators” regarding policies that affect students and teaching careers. When the participants, a nationally representative sample of 1,500 full time public school teachers, were surveyed, they identified social-emotional learning (39%), alternatives to punitive discipline (35%), and trauma-informed teaching (30%) as their top three priorities for professional development. However, only one in 10 teachers reported that
their preparation programs were “very effective” in meeting the realities of the classroom. Of those who received specific professional development for dealing with those realities, only about half of the teachers felt that they were trained “very effectively” to successfully manage student behavior in the classroom (51%) and to support the social and emotional well-being of students (47%). Additionally, only 24% of teachers reported that their schools are at least “often” meeting the needs of students who have experienced trauma. For the teacher-student relationship to be strong enough to encourage students to use self-regulation strategies and de-escalation techniques, teachers need specific strategies to foster a classroom culture of safety and respect (Brunzell et al., 2020). However, as research demonstrates, many teachers lack the training to respond appropriately to children with trauma histories (Alisic, 2012; Post et al., 2020). Reinke et al. (2011) conducted a study spanning five school districts to examine teachers’ perspectives of the current mental health needs in their schools. Of the 292 teachers surveyed, 75% of them reported working with or referring students for mental health issues during the specific school year. While 89% of those teachers believed that schools should be responsible for addressing students’ mental health needs, only 34% believed that they had the skills necessary to shoulder that responsibility. Additionally, 78% of those teachers believed that a major barrier to supporting mental health needs in their schools was a lack of adequate training for dealing with children’s mental health issues.

Thomas et al. (2019) conducted an interdisciplinary overview and synthesis of literature that examined interventions used in schools with the objective of identifying implications for changing teaching practice specifically to address the needs of trauma affected youth. The overview examined peer-reviewed articles published between 1998
and 2018. Notably, their findings highlighted a lack of educational research regarding trauma-informed practices in schools prior to 2012. Thirty-three articles were found with 30 different interventions used as professional development programming in trauma-informed care. However, the study did find that among the resources employed, the core content of the various frameworks and approaches demonstrated extensive overlap. Most of the highly promoted professional development resources in trauma-informed care used the same tenets as SAMHSA’s framework for trauma-informed care (Thomas et al., 2019). Common themes in trauma-informed programming generally related to the following three categories: a) building knowledge in regards to understanding the nature and impact of trauma; b) shifting perspectives towards more empathetic responses; and c) self-care for educators. Thirteen of the 33 studies measured student outcomes to determine the effectiveness of the professional development trainings, and all but one found that their intervention was effective. Some of programs used in the literature were Bounce Back, Cognitive Behavioral Interventions for Trauma in Schools (CBITS), Head Start Trauma Smart, and Healthy Environments and Responses to Trauma in Schools (HEARTS). Thomas et al. (2019) noted that perspectives for effectiveness were not well grounded.

Trauma-informed approaches in schools are necessary not only to meet the needs of the children who face adversity (Stulmaker, 2013) but also to reduce the stress of the teachers responsible for these children (Cavenaugh, 2016). Based on the prevalence of adverse childhood experiences, it stands to reason that teachers can also be negatively affected by their own childhood trauma histories (Blaustein, 2013). Teachers who are overly stressed often have negative or inappropriate responses to student behavior
problems, which can result in prolonging or worsening a child’s behavioral or emotional problems in the classroom (Stokes & Philips, 2018). Therefore, a lack of training can add undue stress to teachers who may already be struggling with their own mental health issues. Although studied extensively in health care and mental health professions, the stress or negative feelings associated with working with traumatized individuals, known as compassion fatigue (CF) and secondary traumatic stress (STS), are understudied in education (Ormiston et al., 2022). Compassion fatigue is defined as “a reduction in empathic capacity or client interest manifested through behavioral and emotional reactions from exposure to traumatizing experiences of others” (Cieslak et al., 2014, p. 76). Empathy, as the foundation of CF, can be thought of as the “cost” of the compassion, and empathy is often needed and displayed by individuals who work with traumatized individuals (Ormiston et al., 2022). Secondary traumatic stress, often used interchangeably with the term “vicarious trauma,” occurs when one learns about or hears about the details of a traumatic event experienced by someone in their care or whom one cares about, and the stress results from helping and wanting to help. Teachers’ well-being and self-efficacy are rooted in a trauma-informed school environment where resources are available for the mental health needs of students (Collie et al., 2012). Research has indicated that trauma-informed school system approaches that promote social-emotional learning and encourage improving mental health supports for traumatized students are effective not only for student outcomes but also for teacher outcomes (Hydon et al., 2015). The nascent literature exploring outcomes in teacher preparation for the delivery of trauma-informed care looks at the impact of student trauma on teachers and elucidates
teachers’ thoughts and perceptions regarding best practices for improving teacher outcomes in trauma-informed care in schools.

Christian-Brandt et al. (2020) explored the relationship between STS, compassion satisfaction, burnout, and teacher perceptions of TIC effectiveness in elementary school teachers. Compassion satisfaction (CS) is characterized as the satisfaction and positive emotions associated with helping, as well as persons’ perceived ability to help, and is thought to serve as a protective factor against CF in helping professionals (Collins & Long, 2013; Conrad & Kellar-Guenther, 2006). Data was collected via an anonymous online survey from 224 elementary teachers in school districts that served low-income families. The survey followed the second year of a TIC program provided by the district that focused on teacher training, coaching for teachers by behavioral specialists, and universal, targeted, and clinical interventions with students. Topics for teacher training included childhood trauma, impacts of trauma on the developing brain, TIC, and self-care. These were covered through various modalities, including book studies, film, and active learning workshops that included role plays and modeling. Each school was also provided a full-time behavior specialist who provided coaching and support to teachers regarding general classroom strategies (e.g., appropriate expectations for student behaviors and maintain clear routines) as well as strategies for individual students as needed. Teachers also incorporated social emotional learning into classroom lessons with a focus on mindfulness and Cognitive Behavioral Therapy (CBT) principles. School counselors utilized the same CBT approach for one-on-one support with students as needed. Finally, a community mental health agency provided on-site clinical intervention for students with demonstrated need. Findings suggest that teachers with higher rates of
CS and STS demonstrated lower rates of burnout and perceived TIC to be more effective. Interestingly, these findings suggest that higher levels of vicarious trauma were a positive predictor of perceived TIC effectiveness. These findings were unexpected; however, the authors posit that teachers who experience more exposure to and/or understanding of student trauma may be more open to, and eager for, more TIC programming. This explanation is supported by adjacent literature, which indicates that schools with higher rates of trauma among students often express a strong desire for more TIC training (Baweja et al., 2016). Additionally, Christian-Brandt et al. (2020) found that high levels of burnout and low levels of compassion satisfaction predicted higher turnover rates; however, STS and perceptions of TIC were not related to teacher intention to leave the field owing to stress. This research suggests that improving positive feelings related to helping traumatized youth and self-efficacy may be more important than minimizing the effects of vicarious trauma. The authors further contended that CS may also alleviate STS among teachers, as indicated in adjacent mental health research (Saimos et al., 2012), and that self-efficacy may be a protective factor against STS when working with traumatized students (Caringi et al., 2015). The large sample size of participants and the diversity of students in the schools where TIC was implemented were notable strengths of this study. However, this study was limited in that it did not have a control group; therefore, causality could not be established concerning the impact of the TIC program on CS, STS, burnout, or the intent to leave the field. Authors also noted that their study would have benefited from other measures of fidelity and effectiveness than teachers’ self-report of TIC effectiveness. Finally, implications for future research included expanding the limited TIC literature to look at teacher occupational outcomes in order to empower
school systems to better promote endorsement of TIC and retention among teachers as well as improvement in student behavior and academic outcomes.

Another study conducted by Anderson et al. (2022) examined the impact of trauma-informed professional development on teachers in kindergarten through eighth grade using a mixed-method approach. Six kindergarten through fifth-grade teachers and one in-school suspension coordinator participated in the study. Participants included six females and one male, most of whom were teachers of color. The professional development program employed an instructional approach that included training on TIC related to student development, learning, and skill building; prepared lesson plans including classroom scripts, activities and handouts; specialized support during class application; and expert feedback on self-reflective journal entries. The Support for Students Exposed to Trauma (SSET) curriculum was completed via three learning modules over 12 weeks. The SSET curriculum was designed for non-clinical school personnel, using skills from cognitive behavioral therapy to reduce stress in students exposed to trauma. Qualitative results elucidated two main themes regarding the impact of the professional development program on teachers. First, as teachers began to learn about their students’ lives through trauma-sensitive activities employed in the classroom, changes were demonstrated in teachers’ understanding, responsiveness, and relatedness. Teachers displayed more empathy, patience, and calmness. They were able to depersonalize student behavior, altering their responses from punishment to compassion and support. Improved awareness of students’ internal emotional worlds shifted classroom climate from prioritizing behavioral management to fostering safe spaces for children to learn. Second, teachers began to make changes beyond the classroom to their
families and others. These findings suggest that as teachers become more aware of their students’ trauma-histories and inner emotional worlds, they experience changes in their own views, which extend to their interactions with the external world. Quantitative results from pre- and posttests indicated significant improvements in CS and STS following the professional development program. These findings suggest that professional development has the potential to affect teachers’ personal growth and wellbeing, which have a direct impact on student-teacher relationships.

The previously-reviewed Shamblin et al. (2016) program evaluation that explored the impact of a system-focused, early childhood intervention in rural Appalachian counties of Ohio addressed not only student outcomes (discussed in the previous section) but also teacher outcomes (discussed here). This program combined the Early Childhood Mental Health Consultation Model (ECMHC), with a SAMHSA-funded program, Project LAUNCH (Linking Action to Unmet Needs), designed for children ages birth to 8, which includes screening, family engagement, and school outreach (Shamblin et al., 2016). The program employed the use of in-house consultants, to provide daily supports for teachers, combined with school-based mental health interventions delivered to students as needed. This study included 11 preschool classrooms across five elementary schools with a total of 217 students. Eleven teachers received consultation and workforce development services, and three consultants provided services under the direction of a licensed professional clinical counselor with supervisory credentials. Consultants used relational approaches for training, team building, modeling, and wellness activities to assist teachers in meeting the social-emotional needs of their students.
Specifically, this program followed a three-tier model of early childhood mental health service including universal consultation, targeted consultation, and intensive services coupled with workforce development trainings. At Tier 1, consultants implemented a social-emotional curriculum with the children on a weekly basis and engaged in training/mentoring with teachers to facilitate understanding of trauma-informed principles as well as to teach evidence-based practices, based on Parent Child Interaction Therapy, called CARE skills. The teacher training/skill building occurred monthly and topics were teacher generated. Teacher requests and needs were attended to daily by the consultants. The second tier provided targeted consultation to address the specific needs or challenging behaviors of individual students who have not responded to universal classroom interventions and to initiate home/school communication strategies. At this tier, teachers and consultants collaborated to develop behavior plans with specific strategies to address trauma-related behaviors in the classroom environment. Additionally, special classroom materials were provided to the teachers to assist with curriculum mastery. Tier 3, consisting of intensive services provided by the consultant/specialist, included on-site mental health assessments and treatment for identified children and their families, where appropriate. The consultant used Trauma-Focused Cognitive Behavior Therapy and/or Parent-Child Interaction Therapy based on assessment outcomes. Consultants can also provide recommendations for further services off-site if needed. The goal of this partnership program was to create a trauma-informed school system to facilitate the development of resilience in children, which is correlated with positive caregiver relationships. This program was designed to increase teacher competence and confidence in meeting the social-emotional needs of traumatized
students while reducing challenging behaviors in the classroom and increasing reliance in children by targeting initiative, attachment, and self-control.

A specific goal of the program evaluation was to assess the impact of consultation and workforce development activities on teachers’ confidence, self-efficacy, and ability to support the social-emotional needs of traumatized students, as well as the resilience of those students affected by trauma (Shamblin et al., 2016). Shamblin et al. employed various tools as pre- and post-test measures to assess the constructs identified for the study. The Teacher Opinion Scale (TOS; Geller & Lynch, 1999), a self-report, 12-item Likert-type scale, was used to assess teacher confidence and competence. Additionally, the Preschool Mental Health Climate Scale (PMHCS; Gilliam, 2008), a 5-point Likert type rating scale, was used to provide two scores: Positive Attributes, including teacher strategies that support adaptive behaviors and social-emotional development, and Negative Attributes, including teachers’ responses to challenging student behavior that may increase problem behaviors.

Findings from this study indicate that teachers demonstrated an increase in reported feelings of competence and confidence in terms of their perceived ability to cope with and modify challenging behaviors in the classroom (Shamblin et al., 2016). Additionally, teachers endorsed a decrease in the use of negative behavior management strategies. Program satisfaction surveys indicated that teachers overwhelmingly valued the services provided. Further, teachers and school staff/personnel provided the highest satisfaction ratings for quality of relationships, embedded consultation, perceived quality of teacher-consultation partnership, and mutual professional respect. High satisfaction ratings were also demonstrated in increasing teacher skills and reducing stress in the
classroom. The program evaluation outcomes supported the literature that describes the critical components necessary to create trauma-informed systems. The combination of relationship building and trauma-informed professional development initiatives that included educational training and on-site consultation demonstrated positive outcomes that may assist others in creating a system of care that is responsive to traumatized students.

Another study sought to investigate the role that professional development plays in assisting teachers to recognize, respond to, and support students affected by trauma (Pobuk, 2019). Quantitative data was collected from participants through pre- and post-test surveys, and a comparative analysis was done to understand teacher self-efficacy regarding trauma-informed practices. Professional development consisted of four 60-minute sessions, which were held monthly over 4 months, and included the following topics: a) trauma, learning, and development, b) trauma and sensory integration, c) strategies for teachers when supporting children adversely affected by trauma, and d) emotions and emotional intelligence. Findings were classified according to teachers who needed more information, teachers who needed support with implementation, and teachers who could model and provide support for other teachers with implementation of the strategies. Results indicated that professional development raised teachers’ awareness of the impact of childhood trauma on learning and development and had a positive impact on instructional strategies. Additionally, more teachers endorsed self-efficacy in implementing and modeling trauma-informed practices following the professional development training. However, it’s important to note that 10 out of the 18 teachers surveyed still reported needing more information and assistance in implementing
strategies in the classroom. The author also used qualitative measures to obtain research observations, teacher interviews, written teacher reflections, and focus group session data. A common theme that emerged from the qualitative data was that although teachers understood the impact of childhood trauma on learning and behavior, as well as the strategies needed to address their students’ needs, they still endorsed the need for a trained mentor or coach to assist with implementation. This study was limited by a small sample size, with quantitative data completed by 18 participants and qualitative data consisting of 113 data sources, including researcher observations, teacher interviews, written teacher reflections that occurred after each professional development session, and a focus group session that included six staff members. Despite the limitation, this research provides some insight regarding the need for future research to better understand how to improve teacher self-efficacy in delivering trauma-informed care in schools.

Whitaker et al. (2019) conducted a cluster randomized clinical trial to determine whether a six-session (12 week) professional development course in trauma awareness improved the quality of teachers’ relationships with the children in their classrooms. Lead and/or assistant teachers were chosen randomly from preschools (3-4 year-olds) that serve low-income households in the School District of Philadelphia, Pennsylvania. The sample (N = 96) consisted mainly of females (96.9%) and teachers over 40 years old (60.4%). Thirty-two classrooms (48 teachers) were assigned to receive the professional development course that taught about the effects of trauma called “Enhancing Trauma Awareness” (ETA), and 31 classrooms (48 teachers) received no professional development training. Online surveys were completed before and after the professional development course as well as 5 months following the end of the program. Exploratory
focus groups with the teachers (n = 15) who received the professional development training were also conducted 5 months after the course ended. The Enhancing Trauma Awareness program is based on current trauma theory and provides knowledge about trauma and its impact on emotions, behavior, and biology. ETA employs a relational process based on group process theories and techniques, active learning, and adult learning, which allows participants to consider and apply newly acquired knowledge in an emotionally supportive and safe environment. Results indicated that the professional development course to increase trauma-informed care among preschool teachers demonstrated no significant effects on reducing teacher-child conflict scores, on teachers’ relational capacities with others, or on their health and well-being. The authors also held three 90-minute focus groups 5 months after the professional development training to explore the intra- and interpersonal processes and outcomes and to assess the fidelity of intervention implementation. Interestingly, the authors noted that the follow-up exploratory focus groups demonstrated differing conclusions than those from the pre- and post-test surveys. The focus group results suggested that ETA improved teachers’ relationships with their students as well as the students’ parents. Teachers also endorsed greater empathy, emotion regulation, and mindfulness, as well as improved attitudes related to trauma-informed care. Teachers endorsed increased knowledge regarding the effects of trauma in their own lives, which improved their empathy for children and parents. Teachers also reported that the professional development program led to shifts in their perceptions, and in turn they were calmer and more mindful in the classroom when they experienced challenging student behaviors that may have reflected trauma. The authors cautioned that the focus group was exploratory, was planned after the
intervention began, involved only 15 of the 41 teachers (36.6%) in the intervention group, and did not have a control or comparison group. The authors posited that the results from the focus group may differ from the survey for various reasons, including that the sample may have been biased, teachers may have been more likely to report positively during the focus group, or that there was a delayed effect as the focus group occurred 5 months after the intervention. This study was limited in that all survey outcomes were self-reported and no classroom observations were conducted. Additionally, fewer participants were recruited than planned; the observed effect size was much smaller than intended, and the minimal detectable effect size was not achieved. Future research regarding the use of professional development courses to increase trauma-informed care would benefit from using both quantitative and qualitative measures, including outcome data from those receiving services. The authors also recommended changes in attitudes as a goal for professional development in trauma-informed care, as well as advocating for professional development to include skill acquisition training through practice and coaching in order to effect changes in behavior and relationship quality with students.

Additionally, Luthar and Mendes (2020) explored teachers’ experiences of working in trauma-informed schools with regard to the challenges they faced and how they felt those challenges could best be addressed. The authors used a social media platform to seek open-ended, qualitative feedback from 10 former and current teachers from kindergarten through 12th grade who worked/had worked in trauma-informed schools. Participants included eight female and two male teachers; nine were currently teaching, and one former teacher was holding an administrative role. Teachers were from a mix of urban and suburban settings, and had worked in a variety of general education,
special education, or inclusive classrooms in either public or public charter schools. Results indicated that all participants experienced some form of compassion fatigue. Participants indicated distress in providing empathetic responses to their students’ accounts of serious life traumas, difficulties trying to help students “stay positive” in the face of chronic stressors, feelings of inadequacy and fearfulness in how they responded to student distress, and concerns about physical aggression and violence in students. Additionally, teachers reported increased stress regarding evaluative policies such as negative teacher evaluations that were influenced by truancy and the intense pressure placed upon the students and staff by standardized testing. Teachers identified feeling caught in the middle between using trauma-informed approaches and prioritizing high-stakes standardized testing for children who were not “emotionally available.” Teachers overwhelmingly voiced that their challenges in working with traumatized students could best be addressed by a commitment from their schools to increase the number of professionals designated for their students’ mental health needs on school grounds. Additionally, teachers identified the need for more training to increase mental health knowledge with professionals who have relevant experience and expertise, preferably derived from an outside agency and not school staff. Teachers identified the need for more institutional resources that would allow them to focus on teaching and seek support from mental health professionals who are specifically trained to manage trauma-related student behaviors. Finally, teachers recommended that mandatory social-emotional learning be a regular part of the school curriculum as a way to mitigate the development of more serious problems as students get older. This study was limited by a small sample
size with most participants having 5–10 years of teaching experience. A larger and more diverse study examining the same issues was recommended by the authors.

**Professional Development and Attitudes Related to Trauma-Informed Care in Schools**

Despite the recognized need for and emerging practice of trauma-informed care in schools, most of the published research has examined trauma-informed implications with service providers in human services agencies (Baker et al., 2016). Specific research exploring trauma-informed care among teachers is minimal, dealing mostly with evaluating teachers’ temperament, knowledge, or skills in relation to trauma-informed care and with implementing trauma-informed care programs (Alisic, 2012; McIntyre et al., 2019). Research that specifically measures attitudes related to trauma-informed care of teachers is also limited. Studies that explore teacher’s attitudes towards trauma-informed care has been mostly from the perspective of student behavior difficulties in classroom teaching and inclusion of students with special needs or learning difficulties (Alisic, 2012; Monsen et al., 2014; Sadin, 2018), teachers’ views or perceptions of students or students’ parents (Anderson et al., 2015, Blitz et al., 2016), or teachers’ views about the acceptability of a specific trauma-informed approach that they have used (McIntyre et al., 2019).

One reason for a lack of research regarding attitudes related to trauma-informed care is a lack of psychometrically robust instruments to evaluate staff members’ attitudes in schools and organizations. Baker et al. (2016) attempted to remedy this one specific barrier to the forward progression of research, practice, and policy related to trauma-
informed care by developing the Attitudes Related to Trauma-Informed Care scale (ARTIC). The ARTIC seeks to

(a) reflect and synthesize the current theoretical and empirical knowledge related to TIC, (b) assess service providers’ attitudes relevant to TIC directly and specifically, and (c) still be easily and inexpensively administered and scored by diverse institutions such as schools, human service agencies, and healthcare organizations. (Baker et al., 2016, p. 63–64)

However, only a few studies have used the ARTIC as an outcome measure to date (Berkout, 2018; Jordan-Cox, 2018; Niimura et al., 2019; Post et al., 2020; Waggoner, 2018; Wendel, 2018).

A review of the literature found that only four studies used the ARTIC to measure constructs related to professional development training and participants’ attitudes towards trauma-informed care. Of the four studies, one focused on mental health professionals. Niimura et al. (2019) utilized a pre-posttest design with 65 mental health professionals from 29 psychiatric hospitals in Tokyo to measure the effect of a one-day training consisting of lecture for 3.5 hours and a 1-hour discussion. The results of this study demonstrated significant improvements in attitudes related to trauma-informed care. Post-test surveys were administered both immediately following the training and 3 months later. The results from 3 months later continued to demonstrate attitudes favorable to trauma-informed care that were significant when compared to the pre-test scores.

The remaining three studies explored teachers’ attitudes related to trauma-informed care and professional development. Waggoner (2018) conducted a mixed methods study among K–12 general and special education teachers in an urban school
system. The study explored the relationship between trauma-informed training, years of experience teaching, personal trauma history, and attitudes related to trauma informed care. Results indicated that personal trauma history was the largest predictor of more favorable attitudes to trauma-informed care. Results also demonstrated that participants who completed the professional development training were more likely to attribute students’ learning and behavior problems to their trauma histories rather than to fixed internal characteristics. In other words, teachers who participated in the professional development training tended to demonstrate attitudes that were more favorable to trauma-informed care than those who did not. Additionally, years of experience teaching did not demonstrate significant results in regards to attitudes related to trauma-informed care.

In another mixed-methods study, Wendel (2018) explored attitudes relating to trauma-informed care of 233 teachers from three urban high schools. This study explored to what extent age, gender, years of teaching experience, and perceived self-efficacy predicted attitudes related to trauma-informed care; whether or not attitudes differed across the three high schools in different phases of the professional development intervention; and if attitudes differed across program tiers. The individual teacher variables—age, gender, years of service, or perceived self-efficacy—did not yield any significant differences. However, whereas the overall effect of professional development on attitudes related to trauma-informed care was not explored, the research did find significant differences with regard to the program tiers. Tier 4, which included the most intensive and individualized programming, was found to be significantly different from the other program tiers, as it predicted more favorable attitudes relating to trauma-informed care from teachers who participated in the other tiers. Findings from this study
suggest that more individualized interventions have an impact on trauma-informed care, such as perceived support, teacher knowledge, and understanding of the benefits of and how to cultivate healthy relationships.

Finally, Post et al. (2020) examined the impact of child-teacher relationships training (CTRT) on teachers’ attitudes and classroom behavior. The study was conducted in a high poverty school in North Carolina where trauma is considered to be prevalent. The professional development program was modified to integrate concepts of social justice and trauma-informed care into an existing framework known as CTRT. The purpose of the study was to explore the impact of CTRT on teachers’ professional quality of life, beliefs about social justice, perceptions about children that are aligned with CTRT (attitudes, knowledge, and skills), attitudes about trauma-informed care, and ability to demonstrate CTRT skills in the classroom. The participants consisted of 46 general education teachers in two Title I elementary schools in the rural southeast. Twenty-one teachers participated in the program, and 25 were in the control group. Results indicated that attitudes related to trauma-informed care dropped in both the control and intervention group demonstrating attitudes less favorable to trauma-informed care. Though the results did not support the researchers’ hypothesis, they did note that there was a significant interaction, with a high effect size, that indicated that the decrease in the control group was significantly greater than the decrease in the intervention group. These findings suggest that a further decline in attitudes favorable to trauma-informed care would have occurred without the intervention. The researchers point out a possible limitation to this study that may explain the decrease in attitudes related to trauma-informed care: during
the study, a system-wide decision that the intervention school was likely to be closing the following year was made and communicated to the participants.

The nascent literature and its findings suggest that there is a need to better understand the impact of trauma-informed professional development in teaching. Teachers overwhelmingly support the need for trauma-informed training, and the literature supports the need for changes in the ways in which problem behaviors are handled in the classroom (Alisic, 2012; Educators for Excellence, 2020; Post et al., 2012, Reinke et al., 2011). One way to ensure that the appropriate behavioral changes are made in the classroom is to measure the attitudes of those who are tasked with making those changes. Building knowledge and shifting attitudes of staff members are not only goals for trauma-informed but also key pathways to changing behaviors (Ajzen & Fishbein, 1977; McIntyre et al., 2019).

**Constructivist Approaches to Professional Development**

All professional development has a primary objective—learning—which, as Piaget (1953) proposed, is a process of making new meaning from information rather than acquiring it (Driver et al., 1994). Constructivist theory posits that a pedagogical model that disseminates information by lecturing is ineffective because learners are not assimilating their previous knowledge with new information. Further, Vygotsky’s (1932) theory of social constructivism postulates that social interaction, shared engagement, and discussion about a shared problem or experiences is necessary to create knowledge. This theory suggests the optimal learning experience is integrating newly acquired information with prior information to construct meaning while in social situations with peers (Michael, 2006). The teacher or trainer is the more experienced member whose role is to
guide the less experienced trainees in exploring new information through discussion and problem solving in order to assimilate prior knowledge and experiences (Shaw et al. 2012). The focus, therefore, is not to gain answers but to internalize understanding and to construct new meaning.

The constructivist approach to professional development is used to align the trainer with the trainee in order to facilitate learning. Effective professional development results from the ability and willingness to change formerly held beliefs and concepts through formulating ideas and trying out new practices (Fung, 2000). Allowing trainees to construct their own knowledge by interpreting and reflecting on their own learning as they construct alternative meanings and expand their perspectives enables them to become autonomous learners. Teachers as trainees, therefore, are able to take into account their prior knowledge, views, and experiences, which is essential for promoting positive reactions to change (Hargreaves, 1994). This allows trainees to address their own feelings about change, which ultimately leads them to feel empowered to make those changes (Fung, 2000).

Research supports the need for teachers’ professional development to take into account the existing knowledge and experience of the trainees (Erikson, 1991; Diamond, 1993; Hodson, 1989; Rubba, 1991). Research also supports the successful implementation of curriculum changes based in constructivism and bolstered through professional development endeavors (Bell & Gilbert, 1994; Briscoe & Peters, 1997; Driver & Oldham, 1986; Glasson & Lalik, 1993; Howe & Stubbs, 1996). However, a review of the literature did not reveal any studies regarding the effectiveness of
constructivist approaches to professional development specifically in relation trauma-informed care.

Attitudes Related to Trauma-Informed Care and Grade Level

A review of the literature failed to return results regarding differences that exist, if any, in teacher attitudes related to trauma-informed care between grade levels. However, some of the adjacent literature may shed light on whether such grade level differences exist in relation to similar constructs. For example, Kulinna et al. (2006) found that teacher reports of student misbehavior differ significantly between grade levels. Additionally, there is evidence to suggest that collective classroom behavior can influence teachers’ attitudes towards individual students (Helton & Oakland, 1977; Silberman, 1969), and that student behavior is, in turn, influenced by teachers’ beliefs and attitudes towards them (Kagan, 1992). Similarly, the existing research regarding parents' evaluation of children's misbehaviors supports the idea that significant differences exist between age groups. Research has also demonstrated that the way in which parents interpret information about children influences their reactions to child behavior (Bugental, 1987). Parents tend to believe that younger children have less control over their misbehavior than older children, who, they believe, are more intentional in their misbehavior (Dix et al., 1986; Dix et al., 1989).

Dix et al. (1986) proposed and tested an attribution model of parent cognition. Two different studies were conducted, the second study being an attempt to replicate and extend the first study. Participants for Study 1 consisted of 95 parents: 20 mothers and 13 fathers of 4–5 year-olds, 22 mothers and 9 fathers of 8–9 year-olds, and 17 mothers and 14 fathers of 12–13 year-olds. The fathers consisted of 13 professionals, eight blue collar
workers, and 15 white collar workers. Of the mothers, 29 were housewives, 10 human service workers, 10 low skill workers, five professionals, and five others. All except three parent pairs were from separate families. Participants were given three brief vignettes of child misbehavior. After reading each vignette, parents were asked to complete eight primary measures. Results from Study 1 supported the hypothesis that parents would view children’s misbehaviors as increasingly correlated with age. As the child gets older, parents perceive personality dispositions as being increasingly important causes of misconduct. Additionally, findings supported the prediction that parental affect would become increasingly negative with age. Study 2 participants consisted of 12 mothers of 4-year-olds, 12 mothers of 8-year-olds, and 12 mothers of 12-year-olds. There were six mothers of girls and six mothers of boys represented equally in each age group. Eight of the mothers were housewives exclusively, 14 were housewives who also worked outside the home, and 14 worked full-time outside the home. A 45-minute interview with each mother occurred in her home. The mothers were asked to read nine short vignettes of child behavior. Following each vignette, participants were asked to make 10 ratings and to describe the specific words and actions they would use to respond if the child were theirs. The results of Study 2 support those of Study 1, demonstrating that as children aged, parents viewed their behaviors as increasingly intentional, increasingly under the child’s control, and decreasingly caused by external factors. Additionally, as children aged parents’ negative affect in reaction to their behaviors increased.

In general, findings from both studies demonstrated that parents' appraisals of children's behaviors are closely tied to the perceived developmental level of the child. As the child aged, parents believed that childhood behavior was increasingly caused by
personality disposition, increasingly intentional, under the child’s control and, for misconduct, understood to be wrong. Finally, the manner in which the parent affectively responded to the misconduct was directly related to their assessment of the cause, and responses became increasingly negative as the children got older (Dix et al., 1986).

Another study examined mothers’ implicit theories of discipline (Dix et al., 1989). One objective of this study was to assess mothers’ beliefs about their children’s knowledge, capacity, and responsibility for negative behavior and to determine if age is a predictor of increasingly punitive discipline and negative affect. This study was also conducted in two parts. Study 1 examined the effect of parents’ assumption that children know they are misbehaving as to whether it causes a parent to favor more power-assertive responses over inductive responses. Participants of Study 1 consisted of 117 mothers of kindergarten and second grade children. The participants were chosen from one public and three private schools in New York City. The sample was 80% white, 5% Black, 7% Hispanic, and 8% Asian. Questionnaires were completed at home and were returned anonymously by mail. The participants each read two descriptions of child misbehavior from children of the same age and sex as their own. The mothers were assigned one of three conditions: knowledge present, knowledge absent, and knowledge unknown. “Knowledge” referred to the children’s understanding that they should not engage in said action or that said action is wrong. The participants were then asked to make six ratings on 7-point scales. Ratings reflected power-assertive parenting, measuring negative affect (“how upset would you be?”) and parental pressure (how much do you think pressure from a parent is important in responding to situations like this one?”), and response to the child, measuring technique (induction or punishment) and delivery (calm or stern).
Induction consisted of several sentences that emphasized the effects of the child’s misbehavior on others to be differentiated by tone and, if punishment, with anger. Calm punishment consisted of a statement of the rule that was violated and delivery of a mild punishment—like time out or the removal of a preferred item. Stern punishment was the same as calm punishment but stated with some anger. The results of how the mothers’ beliefs about children’s knowledge affected the mothers’ evaluations of how to respond demonstrated main effects for age and child behavior with no interactions. Mothers were found to be more upset with older children than younger children and more upset with children who they believed would know that they were behaving badly than those who they believe did not know or for whom knowledge was unspecified. Additionally, mothers rated induction and punishment similarly when they believed that the child had knowledge about the misbehavior but overwhelmingly preferred induction to punishment when knowledge was thought to be unknown or was unspecified. When knowledge was absent mothers favored calm induction significantly more than stern induction. No significant effect was found between calm and stern punishment. A positive correlation was found between how upset a mother reported being and the amount of pressure that she believed was needed to address the situation. Study 1 demonstrated that inferences made about a child’s knowledge regarding wrongdoing can influence mothers’ beliefs and can lead to greater upset and a preference for different discipline practices. Age was shown to have a significant effect when determining level of anger and type of response to misbehavior; however, because of the manipulation of attributions for this study, they could not be separated out from the effects of age. This study could not measure the
effect that age had on knowledge, as knowledge was pre-determined and assigned by the researchers. Study 2 sought to address that issue.

In Study 2, mothers were asked to formulate their own inferences about their own children’s behaviors in order to examine the relationship between attributions, response evaluations, and age (Dix et al., 1989). The participants consisted of 64 mothers of preschool to sixth grade children attending a private elementary school in a small city in the southeastern United States. The sample consisted of 92% white, 5% Black, and 3% Asian or Hispanic. Two-thirds of the mothers worked outside the home, 97% of families were intact (living together), and typically had two children. Mothers were asked to complete two questionnaires; the Attribution Questionnaire, and then three weeks later, the Response Questionnaire or vice versa. The Attribution Questionnaire was used to assess their children’s competence and responsibility relating to ten misdeeds. The questionnaire consisted of a 7-point scale that mothers used to rate four items related to inferences about their child’s competence and responsibility, including (1) the child’s knowledge of relevant rules, (2) the child’s capacity to understand relevant knowledge, (3) whether mothers expect their children to behave better, and (4) mothers’ attributions of responsibility or blame. The Response Questionnaire was used to evaluate the ways that the mothers might respond to their children if they were to engage in the same 10 misdeeds. These misdeeds were chosen to reflect negative behaviors that were common, reflected diverse forms of misbehavior, and could reasonably occur at any age. The Response Questionnaire also included a 7-point rating scale that assessed dimensions of power assertion and discipline prototypes. Dimensions of power assertion were measured by four items: (1) sternness, (2) level of disapproval, (3) affect (how upset the mother
was), and (4) minutes of time-out required (this measure did not use the 7-point scale).

Discipline prototypes were determined by a factorial combination of delivery types (calm or stern) and technique (induction, punishment, combination of induction and punishment). Mothers used the 7-point scale to rate “how good a response” was for each of the six prototypes. Results indicated that those mothers who attributed high competence and responsibility to their children also reported higher levels of upset and indicated that they would respond with greater disapproval and sternness, and would allocate longer amounts of time-out time as punishment. All discipline prototypes that included punishment were more highly favored by mothers who attributed high competence and responsibility for misbehavior. Additionally, as predicted, the correlations demonstrated that mothers who believed that their children possessed greater knowledge, capacity, and responsibility for negative behavior expected more from their children as they aged. Negative affect was also positively correlated with attributions of competence independent of age but was not related to age independent of attributions of competence.

Both studies found that mothers report more negative affect in reaction to specific misbehaviors of older children than for younger children (Dix et al., 1989). In turn, negative affect was a strong predictor of the dimension of power assertion and punishment-related discipline. Although age alone is not a strong predictor of affective response and discipline practices, this study supports the idea that parents’ beliefs about their children’s competence and responsibility are influenced by the children’s age and, therefore, has the likelihood of influencing the parent-child relationship and how parents respond to child misbehavior.
Finally, Kulinna et al.’s (2006) study also sought to better understand teachers’ reports of student misbehavior that occurs in physical education. Specifically, the researchers attempted to explore the teacher-reported frequency of potentially disruptive student behaviors and whether those reports vary by grade level, teacher experience, or sex in order to provide key insights into the school context and to help teachers better understand student behavior. The participants consisted of 303 (173 female, 130 male) K–12 physical education teachers from three Midwestern states in the US. Teachers taught in schools in various locations, including urban (53%), suburban (26%) and rural (21%). Of the participants, 149 were elementary teachers (59% female, 41% male), 116 were secondary teachers (54% female, 46% male), and 38 taught at multiple levels. Seventy-five percent of the participants were Caucasian, 22% identified as African American, and 3% indicated other. Participants were recruited from in-service workshops or were contacted through the mail, based either on attendance at a previous in-service workshop or per agreement with districts agreeing to participate. Researchers employed the Physical Education Classroom Management Instrument, which was developed by Kulinna et al. (2003) in multiple stages, resulting in a final survey with 59 student behaviors that could be disruptive in a physical education classroom. The instrument demonstrates reliability and validity for the middle and high school populations. The items on the survey range from minor infractions, such as giggling, to more serious, such as bringing a weapon to class. Teachers were asked to think about their physical education classes and rate the frequency at which they encountered each behavior on a 5-point Likert-type scale (1 = never and 5 = always). Participants also completed a basic demographic survey and were asked to rate their management ability as one of five
categories ranging from “very good” to “poor.” Findings indicated that both grade and perceived management ability had a main effect on total misbehaviors with no interaction. The higher the self-report of teachers’ perceived management ability, the fewer the reports of student misbehavior. Middle school teachers reported the most student misbehaviors, followed by high school and then elementary school students. Additionally, mild behaviors were reported most frequently followed by moderate behaviors, and then severe behaviors. These findings supported other literature which indicates that the behavior problems most concerning to teachers are more minor infractions and repeated disruptions rather than major infringements or violent behaviors (Arbuckle & Little, 2004). Teachers are the most concerned with distractibility, student on-task behaviors, and adherence to classroom rules.
CHAPTER 3: METHODOLOGY

This chapter will describe the research design, participants, instrumentation, and statistical methods used in this quantitative study. This study consisted of a cross sectional survey design combined with a pre-post, quasi-experimental design that was intended to serve as a program evaluation. Data that was previously collected as part of a program evaluation were used to address the specific research questions for this study. The data were obtained from teachers and school district staff who completed the Attitudes Related to Trauma-Informed Care (ARTIC-35) scale both before and after a brief, 1-hour professional development training session. The ARTIC-35 is a self-report instrument designed for staff in human services, health, and educational settings and was created to be a direct, cost-effective, and efficient indicator of staff attitudes relevant to trauma-informed care.

Broadly speaking, the overarching purpose of this study was to better understand factors that might influence educators’ knowledge, attitudes, and beliefs regarding trauma-informed care. Specifically, the study examined whether educators’ knowledge, attitudes, and beliefs differed by grade level of students, and were influenced by professional development in trauma-informed care. To this latter end, the study investigated both whether educators’ knowledge, attitudes, and beliefs related to trauma-informed care were affected by prior professional development experiences in trauma-informed care, and the effectiveness of a new brief, constructivist approach to professional development in trauma-informed care.
Research Questions

The following research questions were addressed in this study:

1) How does the grade level of students worked with/taught relate to educators’ attitudes towards trauma-informed care in the school setting?

Sub questions:

a. How does grade level of students worked with/taught relate to educators’ attitudes regarding the underlying causes of problem behaviors and symptoms?

Hypothesis: Educators who work with/teach primary students are more likely to demonstrate attitudes that are consistent with the belief that underlying causes of problem behaviors and symptoms are adaptations and are malleable. Educators who work with/teach secondary students are more likely to demonstrate attitudes that are consistent with the belief that underlying causes of problem behaviors and symptoms are intentional and fixed.

b. How does the grade level of students worked with/taught relate to educators’ attitudes regarding their responses to problem behaviors and symptoms?

Hypothesis: Educators who work with/teach primary students are more likely to demonstrate attitudes that are consistent with the belief that relationships, flexibility, kindness, and safety are the agents of change regarding problem behaviors and symptoms. Educators who work with/teach secondary students are more likely to demonstrate attitudes that are consistent with the belief that rules, consequences, and accountability are the agents of change regarding problem behaviors and symptoms.
c. How does the grade level of students worked with/taught relate to educators’ attitudes regarding the impact of *their on-the-job behavior*?

Hypothesis: Educators who work with/teach primary students are more likely to endorse empathy focused on-the-job behaviors. Educators who work with/teach secondary students are more likely to endorse control focused on-the-job behaviors.

d. How does the grade level of students worked with/taught relate to educators’ attitudes regarding *their self-efficacy in working with traumatized children*?

Hypothesis: Educators who work with/teach primary students are more likely to endorse feeling able to meet the demands of working with a traumatized population. Educators who work with/teach secondary students are more likely to feel that they are unable to meet the demands of working with a traumatized population.

e. How does the grade level of students worked with/taught relate to educators’ attitudes regarding *vicarious traumatization*?

Hypothesis: Educators who work with/teach primary students are more likely to demonstrate attitudes indicating an appreciation for the effects of secondary trauma/vicarious traumatization and coping by seeking support. Educators who work with/teach secondary students are more likely to minimize the effects of secondary trauma/vicarious traumatization and coping by ignoring or hiding the impact.

2) Does trauma-informed professional development affect educators’ attitudes toward trauma-informed care in the school setting?

Sub questions:
a. How does trauma-informed professional development affect educators’ attitudes regarding the underlying causes of problem behaviors and symptoms?

Hypothesis: Trauma-informed professional development improves educators’ attitudes regarding the underlying causes of problem behavior and symptoms.

b. How does trauma-informed professional development affect educators’ attitudes regarding their responses to problem behaviors and symptoms?

Hypothesis: Trauma-informed professional development improves educators’ attitudes regarding their responses to problem behaviors and symptoms.

c. How does trauma-informed professional development affect educators’ attitudes regarding the impact of their on-the-job behavior?

Hypothesis: Trauma-informed professional development improves educators’ attitudes regarding the impact of their on-the-job behavior.

d. How does trauma-informed professional development affect educators’ attitudes regarding their self-efficacy in working with traumatized children?

Hypothesis: Trauma-informed professional development improves educators’ attitudes regarding their self-efficacy in working with traumatized children.

e. How does trauma-informed professional development affect educators’ attitudes regarding vicarious traumatization?

Hypothesis: Trauma-informed professional development improves educators’ attitudes regarding vicarious traumatization.

3) How does a constructivist approach to trauma-informed professional development affect educators’ attitudes regarding trauma-informed care in the school setting?
Sub questions:

a. How does a constructivist approach to trauma-informed professional development affect educators’ attitudes regarding the underlying causes of problem behaviors and symptoms?

Hypothesis: A constructivist approach to trauma-informed professional development improves educators’ attitudes regarding the underlying causes of problem behavior and symptoms.

b. How does a constructivist approach to trauma-informed professional development affect educators’ attitudes regarding their responses to problem behaviors and symptoms?

Hypothesis: A constructivist approach to trauma-informed professional development improves educators’ attitudes regarding their responses to problem behaviors and symptoms.

c. How does a constructivist approach to trauma-informed professional development affect educators’ attitudes regarding the impact of their on-the-job behavior?

Hypothesis: A constructivist approach to trauma-informed professional development improves educators’ attitudes regarding the impact of their on-the-job behavior.

d. How does a constructivist approach to trauma-informed professional development affect educators’ attitudes regarding their self-efficacy in working with traumatized children?
Hypothesis: A constructivist approach to trauma-informed professional development improves educators’ attitudes regarding their self-efficacy in working with traumatized children.

e. How does a constructivist approach to trauma-informed professional development affect educators’ attitudes regarding vicarious traumatization?

Hypothesis: A constructivist approach to trauma-informed professional development improves educators’ attitudes regarding vicarious traumatization.

**Research Design**

This study employed a combination of research design elements. A cross-sectional survey design was used to examine whether educators’ knowledge, attitudes, and beliefs differed by grade level taught/worked with and by the influence of prior professional development in trauma-informed care. Additionally, a pre-post quasi-experimental design was used to assess the potential effects of a new, brief, constructivist approach to professional development of teachers’ knowledge, attitudes, and beliefs regarding trauma-informed care in the classroom. The initial purpose of collecting and evaluating the data obtained from the pre- and post-test surveys was for internal quality improvement and program evaluation activities for the school district in which the training took place. A program evaluation is a systemic process that assesses the quality, worth, merit, or significance of a program in order to promote learning and improvement (Worthen et al., 1997). This program evaluation, which is classified as a summative evaluation, sought to provide information to assist the school administration in making decisions regarding the continuation or expansion of the program.
For this study, participants attended a 1-hour virtual professional development training that was, according to the developer of the training, based loosely on a constructivist approach. The training was intended to educate and develop skills among participants regarding trauma-informed care in the school classroom. The training occurred after students were dismissed for their summer break but while educators were still reporting to work before the beginning of their summer break, and was intended to assist with addressing the needs of students upon returning to the classroom in the fall. Notably, the training (and thus data collection for this study) took place in June 2020, roughly three months into the pandemic. At the time of the training, children and teachers/school staff had not returned to the classroom following the school shutdown owing to the pandemic; however, online/remote learning had been employed. Emerging research regarding the COVID-19 pandemic, which the Pennsylvania Supreme Court classified as a natural disaster, has suggested that the COVID-19 pandemic can be “understood as a traumatic stressor event capable of eliciting PTSD-like responses and exacerbating other related mental health problems (e.g., anxiety, depression, psychosocial functioning, etc.)” (Bridgland et al., 2021, p. 1). The COVID-19 pandemic added a level of urgency to the need for trauma-informed education of school faculty and staff to assure the best possible outcomes for the student’s academic success and overall mental health and well-being. Therefore, this program was requested by district administrators in order to address this emerging concern.

Participants were initially directed to “check-in” with themselves to identify how they were feeling and were asked to provide a word or phrase in the chat box if they were willing to share to begin generating a discussion about a shared problem or experience
that is necessary to create new knowledge (Vygotsky, 1932). The presenters then opened
discussion regarding all the changes that had been experienced since the last day of in-
person instruction roughly 12 weeks previously. Presenters briefly provided
psychoeducation on trauma theory, which included defining trauma, trauma reminders
(such as sights, sounds, smells, or anything that reminds one of what has happened), and
identifying protective factors (conditions or attributes that, when present, decrease the
likelihood of maltreatment and increase the well-being of children and families, such as
social connections and parental support). Psychoeducation also included the Principles of
Trauma-Informed Care, which included safety, choice, collaboration, trustworthiness,
and empowerment (Institute on Trauma-Informed Care, 2020). The discussion of current
events (COVID-19 pandemic) and trauma-informed psychoeducation were used to create
the optimal learning experience of integrating prior information to newly acquired
information in order to begin to construct new meaning (Michael, 2006). Participants
were asked to reflect on interactions they had experienced with students in the past and to
view those behaviors through a trauma-informed lens. Discussion was encouraged as
teachers and staff integrated newly acquired information with prior information to
construct new meaning (Michael, 2006). Participants were then given two different
scenarios to explore through discussion and problem solving to assimilate new
knowledge and prior experiences and ultimately construct a trauma-informed response.
The presenter represented the more experienced member who guided the less experienced
participant teachers and staff in exploring new information through discussion and
problem solving in order to assimilate prior knowledge and experiences (Shaw et al.,
2012). Scenario 1 asked participants to construct a trauma-informed response to a student
who does not turn his or her web camera on during class. Scenario 2 asked participants to consider a student who is missing assignments and who has alluded to personal challenges.

For this study, exemption from Duquesne University’s Institutional Review Board was received and data were de-identified by a third party to assure that the researcher did not know the identity of the research participants.

Sample

The initial sample—namely, those who completed the pre-test survey prior to attending the TIC training session—consisted of 94 kindergarten through 12th grade teachers and staff employed by a large, suburban, public school district in Washington County, Pennsylvania. Of the 94 participants, 34.1% indicated that they taught/worked with elementary aged students, 29.7% taught/worked with middle school students, and 36.2% worked with/taught high school students. The school district was composed of 413 staff members, 241 of whom were teachers (National Center for Education Statistics [NCES], 2022). The initial sample was used to address the survey-based first and second research questions.

The sample of participants for this study were mostly female (69.1%), white (98.9%), non-Hispanic (98.9%), and highly educated as most reported completing some college (1.1% an associate’s degree and 41.5% a bachelor’s degree), or graduate school (56.3% master’s degree or 1.1% doctorate). Of the 94 initial participants, 24 completed the post-test survey following the virtual TIC training session; this subsample was used to address the quasi-experiment-based third research question. Of the 24 pre-post-test participants, most were female (75.0%), white (100%), and non-Hispanic (95.8%). In
addition, the 24 participants were also highly educated, reporting having completed college (50.0% bachelor’s degree), graduate school (45.8% master’s degree), or a doctorate (4.2%). The demographic composition of the pre-plus-post-test sample was thus very similar to that of the initial sample. G*Power software (ver. 3.1.9.7; Faul et al., 2009) was used to calculate a post hoc power analysis as the sample size was predetermined by study constraints.

**Data Collection**

The pre-test survey was disseminated to 413 district teachers, administrators, and staff via a hyperlink emailed by a school district administrator one day prior to the professional development online training. Participants were informed at the beginning of the survey that their participation was voluntary, that they could discontinue the survey at any time, and that their responses would be kept confidential and would be reported only in aggregate form. Data from the ARTIC-35 was collected both before (pre-test) and after (post-test) the virtual training on TIC. Post-test survey links were sent via email, within 24 hours following the training, only to those participants who completed the pre-test survey. Post-test surveys included a specific question to ensure attendance at the professional development training (i.e., “Did you participate in the Trauma-Informed Care COVID 19 training on June 11th 2020?”). Participants were given 7 days to complete the post-test survey. Participants who completed both the pre- and post-test surveys were paired in the dataset and were then de-identified, using a third party, by eliminating email addresses and replacing them with numerical identifiers. The dataset also contained demographic variables, including gender, race, education level, grade taught, and previous training in TIC.
Instruments

Attitudes Related to Trauma-Informed Care (ARTIC) Scale

The Attitudes Related to Trauma-Informed Care (ARTIC) Scale is a self-report instrument for staff in human services, health, and educational settings. It was developed to be a cost-effective and efficient indicator of staff attitudes related to TIC (Baker et al., 2020). The ARTIC consists of 3 different forms of varying lengths (ARTIC-45, ARTIC-35, and ARTIC-10) that were developed for use in settings that practice TIC. The ARTIC was designed to be used across TIC implementation to gauge readiness, evaluate the impact of staff training, and assess the sustainability of trauma-informed culture change efforts.

There are notable differences between the versions of the ARTIC. Specifically, the ARTIC-45 contains seven subscales while the ARTIC-35 includes only the first five of the same subscales. The first five subscales measure attitudes related to TIC while the additional two subscales contained in the ARTIC-45 include questions that measure personal and system-wide support of TIC implementation (Baker et al., 2010). The ARTIC-45 was not chosen to be used in this program evaluation as the school district had not fully implemented a TIC program and therefore did not need to evaluate support regarding implementation of trauma-informed approaches. The third version, the ARTIC-10, is an abbreviated measure that provides a summary scale reflecting the five subscales. This abbreviated scale was not chosen for use in this program evaluation because it does not provide detailed information regarding each subscale specifically and, therefore, would not be able to provide specific direction for program improvement (Baker et al., 2015).
The ARTIC-35 was intended to be used in systems for exploring and installing stages of TIC implementation (Bertram et al., 2015). The school district represented in this study is using a brief model of professional development in TIC with the intent to generate more favorable attitudes toward TIC. To date, there is no research to support the efficacy of a brief constructivist approach to trauma-informed professional development; therefore, this program can be considered as in the exploration stage of implementation. Thus, the ARTIC-35 was chosen as the best version of a measure for exploring the impact of implementing a brief training session in TIC professional development.

The ARTIC-35 includes 35 items sorted into five primary subscales with seven items each (see Table 6). The five subscales include the following: 1) underlying causes of problem behaviors and symptoms, 2) responses to problem behaviors and symptoms, 3) empathy and control, 4) self-efficacy at work, and 5) reactions at work. Participants rate their responses along a 7-point bipolar Likert scale containing a TIC favorable and TIC unfavorable statement (Baker et al., 2020). In general, higher scores indicate attitudes more favorable to TIC (Baker et al., 2016). However, a select number of items are reversed-scored, with higher scores representing responses that indicated attitudes less favorable to TIC. The ARTIC-35 was used in the present study as a pre- and post-test to evaluate the impact of staff training providing an overall score as well as individual scores pertaining to each of the 5 subscales.
Table 6

*Attitudes Related to Trauma-Informed Care (ARTIC) Subscales and Construct Descriptions*

<table>
<thead>
<tr>
<th>Subscale</th>
<th>TIC favorable description</th>
<th>TIC unfavorable description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underlying causes of problem behaviors and symptoms</td>
<td>Emphasizes behavior as external and malleable</td>
<td>Emphasizes behavior as internal and fixed</td>
</tr>
<tr>
<td>Responses to problem behaviors and symptoms</td>
<td>Flexibility, feeling safe, and building healthy relationships</td>
<td>Rules, consequences, and eliminating problem behaviors</td>
</tr>
<tr>
<td>On-the-job behavior</td>
<td>Empathy-focused behaviors</td>
<td>Control-focused behaviors</td>
</tr>
<tr>
<td>Self-efficacy at work</td>
<td>Feeling able to meet the demands of working with a traumatized population</td>
<td>Feeling unable to meet the demands of working with a traumatized population</td>
</tr>
<tr>
<td>Reactions to the work</td>
<td>Appreciating the effects of vicarious traumatization and coping through seeking support</td>
<td>Underappreciating the effects of vicarious traumatization and coping by ignoring</td>
</tr>
</tbody>
</table>
The original psychometric evaluation on the ARTIC-35 was completed by means of an online survey that resulted in a final sample size of 760 human services/health providers (78%) and educators (22%; Baker et al., 2016). The researchers reported diversity in the job roles and job settings of the participants; however, the demographics of the sample were not representative of employees in these fields. Participants were mostly female (83%), white (92%), non-Hispanic (95%), and highly educated as most reported having completed college and some or all of graduate school (96%). Internal reliability was calculated using Cronbach’s alpha, which demonstrated excellent internal consistency (α = .91). Additionally, subscale alphas ranged from α = .71 to α = .81 (which met the conventionally acceptable cut-off of α = .70; see Nunnally, 1978). Preliminary evidence of construct validity was demonstrated by way of significant correlations between the ARTIC subscales and single-item measures constructed by the authors to assess familiarity with trauma-informed approaches and formal training in trauma-informed approaches. However, these validity checks were limited by the exclusive use of single-item indicators.

Baker et al. (2020) conducted a follow-up study to replicate the factor structure, reliability, and construct validity of all forms and versions of the ARTIC. This follow-up study consisted of 507 human services/health providers and 888 educators from 17 settings. To evaluate the construct validity of each form of the ARTIC, the researchers used not only single-item measures to assess familiarity with trauma-informed approaches and formal training in such approaches (as in Baker et al., 2016) but also more extensive measures, including the Knowledge About Trauma-Informed Approaches (Baker et al., 2020), the ProQOL (Stamm, 2009), and the Trauma-Sensitive School
Checklist (TSSC; Massachusetts Advocates for Children, 2012). The Knowledge About Trauma-Informed Approaches is an 11–14 question multiple choice quiz-like measure that was used to assess knowledge about the prevalence and impact of trauma and the main tenets of TIC. The assessment produced a percentage score with higher scores indicating a better understanding of trauma-informed approaches. The ProQOL (Stamm, 2009) consists of 30 items that measure compassion satisfaction, burnout, and secondary traumatic stress. Favorable scores on the ProQOL are indicated by high averaged scores on compassion satisfaction and low averaged scores on burnout and secondary traumatic stress. The ProQOL has demonstrated strong internal consistence and construct validity. For Baker et al.’s (2020) study, the ProQOL subscales also demonstrated good internal consistency ($\alpha = .80–.88$). The TSSC evaluates five elements necessary for creating a trauma-informed school, including school-wide policies and practices, classroom strategies and techniques, connections and partnerships with mental health organizations, partnerships with families, and community relationships. An overall score for the TSSC is obtained by averaging items with higher scores, indicating that a school is more trauma-sensitive. TSSC subscales demonstrated good to excellent internal consistencies for this study ($\alpha = .83–.93$). Baker et al. (2020) noted that despite the public availability of the TSSC, they were unable to find research on the validity of the scale. Evidence for the construct validity of the ARTIC-35 was demonstrated through significant correlations with the Knowledge about Trauma Informed Approaches and the ProQOL, though this evidence was somewhat limited by the lack of significant correlations with the TSSC.

The five-factor model structure of the ARTIC-35 was supported in terms of absolute fit (Satorra-Bentler scaled $\chi^2(913) = 3735.77, p < .001$, RMSEA = .047 [.046,
.049], SRMR = .054); however, it failed to meet the conventionally acceptable cutoff of > .95 for incremental fit (CFI = .824 and TLI = .807), overall suggesting partial support for the five-factor structure. The internal consistency was excellent for the ARTIC-35 (α = .91). The overall Cronbach’s alphas for both human services/health samples (α = .93) and the education samples (α = .90) were considered to be excellent and good, respectively. Overall, Baker et al.’s (2016, 2020) findings demonstrated preliminary construct validity and some support for the five-factor structure of the ARTIC-35 scale. The authors also noted that future research is needed to further support the improvement of the measure.

**Demographics Form**

In addition to the ARTIC-35, educators completed a demographic survey which gathered information regarding race, gender, education level, job/role, grade level working with/taught, number of years working in education, and previous professional development in TIC. Only the pre-test form required completion of the demographic form. The post-test included a question regarding the completion of the brief professional development training in TIC, for quality control purposes. Those participants who indicated that they did not participate in the professional development were not provided with the survey for completion.

**Overview of Analyses**

The dataset was initially provided in a de-identified Microsoft Excel file format. Prior to conversion to SPSS, the data were cleaned, and variable names were shortened. Additionally, the 19 reverse-scored items on the ARTIC were recoded so higher scores indicated more favorable attitudes towards TIC. The Excel file was converted to SPSS 26.0, and pre-analysis data screening and data analysis were completed.
Variables

The five continuous dependent variables of interest in this study represented the five ARTIC-35 subscales and are as follows: underlying causes of problem behavior and symptoms, responses to problem behavior and systems, on-the-job behavior, self-efficacy at work, and reactions to the work. Overall mean ARTIC scores were also used as a dependent variable. In addition, one of the independent variables—grade level taught/worked with—was collected as a continuous variable; however, responses indicated that many participants worked with students in typical groupings—elementary, middle, and high school. Three participants indicated that they taught/worked with multiple grade levels, and their responses were recoded to reflect the nature of their response. Therefore, responses were re-grouped to be treated as categorical in nature. The newly recoded ordinal variable contains only 3 categories: elementary, middle, and high school. The percentage of participants in each category is 31%, 27%, and 33% respectively. The other independent variable of interest was the participants’ self-report of whether or not they had participated in previous professional development in TIC.

Preliminary Analyses

For the first research question, which included the full 94 participant pre-test sample, examining how grade level of students taught/worked with relates to educators’ attitudes toward trauma-informed care, four assumptions will be examined and are necessary to be met. The first three assumptions pertain to the study design and the variables themselves: namely, that they are independent, paired, and normally distributed. The independent variable—grade level—has three levels (elementary, middle, and high school) that are ordered sequentially (i.e., ordinal) and roughly evenly spaced, and thus
can effectively function as continuous. The dependent variable—ARTIC score—is also continuous. Before the analyses were run to address the research questions, the individual variables were screened to assure that they met all the analyses’ assumptions. The univariate normality assumption was tested for each of the ARTIC subscale scores, which function as the dependent variables for each analysis, by calculating standardized skewness, kurtosis, and heteroscedasticity values and with assistance of a histogram and normal Q-Q plots, using the Shapiro-Wilk test of normality. Boxplots were also visually inspected for outliers.

In addition, these variables must also be paired. Each case has two data points, one value for the independent variable and one value for the dependent variable. Additionally, the two data points for one case are independent of the two data points of another case and are, therefore, not related. These findings indicate that the variables are considered to be continuous, paired, and independent; therefore, the first three assumptions have been met. The remaining assumption pertains to the data. A scatterplot was used to visually inspect the relationship between the data points of the two variables to ensure it is linear (rather than curved).

For Research Question 2, examining the relationship between previous trauma-informed professional development and educators’ attitudes toward TIC, two additional assumptions need to be met. The independence assumption was met by considering the nature of the independent variable (Previous TIC PD), which indicates that no participant’s scores can be dependent on another’s because there are different participants in each group. Additionally, a Levene’s test was used to evaluate for homogeneity of
variance. The results of Levene’s test should not be significant in order to meet the assumption of homogeneity of variance.

For Research Question 3, examining how a trauma-informed professional development intervention affects educators’ attitudes towards TIC, assumptions were examined to prepare for statistical analysis. The dependent variable—ARTIC score—was measured on a continuous scale, and the independent variable (pre-test and post-test) consists of two categorical or related groups. Each participant included in this analysis (n = 24) was measured on two occasions—once before the professional development intervention and once following the professional development intervention—using the ARTIC scale. The sample size in each group must be greater than the number of dependent variables that are being analyzed, and dependent variables should be moderately correlated with each other. Additionally, the multivariate normality assumption and outlier checks, described earlier, will be rerun on the ARTIC scales. Scatterplots were also examined to assure that each pair of dependent variables for each related group of the independent variable have a linear relationship. Finally, testing for potential attrition bias was performed by comparing the means on each of the ARTIC scales at pre-test between the group of 24 participants who completed the pre-test and post-test, and the 70 participants who only completed the pre-test, using an independent samples t-test.

**Statistical Analysis**

For the first research question, examining how grade level of students taught/worked with relates to educators’ attitudes towards trauma-informed care, a Pearson correlation was conducted. Grade level taught/worked with was compared to
each subscale to determine their relationship. For the second research question, separate independent samples t-tests were used for each of the ARTIC subscales to investigate whether attitudes related to TIC differ based on whether or not the participant had previous professional development regarding TIC. For the third research question, a one-way repeated measures multivariate analysis of variance (MANOVA) was conducted to determine whether there were differences in educators’ attitudes related to trauma-informed care before and after a brief professional development program that utilized a constructivist approach. Because multiple pairwise tests were completed for Research Questions 1 and 2, a Bonferroni correction was calculated to reduce the chance of obtaining false-positive results, otherwise known as a Type I error. The newly adjusted critical p-value of .008 was used for the statistical analysis for both Research Questions 1 and 2.

Human Participants and Ethics Precautions

This study was conducted as a program evaluation, using a secondary analysis of data that was already collected and that, therefore, required no interaction with research participants. Once Duquesne’s Institutional Review Board had determined that this study was “exempt,” the researcher obtained the de-identified data from a third-party presenter to conceal the identity of the research participants. Results are reported in aggregate form; hence, no risk was involved in this study.
CHAPTER 4: RESULTS

The purpose of this study was to better understand factors that might influence educators’ knowledge, attitudes, and beliefs regarding trauma-informed care. Specifically, the study examined whether educators’ knowledge, attitudes, and beliefs differed by grade level of students, and were influenced by professional development in trauma-informed care. To this latter end, the study investigated both whether educators’ knowledge, attitudes, and beliefs related to trauma-informed care were affected by prior professional development experiences in trauma-informed care, as well as the effectiveness of a new, brief approach to professional development in trauma-informed care. This chapter describes the outcomes from the statistical analyses in narrative form with supporting tables and figures.

Descriptive Statistics for the Pre-Test Sample

The school district represented in this study was composed of 413 staff members, 241 of whom were teachers (National Center for Education Statistics [NCES], 2022). The initial sample ($N = 94$) was used to address the first and second research questions. The sample of participants for this study was mostly female (69.1%), white (98.9%), non-Hispanic (98.9%), and highly educated, as 99% reported completing at least a bachelor’s degree.

All 94 initial participants in the dataset were included in the analyses. The sample consisted of kindergarten through 12th grade teachers and staff employed by a large, suburban, public school district in Washington County, Pennsylvania, who completed the pre-test survey prior to attending the TIC professional development training. Data for grade level taught/worked with was collected by allowing participants to choose each of
the grade levels (K–12) that applied; three participants indicated that they worked with grade levels that crossed the specified groupings of this study. One participant indicated that they taught/worked with students in each of the grades K–12 (all grade levels), one reported working with students in grades K–8 (elementary and middle school), and one reported working with/teaching students in grades K–5 and 9–12 (elementary and high school). These three participants were included in the study and their responses were recoded as discussed later in this chapter. See Table 7 for a detailed breakdown of the demographics.

**Table 7**

*Demographics of Pre-Test Sample (N = 94)*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
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<td></td>
</tr>
<tr>
<td>Male</td>
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<td>30.9</td>
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<tr>
<td>Female</td>
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</tr>
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<tr>
<td>Biracial</td>
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<tr>
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</tr>
<tr>
<td>College</td>
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<tr>
<td>Graduate</td>
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<td><strong>Grade Taught/worked with</strong></td>
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<tr>
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<td>High School</td>
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<td>Elementary and Middle School</td>
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<td>1.1</td>
</tr>
<tr>
<td>Elementary and High School</td>
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<td>1.1</td>
</tr>
<tr>
<td>All grade levels</td>
<td>1</td>
<td>1.1</td>
</tr>
</tbody>
</table>
Descriptive Statistics for Post-test Sample

Of the 94 initial participants, 24 both participated in and completed the post-test survey following the virtual TIC training session; this subsample \((n = 24)\) was used to address the quasi-experiment-based third research question. Most of these pre-plus-post-test participants were female (75.0%), white (100%), and non-Hispanic (95.8%). In addition, these participants were also highly educated. The demographic composition of the pre-plus-post-test sample was thus very similar to that of the initial sample. See Table 8 for a detailed breakdown of the demographics of this subsample.

Table 8

Demographics for Post-test Sample \((n = 24)\)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
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<td>25.0</td>
</tr>
<tr>
<td>Female</td>
<td>18</td>
<td>75.0</td>
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<tr>
<td>Race/Ethnicity</td>
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<td>White/Caucasian</td>
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<td>Some college</td>
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<td>0</td>
</tr>
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<td>College</td>
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<tr>
<td>Graduate</td>
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<td>50.0</td>
</tr>
<tr>
<td>Grade Taught/worked with</td>
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<td></td>
</tr>
<tr>
<td>Elementary</td>
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</tr>
<tr>
<td>Middle School</td>
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</tr>
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<td>Elementary and Middle School</td>
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</tr>
<tr>
<td>All grade levels</td>
<td>1</td>
<td>4.2</td>
</tr>
</tbody>
</table>
Preliminary Analyses

All 94 initial participants had complete ARTIC-35 pre-test scores and were, therefore, used for analysis. Pre-screening of the data was completed for all variables before running any of the analyses. For the first research question, which explored whether ARTIC-35 scores differed between grade levels, three assumptions pertained to the study design and the variables themselves: namely, that they are paired, independent, and normally distributed. A visual inspection of the data assured that each ARTIC-35 score was paired with a grade level response, therefore satisfying the assumption that the variables are paired. Additionally, the observations were independent of each other as it is not likely that one participant’s score on the ARTIC-35 was influenced by another participant’s score on the same instrument. Univariate normality assumptions were tested for the overall ARTIC-35 score as well as for each of the ARTIC-35 subscale scores. All but one of the dependent variables demonstrated some amount of negative skew, while one—underlying causes (skewness = .136) —was positively skewed. Kurtosis values above one 1 were found for two variables: overall ARTIC-35 score (1.29) and self-efficacy (1.38); however, values between -2 and +2 are considered acceptable in order to support normal univariate distribution (George & Mallery, 2010). Levene’s test was not significant for any of the variables, indicating that the homogeneity of variance assumption was satisfied. Additionally, histograms and normal Q-Q plots were visually examined, indicating the varying skewed and kurtotic nature of the variables. Shapiro-Wilk’s test of normality indicated that four of the ARTIC-35 subscale scores were not significantly non-normal. However, the overall ARTIC-35 ($W = .97, p = .03, df = 94$) and self-efficacy ($W = .94, p < .001, df = 94$) were significantly non-normal. Boxplots were
visually explored and indicated the possibility of one extreme outlier. Scatterplots of the variables for each Research Question 1 analysis, exploring the possible presence of multivariate outliers, supported the findings of the boxplot checks. This outlier will be addressed later in the statistical analysis. Additionally, a visual inspection of these scatterplots supported the assumption that a linear relationship exists between the independent variable (grade level) and each of the dependent variables (ARTIC-35 scores). The grade level variable demonstrates a roughly even distribution of participants in each group, which does violate the normality assumption; however, this assumption has been debated over the years (e.g., Nefzger & Drasgow, 1957) and need not be strictly adhered to. Finally, a Bonferroni correction was calculated to reduce the chance of obtaining false-positive results (Type I error) due to the performance of multiple pairwise tests. The new, adjusted critical p-value of .008 was used to determine the statistical significance of the results.

Prior to running the analysis to address the second research question to examine the relationship between previous professional development and educators’ attitudes toward TIC, the individual variables were screened to assure that they met all the analysis assumptions. Again, the first three assumptions pertain to the study design and the variables themselves: namely, that they are paired, independent, and normally distributed. Each case has two data points, one value for the independent variable and one value for the dependent variable. The independence assumption was met by considering the nature of the independent variable (Previous TIC PD), which indicates that no participant’s scores can be dependent on another’s because there are different participants in each group. Univariate normality and homogeneity of variance assumptions for the overall
ARTIC-35 score, as well as for each of the ARTIC-35 subscale scores, were already addressed in the first research question. Finally, as with Research Question 1, a Bonferroni correction was calculated to reduce the chance of obtaining false-positive results (Type I error) owing to the performance of multiple pair-wise tests. The new, adjusted critical $p$-value of .008 was used to determine the significance of the results.

Finally, before addressing Research Question 3, which examined how a trauma-informed professional development intervention affects educators’ attitudes towards TIC, the individual variables were screened to ensure that they met all the analysis assumptions. The dependent variables for this question—ARTIC-35 overall and subscale scores—were measured on a continuous scale, and the independent variable (pre-test and post-test) consisted of two categorical or related groups. The sample for this question consisted of 24 participants ($n = 24$), who were measured on two occasions—once before the professional development intervention and once following the professional development intervention. The number of participants ($n = 24$) was greater than the number of dependent variables that were being analyzed; therefore, the adequate sample size assumption was met. Multivariate normality assumptions were tested for the overall ARTIC-35 score, as well as for each of the ARTIC-35 subscale scores. Eight of the dependent variables demonstrated fairly symmetrical distributions. However, the pre-test and post-test self-efficacy subscales demonstrated high negative skewness with skewness values equal to -1.01 and -1.30, respectively. Additionally, pre-test on the job and post-test underlying causes subscales demonstrated moderate skewness with values equal to -.62 and .51, respectively. Kurtosis values indicated that for all of the variables, the distribution tends to produce fewer and less extreme outliers than the normal distribution,
with values ranging from -1.00 to 2.16. However, kurtosis values were found to be within the range of normal distribution as values fell between -7 and +7 (Bryne, 2010, Hair et al., 2010). Scatterplots were visually examined for outliers, suggesting the possible presence of the same one extreme outlier, as indicated previously. This potential outlier is addressed later in the statistical analysis. Finally, potential attrition bias was checked by using an independent samples $t$-test to compare the 24 participants who completed the post-test with the 70 participants who completed only the pre-test on the pre-test ARTIC-35 overall scale and subscales. None of the results were statistically significant ($t$s range from -1.86 to -0.44, all $df$s = 92, $ps$ range from .07 to .66), indicating no evidence of attrition bias.

**Statistical Analyses**

**Research Question 1**

Pearson product-moment correlations were used to examine the relationship between grade level and the overall ARTIC-35 score, as well as each of the ARTIC-35 subscale scores. Additionally, because multiple pairwise tests were performed, a Bonferroni correction was calculated to reduce the chance of obtaining false-positive results, otherwise known as a Type I error, with the adjusted critical $p$-value of .008. Statistical reporting will include Pearson $r$ effect sizes, $p$-values, and post hoc power statistics. The overall ARTIC-35 was significantly negatively correlated with grade level ($r = -.29, p = .005, 1-\beta = .580$). Additionally, the subscales for underlying causes and responses were also each significantly negatively correlated with grade level ($r = -.44, p < .001, 1-\beta = .969$) and $r = -.34, p = .001, 1-\beta = .769$ respectively). The reactions to the work ($r = -.19, p = .07, 1-\beta = .206$), on-the-job behaviors ($r = -.26, p = .01, 1-\beta = .456$),
and self-efficacy ($r = .00, p = .99, 1-\beta = .008$) subscales demonstrated no significant correlations, given the Bonferroni correction. According to Cohen’s (1988) effect size guidelines, the overall scale and on-the-job behavior subscale demonstrated small-sized correlations and the underlying causes and responses subscales demonstrated moderate-sized correlations. It is important to note that a possible extreme outlier was identified during the preliminary analysis. In order to test whether this participant’s data functioned as an outlier in these analyses, the Pearson product moment correlations were run after removing the potentially problematic data. Results from these analyses did not change the significance levels of the results on any of the variables and therefore, the participant’s data was included in the statistical analysis and findings.

**Research Question 2**

Independent sample $t$-tests were used to compare ARTIC-35 overall scores and subscale scores between those who reported having previous professional development and those who did not. Of the 94 in the initial sample ($N = 94$), 36 participants reported having had previous professional development in TIC, while 58 did not. Means and standard deviations of the ARTIC-35 overall and subscale scores for both groups are presented in Table 9. Additionally, because multiple pairwise tests were performed, a Bonferroni correction was calculated to reduce the chance of obtaining false-positive results, otherwise known as a Type I error, with the adjusted critical $p$-value of .008. Statistical reporting includes $t$-values, Cohen’s $d$, $p$-values, and post hoc power statistics. Results indicated no statistically significant difference between overall ARTIC-35 scores for those who reported previous professional development ($M = 5.47, SD = .75$) and those who did not ($M = 5.11, SD = .64$); $t(92) = -2.47$, Cohen’s $d = .52$, $p = .02$, $1-\beta = .411$. 

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However, significant differences were found between previous professional development and no previous professional development in ARTIC-35 scores for underlying causes ($t(92) = -3.38$, Cohen’s $d = .71$, $p = .001$, $1-\beta = .751$), responses to problem behaviors and symptoms ($t(92) = -2.70$, Cohen’s $d = .57$, $p = .008$, $1-\beta = .513$), and on the job behaviors ($t(92) = -3.48$, Cohen’s $d = .72$, $p = .001$, $1-\beta = .765$). No significant differences were found between those reporting previous professional development and those who did not with the ARTIC-35 subscales for self-efficacy at work ($t(92) = -48$, Cohen’s $d = .10$, $p = .63$, $1-\beta = .016$) and reactions to the work ($t(92) = -.57$, Cohen’s $d = .12$, $p = .57$, $1-\beta = .019$). It is important to note that, as in the first research question, a possible extreme outlier was identified during the preliminary analysis. In order to test for significant influence of this outlier, a scatterplot was used to identify the participant in question, and the independent samples $t$-test was run after removing the potentially problematic data. Results from this analysis did not change the significance of the results on any of the variables; therefore, the participants’ data were included in the statistical analysis and findings.
Table 9

Means and Standard Deviations of the Previous Professional Development and No Previous Professional Development ARTIC-35 Scores

<table>
<thead>
<tr>
<th>ARTIC-35 Variable</th>
<th>Previous professional development (n = 36) M (SD)</th>
<th>No previous professional development (n = 58) M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall ARTIC-35</td>
<td>5.47 (.75)</td>
<td>5.11 (.64)</td>
</tr>
<tr>
<td>Underlying causes of problem behaviors</td>
<td>5.27 (.82)</td>
<td>4.73 (.70)</td>
</tr>
<tr>
<td>Responses to problem behaviors and symptoms</td>
<td>5.47 (.90)</td>
<td>4.97 (.85)</td>
</tr>
<tr>
<td>On the job behaviors</td>
<td>5.59 (.81)</td>
<td>5.05 (.69)</td>
</tr>
<tr>
<td>Self-efficacy at work</td>
<td>5.65 (1.03)</td>
<td>5.55 (.95)</td>
</tr>
<tr>
<td>Reactions to the work</td>
<td>5.36 (.93)</td>
<td>5.25 (.92)</td>
</tr>
</tbody>
</table>

Note. N = 94. ARTIC-35 = Attitudes Related to Trauma-Informed Care, 35-Item Version.

Research Question 3

A one-way repeated measures multivariate analysis of variance (MANOVA) was used to determine if significant differences exist in attitudes related to trauma-informed care before and after a brief professional development training. Of the initial 94 participants (N = 94), 24 completed the ARTIC-35 both prior to and after the professional development training. Changes in attitudes related to trauma-informed care were measured by participants’ scores on the ARTIC-35. Possible scores ranged from 1 (less favorable attitudes) to 7 (more favorable attitudes). Means and standard deviations for
each ARTIC-35 score (overall and subscale) for the pre-test and post-test are presented in Table 10. Results indicated that a significant difference exists between ARTIC-35 scores (overall and subscale scores) prior to and following the professional development training, $F(6, 18) = 3.89, p = .011; \text{Wilks’ } \Lambda = .435, \text{ partial } \eta^2 = .57, 1-\beta = .885$. However, the presence of previous professional development—established as a significant predictor of some of the ARTIC-35 subscale scores in the second research question—which may have unduly influenced these results and therefore, a multivariate analysis of covariance (MANCOVA) was also conducted with previous professional development as the covariate. Results of the MANCOVA indicate that including the previous professional development variable as a covariate did not influence the overall changes in ARTIC-35 scores from pre-test to post-test, $F(6, 17) = 4.59, p = .006; \text{Wilks’ } \Lambda = .382, \text{ partial } \eta^2 = .62, 1-\beta = .93$. Therefore, the results of the original one-way repeated measures MANOVA, not including the previous professional development variable as a covariate, were used.

Specifically, the univariate results indicated that a significant difference was found between pre-test and post-test ARTIC-35 scores for overall ARTIC-35 ($F(1, 23) = 9.14, p = .006, \text{Wilks’ } \Lambda = .435, \text{ partial } \eta^2 = .57, 1-\beta = .58$), underlying causes ($F(1, 23) = 10.29, p = .004, \text{ partial } \eta^2 = .31, 1-\beta = .87$), responses to problem behaviors and symptoms ($F(1, 23) = 6.82, p = .016, \text{ partial } \eta^2 = .23, 1-\beta = .71$), and reactions to the work ($F(1,23) = 4.54, p = .044, \text{ partial } \eta^2 = .17, 1-\beta = .53$). Results were not significant for on-the-job behaviors ($F(1, 23) = 3.63, p = .069, \text{ partial } \eta^2 = .14, 1-\beta = .45$) and self-efficacy at work ($F(1, 23) = .20, p = .656, \text{ partial } \eta^2 = .01, 1-\beta = .07$).
Table 10

Means and Standard Deviations of the Pre-test and Post-test ARTIC-35

<table>
<thead>
<tr>
<th>ARTIC-35 Variable</th>
<th>Pre-test ARTIC-35 (n = 24) M (SD)</th>
<th>Post-test ARTIC-35 (n = 24) M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall ARTIC-35</td>
<td>5.45 (.59)</td>
<td>5.60 (.61)</td>
</tr>
<tr>
<td>Underlying causes of problem behaviors</td>
<td>5.11 (.71)</td>
<td>5.37 (.64)</td>
</tr>
<tr>
<td>Responses to problem behaviors and symptoms</td>
<td>5.48 (.69)</td>
<td>5.64 (.65)</td>
</tr>
<tr>
<td>On the job behaviors</td>
<td>5.45 (.75)</td>
<td>5.61 (.71)</td>
</tr>
<tr>
<td>Self-efficacy at work</td>
<td>5.79 (.91)</td>
<td>5.76 (.98)</td>
</tr>
<tr>
<td>Reactions to the work</td>
<td>5.43 (.86)</td>
<td>5.63 (.92)</td>
</tr>
</tbody>
</table>

Note. N = 24. ARTIC-35 = Attitudes Related to Trauma-Informed Care, 35-Item Version.

Summary of Findings

The present study examined the relationships between a) grade level of students taught/worked with and educators’ attitudes related to trauma-informed care, b) previous trauma-informed professional development and attitudes related to trauma-informed care, and c) how a brief trauma-informed professional development intervention affects educators’ attitudes towards trauma-informed care. Participants were composed of kindergarten through 12th grade teachers and staff from a large suburban public school district in Washington County, Pennsylvania. Analyses were conducted with 94 participants who completed the pre-test survey, and 24 (of the 94) who completed the
both the pre-test and post-test surveys. The results of this study suggest that, in general, educators’ attitudes towards trauma-informed care are less favorable in older grades than they are in younger grades. Additionally, results indicated that educators who had previous professional development in trauma-informed care overall did not demonstrate more favorable attitudes towards trauma-informed care than those educators who did not have previous professional development in trauma-informed care. However, results for Research Question 3 suggest that a brief professional development training may influence more favorable attitudes toward trauma-informed care in educators.

Despite significant overall effects (i.e., for the ARTIC-35 overall scale) for two of the three main research questions, tests assessing the sub-questions, which addressed the ARTIC-35 subscales, indicated some mixed results. For Research Question 1, Pearson product-moment correlations were used to examine the relationship between grade level and the overall ARTIC-35 score, as well as each of the ARTIC-35 subscales scores. Results suggest that educators’ attitudes toward trauma-informed care—specifically with regard to underlying causes of problem behaviors and symptoms, and responses to problem behaviors and symptoms—become less favorable as children move from elementary school through high school. However, attitudes related to trauma-informed care—specifically regarding responses to the work and on-the-job behaviors—demonstrated an inverse relationship but were not significant, while self-efficacy at work demonstrated no significant relationship.

Similarly mixed findings were demonstrated for Research Question 2. Independent sample $t$-tests were used to compare ARTIC-35 subscale scores between previous professional development and no previous professional development in TIC.
Results suggest that educators’ attitudes towards trauma-informed care—specifically with regard to underlying causes of problem behaviors and symptoms, responses to problem behaviors and symptoms, and on-the-job behaviors—were significantly more favorable for those who had previous professional development than for those who did not. However, there was no significant effect of previous professional development on attitudes related to trauma-informed care, specifically regarding self-efficacy at work and reactions to the work.

Finally, for Research Question 3, a one-way repeated measures multivariate analysis of variance (MANOVA) was used to determine if significant differences exist in attitudes related to trauma-informed care before and after a brief professional development training. Results suggest that educators’ attitudes towards trauma-informed care demonstrated a significant change in terms of more favorable attitudes overall toward trauma-informed care following the brief, trauma-informed professional development training intervention. Results also suggested a favorable change educators’ attitudes towards trauma-informed care after the professional development training—specifically with regard to underlying causes, responses to problem behaviors and symptoms, and reactions to the work. However, results failed to demonstrate significant change for on-the-job behaviors and self-efficacy at work, suggesting that those specific attitudes related to trauma-informed care did not change in a meaningful way following the brief trauma-informed professional development intervention.
CHAPTER 5: DISCUSSION

This study had multiple objectives. First, it investigated the extent to which the grade level of students influences educators’ attitudes related to trauma-informed care. Second, in terms of attitudes relating to trauma-informed care, comparisons were made between those who had previous professional development in trauma-informed care compared to those who did not. Third, and of primary interest to the researcher, the efficacy of a brief professional development program on changes in attitudes relating to trauma-informed care was investigated. To that end, changes in participants’ scores on the ARTIC-35 from before the brief professional development program and after it were analyzed. This chapter will discuss and interpret key findings within the context of the literature, as well as limitations of the study and implications for research and practice.

Summary of the Study

The main purpose of this study was to add evidence to the nascent and growing literature base regarding the potential effects and efficacy of professional development in changing educators’ attitudes regarding trauma-informed care in educational settings. To that end, this study tested the effectiveness of a brief professional development training program in fostering knowledge, attitudes, and beliefs more favorable to trauma-informed care, and compared attitudes regarding trauma-informed care between participants who had engaged in previous professional development in trauma-informed care and those who had not. Additionally, this study sought fill a gap in the literature on the relationship between grade level of students worked with/taught and educators’ attitudes relating to trauma-informed care.
The results of this study have indicated that, on average, educators working with/teaching older students demonstrate attitudes that are generally less favorable to trauma-informed care than those educators who work with/teach younger students. Results also suggested that a brief professional development training may influence more favorable attitudes toward trauma-informed care in educators. However, attitudes of educators who had taken previous professional development training for trauma-informed care were, overall, not significantly different from those of educators who had not experienced such training.

Because one of the major objectives of this study was a program evaluation, the specific version of the measure of attitudes regarding trauma-informed care, ARTIC-35, was selected to better understand the individual constructs used to measure educators’ knowledge, attitudes, and beliefs relating to trauma-informed care. The ARTIC-35 consists of an overall summary score as well as five subscale scores, each indicative of a conceptually unique but related construct (Baker et al., 2016). Similar to the mixed results of overall effects across the three research questions, results from the subscale constructs demonstrated mixed findings within each of the research questions. Along these lines, the results suggest that educators who work with older students demonstrate attitudes less favorable to the constructs of underlying causes of problem behaviors and symptoms, and what might constitute an appropriate response to such behaviors/symptoms; however, there was no significant correlation between grade level taught and attitudes towards their on-the-job behavior, self-efficacy in working with traumatized children, and appreciation for vicarious traumatization. Additionally, no significant differences were found between educators who had previous professional
development and those who did not in terms of their attitudes towards their self-efficacy in working with traumatized children and vicarious traumatization. At the same time, significant differences were found in the other three subscales, suggesting that previous professional development may result in more favorable attitudes regarding the underlying causes of problem behaviors and symptoms, appropriate responses to problem behaviors and symptoms, and the impact of educators’ on-the-job behavior. Finally, results for the subscale constructs demonstrate that attitudes towards underlying causes of problem behaviors and symptoms, responses to problem behaviors and symptoms, and vicarious traumatization were, on the one hand, significantly more favorable following the brief professional development program than they were before. On the other hand, educators’ attitudes towards the impact of their on-the-job behaviors and self-efficacy at work were not significantly more favorable following the professional development training program.

The specific interpretations of and conclusions that may be drawn from the results from the analyses are organized according to the research questions that were addressed in this study. The results will be explicated through the theoretical framework of the study, previous research findings that support or contradict the current findings, and practical implications of these results.

**Relationship between Grade Level and Attitudes Related to Trauma-Informed Care**

In order for a system to be trauma-informed, individuals within the system must adopt trauma informed approaches (Brown et al., 2012). However, these approaches are often shaped by, and therefore reflect, established beliefs and attitudes. Despite the lack of literature regarding differences that exist, if any, in teachers’ attitudes towards trauma-
informed care between grade levels, the adjacent literature regarding parents' evaluation of children's misbehaviors supports the idea that differences exist between age groups in terms of how parents interpret information about their children that ultimately influences their reactions to child behavior (Bugental, 1987; Dix et al., 1986, Dix et al., 1989). Specifically, parents’ belief that older children are more intentional in their behavior has been linked to parental interactions that are more negative in affect and punitive in consequence (Dix et al., 1989). Because teachers’ behaviors regarding student misbehavior can have particularly negative consequences for students with trauma histories, it is important to understand their beliefs regarding student behavior to better inform the design of trauma-informed professional development programs. Because grade levels typically correspond to specific age ranges, this previous research can be considered when discussing the findings of the first research question.

For this question, it was hypothesized that educators working with/teaching older students will demonstrate knowledge, attitudes, and beliefs that are less favorable to trauma-informed care. A Pearson product-moment correlation was used to examine the potential relationships between the ARTIC-35 overall and subscale scores between grade levels (grouped into elementary, middle school, and high school, given the nature of the present data). Overall, the findings supported this hypothesis, suggesting that educators working with/teaching older students tend to demonstrate attitudes that are less favorable towards trauma-informed care in general. The following subsections will examine the findings by each of the specific constructs (i.e., attitudes, beliefs, knowledge, and behaviors) measured by each of the subscales on the ARTIC-35).
Educators’ Perceptions of Underlying Causes of Problem Behaviors and Symptoms

The perceptions of underlying causes of problem behaviors and symptoms construct, as measured by the ARTIC-35, pertains to the extent to which teachers and staff perceive problem student behaviors as internal and fixed (less trauma-informed) as opposed to external and malleable (more trauma-informed). For example, participants were asked questions about their beliefs regarding students’ behaviors’ being a reflection of their experiences and life events, students’ motivations behind behaviors (manipulative versus need driven), and students’ abilities and skills to meet behavioral expectations (Baker et al., 2016). For this construct, it was hypothesized that educators would demonstrate attitudes that are less consistent with the belief that underlying causes of problem behaviors and symptoms are adaptable and malleable and more consistent with the belief that problem behaviors and symptoms are intentional and fixed when working with students in older grades as opposed to younger grades. Responses supported this hypothesis and demonstrated a significant inverse relationship between grade level and attitudes relating to perceptions of underlying causes of problem behaviors and symptoms. These findings are in alignment with the adjacent literature that suggests parents tend to believe that younger children have less control over their misbehavior than older children, who they believe are more intentional in their misbehavior (Dix et al., 1986; Dix et al., 1989). This line of research demonstrates that as children get older, parents believe that childhood behavior is increasingly caused by personality disposition, is increasingly intentional and under the child’s control, and, for misconduct, understood to be wrong—all of which falls under the category of internal and fixed, or less trauma-informed.


**Educators’ Responses to Problem Behaviors and Symptoms**

The responses to problem behaviors and symptoms construct, measured by the ARTIC-35, pertains to educators’ beliefs regarding the need to enforce rules and consequences in order to eliminate problem behaviors (less trauma-informed) as opposed to the need for flexibility, establishing emotional safety, and building healthy relationships (more trauma-informed). Participants were asked to answer questions regarding their attitudes and beliefs on holding students accountable for their actions, and emphasizing strictness over kindness and understanding (Baker et al., 2016). It was hypothesized that educators of older students would demonstrate attitudes that are less consistent with the belief that relationships, flexibility, kindness, and emotional safety are the agents of change for problem behaviors and symptoms, and move more toward the belief that rules, consequences, and accountability are the agents of change for problem behaviors and symptoms. For this construct, educators’ responses supported this hypothesis and demonstrated a significant inverse relationship between grade level and attitudes related to perceptions of responses to problem behaviors and symptoms. These results add to the limited yet supporting adjacent literature that as children get older, parental responses to misconduct and behavior problems become increasingly negative in affect and more punitive in consequence (Dix et al., 1986, Dix et al., 1989). As children age, it is often assumed that they have already learned and mastered social-emotional skills; therefore, it is possible that educators believe they no longer have to teach those skills in higher grades, creating perceptions that consequences and rule enforcement is more appropriate than flexibility and building relationships.
Educators’ On-the-Job Behaviors

The on-the-job construct measured by one of the subscales of the ARTIC-35 pertains to educators’ beliefs regarding the need to demonstrate control-focused behaviors (less trauma-informed) as opposed to empathy-focused behaviors (more trauma-focused) when interacting with their students. This construct, although similar to the responses to problem behaviors and symptoms construct, focuses on educators’ concern for how they are viewed by others in terms of their responses to student behavior. Questions focused on responses that indicated whether or not participants felt that student misbehaviors reflect poorly on them, that demanding an apology is necessary for the teacher not to look foolish, that rule enforcement is necessary for preventing property damage and harm to other students, and that establishing relationships with students would be viewed, by others, as having poor boundaries (Baker et al., 2016). For this construct it was hypothesized that educators’ that work with/teach older students demonstrate attitudes that are less consistent with the belief that responses to problem behaviors should focus on empathy and more consistent with the belief that they should focus on control. However, although educators’ responses demonstrated an inverse relationship between grade level and empathy-focused on-the-job behaviors, the results of the analyses were not statistically significant. These findings did not support the existing adjacent literature suggesting that parents tend to regard their older children as misbehaving intentionally, thus eliciting parental responses that assert control and are more punitive (Dix et al., 1986; Dix et al., 1989). Additionally, ARTIC-35 scores range from 1 (less trauma-informed) to 7 (more trauma-informed) with a score of 4 indicating a more neutral response. For this subscale, the mean scores for grade levels ranged from
4.86 to 5.71 which is above the midpoint, thus reflecting generally more positive attitudes toward empathy-focused behaviors. Despite the null results for this particular subscale, it is important to note that a small but meaningful effect size was detected, indicating the possibility that a larger sample could yield significant correlations between on-the-job behaviors and symptoms, and grade level.

**Educators’ Self-Efficacy at Work**

The self-efficacy at work construct measured by the ARTIC-35 examines attitudes related to educators’ beliefs in their own ability to meet the demands of working with traumatized youth. Questions focused on responses that indicated the extent of educators’ confidence in their skills, ability and perceived support of colleagues, views regarding the stress level of their work, and the extent to which the work is taken personally. For this study, it was hypothesized that educators of older students would demonstrate attitudes less consistent with the belief that they are able to meet the demands of working with traumatized youth. The findings regarding this construct did not support the hypothesis. Results demonstrated no significant relationship between grade level and self-efficacy at work, indicating that self-efficacy in working with traumatized youth is not mediated by student grade level. The results were not only not significant but also did not demonstrate any relationship at all ($r = .00$), indicating that educators’ beliefs regarding being able to meet the demands of working with traumatized youth are very likely not dependent on grade level or, more loosely, on student age.

**Educators’ Reactions to the Work**

The final construct addressed by the ARTIC-35, reactions to the work, measures attitudes that endorse appreciation for vicarious traumatization and seeking support as a
coping mechanism (more trauma-informed) compared to endorsement for minimization of the effects of vicarious traumatization and coping by ignoring or hiding the impact (less trauma-informed; Baker et al., 2016). Questions focused on the extent to which participants seek support from others, their feelings about being affected by working with traumatized youth, their thoughts regarding effective coping skills, and their ideas about how personal struggles affect their work. For this study it was hypothesized that educators of older students would demonstrate attitudes that are more likely to minimize the effects of vicarious traumatization and coping by ignoring or hiding the impact. Though the results indicated a small but meaningful effect size ($r = -.19, p = .067$), perhaps suggesting that educators who work with older students may demonstrate attitudes that are more likely to minimize the effect of vicarious trauma and engage in coping mechanisms that ignore or hide the impact, the effect was not statistically significant, thus indicating that the present study does not provide evidence that students’ grade level/age is a predictor of educators’ attitudes regarding their experience in working with traumatized youth.

**Impact of Previous Professional Development on Attitudes Related to Trauma-Informed Care**

A national survey titled “Voices from the Classroom 2020: A Survey of America’s Educators” identified social-emotional learning, alternatives to punitive discipline, and trauma-informed teaching as educators’ top three priorities for professional development (Educators for Excellence, 2020). Similar research has demonstrated findings suggesting that teachers and school staff often believe that they lack the skills and knowledge required to engage appropriately with students to address
their social-emotional and mental health needs (Chen & Philips, 2018; Reinke et al., 2011). When teachers feel unprepared to meet the needs of their students, they often experience increased levels of stress and worry (Blitz et al., 2016; Tsouloupas et al., 2010). Professional development related to trauma-informed care not only is essential for student success and well-being but also it assists teachers and staff in feeling more confident in their abilities to meet the needs of traumatized students, thereby increasing retention and minimizing burnout (Blodgett & Dorado, 2016; Cavenaugh, 2016; Stulmaker, 2013).

One objective of this study was to compare the potential effects of previous professional development training to the absence of such training on attitudes related to trauma-informed care in general, as well as in relation to each of the five subscales that comprise the ARTIC-35 measure (see Table 5 for subscales and construct descriptions). It was hypothesized that educators’ knowledge, attitudes, and beliefs would be more favorable to trauma-informed care (as measured by the ARTIC – 35) if they have had previous professional development in trauma-informed care than those of educators who had not participated in such training.

Overall, findings did not support this hypothesis: no significant difference was revealed between those with previous professional development training in trauma-informed care and those without it. These findings are contrary to the literature that indicates that trauma-informed professional development has the potential to increase knowledge and create changes in attitudes and behaviors that are more favorable to trauma-informed approaches (Baker et al., 2016; Brown et al., 2011), as well as increase educators’ confidence and competence in their ability to cope with and modify
challenging student behaviors (Shamblin et al., 2016). Teachers provide coping strategies, routine, and structure, which can have a therapeutic effect for students who are experiencing or recovering from traumatic stress (Alisic, 2012; Ludy-Dobson & Perry, 2010; Mortensen & Barnett, 2016; Sciaraffa et al., 2018). Teachers are in a position to fulfill the much-needed positive relationship role that is necessary to foster resilience and repair negative world views in traumatized youth. However, in order for the teacher-student relationship to be strong enough to encourage students to use self-regulation strategies and de-escalation techniques, teachers need specific strategies to foster a classroom culture of safety and respect (Brunzell et al., 2020). Whereas overall, no significant differences were found, some of the ARTIC-35 subscale scores did show mean differences between those who reported having previous professional development in trauma-informed care and those who did not. The following sections will examine the findings by each of the constructs/subscales measured by the ARTIC-35.

**Educators’ Perceptions of Underlying Causes of Problem Behaviors**

For this subscale construct, it was hypothesized that when educators engage in professional development in trauma-informed care, they tend to demonstrate attitudes that are more consistent with the belief that underlying causes of problem behaviors and symptoms are adaptable and malleable as opposed to the belief that they are intentional and fixed. Educators’ responses on the ARTIC-35 supported the hypothesis and demonstrated that mean scores for previous professional development ($M = 5.47, SD = .75$) were significantly greater than mean scores for educators who reported having no previous professional development ($M = 5.11, SD = .64$) in trauma-informed care. These results indicated that professional development in trauma-informed care has the potential
to improve attitudes consistent with the belief that the underlying causes of problem behaviors and symptoms are adaptable and malleable. These findings support the limited existing literature indicating that educators who complete professional development training are more likely to attribute students’ learning and behavior problems to their trauma histories rather than to fixed internal characteristics (Waggoner, 2018). For educators, a trauma-informed mindset that allows for adaptability of student misbehaviors has the potential to decrease retraumatization while increasing supports in order to help students gain control, build self-regulation skills, alleviate stress, and foster safety so that they are ready to learn (Dorado et al., 2016; Overstreet & Chafouleas, 2016).

**Educators’ Responses to Problem Behaviors and Symptoms**

For this construct it was hypothesized that educators who had engaged in professional development in trauma-informed care would tend to demonstrate attitudes that are more consistent with the belief that relationships, flexibility, kindness, and emotional safety are the agents of change regarding problem behaviors and symptoms (i.e., higher ARTIC-35 subscale scores). In contrast, educators who had not engaged in professional development in trauma-informed care were expected to demonstrate attitudes more consistent with the belief that the enforcement of rules and consequences is the agent of change for problem behaviors and symptoms (i.e., lower ARTIC-35 subscale scores). Results supported the hypothesis and indicated that when educators engage in professional development in trauma-informed care they are, on average, more likely to demonstrate attitudes consistent with the belief that relationships, flexibility, kindness, and emotional safety are the agents of change for problem behaviors and
symptoms than are those educators who have taken no professional development training in trauma-informed care. Notably, participants were not asked to indicate what type of program or trauma-informed framework was involved in their previous professional development experience; however, trauma-informed care, in general, typically focuses on the need for building healthy relationships regardless of the specific program or framework employed (Bartlett & Bardo, 2016; McInerney & McKlindon, 2014; SAMHSA, 2014). Therefore, it is likely that educators who had received previous professional development training in trauma-informed care had been educated on topics specific to the importance of the relationships in mediating the effects of trauma.

**Educators’ On-the-Job Behaviors**

For this subscale construct, it was hypothesized that when educators participate in professional development in trauma-informed care, they tend to demonstrate attitudes that are more consistent with the belief that responses to problem behaviors should focus on empathy and less consistent with the belief that they should focus on control as compared to those who have not engaged in previous professional development in trauma-informed care. The results of the present study indicated that educators who participated in previous professional development in trauma-informed care do demonstrate significant differences in their beliefs regarding the need to demonstrate empathy-focused behaviors from those educators who had not participated in previous professional development in trauma-informed care. Specifically, the on-the-job construct findings are important, as those who had previous professional development worried less about how they were perceived by coworkers when using trauma-informed approaches in responding to student behaviors than did those who did not have previous professional
development. These findings support the hypothesis and existing literature that suggests professional development based on SAMHSA’s (2014) framework for trauma-informed care, which specifically targets shifting participants’ perspectives toward more empathetic responses, has positive teacher outcomes (Thomas et al., 2019).

**Educators’ Self-Efficacy at Work**

For this subscale question, it was hypothesized that educators who participated in previous professional development in trauma-informed care would demonstrate attitudes more consistent with the belief that they are able to meet the demands of working with traumatized youth as opposed to those who have not had previous professional development in trauma-informed care. Results, however, did not support the hypothesis. Educators who participated in previous trauma-informed professional development did not demonstrate attitudes more consistent with beliefs in being able to meet the demands of traumatized youth than did those educators who had no previous professional development in trauma-informed care. Notably, the type of professional development program and when the program was attended were not factors measured in this study, so these aspects could have had an impact on the significance of the results. It is possible that educators’ self-efficacy was initially improved by their previous professional development experiences but that the effect diminished over time, or that the professional development program did not provide enough strategies to improve student behaviors (which would be consistent with a common request from teachers who work with traumatized students; Loomis & Felt, 2021). Pobuk (2019) explored the role that professional development training had on trauma-informed care in the classroom and found that following their professional development training, 38% of teachers reported
that although they understood trauma-informed strategies, they needed more support and coaching. Additionally, Crosby et al. (2015) found that, although their interventions demonstrated a better understanding of classroom behaviors, educators still felt they needed additional collaboration to assist with implementation in the classroom. It is possible that for this study, teachers and staff may not have had any additional support or direction regarding implementation, which may have affected their responses about feeling confident in responding to the needs of traumatized youth.

**Educators’ Reactions to the Work**

For this study it was hypothesized that educators who had participated in previous professional development in trauma-informed care would demonstrate attitudes that are more consistent with appreciation for vicarious traumatization and seeking support as coping mechanisms than would those educators who had no previous professional development training in trauma-informed care. The findings for this construct appear to demonstrate that professional development in trauma-informed care does not affect educators’ appreciation for vicarious traumatization or support-seeking coping mechanisms to a significant extent as opposed to no professional development. Again, it is important to note that this study did not assess the type of program attended or when the program was attended, both of which could have had an effect on the outcome. For example, the type of previous professional development training participants engaged in may have not focused on self-care, which would likely impact their view on vicarious trauma and coping mechanisms. Additionally, participants were not given the opportunity to identify how long ago they engaged in the professional development, and latency could explain the lack of significant findings.
Impact of Brief Professional Development Training in Trauma-Informed Care

The purpose of the third research question was to determine the effect of a brief professional development training session on attitudes related to trauma-informed care in general, as well as in relation to each of the five constructs, including underlying causes of problem behaviors and symptoms, responses to problem behaviors and symptoms, on-the-job behaviors, self-efficacy, and reactions to work (vicarious traumatization). It was hypothesized that educators’ knowledge, attitudes, and beliefs would become more favorable to trauma-informed care following a brief professional development training program.

Overall, findings supported the hypothesis that educators’ knowledge, attitudes, and beliefs were significantly more favorable to trauma-informed care following their brief professional development training session than they were prior to it. These findings align with the previous literature that substantiates the efficacy of professional development in trauma-informed care to increase knowledge and shift attitudes (Baker et al., 2016; McIntyre et al., 2019). Educators are shaped by their experiences working with traumatized youth, and pre-conceived attitudes not influenced by principles of trauma-informed care are likely to lead to negative and retraumatizing behaviors (Stokes & Philips, 2018). A lack of training can add undue stress to educators’ work, which often results in negative or inappropriate responses to student behavior problems, thereby compounding the problem. Therefore, appropriate professional development training programs are necessary not only to meet the needs of children who face adversity (Stulmaker, 2013) but also to reduce stress and minimize the effects of secondary trauma from those teachers who are responsible for these children (Cavenaugh, 2016).
general, the results from Research Question 3 support the contention that trauma-informed professional development has the potential to increase knowledge and create changes in attitudes and behaviors that are more favorable to trauma-informed approaches (Baker et al., 2016; Brown et al., 2011).

**Educators’ Perceptions of Underlying Causes of Problem Behaviors**

For this subscale construct, it was hypothesized that educators’ attitudes would become more consistent with the belief that underlying causes of problem behaviors and symptoms are adaptable and malleable, rather than internal and fixed, following the brief professional development training in trauma-informed care than they were prior to the professional development training. Results indicated that educators’ attitudes toward the underlying causes of problem behaviors and symptoms became more consistent with the idea that underlying causes are adaptable and malleable following the brief professional development training in trauma-informed care. These results thus indicate that this type of training has the potential to improve attitudes consistent with the belief that the underlying causes of problem behaviors and symptoms are adaptable and malleable. These findings support the limited but existing literature that indicates that professional development in TIC has the potential to raise teachers’ awareness of the impact of childhood trauma on learning and development (Pobuk, 2019), and that educators who complete professional development training are more likely to attribute students’ learning and behavior problems to their trauma histories rather than to fixed internal characteristics (Waggoner, 2018). For educators, a trauma-informed mindset that allows for adaptability of student misbehaviors has the potential to decrease retraumatization while increasing supports in order to help students gain control, build self-regulation
skills, alleviate stress, and foster safety so that they are ready to learn (Dorado et al., 2016; Overstreet & Chafouleas, 2016).

**Educators’ Responses to Problem Behaviors and Symptoms**

It was hypothesized that when educators were given a brief professional development training session in trauma-informed care, they will demonstrate attitudes more consistent with the belief that relationships, flexibility, kindness, and emotional safety are the appropriate agents of change for problem behaviors and symptoms than they did prior to engaging in the brief professional development training in trauma-informed care. Results demonstrated a significant change in educators’ responses to problem behaviors and symptoms between the pre-test and the post-test, supporting the hypothesis and indicating that professional development training in trauma-informed care has the potential to improve attitudes specifically concerning responses to problem behaviors and symptoms. These results were not surprising, as the focus of the brief professional development training specifically included topics such as the importance of social connection, support, safety, and trustworthiness, all of which have been supported in the literature as key to alleviating the symptoms of trauma (SAMHSA, 2014).

Additionally, these findings support previous research demonstrating that professional development has the potential to increase teachers’ understanding, responsiveness, and relatedness with demonstrated improvements in empathy, patience, and calmness (Anderson et al., 2022).

**Educators’ On-the-Job Behaviors**

For this subscale construct, it was hypothesized that following the brief professional development training in trauma-informed care, educators will demonstrate
attitudes more consistent with the belief that they need to demonstrate empathy-focused behaviors as opposed to control-focused behaviors. For this construct there were no significant changes from pre-test to post-test. This was an unexpected finding, because the brief professional development training in trauma-informed care focused on such topics as defining and understanding trauma reminders, as well as identifying protective factors and the importance of choice, collaboration, and empowerment when working with traumatized youth. However, research has indicated that despite educators’ recognizing that their behavior when addressing student misbehavior can trigger trauma-responses, they also strongly agree that an aggressive tone or strong words are often the only way to stop a negative behavior (Anderson et al., 2015). Anderson et al. found that although educators may gain trauma-informed knowledge through professional development, they may continue to hold onto old belief systems that have been found to be effective in stopping misbehaviors. Additionally, this construct focuses on educators’ concern for how they are viewed by others concerning their responses to student behavior. Despite evidence that supports a drastic reduction in student behavior issues, suspensions, and expulsions as a result of trauma-informed approaches (Dorado et al., 2016), it is possible that although educators understand trauma and the implications of control-focused behaviors, they may still fear the perceptions and judgement of others who may not be trauma-informed. In school systems that have not yet fully subscribed to or implemented trauma-informed approaches, it is possible that educators are apprehensive about making changes that other less trauma-informed individuals will understand. This idea is ripe for future qualitative investigation.

*Educators’ Self-Efficacy at Work*
For this subscale, it was hypothesized that educators’ attitudes would become more consistent with the belief that they are able to meet the demands of working with traumatized youth following the brief professional development training in trauma-informed care. Results indicated no significant change from pre-test to post-test, indicating that educators did not become more confident in their abilities to meet the demand of working with traumatized youth following the brief professional development training in trauma-informed care. These results were not expected and are somewhat surprising, as trauma-informed professional development is designed to assist participants in gaining the knowledge and skills necessary to work with traumatized individuals. However, if teachers are not confident that they can employ trauma-informed approaches, they may resort to familiar behaviors that are likely to be influenced by pre-conceived and less trauma-informed attitudes. In addition, when educators believe that they are ill-equipped to meet the needs of traumatized youth, they often experience increased levels of stress and worry (Blitz et al., 2016). The brief professional development training in trauma-informed care did not focus specifically on improving self-efficacy in terms of working with students with trauma-histories, and it is possible that the brief nature of the training provided information without enough practice for implementing the trauma-informed approaches. The brief training did not contain role plays or other practical applications of skills, which teachers may have needed for building confidence in their abilities (Loomis & Felt, 2020). Research also suggests that despite professional development training that is effective for improving knowledge regarding trauma symptoms and behaviors, educators indicate that they need further collaboration and support with implementation in the classroom (Crosby et al., 2015; Pobuk, 2019). Such a
response suggests that although they have developed knowledge, they lack the confidence or self-efficacy to employ newly learned skills. Additionally, working with traumatized individuals, especially children, can be extremely challenging and overwhelming for mental health workers, let alone educators (Caringi et al., 2015; Hydon et al., 2015; Souers, 2018; Zetlin et al., 2012). Self-efficacy includes the assessment of one’s ability and skills in relation to the demands of the task to be performed (Tschannen-Moran & Hoy, 1998). It is possible that the brief professional development training provided just enough information to reinforce beliefs of insecurity and doubt in terms of abilities to meet the demand of working with traumatized students. Additionally, this subscale did not measure whether or not, or the degree to which, a participant might be affected by their own trauma history. Secondary trauma can act as a trigger to one’s own trauma, thereby compounding stress and leading to symptoms of burnout, which could affect an educator’s perceived ability to meet the demands of working with traumatized youth (Blaustein, 2013; Christian-Brandt et al., 2020; Stokes & Philips, 2018).

Educators’ Reactions to the Work

For this subscale it was hypothesized that educators’ attitudes would become more consistent with understanding and appreciating vicarious traumatization and seeking support as a coping mechanism following the brief professional development in trauma-informed care. Results demonstrated a significant increase from pre-test to post-test, indicating that educators’ attitudes toward reactions became more trauma-informed after the training. These findings suggest that the brief professional development training influenced educators’ feelings about working with traumatized youth, thoughts about effective coping skills, and the extent to which they might seek support from others.
Although the training did not address vicarious trauma and self-care specifically, it did seek to engage the participants collaboratively in discussing the real world application of trauma-informed principles. Research supports collaboration as a tool to create a sense of trust with educators so that they feel more prepared to assist their students while being supported by coworkers (Aelterman, 2007), and this may have been a mitigating factor for improving attitudes related to trauma-informed care, specifically regarding vicarious trauma and seeking support. Additionally, emerging research that examined the influence of training related to responding to challenging trauma-behaviors and the impact of childhood trauma on preschool teachers and staff demonstrated that training focusing on self-reflection (such as the role of vicarious trauma) may be an important part of a trauma-informed program (Loomis & Felt, 2021). As mentioned, while this professional development training did not focus on vicarious trauma per se, it did ask participants to consider how they were affected by recent potentially traumatizing events in their lives.

Professional development in schools is often hard to achieve as teachers and educators also have to be present in their classrooms each day. The lack of extended time to engage in professional development can be a hindrance to school districts trying to become trauma-informed. However, the results of this study indicated that a brief (one hour) professional development training in trauma-informed care may be effective in improving attitudes related to trauma-informed care, specifically regarding vicarious trauma and support as a coping mechanism.

**Implications of the Findings**

This research study explored three variables (previous professional development, a brief constructivist approach to professional development, and grade level of students...
worked with/taught) that the literature hypothesized were related to attitudes concerning trauma-informed care in schools. From the correlation analysis addressing the first research question, attitudes related to trauma-informed care in general, underlying causes of problem behaviors and symptoms, and responses to problem behaviors and symptoms all demonstrated an inverse relationship with the grade level of the students. Additionally, independent $t$-tests demonstrated significant differences between educators who did not have previous professional development and those who did, in underlying causes of problem behaviors and symptoms, responses to problem behaviors and symptoms, and on-the-job behaviors (though not in the attitudes related to trauma-informed care overall). And finally, a one-way repeated measures MANOVA found significant differences between attitudes related to trauma-informed care (in general) when measured prior to and following a brief, constructivist approach to professional development training. Follow-up univariate test results indicated that significant differences exist specifically with regard to underlying causes of problem behaviors and symptoms, responses to problem behaviors and symptoms, and reactions to the work.

Results indicated that educators who work with/teach older students demonstrated attitudes less favorable to trauma-informed care than those educators who work with/teach younger students. Specifically, findings indicate that those who work with older students often regard problem behaviors as intentional and fixed, and that they endorse using rules, consequences, and accountability in response to misbehavior. These findings align with the adjacent literature regarding parents' evaluation of their children's misbehaviors, which supports the idea that significant differences exist in parents’ attitudes according to age groups (Bugental, 1987; Dix et al., 1986; Dix et al., 1989).
Research demonstrates that parents' appraisals of children's behaviors are closely tied to the perceived developmental level of the child. Dix et al. (1986) found that parents tend to believe that younger children have less control over their misbehaviors than older children, who they believe are more intentional in their behaviors. The manner in which the parent affectively responded to the misconduct was directly related to their assessment of the cause and became increasingly negative and more punitive as the children got older (Dix et al., 1986).

These findings have implications for those who are responsible for developing trauma-informed programming. Supporting educators in trauma-informed initiatives should highlight the importance of professional development that focuses on a developmental understanding of the impact of trauma. Trauma-informed professional development that focuses on identifying and managing problem behavior and symptoms by differentiating between preconceived developmental expectations of student behavior and students’ actual stage of development because of trauma will better assist educators in understanding that problem behaviors are external and malleable, and that managing these behaviors requires flexibility, emotional safety, and relationship building. Although some programming may already address the developmental aspects of trauma, it may be more beneficial to provide programming by separating training groups according to grade levels taught so that the developmental focus will be entirely relevant specifically to those who are present.

Though examples of differentiated trauma-informed professional development by grade level taught are absent from the literature, how educators connect with their students often does and to a degree should look different at the secondary level, which in
turn may have implications for professional development. For example, previous research demonstrates that many high school educators remain relationally detached from or fail to set healthy boundaries with their students (Garcia-Moa et al., 2019). Developmentally, adolescence is the time that students begin differentiate from their primary caregivers, begin to form their own identities, and establish their place among peers (O’Drobinak & Kelley, 2021). Educators who focus on building healthy relationships with their students are more likely to promote their positive academic, behavioral and social outcomes (Jennings & Siegel, 2019; Venet, 2021). Therefore, professional development programming that focuses on the importance of relationships to the developmental tasks of adolescence could be one topic that is addressed with educators’ who teach older students. Additionally, educators who are predisposed to less favorable attitudes toward trauma-informed care (typically, educators who work with older students) may benefit from more specific training to address and explore these beliefs and expectations in ways that those who teach younger students may not understand or benefit (though teachers who work with younger students certainly can also benefit from focusing on their students’ specific developmental needs and expectations). It should also be noted that, the lack of extended time to engage in professional development can be a challenge; separating training groups has the potential to maximize the impact of the programming to best address the specific needs of the participants while not adding more time.

Although results indicated that there was no overall significant difference in attitudes related to trauma-informed care between those educators who had previous professional development in trauma-informed cared and those who did not, significant differences were found with three of the five subscales. Educators who had undertaken
previous professional development in trauma-informed care demonstrated attitudes that were more consistent with the belief that underlying causes of problem behaviors and symptoms are adaptable and malleable; that relationships, flexibility, kindness, and emotional safety are the appropriate agents of change for problem behaviors and symptoms; and that on-the-job behaviors should focus on empathy as opposed to control when compared to those educators’ who did not have previous professional development in trauma-informed care. These findings were expected and are supported in the literature, which has demonstrated that as teachers began to learn about their students’ lives through trauma-informed lens, a change can be demonstrated in teachers’ understanding, responsiveness, and relatedness (Anderson et al., 2022). Teachers demonstrated more empathy, patience, and calmness. They were able to depersonalize student behavior and to alter their responses from punishment to compassion and support. Improved awareness of students’ internal emotional worlds shifted classroom climate from prioritizing behavioral management to fostering safe spaces for children to learn.

Educators who had previous professional development in trauma-informed care did not demonstrate more confidence in the belief that they were able to meet the demands of working with traumatized youth. Notably, the type of professional development program and when the program was attended were not factors measured in this study, and these aspects could have affected the significance of the results. It is possible that educators’ self-efficacy was initially improved by their previous professional development experiences but that it diminished over time, or that the professional development program did not provide enough strategies to improve student behaviors. The literature does support the idea that despite other improvements and
positive outcomes, educators still need, want, and could benefit from more individualized support, consultation, and coaching in the classroom, beyond any initial training they receive, to implement trauma-informed strategies to improve self-efficacy (Christian-Brandt et al., 2020; Pobuk, 2019; Whitaker et al., 2019). The findings of this study suggest that at the very least more exploration through research is needed in order to identify and ameliorate the lack of self-efficacy in educators who work with traumatized youth.

The results gleaned by exploring attitudes related to trauma-informed care as influenced by professional development also provide insights regarding the use of the ARTIC-35 as an outcome indicator for professional development. For some of the analyses, the overall ARTIC-35 score demonstrated results that were not significant; however, an exploration of the subscales that make up the overall score provided valuable insight regarding more specific problem areas, as some of the constructs did demonstrate significant results. Although limited, the research that utilizes The ARTIC-35 subscales, therefore, can and should be used to gain a better understanding of the nuances of attitudes related to trauma-informed care in general and can assist in the design of professional development to address specific needs.

Educators who had experienced previous professional development in trauma-informed care did not demonstrate a greater appreciation for vicarious traumatization or the use of positive coping mechanisms. These findings are somewhat surprising, given that a synthesis of the literature regarding interventions used in schools found that common themes in trauma-informed programming generally related to the following three categories: a) building knowledge in regards to understanding the nature and impact
of trauma; b) shifting perspectives towards more empathetic responses; and c) self-care for educators. However, these findings may imply that not all professional development has the same impact or that lasting effects may wane over time. The implications for this finding support the need for professional development to focus on self-care and to investigate ways in which to support continued use of self-care mechanisms.

Additionally, certain aspects of trauma-informed professional development may have lasting impacts from a one-and-done type of delivery or brief model, whereas others may require ongoing support.

Finally, following the brief constructivist-informed professional development in trauma-informed care, educators demonstrated significant improvements in attitudes related to trauma-informed care (in general) and specifically demonstrated attitudes more consistent with the belief that the underlying causes of problem behaviors and symptoms are adaptable and malleable; that relationships, flexibility, kindness, and emotional safety are the appropriate agents for change; they also demonstrated improvements in recognizing the impact of vicarious trauma and addressing it through healthy coping mechanisms such as support from coworkers. Although the professional development training was only loosely based in constructivism (that is, it was not deliberately designed to represent all elements of constructivism in some pure form), this study provides preliminary support for the use of this theoretical underpinning in the delivery of trauma-informed programming.

Despite the lack of specific literature regarding the use of a constructivist approach to professional development of educators, adjacent research supports the need for professional development of teachers to that take into account the existing knowledge
and experience of the trainee (Erikson, 1991; Diamond, 1993; Hodson, 1989; Rubba, 1991), which is a tenet that is promoted in the constructivist approach. There are numerous examples of research studies that support the successful implementation of curriculum changes based in constructivism and supported through professional development endeavors (see, for example, Bell & Gilbert, 1994; Briscoe & Peters, 1997; Driver & Oldham, 1986; Glasson & Lalik, 1993; Howe & Stubbs, 1996). The literature also indicates that teacher buy-in is necessary to implement interventions in schools successfully (Yohannan & Carlson, 2019) and that forced implementation is often viewed negatively, yielding poor program outcomes (Nadeem et al., 2011). Further, working with traumatized individuals, especially children, can be extremely challenging and overwhelming (Caringi et al., 2015; Hydon et al., 2015; Souers, 2018; Zetlin et al., 2012); this may in turn lead some educators to avoid developing their trauma-informed skills.

Constructivism taps into the participants’ own thoughts and feelings; thus, if participants are allowed to address their own feelings about change, they are more likely to feel empowered to make that change (Fung, 2000).

Additional findings revealed that following the professional development training, educators did not demonstrate more confidence in the belief that they were able to meet the demands of working with traumatized youth, or attitudes more consistent with the belief that they should use empathy-focused behaviors when interacting with their students. These findings support the limited research indicating that professional development in trauma-informed care has the potential to improve knowledge and shift attitudes, and also suggests that a brief, constructivist approach may be beneficial. However, although educators demonstrated improved knowledge and understanding of
trauma-informed concepts and practices, they continued to show a lack of improvement in self-efficacy and with regard to concerns about how they are viewed by others in their responses to student behaviors following the brief professional development training.

These findings add to the limited literature demonstrating that although teachers often report an understanding of trauma-informed concepts, their professional development experiences may not adequately promote confidence in implementing them and leave them desiring more individualized support (Pobuk, 2019). And although research regarding this topic is limited, one study, Shamblin et al. (2016), explored the impact of consultation and workplace development activities on teachers’ confidence, self-efficacy, and ability to support the social-emotional needs of traumatized students. Significant improvements were noted in terms of educators’ reported feelings of competence and confidence in their perceived ability to cope with and modify challenging behaviors in the classroom. Additionally, satisfaction surveys for this study indicated that teachers were highly satisfied with the individual coaching and consultation (Shamblin et al., 2016). The findings of the current study further suggest that trauma-informed care for educators should focus on increasing teacher self-efficacy for working with traumatized youth, as well as focusing on ways to maintain long-term effects. Research has supported the use of role plays and other practical applications of skills to build confidence in educators’ abilities (Loomis & Felt, 2020) and the use of more intensive supports to assist with the implementation of trauma-informed practices in the classroom (Shamblin et al., 2016).

Notably, research suggests that “one-and-done” presentation type workshops are becoming less effective given the increasingly limited time that educators have away
from the classroom (Hunzicker, 2011). The literature further supports that any such presentation-style professional development be followed by practice with coaching and modifications as needed until mastery is achieved, and that sustained and consistent performance is maintained through on-going follow-up observation, guidance, and feedback (Schmoker, 2021). Along these lines, research regarding high-performing, high poverty schools demonstrates they are characterized by a professional teaching culture that supports continuous improvement through collaboration and job-embedded learning (Calkins et al., 2007).

Moreover, this study adds to the literature that has supported the practical use of the ARTIC-35 in measuring educators’ attitudes about trauma-informed care as an outcome indicator of professional development. By using the ARTIC-35 and paying specific attention to the subscales, program evaluators as well as researchers may gain a better understanding of how specific attitudes related to trauma-informed care can inform trauma-informed programming to meet specific needs. For example, in this study, findings indicated that the self-efficacy subscale did not demonstrate improvement following the brief professional development training. As such, this information could be used to justify the creation of specific professional development programming more focused on improving educators’ self-efficacy in managing trauma-related student behaviors.

**Study Limitations**

The empirical results of this study should be considered in the light of some limitations. The main limitations in this study came from the use of existing data collected for program evaluation purposes, which limited the ability to conduct a
thorough analysis of the results and affected the internal and external validity of the results. The measure used in this study, ARTIC-35, demonstrates potential scores from 1 to 7 with 4 being an average or more neutral score. It is important to note that this specific measure has no norms or cut scores; therefore, there is no standard score denoting successful achievement of attitudes related to trauma-informed care (Baker et al., 2016). The first limitation is the threat to external validity. This study cannot be generalized to all teachers and staff because this was a purposive sample taken from a specific suburban school district in western Pennsylvania to assess program outcomes—participants were determined based on program participation. Additionally, another hindrance to generalizability is the small sample size. Research Questions 1 and 2 were both approaching a sample size of 100 ($N = 94$), but for Research Question 3, the sample size was considered to be small ($n = 24$). Post hoc power analyses were conducted indicating that many of the independent variables measured did not meet the conventional acceptable level for power, as many of the results were below .8 (Cohen, 1988). A small sample size with power levels less than .8 indicates that the sample may be too small to identify significant effects. It is important to note that all 94 original participants were given the opportunity to complete the post-test but did not. It is speculated that the length of the ARTIC-35 may have hindered participants’ completion of the post-test. In general, a small sample size reduces the power of the study, thereby reducing the generalizability to a larger population.

The other limitations of the study affect the internal validity of the results. Because the present study employed data from an existing program evaluation not designed for the present purposes, there was no control group; as such, results cannot be
used to establish a cause-and-effect relationship. For example, a pre- and post-test survey was used to determine the effect on participants’ attitudes related to trauma-informed care before and after the brief professional development training for Research Question 3. Although overall ARTIC-35 scores indicated a significant difference between pre- and post-test scores, we do not know and cannot infer that the brief professional development training itself was the cause for improved scores. For example, it is possible that scores improved (became more trauma-informed) because of familiarity with the measure and educators’ desire to represent the best version of themselves, also known as social desirability bias. Despite the limitations inherent in the lack of a control group, the purpose of the original data collection was for program improvement, which would mean that a true experimental design that randomly assigned educators to a treatment and a control group would not be appropriate and would hinder the progress of a trauma-informed school (insofar as the control group would not receive the potential benefits of the training).

Another possible limitation of this study is the lack of published research supporting the use of the ARTIC-35 to examine attitudes related to trauma-informed care after participation in professional development training. One study used the ARTIC-10 version of the measure, which demonstrated significant improvements from pre-test to post-test (Liang et al., 2020) after participation in a 3-hour and a 6-hour trauma-informed workshop; notably, that study stipulated that the ARTIC-35 wasn’t used owing to time constraints that rendered it impossible to investigate the potentially varying results by subscale. Another study by Orapallo et al. (2021) used the ARTIC-45 and similarly demonstrated the efficacy of professional development training; however, in contrast to
the brief training investigated in the present work, that program spanned 7 to 9 months. Moreover, aside from the original developers of the ARTIC–35 (Baker et al., 2016; Baker et al., 2020), no other studies have been published that have completed a thorough analysis to measure the psychometric properties of the scale. This may provide some explanation regarding the results from this study, which confirmed a lack of significant effects demonstrated across the research questions for the construct of self-efficacy. Follow-up research is necessary regarding the psychometric properties of the ARTIC-35; indeed, Drymond (2020) has suggested that the internal consistency of the ARTIC-35 may be low.

**Recommendations for Future Research**

Despite the limitations of this study, the results also indicated that much is needed in the way of future study regarding attitudes related to trauma-informed care and professional development. As noted above, more research is needed regarding the psychometric properties of the ARTIC-35. This research can provide substantiation for the ARTIC’s use in measuring educators’ attitudes related to trauma-informed care, specifically as an outcome indicator for professional development. Currently, the majority of research regarding professional development training in trauma-informed care explores the data through student outcomes, including but not limited to demonstrated reductions in student behavior issues, suspensions, and expulsions as a result of the use of trauma-informed approaches (Dorado et al., 2016). However, when research fails to provide significant outcome results, some insight regarding the personal dispositions of those implementing those practices would be helpful. The ARTIC scale has the potential to be a much-needed measure to improve teachers’ attitudes in order to
pave the way for behavioral changes needed to effectively support trauma-informed systems in schools.

Additionally, changes to the design of this study may yield more robust results. Employing a randomized design with a control group would help to provide stronger conclusions about the effect of professional development training in trauma-informed care on educators’ attitudes related to trauma-informed care. Additionally, more research is needed that uses evidence-based professional development in trauma-informed care in order to best address all the components necessary to be considered trauma-informed. Finally, it is recommended that future brief professional development training incorporate time for educators to complete post-test surveys. The ARTIC-35 in conjunction with the demographic variables collected in this study created a very lengthy measure, which may have, in part, contributed to the loss of 70 participants who completed the pre-test but failed to complete the post-test. It is speculated that the sheer length of the survey was a deterrent especially following a professional development training on an emotionally taxing topic. However, the shorter version of the ARTIC (ARTIC-10) cannot be recommended, as it does not provide subscale detail and, therefore, does not allow for researchers or stakeholders to gain an understanding of the specific potential problem areas or successes of their professional development programs.

Despite the mixed results from Research Question 1, which examined the relationship between grade level and ARTIC-35 scores, it is recommended that future research explore teachers’ thoughts and beliefs regarding their experiences with traumatized youth in different grade levels. Significant results were found for underlying causes and responses to problem behaviors and symptoms, as well as overall attitudes
related to trauma-informed care, which is supported in the adjacent literature. Research into parents’ perceptions of their children’s behaviors at various ages has demonstrated that the children’s age influences parental reactions to the behaviors (Bugental, 1987; Dix et al., 1986; Dix et al., 1989). From the results of this study, it appears as though there are differences based on the age of students and educators’ attitudes relating to trauma-informed care; however, the power of the results limits the applicability of the results to support meaningful changes. Significant results would indicate that professional development training may be most effective if delivered to teachers from each grade level separately in order to best address the needs and concerns of educators at each level.

Finally, a qualitative investigation would expand upon and provide more insight regarding some of the findings of this study. Specifically, the self-efficacy construct did not demonstrate any significant results across research questions. Future studies should include open-ended questions to obtain feedback from educators regarding their thoughts and perspectives on professional development topics and activities that would assist with improving their confidence in working with traumatized students. Emerging research suggests that knowledge-only trauma-informed professional development can go only so far (Loomis & Felt, 2020). Not all trauma-informed professional development is equal, and those that include skills training and self-reflection may be an important part of trauma-informed training. More focus on specific topics and needs as reported by educators would be helpful for those developing professional development programming. Additionally, qualitative feedback would be beneficial for gaining information to derive a better understanding of educators’ thoughts and perspectives on how they are viewed by
others in regard to responding to student behaviors, as well as understanding of vicarious trauma and supportive coping skills.

**Concluding Statement**

In conclusion, the results of this program evaluation provide preliminary results that suggest a brief, constructivist professional development training in trauma-informed care may influence knowledge, attitudes, and beliefs related to trauma-informed care. In addition to the overall effect, this study provided an in-depth look at the constructs used to measure attitudes related to trauma-informed care, thus adding to the emerging literature that has used the ARTIC-35 as a measure for professional development in trauma-informed care in the educational setting. This study highlighted the need for more research regarding ways to improve educators’ confidence in their abilities to meet the demand of working with traumatized youth, as well as to explore the ways in which co-workers’ views and perceptions affect educators’ abilities to work with traumatized students.

The results of this study have also added some insight regarding the possibility that educators view childhood misbehaviors differently according to grade level. These findings are important, as adjacent research has indicated that parental beliefs about child misbehavior directly affect the ways they interact with their children. Differences in attitudes dependent on grade level should be considered when developing professional development programming in order to best meet the needs of students as well as educators.
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APPENDIX A

Demographic Questionnaire

1.) To which gender do you most identify?

☐ Female
☐ Male
☐ Transgender female
☐ Transgender male
☐ Gender variant/non-conforming
☐ Not listed ______________________________
☐ Prefer not to answer

2.) Are you Hispanic, Latino, or of Spanish Origin?

☐ Yes
☐ No

3.) How would you describe yourself? (check all that apply)

☐ American Indian or Alaska native
☐ Asian
☐ Black or African American
☐ Native Hawaiian or Other Pacific Islander
☐ White
☐ Other______________________________

4.) What is the highest degree or level of school you have completed?

☐ Bachelor’s degree (e.g. BA, BS)
☐ Master’s degree (e.g. MA, MS, Med)
☐ Professional degree (e.g. MD, DDS, DVM)
☐ Doctorate (e.g. PhD, EdD)
☐ Other______________________________

5.) Which of the following best describes your job classification?

☐ Teacher – regular education
☐ Teacher – special education
☐ Other______________________________
6.) What grade do you teach/work with? (Check all that apply)

- ☐ Kindergarten
- ☐ First grade
- ☐ Second grade
- ☐ Third grade
- ☐ Fourth grade
- ☐ Fifth grade
- ☐ Sixth grade
- ☐ Seventh grade
- ☐ Eighth grade
- ☐ Ninth grade
- ☐ Tenth grade
- ☐ Eleventh grade
- ☐ Twelfth grade
- ☐ Other ________________________________

7.) This upcoming school year will be my _____ year teaching/working with students. (include number only)

8.) This upcoming school year will be my _____ year in the district.

9.) How many years have you been teaching/working in your current role?

10.) Have you had previous training or professional development in trauma-informed care?

- ☐ Yes
- ☐ No