March 2021

Changes in Educator Attitudes Related to Trauma-Informed Care

Amira Mattison Boylston
University of South Florida

Changes in Educator Attitudes Related to Trauma-Informed Care

by

Amira Mattison Boylston

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy in School Psychology
Department of Educational and Psychological Foundations
College of Education
University of South Florida

Co-Major Professor: Shannon Suldo, Ph.D.
Co-Major Professor: Jennifer Wolgemuth, Ph.D.
Linda Raffaele Mendez, Ph.D.
Mario Hernandez, Ph.D.

Date of Approval:
March 24, 2021

Keywords: adverse childhood experiences, trigger, stress, vicarious trauma, secondary trauma, trauma-sensitive, professional development

Acknowledgments

I am incredibly grateful to so many individuals who have guided and supported me throughout my time at USF. I would like to thank my doctoral committee for their incredibly helpful and supportive feedback on my study, and for helping to ensure that the completion of this dissertation was possible. Dr. Linda Raffaele Mendez, thank you for your mentorship, guidance, and positive encouragement since the beginning of my time at USF. Our shared interests have helped continue to foster my passion for serving vulnerable and at-risk youth, and I am grateful for the experiences I have had working with you. Dr. Shannon Suldo, I am so grateful for the opportunities I had through your coursework and research groups. You have greatly helped expand my knowledge on research in school-based mental health and evidence-based practice for youth. Dr. Jennifer Wolgemuth, thank you for pushing me to think critically about my study and for providing timely and very supportive feedback. I greatly appreciate you helping me see this dissertation project through to the end. Dr. Mario Hernandez, thank you so much for your thoughtful contributions to this project; your insight has been so helpful for this study. Dr. Robert Dedrick, thank you for being such a helpful resource in advancing my statistical knowledge. You provided a substantial amount of support for my statistical analyses and I am so grateful for your expertise.

I would like to thank my peers in the USF School Psychology Program. I am so glad to have such wonderful friends and colleagues. I want to give a special shout-out to my “cohort

bestie" Camille. We have truly leaned on each other since day one and I could not have done it without you. We finally did it!

Most importantly, I would like to express gratitude toward my family. To my wonderful husband Steven, I could not thank you enough. I am so grateful for your patience, your limitless confidence in me, and for always being by my side no matter what. You always reminded me of "my why" and made so many sacrifices to make sure I never gave up. I cannot imagine how I would have been able to accomplish this goal without you. Thank you – I love you forever and ever! To my beautiful daughter Zara - you entered this world right before I was able to propose this dissertation. Thinking of your smiles and giggles always got me through my late nights of writing while you slept peacefully. Being your mommy is the greatest gift your dad and I could ever receive; I am so grateful for you. Finally, I would like to acknowledge my late mother, Gail. Even on the nights when I am sad from missing you, I could still hear your voice telling me not to quit and reminding me that I would finish. I know I inherited my hard work and passion for helping others from you. Thank you for your love and encouragement throughout my whole life and continuing to offer this in spirit. I know how proud you are of me. I love you!

Table of Contents

List of Tables iv

Abstract vi

Chapter One: Introduction 1
- Statement of the Problem 1
- Purpose of the Current Study 3
- Definition of Key Terms 4
  - Trauma 4
  - Adverse Childhood Experiences (ACEs) 4
  - Trauma Informed Care 4
  - Trauma-Sensitive 4
  - Sanctuary Trauma 5
  - Toxic Stress 5
  - Vicarious (Secondary Trauma) 5
  - Trigger 6
  - Self-Efficacy 6
- Theoretical Framework 6
- Evaluation Questions 8
- Contributions to the Literature 9

Chapter Two: Review of the Literature 11
- Childhood Trauma and Adverse Childhood Experiences 11
  - Adverse childhood experiences (ACEs) 11
  - Prevalence of exposure to trauma 13
  - Impact of exposure to trauma 15
    - Neurobiological outcomes 16
    - Mental health, behavioral, and social outcomes 17
    - Academic outcomes 21
- Vicarious/Secondary Trauma for Educators 23
- Tenets of Trauma Informed Care 28
- Educator Knowledge About Supporting Students with Trauma 33
- Legislation and Policy 36
- Trauma Informed Care in the School Setting 38
  - Cognitive behavioral interventions for trauma in schools 38
  - Trauma informed programs focused on educators 42
- Facilitators and Barriers to Implementing Trauma Informed Practices in Schools 46
- Implications for School Psychologists 48
- Aims of the Current Study 48

Chapter Three: Methods 50
The Harmony Project 50
Logic Model 52
Inputs 52
Activities 53
Train the trainer 53
School staff training 54
Outputs 54
Short-Term Outcomes 55
Long-Term Outcomes 55
Purpose of the Study 56
Program Evaluation Approach 57
Evaluation Questions 58
Hypotheses 59
Measures 60
Attitudes Related to Trauma-Informed Care (ARTIC) Scale 60
Perceived global knowledge about trauma-informed care 64
Demographics form 64
Overview of Analyses 64
Variables 64
Data entry 65
Preliminary analyses 65
Analyses to address evaluation questions 66
Data Collection Procedures 67
Participants 68
Evaluator's Role 71

Chapter Four Results 73
Preliminary Analyses 73
Data entry 73
Missing data 74
Participant attendance 74
Variable creation 75
Descriptive analyses 75
Correlational analyses 76
Psychometric Analyses 77
Confirmatory factor analysis (CFA) 77
Reliability 80
Repeated measures analysis of variance (ANOVA) 82
Regression 88
Summary of Findings 89

Chapter Five: Discussion 96
Evaluation Question 1: Changes in Attitudes Related to Trauma Informed Care 97
Educators' perceptions of underlying causes of problem behaviors and symptoms 99

Educators' responses to problem behaviors and symptoms 100
Educators' on the job behavior 101
Educators' self-efficacy at work 102
Educators' reactions to the work 105
Educators' overall attitudes related to trauma informed care 106
Considerations for the ARTIC-35 108
Evaluation Question 2: Changes in Perceived Global Knowledge 110
Evaluation Question 3: Moderating Effects of Perceived Global Knowledge 111
Limitations and Future Recommendations for Research 112
Future Considerations for the Harmony Project 117
Contributions to the Literature and Implications 121
Conclusion 122

References 125

Appendix A: Institutional Review Board Response 134

Appendix B: Script for Harmony Project Data Collection 136

Appendix C: Harmony Project Demographics Form 137

List of Tables

Table 1:	Harmony Project Logic Model	52
Table 2:	Participant Demographic Characteristics	70
Table 3:	Characteristics of Schools Participating in the Harmony Project	70
Table 4:	Descriptive Statistics for the ARTIC-35 and Perceived Global Knowledge	76
Table 5:	Bivariate Correlations of Perceived Global Knowledge and the ARTIC-35 Variables	79
Table 6:	Fit Indices for the ARTIC-35 Variables	80
Table 7:	Standardized Factor Loadings for the ARTIC-35 Variables	81
Table 8:	Internal Consistency for the ARTIC-35 Subscales at Time 1 and Time 2	82
Table 9:	Means and Standard Deviations of the ARTIC-35 by School	84
Table 10:	Perceived Global Knowledge About Trauma-Informed Care in Educational Settings	85
Table 11:	Repeated Measures ANOVA for the ARTIC-35	86
Table 12:	Repeated Measures ANOVA for Perceived Global Knowledge About Trauma-Informed Care	87
Table 13:	Testing the Moderation Effect of Pre-Perceived Global Knowledge (Time 1) on Post-Underlying Causes of Problem Behavior (Time 2)	91
Table 14:	Testing the Moderation Effect of Pre-Perceived Global Knowledge (Time 1) on Post-Responses to Problem Behaviors and Symptoms (Time 2)	92
Table 15:	Testing the Moderation Effect of Pre-Perceived Global Knowledge (Time 1) on Post-On the Job Behavior (Time 2)	92
Table 16:	Testing the Moderation Effect of Pre-Perceived Global Knowledge (Time 1) on Post-Self-Efficacy at Work (Time 2)	93

Table 17: Testing the Moderation Effect of Pre-Perceived Global Knowledge (Time 1) on Post-Reactions to the Work (Time 2) 93

Table 18: Testing the Moderation Effect of Pre-Perceived Global Knowledge (Time 1) on Post- Overall Attitudes Related to Trauma Informed Care (Time 2) 94

Abstract

Historically, teachers have been primarily focused on fostering the academic success and progress of their students. Over the years, the role of a teacher has evolved to also encompass meeting the behavioral and social-emotional needs of their students as well. Students with difficulties in these areas are often at-risk for struggling academically and may make limited progress without adequate social-emotional or behavioral support. Unfortunately, many teacher training programs have not adequately prepared their educators to fulfill this need. This is especially concerning because of the growing number of youths who have adverse childhood experiences, which is exposure to traumatic events (e.g., witnessing domestic violence, parental incarceration) before the age of 17. Exposure to traumatic events in childhood has neurobiological consequences, which can in turn have negative implications on a child's ability to regulate their emotions and function in school. With limited access to mental health therapists, this growing problem calls for a different approach for meeting the needs of our youth. For this reason, schools across the country are learning how to educate within a trauma-informed care framework. Under this framework, educators have an increased awareness of the pervasiveness of trauma, how to recognize the signs and symptoms of trauma, and how to create an environment of safety, transparency, predictability, voice, and choice. This study evaluated a program at a local school district that provided professional development to educators about trauma-informed care. Archival data from the 2018-2019 school year was analyzed to examine changes in educator attitudes related to trauma-informed care and changes in perceived global knowledge about trauma-informed care in educational settings. Overall, there was a significant

main effect for an increase in participants perceived global knowledge about trauma-informed care in educational settings from pre- to post-training, but also but also a decrease in participants' self-efficacy at work on a measure of attitudes related to trauma-informed care. There were no moderation effects for changes in attitudes related to trauma-informed care as a function of prior perceived global knowledge about trauma-informed care in educational settings. Implications for educators and contributions to the literature will be discussed.

Chapter One: Introduction

Statement of the Problem

Children who attend schools in the United States are exposed to trauma at incredibly disheartening rates (Burke et al., 2017; Finkelhor et al., 2015). Examples of exposure to trauma include stressors associated with living in poverty, being direct targets of abuse, witnessing violence, substance use, and/or criminal behavior, among several other adversities (Anda, Butchart, Felitti, & Brown 2010). These exposures can have an adverse impact on an individuals' physical and emotional well-being, especially when experienced during childhood. Traumatic events that take place when an individual is 0-17 years old are Adverse Childhood Experiences (ACEs; Center for Disease Control, 2019). What is especially concerning is that exposure to ACEs such as abuse or dysfunction within the household as a child is a significant predictor of experiencing chronic health issues as an adult (e.g., heart disease, cancer, liver disease, lung disease), mental illness, substance abuse, and is ultimately one of the leading causes of death in adults (Center for Disease Control, 2019; Felitti et al., 1998). ACEs have also been found to have a negative effect on an individuals' education and employment (Center for Disease Control, 2019).

Traditionally, school has been known as the place where students come to learn academic content, and the teacher's primary role is to provide instruction in those content areas. Unfortunately, educators are finding that this mindset is not practical; there are often students who need a substantial amount of emotional and behavioral instruction and support as well. The reality that teachers face is that children with exposure to traumatic experiences face several

barriers that will significantly impair their learning (Diamanduros, Tysinger, & Tysinger, 2018; Wolpow et al., 2009). Within the education system, most schools have not adopted a systematic way to screen, assess, or offer counseling or referrals for students who are experiencing difficulties managing traumatic stress (Ko et al., 2008). Schools then continue to face the challenge of balancing their obligation to meet students' academic needs, while recognizing that many students need assistance with coping with their trauma and stressors to engage in academic learning (Ko et al., 2008).

Wolpow and colleagues (2009) suggest educators should imagine attending school for traumatized youth as like trying to play chess in a hurricane. After natural disasters such as Hurricane Katrina, schools did not anticipate students would be able to automatically resume their normal functioning when they returned to the classroom. If that was the case, why do schools expect children who are victims of other forms of trauma to be able to function normally in the classroom when they may be living in constant chaos at home? (Wolpow et al., 2009). Oftentimes, educators have little knowledge of what is going on in the lives of students outside of school; they may struggle to identify youth who have experienced trauma, and they have little control over what happens in their home (Ko et al., 2008; Reinke et al., 2011; Wong, 2008). This leaves educators with an important question: How do they best reach and support children who come to school with unknown traumatic histories and/or life experiences? (Ko et al., 2008). Many teachers have expressed frustration that they went to school to become a teacher, not a social worker or other mental health provider. However, they often realize that they will not be able to teach their children effectively if their classroom is full of students who are too traumatized to learn (Van Der Kolk, 2014). Focusing solely on academics without addressing or considering students' emotional well-being will not help students learn, and school personnel

often have limited training in trauma or mental health (Ko et al., 2008**)**. Even though school personnel may be unaware of students' individual traumas and have limited training in mental health, it is inevitable that these students will bring their trauma histories with them to the classroom. Traumatic stress can have a significant impact on students' abilities to function academically, behaviorally, and socially within the classroom (Wolpow et al., 2009). For this reason, many schools across the country are on a mission to implement practices that align with trauma-informed care so that all children can learn. 'Trauma-informed schools' is an overarching term used to describe the many different approaches to making school environments sensitive to the needs of youth who have been exposed to traumatic experiences.

Purpose of the Current Study

A local school district sought to become more trauma-informed with the assistance of the Harmony Project initiative. The Harmony Project aimed to support schools to create an environment within which all stakeholders feel safe, supported, and welcomed, and where addressing trauma's impact on learning is a community-wide commitment. This project aimed to reach these goals by using a combination of ongoing professional development, strategic planning, and customized coaching with the goal of creating harmony between the pursuit of academic excellence and the desire to improve the overall well-being of school communities. Schools that participated with the Harmony Project had staff partake in a series of professional development modules from August 2018 through November 2018. The training focused on increasing staff understanding on how trauma impacts learning and the brain, and how to promote trauma-sensitive school environments, engage in self-care practices, and identify emotional triggers. The purpose of this study was to evaluate the extent to which staff

participation in the Harmony Project is associated with changes in educator attitudes related to trauma-informed care.

Definition of Key Terms

The following section will describe common terms that are associated with studies related to trauma-informed care.

Trauma. According to the Substance Abuse Mental Health Services Administration (2014), individual trauma occurs when an individual experiences one or more events or set of circumstances that are physically or psychologically harmful or life-threatening. These events are accompanied by long-lasting adverse effects on the person's mental, physical, and/or social-emotional functioning (SAMHSA, 2014).

Adverse childhood experiences (ACEs). Adverse childhood experiences, or ACEs, are traumatic events that take place during childhood (0-17 years). For example, this may include directly experiencing violence or abuse, observing violence at home or in the community, and having a family member attempt or die by suicide (Center for Disease Control, 2019). ACEs also refer to features of the child's environment that can impair their sense of safety, stability, and bonding. For instance, growing up in a household with instability due to members of the household having mental health issues or abusing substances, parental separation, or members of the household being incarcerated (Center for Disease Control, 2019).

Trauma-informed care. Trauma-informed care or a trauma-informed approach refers to a framework that *realizes* the pervasive impact of trauma, *recognizes* the symptoms and signs of trauma in families, staff, and others who are part of the system, *responds* by infusing knowledge about trauma into procedures and practices, and actively *resists re-traumatization* (SAMSHA, 2019).

Trauma-sensitive. A trauma-sensitive environment (i.e., school) is created to be safe and responsive to the needs of all students, families, staff, and the community, regardless of whether the individuals are impacted by trauma or not. This includes supporting the academic competence of all students and providing tools and strategies for students and staff dealing with emotional and behavioral challenges. This also encompasses supporting staff in navigating challenging situations, and reducing stress and burnout amongst school staff. The ultimate goal of promoting such an environment is to foster positive outcomes among youth (Blaustein, 2012).

Sanctuary trauma. Sanctuary Trauma refers to the condition that arises when trauma victims go to an individual or place in the hope of finding sanctuary (e.g., emergency room, family, favorite teacher), however, instead they experience a reception that is not as supportive as expected or needed. (Wolpow et al., 2009)

Toxic stress. Toxic stress is when the body experiences ongoing exposure to extremely elevated levels of stress hormones. This can be especially damaging when experienced during childhood and adolescent development while the brain is still developing (Blitz et al., 2016).

Vicarious (secondary) trauma. Vicarious or secondary trauma is when an individual experiences post-traumatic stress reactions in response to a traumatizing event that was experienced by another person. (Wolpow et al., 2009). 'Vicarious' refers to feeling emotions through the experience of someone else, and the term 'secondary' is used as the individual was not the primary recipient of the trauma.

Trigger. A trigger is any stimulus that serves as a reminder of previous traumatic or overwhelming experiences. This can result in an individual experiencing the same emotions or behaviors that originally developed after the trauma took place (Wolpow et al., 2009).

Self-efficacy. Self-efficacy is the belief about an individual's capability to successfully produce a desired outcome (Tsouloupas et al., 2010). For school staff, this could refer to their beliefs about their ability to effectively carry out lesson plans or manage classroom behavior.

Theoretical Framework

The present study was conducted under two theoretical frameworks: trauma theory and transformative learning theory. According to trauma theory, trauma occurs when a person experiences a sudden, unexpected, overwhelmingly intense event that attacks one's emotional well-being and becomes incorporated into one's mind (Terr, 1990). Children become traumatized when they are afraid for their own lives or the life of someone they care about, and when they lack sufficient resources to cope with the threat (Bloom, 1999; Van Der Kolk, 1989).

Our bodies have a built in 'fight-or-flight' mechanism to protect ourselves from danger. Repeated exposure to dangerous events increases one's sensitivity to perceiving new threats (Anda et al., 2006; Bloom, 1999). As a result, traumatized children may be triggered by minor events or situations that are not truly threatening, which leads to various physical, emotional, or cognitive responses. When a person is not able to escape from or get help with a repeatedly traumatizing situation, over time that person may develop 'learned helplessness' (Bloom, 1999; Hertel & Johnson, 2012). When this occurs, individuals may feel as though they do not have control over their lives and lose motivation. In school, these children are not able to utilize executive functioning skills needed to succeed academically (Hertel & Johnson, 2012). Trauma also has a negative impact on children's abilities to regulate their own internal system of arousal. When children are not able to be soothed by adults and are repeatedly exposed to overwhelming stimuli, they may experience a lack of perceived safety and protection that is needed for healthy brain development (Bloom, 1999; Hertel & Johnson, 2012). This has been associated with

children who are chronically angry, anxious, impulsive, or irritable. Children under a great deal of stress are also more likely to have impaired thinking, difficulty problem solving, and trouble processing new memories (Bloom, 1999; Diamanduros, Tysinger, & Tysinger, 2018). These impacts can have a significant negative impact on a child's experience in school, as they are at an increased risk for academic and behavioral difficulties and forming relationships with others. Overall, traumatic experiences affect the whole person; it has a negative impact on how an individual thinks, learns, remembers things, perceives themselves or others, and the way they interpret the world around them (Bloom, 1999).

Trauma theory is relevant to the current study because it provides rationale for the tenets of trauma-informed care. The Harmony Project adapted the following tenets from SAMHSA (2014) for fostering a trauma-sensitive environment: 1) Safety - staff and students feel physically safe throughout the school environment; 2) Transparency - decisions are made with transparency in order to build and maintain trust among students, families, and staff 3) Predictability - maintain routines, rituals, and consistency to reduce the effects of trauma reminders and help students and staff relax, 4 and 5) Voice and Choice - students strengths are identified and built on, educational systems provide students, families, and staff choices, and promote resilience and recovery rather than focus on perceived deficits (Belfield & Davey, 2018; SAMHSA, 2014).

Another theory to be considered for this study is Mezirow's theory of transformative learning. Within this theory, it is understood that people use their experiences to make meaning of the world which leads to developing a certain frame of reference or habits of mind (Cranton & King, 2003). In transformative learning, when individuals are presented with something new or different, they begin to question the way in which they see the world and how they act. This process, known as critical reflection, refers to when adult learners critically assess their own

assumptions and the assumptions of others (Merriam, 2004; Mezirow, 2000). Transformative learning also involves reflective discourse, in which individuals engage in an active dialogue with others to gain a deeper understanding of an experience (Mezirow, 2000). The processes of critical reflection and reflective discourse allow individuals to be open to transforming their beliefs into new ones and see alternative viewpoints. This in turn leads individuals to change how they think and act as they navigate the world around them (Cranton & King, 2003; Mezirow, 2000). Cranton and King (2003) note that transformative learning is a key component of professional development for adults, as it gives people fresh perspectives on their ways of practice and think critically about their work.

Transformative learning theory is relevant for the present study because the Harmony Project participants engaged in a series of professional development activities on trauma-informed care. At each school educators completed Harmony Project modules with a small group of colleagues. In each module they learned content on how trauma affects individuals, they delved deeper into the tenets of trauma-informed care, and they engaged in reflective activities and dialogue with one another about the topics covered in that module. It is hypothesized that through participating in the Harmony Project, educators may shift toward more favorable attitudes related to trauma-informed care. It is expected that as educators build their knowledge on trauma-informed care and experience a shift in mindset on this topic, they may be more likely to engage in practices that are trauma-sensitive when working with students and their families (Baker et al., 2016). The following evaluation questions were explored in the current study:

Evaluation Questions

1. To what extent is school training through The Harmony Project associated with overall staff changes in attitudes related to trauma-informed care as measured by:

a. Educators' perceptions of the underlying causes of problem behavior and symptoms?
b. Educators' responses to problem behavior and symptoms?
c. Educators' on-the-job behavior?
d. Educators' self-efficacy at work?
e. Educators' reactions to the work?
f. Educators' overall attitudes related to trauma-informed care?

2. To what extent is school training through The Harmony Project associated with overall staff changes in perceived global knowledge about trauma-informed care in educational settings?
3. To what extent does perceived global knowledge about trauma-informed care before participating in the Harmony Project moderate changes in attitudes related to trauma-informed care?

Contributions to the Literature

The present study contributes to the literature in several ways. Currently, there are limited studies on the efficacy of trauma-informed care programs in schools. As school districts become increasingly aware of the value of integrating trauma-informed practices into their schools, it is important to evaluate the extent to which these initiatives are effective. A relatively newer measurement tool, the Attitudes Related to Trauma Informed Care Scale (ARTIC; Baker et al., 2016), can provide data demonstrating the extent to which their program assisted in shifting staff mindsets around trauma-informed care. Few published studies have used the ARTIC,, as most studies evaluating trauma-informed programs have been qualitative in nature or involved an

informal survey. The findings of the current study contribute to the growing body of literature on the efficacy of implementing trauma-informed programs within the school system.

Chapter Two: Review of the Literature

Childhood Trauma and Adverse Childhood Experiences

The core principles of trauma-informed care include compassion, placing emphasis on the power of relationships, and ensuring safety (Blodgett & Dorado, 2016). Blaustein (2012) purports that one way to understand how imperative it is to implement trauma-informed practices is to think of childhood trauma like a virus that is spreading across the community or a public health epidemic. This virus impacts over 20% of the population, and due to its complexity, it can manifest in a variety of ways. For some individuals it could be subtle or nearly invisible, and for others it could be very apparent and powerful. To try to minimize the influence of this virus across a wide number of people, attempting to target only those who are clearly impacted would not be enough; sadly, individuals who may not have the most obvious symptoms may not receive help (Blaustein, 2012). To tackle the virus, interventions should aim toward building healthy environments that lessen the virus' influence and would reach as many people as possible. Blaustein (2012) proceeds to suggest that if the word 'virus' was replaced with the word 'trauma', the validity of those statements would still be true. In fact, trauma is widespread and impacts over 20% of the population (Blaustein, 2012). The effects of trauma on children are great. Nonetheless, creating a healthy, safe, caring environment in schools has the potential to foster resilience in youth overcoming trauma. Because educators may not know which individual students have experienced trauma, it is imperative for school-wide trauma-informed or trauma-sensitive practices to be implemented when working with all youth so that everyone's needs are met.

Adverse childhood experiences (ACEs). Over the years, researchers, health officials, and educators have become increasingly interested in the concept of adverse childhood experiences (ACEs). ACEs include, but are not limited to: physical, emotional, and sexual abuse, emotional and physical neglect, growing up in a household as a witness to domestic violence or relational stress (e.g., separation, divorce), as well as living with individuals who abuse alcohol or drugs, have mental illness, or have gone to prison (Anda et al., 2010). The greatest proportion of factors that contribute to the development of diseases due to ACEs primarily stem from the cumulative effect of being exposed to multiple stressors over time (Anda et al., 2010). ACE scores reflect the number of categories of the ACEs that an individual has experienced. This approach allows researchers to utilize a cumulative stressor approach when understanding the impact of ACEs on individuals (Anda et al., 2010). Another factor to consider is that in some cases, the impact of the ACEs may only become evident several years after exposure (Anda et al., 2010). Therefore, it is imperative that when understanding ACEs, agencies take a public health approach considering not only the short-term outcomes of ACEs but the long-term outcomes as well.

When investigating childhood traumatic experiences, many studies have primarily focused on childhood abuse (i.e., sexual abuse, physical abuse, neglect) and how those experiences relate to a limited number of outcomes. The ACE survey, on the other hand, investigated a much wider range of traumatic experiences and their relationships to multiple health problems throughout an individual's lifespan (Anda et al., 2010). Anda and colleagues (2006) found that exposure to four or more ACEs within the first 18 years of life was significantly predictive of a variety of challenges later in life. These challenges include mental illness (i.e., panic reactions, depressed affect, anxiety, hallucinations), health issues (i.e., sleep

disturbance, severe obesity), substance use (i.e., smoking, alcoholism, illicit drug use), issues with sexual behaviors (i.e., early intercourse, sexual dissatisfaction, promiscuity), impaired memory of one's childhood, high perceived stress, difficulty controlling anger, and initiating violence with their partner. This study focused on the impact of an accumulation of adverse experiences, rather than experiencing just one traumatic event. Other studies have found that experiencing even just one ACE is predictive of being more likely to experience at least one other ACE. In Dong et al.'s (2004) sample, 81-98% percent of participants who had reported one ACE reported at least one additional ACE.

Prevalence of Exposure to Trauma. Childhood exposure to trauma is widespread and can lead to dire consequences. A seminal study conducted by Felitti and colleagues (1998) assessed youth exposure to adverse experiences before the age of 18 years. The results from this study have been reported by the Center for Disease Control when reporting the pervasiveness of ACEs. Surveys were completed by 9,508 adults who came from Kaiser Permanente's San Diego Health Appraisal Clinic. Participants were asked questions regarding if they had experienced the following while growing up: psychological, physical, or sexual abuse, witnessing violence against their mother, as well as living with individuals who abused substances, were mentally ill, suicidal, or had been imprisoned. These categories were then used to predict risk for behavior, health status, and disease later in life. The researchers found that over half of the participants indicated they had experienced at least one adverse childhood experience, and over a quarter endorsed experiencing more than one category of exposure to adversity (Felitti et al., 1998). When examining long-term effects, those who had more categories of exposure to abuse or household dysfunction had higher rates of serious health issues later in life. For example, individuals who had reported experiencing four or more categories of ACEs were four to twelve

times more likely to develop alcoholism, drug abuse, depression, and attempt suicide. They were also two to four times more likely to smoke and to self-report poorer health. They were at an increased risk for having over 50 sexual partners, and they were nearly twice as likely to have severe obesity. Exposure to ACES was also found to lead to health issues such as ischemic heart disease, cancer, chronic lung disease, skeletal fractures, and liver disease (Felitti et al., 1998). This study drew greater national attention to the need for trauma-informed care.

Researchers have continued to explore the rates in which traumatic events are experienced by children. Costello and colleagues (2002) reported that about 25% of children and adolescents have been subjected to at least one traumatic experience during their lifetime. This includes but is not limited to natural disasters, maltreatment, assault, violence within the family or community, and life-threatening accidents (Costello et al., 2002). Berkowitz (2012) noted that it is important to consider that although estimates of PTSD among youth range from 10 to 20%, there are certain groups (e.g., low socioeconomic groups) that may have rates of PTSD as high as 40 to 50%.

A more recent study analyzing the National Survey of Children's Exposure to Violence (2014) found that the long-term outcomes of ACEs are impacted by socioeconomic status (SES) (Finkelhor, et al., 2015). First, they found that the prevalence of childhood victimization continues to be of great concern. The researchers included additional childhood adversities in this study than what was included in the original ACEs scale. Among 1,949 children and adolescents ages 10-17, 32.5% had been exposed to family mental illness, 21.3% had parents who divorced or separated, 15.9% were susceptible to physical neglect, and at least 13.3% had been victims of physical or emotional abuse. Furthermore, 13.7% had a mother who was treated violently, 12.3% had been exposed to violence in the community, 22.2% had been socially

isolated from their peers, 9.2% had a family drug/alcohol problem, and 7.2% had a parent ever go to prison (Finkelhor et al., 2015). When examining outcomes by SES, low SES significantly predicted individuals' physical health status (e.g., number of days missed school due to illness, physical limitations, overall health), but not psychological distress (e.g., anger/aggression, depression, post-traumatic stress). It was also found that some ACES (i.e., emotional abuse, physical abuse, sexual assault) predicted psychological distress but not physical health status. These findings suggest that there could be different pathways through which adversities in childhood predict outcomes later in life.

Impact of exposure to trauma. Small amounts of stress can be a good thing; they can motivate individuals to improve focus, complete tasks, and make positive changes (Wolpow et al., 2009). On the other hand, when individuals are exposed to stress repeatedly over long periods of time, or experience extremely severe episodes of stress, this can overwhelm that person's capacity to respond appropriately to stressful events. (Wolpow et al., 2009). Berkowitz (2012) noted that experiencing one ACE may cause significant distress to that person and may or may not lead to injury, however, an accumulation of multiple adversities can lead to psychological trauma and injury to that person's neurological functioning (Berkowitz, 2012). This injury may occur because an accumulation of multiple adversities produces high levels of stress hormones that can become toxic (Blitz, Anderson, & Saastamoinen ,2016). This phenomenon, known as toxic stress, can be especially harmful during child and adolescent development (Blitz et al., 2016). Repeated exposure to trauma has the potential to change a child's psychological development, which may put the child at risk for poor academic achievement, disengagement from school, taking part in high-risk behaviors, and difficulties forming and maintaining relationships with family members and peers (Ko et al., 2008). These

difficulties also lead to the increased use of various systems including child welfare and juvenile justice systems (Ko et al., 2008). Overall, traumatic experiences in childhood have profound and lasting effects on the individuals who are subject to them.

Neurobiological outcomes. Traumatic stress has been found to have significant impacts on the brain, which in can lead to poorer academic, emotional, and behavioral outcomes. These neurobiological impacts are especially profound for children whose brains are still developing (Wolpow et al., 2009). Students who have been exposed to such stress are often operating in a "survival of the moment" mode, which in turn impacts their limbic system and how the blood flows within the brain (Wolpow et al., 2009). The following areas of the brain are especially impacted in response to toxic stress: the amygdala, which is activated when responding to threat or fear, the hippocampus, which is important for memory (i.e., encoding and retrieving information), the corpus callosum, which connects the left and right hemispheres of the brain, the cerebellar vermis, which helps regulate cognitive, linguistic, social-behavioral, and emotional activities, and the cerebral cortex, which is responsible for higher order thinking. When the brain is overstimulated from toxic stress, victims of trauma may experience an inability to calm down, frequent forgetfulness and difficulty retaining academic content and sleep disturbances. They may also struggle to interpret social situations or changing behavior, have poor judgement, and exhibit impulsivity (Wolpow et al., 2009). Furthermore, they may face challenges utilizing language to express their emotional needs or feelings, identify emotions, relate to others, or understand cause and-effect relationships (Cole et al., 2005).

When the trauma is recurring within the child's home with a potentially volatile parent, that child is more likely to struggle with developing a sense of self, setting boundaries with others, making choices independently, and solving problems. Executive functions are

substantially impaired, and children tend to act impulsively instead of planning ahead. Some behaviors observed in the classroom due to these cognitive deficits would include difficulties with transitions (i.e., they may feel safe in one situation and struggle to switch to another that could present with danger), aggression, withdrawal, perfectionism, defiance, hyperactivity, and unpredictable mood swings (Wolpow et al., 2009).

Mental health, behavioral, and social outcomes. Individuals who have been susceptible to traumatic experiences often display traumatic stress symptoms. These symptoms include but are not limited to: hyperarousal (i.e., constant expectation of danger which may or may not be present, hyperactivity, restlessness, irritability, difficulties concentrating), intrusion or reexperiencing (i.e., reenactment of the trauma, flashbacks, nightmares),and avoidance or constriction (i.e., emotional detachment or disassociating from reality). Individuals may also portray internalizing behaviors such as depression, withdrawal, somatic complaints, and/or externalizing behaviors such as aggression, delinquency, acting out (Goodman, Miller, & West-Olatunji., 2012; Wolpow et al., 2009). With complex trauma, these symptoms not only persist over a period, but also violate students' sense of safety and support in their relationships (Wolpow et al., 2009).

Developmentally, the impact of experiencing trauma as a child differs from going through that experience as an adult (Diamanduros, Tysinger, & Tysinger, 2018). Relative to adults, children are more likely to demonstrate difficulty regulating their feelings. This could lead to presenting symptoms of anger, irritability, and rage, or presenting symptoms of feeling overwhelmed, anxious, or depressed. Behaviorally, exposure to childhood trauma may lead to more behaviors that are aggressive, self-destructive, or disruptive compared to adults who experience trauma. On the other hand, there are some children who may exhibit no emotions in

response to the trauma. This severe ‘emotional numbing’ can lead to the child dissociating themselves from the traumatic experience in order to escape from the overwhelming emotional pain that would come with confronting the trauma (Diamanduros et al., 2018).

The degree to which children respond to traumatic experiences is influenced by a variety of risk and protective factors. Some examples of factors that may contribute to extreme psychological distress include previous experiences with mental health problems, closeness to other victims of the traumatic event, and living with a family or within a home where violence is present (Diamanduros et al., 2018). Factors that may boost childhood resilience when faced with adversity include internal factors such as developed abilities with problem-solving and coping, a positive view of self, as well as external factors such as having a strong family and social support system.

Diamanduros et al. (2018) further noted that another factor contributing to a child’s reaction to trauma is the age in which the child experienced the traumatic event(s). Young children are at a greater risk of regressing in adaptive behaviors and skills they could do before experiencing the trauma. For example, children who were previously toilet trained may experience enuresis (i.e., bedwetting), or they could need a parent to sleep with them when they could previously sleep independently. Older children may have developed some coping mechanisms that help them become more resilient when presented with adverse experiences. On the other hand, maladaptive reactions to trauma may be observed in older children. For example, some adolescent trauma victims may appear more withdrawn, isolate themselves from their family and peers, or could turn to risky behaviors (e.g., substance use). They may also perceive that others have difficulty understanding what they are experiencing, or they could be aiming to protect themselves from seeming vulnerable or weak (Diamanduros et al., 2018).

Often, symptoms of traumatic stress in children may be exhibited within the classroom. When educators are uninformed of a child's trauma history or the effect trauma has on youth, they may misinterpret that child's behavior as being indicative of attention or conduct problems. They may hold the child to unrealistic academic or behavioral expectations (Goodman et al., 2012). These perceptions and following actions to address the behaviors (e.g., school discipline measures) may in turn aggravate the situation even further and re-traumatization may occur. The re-traumatization that could potentially occur in schools will be discussed in the section on Tenets of Trauma-Informed Care. Childhood trauma also has a significant impact on relationships, as children who have been traumatized may feel betrayed by the adults who did not protect them and may be less likely to trust others (Diamanduros et al., 2018). This may be apparent in the school setting if they struggle with forming and maintaining relationships with their peers and other adults (Diamanduros et al., 2018).

A recent study involved a secondary analysis of the National Survey of Children's Health (2011-2012) with children ages six to 17 years old. Stempel et al. (2017) investigated the relationship between chronic school absenteeism and students' ACE score. The authors noted the importance of studying school absenteeism in relation to ACEs is because children who struggle with mental health issues often avoid school. For this study, chronic absenteeism was defined as accumulating 15 or more days of excused or unexcused absences during a school year. The results showed that when examining individual ACEs, only witnessing, or experiencing violence in the neighborhood predicted chronic absenteeism. However, this study found that having one or more ACEs was strongly associated with chronic absences compared to children who experienced no ACEs. This association was even stronger for students who with two or more ACEs. This study demonstrates the need for schools to implement a trauma-sensitive approach to

help youth feel safe at school and collaborate with families and community members to improve student attendance. It is important for schools to continue these efforts in schools where it is likely that a high proportion of their population are susceptible to ACEs; chronic absenteeism has been found to be a stronger predictor of school dropout than poor academic achievement, and it is imperative that schools make attempts to find ways to improve school attendance (Stempel et al., 2017).

The National Survey of Children's Health (2011-2012) was also utilized to investigate the relationship between exposure to family adversity and educational outcomes, and the extent to which this relationship is mediated by child mental health status, or whether or not a mental health diagnosis was present (Porche et al., 2016). Porche and colleagues (2016) found that the association between adverse experiences and educational outcomes was mediated by the child's mental health diagnosis. They also found that children who experienced a higher frequency of adverse family experiences were more likely to have a higher number of mental health diagnoses, which was in turn related to experiencing a grade retention or having an IEP. A measure of poor caregiver mental health was included. This variable was positively correlated with the number of mental health diagnoses and was negatively associated with school engagement. These findings elucidate the need for school-based personnel to find ways to screen for mental health problems to try to connect those students to mental health services (Porche et al., 2016). Unfortunately, it is very common for youth and their families to have difficulty accessing proper care to address their trauma. Costello et al. (1998) found that 75% percent of children below the age of 12 had been seen by a pediatrician at least once a year, but on the other hand, only four percent had seen a mental health service provider. If schools were to solely focus on academic achievement, it is unlikely they would observe much growth if their students are

still struggling to overcome the unaddressed trauma that they have experienced (Porche et al., 2016; Ristuccia, 2013).

Academic outcomes. Childhood trauma has been found to negatively impact academic achievement and cognitive abilities (Blitz et al., 2016; Delaney-Black et al., 2002; Diamanduros et al., 2018; Goodman et al., 2012; Ko et al., 2008). For example, being exposed to violent events has been linked to a decrease in reading abilities, lower grade point average, increased school absenteeism, increased risk of dropping out of high school, and increased likelihood of going to prison (Delaney-Black et al., 2002; Dorado, et al., 2016; Stempel, et al., 2017; Wong, 2008). Experiencing childhood adversity has been linked to cognitive deficits in several areas such as executive functioning, memory, problem-solving, understanding cause-and-effect, focus, comprehension, and verbal processing (Blitz et al., 2016; Diamanduros et al., 2018). Difficulties sleeping, as well as feelings of preoccupation and worry may also contribute to poorer outcomes in these areas. As memories of the traumatic or adverse experience emerge while at school, students may be triggered to experience negative emotions that could potentially lead to increased difficulties in paying attention and staying motivated in class, trouble imagining the future, as well as having poor perceptions of themselves or others (Diamanduros et al., 2018; Porche, Costello, & Rosen-Reynoso, 2016). Overall, these factors are likely to have a negative impact on academic performance, as well as an increased risk for school absenteeism (Diamanduros et al., 2018; Stempel et al., 2017).

Delaney-Black et al. (2002) found that within a sample of 299 six to seven-year-old African American children, exposure to violence in the community was negatively associated with performance on IQ and standardized reading achievement tests. As such, the authors noted that it is imperative to target interventions toward all children, as it may be difficult to identify

students who have been impacted by trauma. Ristuccia (2013) points out that some students who have experienced adverse experiences in childhood may exhibit learning profiles that are similar to students with disabilities in the education system (e.g., specific learning disability, attention deficit/hyperactivity disorder, emotional disturbance), while others who have experienced trauma may not have issues in the classroom that distinguish them from other students. If only children who demonstrate trauma symptoms are targeted, children who were still exposed to adversities but did not exhibit traumatic stress symptoms could be overlooked for receiving interventions. This would be problematic because those students' academic functioning may still be negatively impacted at some point, or they may have internalizing symptoms that are not as obvious to educators (Delaney Black et al., 2002; Ristuccia, 2013). For these reasons, it is important that schools strive to create a safe learning environment for all students to support the development of social skills and positive coping strategies, and improve students' self-regulation (Ristuccia, 2013).

Goodman, Miller, and West-Olatunji (2012) conducted a study to examine the impact of traumatic stress and socioeconomic status on academic achievement. Data was obtained from the Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 database (ECLS-K). Socioeconomic status was measured using parents' educational level, occupation, and household income. The researchers developed a dichotomous indicator of traumatic stress from several measures that utilized information from direct child assessments, parent interviews, and teacher rating scales. The following variables were selected to align with the common symptoms of traumatic stress: self-control in relationships with peers, making friends or relating to other children, getting along with others and forming and maintaining relationships, and paying attention. Additional variables included the extent to which the child was more active relative to

other children, as well as if the child appeared sad, lonely, or anxious, and how often the child fought, argued, or disturbed others. Of note, the traumatic stress variable measured indicators of traumatic stress symptoms, not actual trauma exposure. Outcome measures included reading, math, and science achievement, school absences, and whether or not the child had an Individualized Education Plan (IEP). The researchers found that traumatic stress symptoms surprisingly did not significantly predict school attendance, however, it did have a significant impact on other outcomes. Traumatic stress symptoms negatively predicted scores on standardized achievement tests, and students were more than three times as likely to receive an IEP if they exhibited symptoms of traumatic stress. This suggests that exhibiting traumatic stress symptoms may negatively affect students' performance on achievement tests which may put the student at risk for being more likely to be identified as having a learning disability or behavior disorder. Although some students may truly have an educational disability, the authors point out that students may be incorrectly identified and may not receive the appropriate services.

Vicarious/Secondary Trauma for Educators

Another factor that is important to consider is that within the school environment it is often overlooked that educators who make daily contact with youth are susceptible to a phenomenon known as vicarious or secondary trauma. Wolpow and colleagues (2009) defines vicarious/secondary trauma as, "PTSD behaviors and emotions resulting from internalizing the traumatizing event experienced by another." The term 'vicarious' refers to feeling "through the experience of others". The individual (e.g., a teacher) has a 'secondary' experience with the trauma rather than being the primary individual (e.g., a student) who received the most significant impact (Wolpow et al., 2009). This experience has also been referred to as, "the cost of caring" (Wolpow et al., 2009). Blitz, Anderson, and Saastamoinen (2016) state that educators

who experience secondary trauma often do not have enough support to cope with the trauma of their students, which results in an emotional burden being placed on the teacher. Teachers and other school staff may take on their students' stress and emotional pain as their own, which in turn can manifest in adults having increased levels of worrying, anger, and conflict with others. Vicarious trauma may also lead to 'compassion fatigue', which is defined as "fatigue, emotional distress, or apathy resulting from the constant demands of caring for others" (Wolpow et al., 2009). High levels of compassion fatigue and vicarious trauma can lead to 'burnout', which is the "physical and emotional exhaustion that may include the development of negative self-concept, negative job attitudes, and loss of concern and feeling for students, their parents, and colleagues" (Wolpow et al., 2009). A 2014 meta-analysis across 41 studies found that high levels of job burnout is strongly associated with secondary traumatic stress among employees who have been indirectly exposed to trauma through the individuals they work with (Cieslak et al., 2014). Although the meta-analysis was limited to studies that included participants who were mental health professionals or hospital staff (e.g., social workers, nurses), it would be expected that similar findings would be present among teachers who are also likely to experience secondary trauma.

Attention to the overall well-being of school staff is needed; vicarious trauma has the potential to negatively impact how school staff perform professionally, and it may take a toll on educators' physical and mental health (Wolpow et al., 2009). Some examples of symptoms of adults experiencing vicarious trauma include headaches, difficulties with sleep, conflicts with others, staff absenteeism, missing meetings, tardiness, and avoiding others (American Counseling Association, 2011; Shervin, 2018). These effects can in turn affect how the impacted staff member relates to others. Some professionals may demonstrate the "silencing response", in

which their abilities to be empathetic are shut down and refrain from engaging with trauma survivors about their problems (Wolpow et al., 2009). They may also be more likely to be absent from work. Self-care and self-awareness can help mitigate the impact of vicarious trauma, especially if school personnel are living with their own unresolved trauma within their own lives (Wolpow et al., 2009). Teachers are often not taught how to cope with the impact of working with students' who have experienced trauma, and oftentimes they are not taught how to help those students. Furthermore, in some environments it is considered taboo to discuss teacher well-being as it is believed the focus should remain on the children rather than school staff.

Due to the significant demands of being a teacher, one in five teachers exit the teaching profession within their first few years of teaching (Duckworth, Quinn, & Seligman, 2009). In fact, teaching is well known to be one of the most emotionally draining professions, as it is characterized by high levels of burnout and emotional exhaustion (Chang, 2009). A 2013 Gallup Poll found that although teachers reported higher levels of emotional health due to frequent positive interactions with others, it was found that 47% of teachers endure high stress daily. This rate comes second only to doctors (Lopez & Sidhu, 2013). There are also teachers who are burned out yet remain in the field with a reduced amount of effort and involvement (Duckworth et al., 2009). Furthermore, schools that are at-risk for poorer attrition rates are more likely to have fewer resources (Duckworth et al., 2009).

Because traumatic experiences are prevalent across people of all backgrounds and ages, it is important for school leaders to recognize that their own school staff may be survivors of traumatic experiences themselves; it is not only our children who come into the classroom with trauma histories and ACEs, but also the teachers, administrators, and support staff as well (Blaustein, 2012; Davey & Hughes, 2016). It is imperative that all teachers receive training to

assist with them being self-aware of how their trauma affects their work. If it is expected for teachers to provide a trauma-sensitive classroom to their students, the teachers also deserve to work in a trauma-sensitive professional environment so that they feel supportive in coping with their own stressors as well (Davey & Hughes, 2016).

A recent study in Germany examined the relationship between teacher well-being (i.e., enthusiasm for work, emotional exhaustion) and student misbehavior (i.e., paying attention, obeying the teacher), and the extent to which the teacher-student relationship served as a mediator between these two constructs (Aldrup, Klusmann, Ludtke, Gollner, & Trautwein, 2018). The teacher-student relationship was measured by assessing the extent to which the teachers reported that their students respected, liked, and appreciated them. As expected, the findings of this study indicated that increased perceptions of student misbehavior predicted more emotional exhaustion and less enthusiasm for work. They also found that student misbehavior was related to poorer student-teacher relationship quality, which was in turn correlated with lower work enthusiasm and higher rates of emotional exhaustion. Furthermore, the relationship between the teacher and the student mediated the link between student misbehavior and work enthusiasm (Aldrup et al., 2018). These findings are important to consider when thinking about trauma-informed care; teachers may have one or more students in their classroom who have been exposed to traumatic experiences, which puts them at risk for exhibiting behavioral difficulties in the classroom setting. Therefore, it is critical that within a trauma-informed framework that teachers are supported in building stronger relationships with their students and receive training in alternative ways to respond to student misbehavior than solely punitive measures.

Student misbehavior is very common to observe within the classroom. In one study, 75% of participating teachers reported that within the past year they had worked with or referred

students for mental health concerns (Reinke et al., 2011). A large proportion of those concerns were reported to be related to externalizing behaviors (e.g., hyperactivity, defiance, disruptive behavior) and/or working with children who were experiencing family stressors. Often, teacher preparation programs fail to equip teachers with the appropriate skills and tools to address these needs. Within this study, 89% of the teachers indicated that they believed teachers should be involved in addressing students' mental health needs, however, only 34% reported they felt they had adequate skills and knowledge to be able to do so. Teachers who possess the skills that allow them to better communicate with their students and support them are more likely to have an increase in academic gains for their students (Duckworth et al., 2009). In a study by Blitz and colleagues (2016), school personnel reported they frequently needed to respond to behaviors that were beyond what should be typical for their students' ages, and that these frequent behaviors often resulted in teachers being unable to fulfill educational objectives. At times, school staff reported feeling afraid or anxious due to observed aggressive behavior among their students, and they experienced a sense of sadness and worry regarding the lack of parental support their students received at home. Furthermore, feeling alone and not supported by their colleagues or school administrators can intensify reactions to secondary trauma.

Teachers' emotional well-being is impacted by several factors. Teachers are at-risk for experiencing emotional exhaustion due to intense daily interactions with parents, administrators, coworkers, and students (Tsouloupas et al., 2010). These experiences highly relate to critical outcomes for teachers such as their job performance, attitude toward work, and burnout. With regard to students, studies have found that the time and effort teachers put into engaging in the act of discipling students in response to poor classroom behavior often triggers feelings of emotional distress, negative attitudes, helplessness, and embarrassment (Tsouloupas et al., 2010).

These emotions and attitudes can contribute to teachers feeling discouraged about their skills in classroom management and ability to provide their students with quality instruction. These feelings are tied to teacher self-efficacy, which refers to the educator's belief that they are able to successfully produce a desired outcome such as effectively carrying out a lesson plan or managing a student's misbehavior (Tsouloupas et al., 2010). Tsouloupas et al. (2010) found that teacher self-efficacy in handling student misbehavior mediated the relationship between teacher perceptions of misbehavior (e.g., disobedience, aggression), teacher mental well-being and emotional exhaustion. These findings demonstrate that improving teacher self-efficacy could potentially help teachers cope more effectively with the stressors that accompany managing student behaviors, which in turn could reduce teacher emotional exhaustion and burnout (Tsouloupas et al., 2010).

Other factors that can promote positive teacher well-being include feelings of support by the principal, support for professional development, and support from colleagues can improve teacher well-being and self-efficacy (Aelterman et al., 2007). Aelterman and colleagues (2007) found that when educators can collaborate with each other, establish a sense of trust within their teams, and when their efforts are appreciated by their principal, teachers may feel better equipped to cope with stressors they may face when working in the education profession.

Tenets of Trauma-Informed Care

For schools to optimize students' learning, educators must work toward making sure that students feel safe, connected, and supported by school personnel (Ristuccia, 2013). Creating such an environment cannot be achieved effectively through individual student interventions in isolation, therefore, it is imperative that schools aim to achieve this goal through a school-wide approach. Oftentimes, school is the most significant community outside of students' own family.

Therefore, the school environment has the potential to have significant influences on who they are as individuals and who they hope to be (Ristuccia, 2013). When schools adopt an approach towards a safe and supportive environment, all children regardless of their history of trauma benefit. This environment can help boost achievement, engagement, improve attendance and graduation rates, and improve resiliency (Ristuccia, 2013).

SAMHSA (2014) identified the following six principles as being key for utilizing a trauma-informed approach: 1) Safety – staff and the individuals they serve (i.e., adults or children) feel physically and psychologically safe; 2) Trustworthiness and transparency – organizational decisions and processes are carried out with transparency in order to build and maintain trust with stakeholders; 3) Peer support – mutual self-help with peers who are also victims of trauma helps support recovery, establishes safety and hope, and builds trust and collaboration; 4) Collaboration and mutuality – emphasis is placed on leveling the power differences between various individuals within a system (e.g., staff and clients, professional staff and administrators) in order to show that healing occurs through meaningful relationships and shared decision-making; 5) Empowerment, voice, and choice – individuals' strengths and experiences are acknowledged and built upon, efforts are made to foster resilience, clients are involved in shared-decision making, and they are supported in cultivating self-advocacy skills; 6) Cultural, historical, and gender issues – organizations make efforts to move away from cultural biases and stereotypes, holds value to cultural connections, and recognizes generational trauma. These principles or tenets of trauma-informed care were adapted for the program being evaluated in the current study, the Harmony Project.

Another term often used with trauma-informed care is trauma-sensitivity. A trauma-sensitive school is, one that is safe and responsive to the needs of everyone regardless of whether

it is known that the individuals are impacted by trauma or not. This also includes fostering academic success for all students by providing coping tools and strategies for students and staff when dealing with emotional and behavioral challenges and supporting staff in navigating challenging situations to avoid burnout (Blaustein, 2012). Creating a trauma-sensitive environment is critical for minimizing the effects of students potentially experiencing sanctuary trauma. Sanctuary trauma refers to, "the condition that results when trauma victims turn to those from whom they hope to find sanctuary (emergency room, family, favorite teacher) only to encounter a reception that is not as supportive as anticipated" (Wolpow et al., 2009). Essentially these students may be re-traumatized by events or interactions with others at school when their needs are not met with compassion and safety. Encountering sanctuary trauma at school can in turn increase the likelihood that students' trauma symptoms and stress reactions to experiences outside of school are exacerbated (Berkowitz, 2012; Wolpow et al., 2009). This is especially concerning given that the feeling of helplessness and not having control is very common among traumatized youth (Berkowitz, 2012). A punitive school environment can further make traumatized students feel disconnected and less attached to school, and contributes to lowered academic achievement (Ristuccia, 2013). It is common for children to receive punishments for having aggressive outbursts or tantrums, however, these could be symptoms of traumatic stress (Van Der Kolk, 2014). Instead of being offered a safe haven, children may be faced with angry confrontations from staff or punishment, which then causes school to become another traumatic trigger for that child (Van Der Kolk, 2014).

Schools need to focus on building resiliency among their youth, which is the ability for the child to be able to "withstand and rebound from stress" (Wolpow et al., 2009). Wolpow and colleagues (2009) suggest that school staff can foster resiliency by engaging in the following

behaviors: providing unconditional positive regard, empowering students, and addressing inappropriate conduct assertively without resembling controlling methods that are similar to perpetrators of violence. It is also suggested to create situations for students who already have built some resiliency to help others, maintain high expectations, set consistent routines, and increase connections with pro-social individuals (Wolpow et al., 2009).

Teachers are often ill-prepared in their training programs on how to work with traumatized youth, however, those who are trauma-informed and show care and compassion for their students are more likely to help students feel as though they belong (Wolpow et al., 2009). Practicing in this manner schoolwide has the potential to increase student engagement and student grade point average. Adopting a trauma-informed lens prompts teachers and school personnel to expand their view on how they see the ways in which they can promote academic success for all students (Rosenbaum-Nordoft, 2018). School staff who have received training in trauma-informed care are more likely to recognize that children who have been exposed to traumatic experiences are at-risk for having deficits in their development. They are more likely to understand that these deficits may impact their students' functioning in the classroom, and these students may need more interventions in addition to class-wide strategies to achieve (Rosenbaum-Nordoft, 2018).

For a trauma-informed system to be successful this lens must be adopted universally by the whole school community (Ristuccia, 2013; Rosenbaum-Nordoft, 2018). Overstreet and Chafouleas (2016) suggest that one part of this process is to educate staff on how to recognize the signs of trauma and the implications of how trauma impacts academic and behavioral performance at school. For instance, some students with complex trauma may be perceived as exhibiting poor behavior, which prompts school staff to implement punitive and exclusionary

discipline measures (Overstreet & Chafouleas, 2016). A student with a trauma history may respond to an activity or event that would have been typically seen as a normal stressor (e.g., participating in class, homework, presentations) as a significant stressor. This may result in triggering a basic survival response that could reduce their ability to learn and focus at that time (Ristuccia, 2013). When viewing the same event through a trauma-sensitive lens, school staff may shift their thinking process from, "What is wrong with this student?" to, "What happened to this student?" or "What is the function of this student's behavior?" (Overstreet & Chafouleas, 2016). This shift in thinking prompts staff to consider different ways to respond to the behavior that avoid re-traumatizing the student. For example, this could include developing functional behavior assessments and behavior intervention plans. These plans would include interventions that use antecedents to behavior to modify the environment and teach the child adaptive coping strategies when presented with triggers to their behaviors. (Dorado et al., 2016; Overstreet & Chafouleas, 2016; Rosenbaum-Nordoft, 2018).

Furthermore, utilizing a trauma-informed lens when working with youth can help foster positive relationships between teachers and children (Rosenbaum-Nordoft, 2018). A trauma-informed teacher would have developed an understanding that students with trauma exposure may not have secure attachments with their primary caregivers, and this poor attachment could have negative implications on how they view themselves and relate to others (Gharabaghi, 2008; Romano, 2015). Teacher-student relationships have a significant impact on students' academic and behavioral outcomes throughout elementary and middle school (Hamre & Pianta, 2001). This relationship was particularly salient as it related to behavioral outcomes. In a study conducted by Hamre and Pianta (2001), teacher ratings of negativity in relationships with children significantly impacted student work habits and disciplinary records.

It is not reasonable to assume that any single person within the school system can adequately utilize trauma-sensitive practices alone (Cole et al., 2013). To change the culture of the school to be safer and more supportive for youth, a commitment is needed across all school staff and leaders, as well as policymakers in education. Oftentimes, educators are torn in several directions attempting to adopt new initiatives and respond to changes in laws and policies (Cole et al., 2013). It is helpful when trauma-informed practices are integrated into multitiered frameworks that are already well-known to most schools, such as School-Wide Positive Behavior Interventions and Supports (Overstreet & Chafouleas, 2016). Educating staff and school leaders on how trauma-informed practices can be paired with an already existing framework can facilitate the implementation of trauma-informed programs within schools (Cole et al., 2013; Overstreet & Chafouleas, 2016). Examples of positive supports for children who have experienced trauma include providing "calm down" corners, coaching affect regulation, providing consistency through daily schedules and class meetings, well-planned transitions, identifying and dealing with triggers, labeling, and identifying feelings. These responses have been found to be helpful not only with students who have experienced trauma history, but is also beneficial to all children (Shamblin, Graham, & Bianco, 2016; Wolpow et al. 2009).

Educator Knowledge About Supporting Students with Trauma

Teachers play an essential role in supporting trauma-informed care initiatives within their schools. As the individuals with daily and frequent contact with their students, there is an increased need for them to be the ones who have a developed understanding of the components of trauma-informed practices so that they can be reinforced within the classroom. Teacher acceptability of trauma-informed care programs is important to evaluate to view the extent to which teachers are experiencing a mind shift in how they interact with and support traumatized

youth. Alisic (2012) conducted a qualitative study investigating the perspectives of 21 elementary school teachers in working with children who have experienced trauma. Semi-structured interviews were conducted focusing on teachers' experiences with traumatized children, how they approach working with these children and their families, how they collaborate with their colleagues on this issue, and what if any additional information they may need about responding to trauma.

In the Alisic (2012) study, several themes emerged outlining the difficulties teachers face in these situations. For example, many struggled with wondering where their role ended as a teacher, and at what point the tasks of a mental health professional (e.g., social worker, school psychologist) began. Some were unsure when to refer a child for specialized care, or if they should interpret some of the child's stress reactions as a typical part of the trauma recovery trajectory. Teachers were also uncertain where to refer their children for additional support, and many felt unsure about how to talk to the student about the traumatic event that occurred. Several teachers felt that teaching is moving away from meeting children's academic needs and is moving toward focusing on social and emotional development. It was noted that many teachers struggled with balancing individual student needs along with the needs of their whole class, and the majority of them felt that they lacked the knowledge and skills on how to respond to children who have been exposed to trauma. Most teachers reported they were unaware of any guidelines offered by the school on this matter. Furthermore, teachers faced challenges with the emotional burden of working with youth who have been traumatized; many took their children's problems home with them, and for some it triggered memories regarding their own traumatic experience. Although teachers expressed a lot of doubt and questions regarding supporting these children, they noted that support from their colleagues was very helpful (e.g., venting, asking for advice,

receiving help when overwhelmed). These findings showed that school psychologists and other mental health professionals can support teachers by facilitating trainings and support the development of policies that would help teachers feel more confident and knowledgeable on what to do to support the needs of their students and families. They can also provide staff with assistance in coping with stressful situations that may arise (Alisic, 2012).

A quantitative study was also conducted by Alisic et al. (2012) to further explore the extent to which teachers report difficulties with working with children who have experienced trauma. Questionnaires were completed by 765 teachers of children who were between the ages of eight and 12 years old. Findings showed that 50% to 63% of the teachers noted difficulties with refraining from getting too emotionally involved (i.e., compassion fatigue), balancing teaching academic skills versus providing mental health support, being aware of when their students needed mental health care, as well as difficulties knowing where to turn to regarding questions about traumatic stress. Through multiple regression analyses, the researchers found that respondents' scores were significantly and negatively impacted by the number of years of teaching experience, whether or not the teacher had received training on trauma within the past three years, and the number of traumatized youths they had taught. It was noted that only nine percent of the teachers in the sample received previous training on trauma; teachers' responses indicated that many did not feel competent in this area, and there is a need for more professional development on trauma (Alisic et al., 2012). Although teachers should not necessarily become their students' therapists, they would benefit from having basic knowledge about traumatic stress to increase their self-efficacy in working with students with histories of traumatic experiences (Alisic et al., 2012). Teachers have the potential to play a key role in helping youth recover from traumatic experiences. For example, they may help children cope, process their emotions,

provide students with familiar structure and routine, and help connect them to mental health services (Alisic et al., 2012).

Legislation and Policy

Considering the increase in demand for meeting students' mental health needs, the call for trauma-informed care in our school systems has been reflected in legislation over the past few years. The Every Student Succeeds Act (ESSA) was approved by President Barack Obama in 2015 to replace the No Child Left Behind (NCLB) law. Many components of ESSA align with trauma-informed practices. For example, some components include reducing the use of exclusionary discipline practices (e.g., school suspension) and over testing students, as well as implementing grant programs to support increase school-based mental health service delivery (Prewitt, 2016). This law also supports providing professional development to teachers and school personnel to help them understand how to better support students who are impacted by trauma, and students who have or at-risk for having mental illness (Prewitt, 2016). This act of legislation re-authorizes several existing programs that will assist schools that serve student populations impacted by poverty, violence, and trauma (Prewitt, 2016). Various states have also taken steps toward putting legislation into place to advocate for the needs of traumatized children. In Oregon, the governor signed House Bill 4002 in 2016, which requires schools to use a trauma-informed approach to address chronic truancy, provide funds for trauma-informed care programs in schools, and provide school staff with professional development using the Substance Abuse and Mental Health Services Administration model (House Bill 2002, 2016). Within the state of Florida, Senate Bill 7026 (SB 7026) seeks to expand and improve the delivery of mental health services within the school system (Senate Bill 7026, 2018). SB 7026, also known as the

Marjory Stoneman Douglas High School Public Safety Act, was developed in response to the tragic school shooting that had occurred there in 2018.

In May of 2015, five students and three teachers filed a federal class action lawsuit against Compton Unified School District due to failure to make reasonable steps toward address students' trauma at school (*Peter P. et al. v. Compton Unified School District,* 2015). The lawsuit cites research how repeated exposure to traumatic events such as violence, abuse, and neglect, has significant impact on students' overall academic and behavioral functioning at school, and how the school district had not provided adequate accommodations or mental health support to these students. Furthermore, the plaintiffs argued that their teachers had not received professional development in trauma-sensitive practices or support in coping with vicarious trauma. They stated that all school staff needed more training in recognizing and understanding complex trauma, and how to utilize trauma-sensitive practices within the school setting. The plaintiffs also pointed out that rather than taking reasonable steps toward supporting these students or providing them with the needed services, oftentimes these vulnerable students are subjected to school exclusionary practices such as suspensions and expulsions.

The *Peter P. et al. v. Compton Unified School District* complaint indicated that these practices are also in violation of the Americans with Disabilities Act as well as Section 504 of the Rehabilitation Act of 1973. This lawsuit is the first of its kind to utilize special education law to suggest that students exposed to trauma should receive additional accommodations and support (Ahlers, Stanick, & Macheck, 2016). This lawsuit brings to light the importance of needing schools to create a safe, positive, and predictable school environment, to implement social and emotional learning programs, to provide access to mental health professionals (e.g.,

counselors, social workers, psychologists), and to utilize restorative practices when incidents or conflicts occur (Ahlers et al., 2016).

Trauma Informed Care in the School Setting

Across the country, there are many school districts attempting to implement and evaluate programs that strive to create trauma-sensitive environments in schools. The following section will describe programs that have been implemented and evaluated that aim to make schools more trauma-informed.

Cognitive behavioral intervention for trauma in schools (CBITS). Overall, only a small percentage of youth with mental health needs receive services (Costello et al., 1998). Financial limitations and logistical issues may prevent youth from accessing mental health services through the community (Wong, 2008). Public schools are often seen as an entry point for access to mental health services for youth given that they may be able to overcome some of the aforementioned barriers in order to address students' needs (Ko et al., 2008; Reinke et al., 2011; Wong, 2008). In fact, most youth who receive mental health support receive it within the school system (Reinke et al., 2011). As mental health issues continue to rise among youth, schools face challenges in meeting those needs.

There has been a growing interest in providing psychotherapeutic interventions directly to traumatized youth within the school system. One evidence-based intervention that is becoming more commonly used is the Cognitive Behavioral Intervention for Trauma in Schools (CBITS). CBITS has been found to support students cope with symptoms related to PTSD and depression (Nadeem & Ringle, 2016). Baweja and colleagues (2016) conducted a qualitative study to evaluate the factors that contribute to teachers' involvement and support in the implementation of CBITS. Through the CBITS program, mental health clinicians employed by

the school delivered one-hour sessions weekly where youth were taught the components of cognitive behavioral skills. For this study, 11 teachers, 15 clinicians, and 9 school administrators from 11 schools participated in semi-structured phone interviews about the CBITS program.

Four main themes emerged regarding teachers' perception of the CBITS program. 1) The majority of the teachers reported that they often experienced substantial difficulties with addressing students' social-emotional needs in the classroom, and they acknowledged that there was a need for a program addressing student trauma on their campus. Most teachers also observed improvements in their students' social-emotional functioning, classroom behavior, and academic engagement among students who had been in the program. 2) Although many recognized that their students benefited from participating in the CBITS program, teachers and administrators expressed concerns about their students missing academic instruction to participate in it. Clinicians also observed that teachers were not happy about their students being pulled from class. This was especially a concern for students who may have needed the program yet were also at risk for failing their classes. 3) There were several barriers to communication between the clinicians and the teachers; this lack of communication made it more difficult for them to collaborate with each other in supporting their students, and left teachers uninformed about the progress their students were making in CBITS. 4) The majority of the teachers reported needing more trauma-informed education and training. There was a need for identifying how individuals react to trauma and learn new ways to work with those students in the classroom (Baweja et al., 2016). Overall, the findings of this study show that schools may benefit from more ways in learning how to support teachers in how to address social-emotional needs within the classroom rather than solely relying on mental health providers to pull students out of the classroom for intervention.

Nadeem and Ringle (2016) investigated the factors related to the de-adoption of implementing CBITS in a large, urban school district. For this study, de-adoption refers to the failure to sustain evidence-based psychological practices. CBITS had been implemented across the district for three consecutive years. Students who had participated in the program experienced improved outcomes, and stakeholders provided positive feedback (Nadeem & Ringle, 2016). Despite these promising findings, only half of the clinicians continued to use CBITs after the first year after it was introduced, and two years later the district had completely discontinued using this intervention program. The following factors were found to help support the implementation of the CBITS program: administrative support, teachers seeing improved outcomes in their children, and seeing that there is a high need for it within the settings served. On the other hand, there were several barriers that contributed to the lack of sustainability for the CBITS program. Some barriers included CBITS not being viewed as a priority for administrators due to an increased focus on academics or a specific type of counseling group (e.g., grief group), and the district discontinuing to mandate the implementation of CBITS. When the CBITS program was no longer mandated, there was no district-wide strategy to engage principals or support a systematic way for clinicians to help implement the program. Similar to the concerns expressed in Baweja et al. (2016), a major concern was that students who needed the program were also performing poorly in class. This resulted in a lack of support for the students to miss academic instruction to attend CBITS groups. Furthermore, there was a lack of buy-in and engagement from parents to support the implementation of the program. Another consideration was that the staff who were trained to implement the program were limited. This particular district experienced layoffs for social workers, which resulted in many of them having an increase in administrative responsibilities and a decrease in the amount of time available for

them to provide direct therapy. This study showed that although using an evidence-based therapeutic intervention such as CBITS can be helpful for students, schools are likely to face many challenges in sustaining the implementation of such a program across a long period of time. These findings further demonstrate the need for districts to find alternative ways to support students who are survivors of trauma.

Although there has been an increase in the development of evidence-based psychotherapeutic interventions to be implemented in the school setting, the widespread adoption and implementation of these programs continues to be an issue (Nadeem & Ringle, 2016). Educators and policymakers may recognize that mental health has a significant impact on student learning and success in life, oftentimes the existing organizational structure within a school does not help facilitate the implementation of mental health services (Reinke et al., 2011). School mental health professionals employed within the public-school system (i.e., school psychologists, school counselors, social workers) are trained to engage in practices that promote the social-emotional well-being of students. However, as observed in the Nadeem & Ringle study, unfortunately there is a critical shortage of these professionals becoming available to meet these students' needs. Oftentimes, school personnel are met with multiple or even competing demands which make it difficult to carve out the time to implement social-emotional learning programs (Reinke et al., 2011). This gap in the mental health workforce calls for the need for non-clinicians (i.e., teachers, administrators, classroom aids, other school staff) to be better equipped to engage in practices that are trauma sensitive (Wong, 2008). Very few teacher preparation programs train educators in developing skills to identify and teach students who have experienced trauma, or are coping with symptoms of depression and/or anxiety (Reinke et al.,

2011; Wong, 2008). Therefore, there is an increased need for universal interventions or system-wide initiatives to take place in order to meet the needs of all students.

Trauma informed programs focused on educators. An alternative way to meet the needs of traumatized youth is to adopt programs that involve a school-wide initiative of becoming trauma-informed. Dorado and colleagues (2016) conducted a program evaluation of Healthy Environments and Response to Trauma in Schools (HEARTS) in California. This was a prevention and intervention program that aimed to support schools in becoming safe and trauma-informed environments. HEARTS utilized a multi-tiered systems of support framework to increase student engagement and overall well-being, increase staff wellness and decrease burnout, and support children through using a cultural equity lens. Interventions were implemented across tier one (universal), tier two (selected supports), and tier three (targeted and intensive supports). Interventions consisted of class-wide training for students on coping with stress, training for staff on using trauma-sensitive practices, strategies to address staff burnout, consultation services regarding behavior support plans and alternatives to suspensions, and school-based trauma-specific individual, group, or family therapy for students.

The program evaluation for the implementation of HEARTS sought to determine if there was an increase in school personnel's knowledge about implementing trauma-sensitive practices, improvements in students' school engagement, a decrease in behavioral problems associated with instructional time that is usually lost from disciplinary measures, and if there was a reduction in trauma-related symptoms in students who received therapy through HEARTS. Three elementary schools and one kindergarten through Grade 8 school participated in the HEARTS Program. The length of time the program was implemented varied by school depending on the funding available and the priorities of administrators. This resulted in a range of schools

implementing the program from one to five years. Following the implementation of the HEARTS program, school staff reported significant increases in understanding of trauma and the use of trauma-sensitive practices, and significant improvements in their students' ability to learn, stay on task, and attend school. Significant improvements were also noted with regard to students' trauma related symptoms. Regarding school discipline, there was a 43% decrease in incidents involving physical aggression after the first year of the HEARTS implementation, and an 86% decrease after five years of the HEARTS implementation. The use of out of school suspensions did not significantly decrease after the first year of the HEARTS implementation, however, there was a 95% decrease in out of school suspensions after five years. Overall, this study demonstrated the effectiveness of implementing a school-wide program that uses the trauma-informed principles of safety, compassion, predictability, and building relationships to promote positive social-emotional well-being for all students.

In rural Appalachia, the Partnerships Program for Early Childhood Mental Health and Project LAUNCH (Linking Action to Unmet Needs) collaborated to implement trauma-informed care across schools. A program evaluation of this collaborative effort was conducted by Shamblin, Graham, and Bianco (2016). This initiative was implemented across all three tiers, which included universal consultation to implement strategies that promote healthy social-emotional environments within the classroom (tier 1), targeted consultation for teachers to use strategies for specific individual children who exhibit challenging behaviors in the classroom (tier 2), and the provision of mental health assessment and treatment (e.g., Trauma-Focused Cognitive Behavioral Therapy and/or Parent-Child Interaction Therapy) directly to students who needed further follow up to meet their mental health needs (tier 3). The program evaluation utilized a variety of measures such as the Teacher Opinion Scale (TOS; Geller & Lynch, 1999)

and the Preschool Mental Health Climate Scale (PMHCS; Gilliam, 2008). Findings of this study indicated that the schools who participated in these programs experienced an increase in teacher-reported feelings of competence and confidence, especially regarding their ability to cope with and change challenging behaviors in their classrooms. There was also a decrease in teacher use of negative behavior management strategies, which helped teachers create a safer classroom for all children. This also helped school staff shift from responding to challenging child behaviors from a punitive approach to one of compassion that provides positive supports for children who have experienced trauma.

Perry and Daniels (2016) conducted a program evaluation of the New Haven Trauma Coalition (NHTC) in Connecticut. This program involved providing a two-day school staff training on learning trauma-sensitive practices, identifying students who need trauma-informed support, implementing systems to provide trauma-informed services to students, and teaching students coping skills for managing symptoms of traumatic stress. To measure the impact of the program, school staff and students completed satisfaction surveys. The adolescence version of the UCLA PTSD Index for DSM-IV (Pynoos, Rodriguez, Steinberg, Stuber, & Frederick, 1998) was also utilized to screen students for symptoms of traumatic stress (Perry & Daniels, 2016).

The results of the satisfaction surveys completed by school staff indicated that over 90% of school staff were satisfied with the training they had received, found the training useful, and reported that their knowledge increased. Additionally, they found that 47% reported they had new strategies to use with their students to minimize stress in the classroom, and 38% planned to better utilize self-care strategies. Of the student participants who participated in their psychoeducational workshop, over 90% reported an increased understanding of how to relax, worry less, and trust others (Perry & Daniels, 2016). The aforementioned program evaluations

that were conducted for these three studies provide examples of how the implementation of trauma-informed practices over time can yield positive results for students, teachers, and parents.

A program evaluation of the Harmony Project was conducted during the 2017-2018 school year (Raffaele Mendez & Reynolds, 2019). The Harmony Project will be discussed in further detail in chapter three. This study sought to investigate the extent to which school staff training on trauma-informed care through the Harmony Project was associated with significant changes in: 1) knowledge of trauma-informed care, 2) self-care practices, 3) attitudes related to trauma-informed care, 4) safety and support at school, 5) role breadth, and 6) confidence in meeting students' mental health needs. School personnel from four treatment schools (n = 118) and three control school (n = 134) participated in this study. Participants completed surveys before and after participating in the Harmony Project professional development training. Overall, pre-post data showed that in comparison to demographically similar control schools, staff at treatment schools showed significant increases in knowledge of trauma-informed care (Knowledge of Trauma-Informed Care; Raffaele Mendez, 2018), self-care practices (Self-Care Assessment for Psychologists; Dorociak et al., 2017), and self-efficacy in meeting students' mental health needs (Teacher Self-Efficacy Scale; Phillipo & Stone, 2013). With regard to self-efficacy in addressing student's mental health needs, participants' scores on this scale increased from Time 1 (treatment $M = 40.23$, control $M = 39.69$) to Time 2 (treatment $M = 43.33$, control $M = 40.93$). There was a significant interaction for treatment by time ($p = .019$), meaning that relative to control schools the increase in self-efficacy amongst participants was significantly higher for Harmony Project schools.

Staff also completed the Attitudes Related to Trauma Informed Care, 10 item version (ARTIC-10; Baker et al., 2016). Staff at both treatment (Time 1 M = 5.09, Time 2 M = 5.23) and control (Time 1 M = 4.97, Time 2 M = 5.20) schools demonstrated an increase in more favorable attitudes related to trauma-informed care. However, there was no significant treatment by time interaction (p = .558), meaning that the changes in mean scores from Time 1 to Time 2 were not significantly higher for Harmony Project schools relative to control schools. Therefore, the increase in school may have been due to an effect of time instead of due to the Harmony Project itself. One limitation on using the ARTIC-10 was noted by Drymond (2020) who utilized the same dataset of participants from the Harmony Project for the 2017-2018 school year. The internal consistency was relatively low (α=.69), and it was noted to have marginally acceptable model fit (χ^2 = 136.69, df =35, p<0.001, CFI = 0.774, TLI = 0.709, RMSEA = 0.098, SRMR = 0.064). This suggests that further evaluation of the ARTIC scale is warranted.

Out of all the other constructs measured, the Harmony Project developers were primarily interested in gathering data on participants attitudes related to trauma-informed care. A shift in mindset is needed among educators and staff for incorporating trauma-informed beliefs into their daily practices. The current study using data from the 2018-2019 school year will examine a broader range of factors that contribute to overall attitudes toward trauma informed care. This will be achieved by utilizing the 35-item version of the same measure, the ARTIC-35. The procedures for data collection as well as a description of the ARTIC-35 will be discussed further in chapter three.

Facilitators and Barriers to Implementing Trauma Informed Practices in Schools

For schools to successfully infuse trauma-informed practices throughout their environment, it is helpful to consider which factors have been found to facilitate this process as

well as identify potential barriers to overcome. According to Ristuccia (2013), one of the key elements of a trauma-informed school is the administration's commitment and direct engagement in the process. Administrators need to be directly involved in the strategic planning and work with staff to identify how they can create and maintain a vision for a safe and supportive school alive in the midst of all of the busy day-to-day work of a school (Ristuccia, 2013). It may be helpful to have a regularly established planning group within the school that can help lead the process, assess staff training needs, and having measures in place to help provide feedback (e.g., anonymous teacher surveys) on the schools' progress toward becoming more safe and supportive for all students. Ristuccia (2013) pointed out that there may be educators' perceptions of the need to implement trauma-sensitive practices. For example, teachers may already feel too stressed and overwhelmed to make changes to their practice; they may question why they need to incorporate so many changes into their practice for students who give them a tough time, and there may be a perception that they were trained to teach about academics and that should be the focus. Teachers may also still feel that dealing with their students' home situation is not the responsibility of the teacher but is more so the responsibility of members of student services such as a school counselor, school psychologist, or a social worker.

Ristuccia (2013) further acknowledged that teachers may also express concerns with the need to balance individual students' needs with those of the rest of the class. They could lack the skills and training needed to address students social-emotional needs in addition to academic learning at school, and there could be a tendency to see trauma as more of an issue that should be dealt with outside of school. The following beliefs were suggested to help counter some of the perceptions that serve as barriers for trauma-informed care: developing a trauma-sensitive environment could improve student outcomes and reduce teacher stress, the entire class may

benefit from changing the school ecology, over time more time can be focused on learning rather than discipline, teaching students various social emotional skills (e.g., self-regulation, problem solving, cooperation) can help peers better support each other in becoming more active and engaged learners, and in order for all students to learn teachers have to teach whoever they have in their class, and not who they wish they had in their class (Ristuccia, 2013).

Implications for School Psychologists

School psychologists have the potential to play a key role in supporting teachers on working with youth who've experienced traumatic stress (Alisic, 2012). These professionals have training in mental health, psychology, and education, which makes them key professionals who play a role in promoting the social-emotional well-being of children who have been exposed to traumatic experiences (Diamanduros et al., 2018). Furthermore, school psychologists have training and knowledge in data-based decision-making, consultation and collaboration, and system-level services to promote learning and safe and supportive schools (The Professional Standards of the National Association for School Psychologists, 2020). School psychologists' knowledge and skills in these areas can be essential for supporting schools in becoming more trauma-informed.

Aims of the Current Study

Evaluating the implementation of trauma-informed care interventions within the school setting has gained a lot of attention in recent years. With mental health and behavioral issues on the rise in schools and limited mental health providers available to treat them, educators are searching for new ways to become more trauma-informed on a systemic level. Oftentimes, schools rely on qualitative and anecdotal information to measure the impact of trauma-informed training on trauma-informed care (Baker et al., 2016). Although this data is very useful and

informative for schools, further investigating changes in attitudes toward trauma informed care using quantitative analyses can help schools evaluate if their programs are effective using a larger sample of participants. The present study evaluated a trauma-informed care program at six schools within a local school district.

Chapter Three: Methods

The present study evaluated the impact of a trauma-informed care initiative that was implemented in a local school district, the Harmony Project. This chapter will describe the methodology for this program evaluation. This study examined the extent to which the project achieved the program developers' goal of promoting a change in mindset amongst school staff toward more favorable attitudes related to trauma-informed care. It was expected that educators with more favorable attitudes related to trauma-informed care are more likely to engage in trauma-informed practices when working with students and their families (Cole et al., 2013). This chapter will include a description of the Harmony Project, the program evaluation approach, the study's participants, the measures used, the statistical analyses that were conducted, as well as the data collection procedures for gathering pre- and post- data.

The Harmony Project

This section will provide a description of the Harmony Project and the overall goals the developers hoped to achieve. The Harmony Project was developed by Wendy Belfield, MSW, and Kelly Davey, Ed.D. The purpose of the Harmony Project was to cultivate trauma sensitive environments within schools using a combination of recurring professional development, strategic planning, and coaching (Belfield & Davey, 2018). Schools were offered opportunities to develop and implement trauma sensitive strategies on the schoolwide and individual level with the hope of improving the overall well-being of the school community. The Harmony Project training manual states that the major goals are to: improve student and teacher engagement, increase student achievement, increase job satisfaction, lower absenteeism, increase staff

retention, increase academic performance, decrease office discipline referrals, and improve student attendance rates (Belfield & Davey, 2018).

The Harmony Project was developed and implemented with multiple schools during the 2017-2018 and 2018-2019 school years. The professional development modules were modified and condensed from seven modules to five modules for the 2018-2019 school year to make the amount of time spent on the training more feasible for staff schedules. The current study examined outcomes for the schools who participated during the 2018-2019 school year. The present study built upon the results from the previous analyses examining Harmony Project outcomes from the 2017-2018 school year (Raffaele Mendez & Reynolds, 2019).

The Harmony Project was rolled out across three phases. During the first phase, the needs of specific schools were identified based on Gallup surveys and teacher attendance. Select staff at each school became Harmony Project trainers (i.e., Campus Champions). These individuals received training on how to carry out the professional development modules to increase trauma competency amongst school staff. During the second phase, school staff (i.e., Classroom Champions) received training from the Campus Champions on how trauma affects the brain, how to identify emotional triggers, the tenets of trauma-informed care, and restorative practices for the classroom. Overall, the first two phases focused on school staff, and the third phase included a focus on students and families. The goal of the third phase was to increase student and family knowledge of mindfulness, how to identify triggers and coping strategies, and to increase their understanding of physiological reactions to stress. For example, this could have included students receiving direct instruction on understanding parts of the brain, how to identify their own triggers, and how to use mindfulness practices. Each school varied in how they moved forward on phase three depending on that school's unique needs.

Logic Model

This evaluator used information that was obtained through consultation with the developers of the Harmony Project and the project training manual to create a logic model. A logic model is a visual representation of the resources and activities used to operate a program, as well as the program's intended short-term and long-term goals (W.K. Kellogg Foundation, 2004). A logic model for the Harmony Project is presented in Table 1.

Table 1.

Harmony Project Logic Model

Inputs	Activities	Outputs	Short-Term Outcomes	Long-Term Outcomes
● School partnership with Harmony Project ● Key personnel: Campus Champions (i.e., Harmony Project campus trainers) and Classroom Champions (e.g., classroom teachers), district-level Harmony Coaches ● Harmony Project training manual and PowerPoint slides ● Model lessons on Youtube ● Time in schedule to implement modules ● Fidelity checklists	● Phase 1) Train the trainer - Campus champions participated in a 2-day summer training on how to deliver content at their schools ● Phase 2) Staff PD: Campus champions trained the classroom champions on TIC ● Phase 3) Engage students & families through mentoring, mindfulness activities, parent education, etc.	● Approximately 300-400 staff across 6 participating schools received professional development on TIC ● Students & families participate in programs to increase knowledge of trauma & mindfulness	● School staff mind shift toward more favorable attitudes related to TIC ● School staff have an increased knowledge of trauma-informed practices ● Trauma-informed practices begin to be incorporated into the school environment	● Schoolwide: campus climate is more trauma-sensitive for all students ● Educators: increased job satisfaction, higher engagement, lower absenteeism, and increased employee retention. ● Students: increased academic performance, higher engagement, fewer office discipline referrals, and increased attendance

Note: Trauma-informed care = TIC.

Inputs. The inputs described refer to the resources that were utilized to support the implementation of the Harmony Project. Schools who participated in the Harmony Project had a select number of staff at each school who supported the implementation of the professional development modules. These individuals were known as Campus Champions. Campus

Champions had access to a training manual, PowerPoint slides, and activities. All of the PowerPoint slides were narrated on the Harmony Project YouTube station.

Campus Champions facilitated five training modules for smaller groups of teachers and staff (i.e., Classroom Champions) on trauma-informed care during the Fall 2018 semester. More information can be found about the content covered in each of the modules in the Activities section. School administrators supported time being set aside in teachers' schedules to participate in the training. Each module included a fidelity checklist for the Campus Champions to check off the content covered in the module, activities completed, and an open-ended space to note the extent to which the group discussion reflected the desired "takeaways" for the module. Modules were allowed to be completed across multiple sessions if needed in order to ensure that groups were able to adequately process the issues in the discussion. Trainers were encouraged to remember that the goal of the modules was to create opportunities for increased self-awareness and self-discovery (Belfield & Davey, 2018). Participants were also eligible to receive in-service points for recertification if they attended all five of the modules and submitted a one-page summary on how they planned to utilize the information they learned.

Activities. There were a variety of activities that were needed to help participating schools become more trauma informed. This section will describe the activities that were part of the implementation of the Harmony Project.

Train the trainer. The Campus Champions attended a two-day training over the summer with the developers of the Harmony Project, their school administrators, and/or other student services personnel or community mental health professionals. At this training the Champions learned about the five tenets of trauma-informed care (i.e., safety, transparency, predictability,

voice, and choice) and they collaborated with each other to develop a strategic plan that will allow them to work toward being a trauma-informed school campus.

School staff training. A Harmony Project kickoff event was then held during the staff professional development week at the beginning of the school year (i.e., late July or early August of 2018). At this event, all school staff and Campus Champions attended a presentation given by the developers of the Harmony Project and/or other district personnel who were assisting with the project. The presentation and supplementary activities were intended to give all staff an introduction to trauma-informed care and an overview of what to expect from participating in the Harmony Project. Schools then entered the second phase of the Harmony Project in which the Campus Champions trained their staff on the tenets of trauma-informed care using the Harmony Project modules. Trainings were delivered to staff in small groups. Schools varied in the number of Campus Champions and the number of groups held for the training. The Harmony Project training consisted of five modules. Module 1 was an introduction to trauma-informed care, which focused on increasing staff trauma-informed knowledge and understanding of biological reactions to trauma and toxic stress. Module 2 focused on raising awareness of one's own emotional triggers and emotional regulation. Module 3 introduced the concept of safety and its relevance to school staff and students. Module 4 introduced the remaining tenets of trauma-informed care (i.e., transparency, predictability, voice, and choice). Lastly, module 5 introduced the concept of self-care and vicarious trauma and identify ways to incorporate self-care practices into school culture.

Outputs. The outputs refer to the results of the program activities. For the 2018-2019 school year, over 300 staff across five elementary and one middle/high school participated in these modules on trauma-informed care. It was expected that staff would have increased

knowledge of different types of trauma, adverse childhood experiences, identifying emotional triggers, recognizing ways to promote safety within the learning environment, and identifying ways to infuse self-care practices and the tenets of trauma-informed care within their classroom environments.

Short-term outcomes. Through school personnel participation in the Harmony Project training modules, there are multiple short-term outcomes to be expected. It was anticipated that staff would have increased knowledge of trauma-informed care in educational settings. More specifically, participants would have an increased understanding of different types of trauma and adverse childhood experiences, how to identify and recognize emotional triggers, how to recognize and identify ways to promote safety within the learning environment, how to make connections between the tenets of trauma-informed care, and how to identify ways to infuse self-care practices within school culture. It was also expected that school staff would develop more overall favorable attitudes related to trauma-informed care. The focus of the present study focused on changes in attitudes related to trauma-informed care and changes in overall self-reported knowledge of trauma-informed care. The method in which these outcomes were measured will be discussed in the Overview of Analyses section.

Long-term outcomes. In addition to the short-term outcomes, there were multiple long-term outcomes that are expected to come from the implementation of the Harmony Project. Over time, teachers were expected to be more likely to incorporate trauma-informed practices into their classrooms. Improved educator outcomes would be evidenced by an increase in job satisfaction, lower rates of staff absenteeism, and an increase in retention of school staff. Additionally, student and teacher engagement would be improved, which would in turn increase student academic achievement. In addition to academic outcomes, it was expected that over time

student attendance would increase and the number of office discipline referrals would decrease. Examining these outcomes would be beneficial in the future after the Harmony Project has been implemented for some time. For this study, it was not expected that these changes would be observed yet; it could take a substantial amount of time (e.g., a few years) for changes in a school's culture around trauma-informed care to translate into observable changes amongst staff and student behavior as well as overall climate.

Purpose of the Study

The purpose of this study was to examine the efficacy of the implementation of the second phase of the Harmony Project initiative (i.e., professional development on trauma-informed care). Archival data was analyzed from school personnel who participated in the Harmony Project during the 2018-2019 school year. This study explored school staff changes in attitudes related to trauma-informed care following their school's participation in the Harmony Project's five professional development modules. There were several anticipated short- and long-term goals for schools participating in the Harmony Project. Although a complete evaluation of the Harmony Project meeting each of those goals is beyond the scope of the present study, it was determined with the project developers that changes in attitudes related to trauma-informed care was the most important component to be investigated at this time. In theory, school staff who are trauma-informed can help create a more positive work climate and foster a safe and compassionate environment for all school personnel and students (Cole et al., 2013). Additionally, the opportunity to evaluate this program through assessing changes in attitudes related to trauma-informed care could support the Harmony Project developers in understanding the extent to which school staff were becoming more trauma-informed after their school completed the professional development modules.

Program Evaluation Approach

The present study was an evaluation of the Harmony Project professional development phase. Program evaluation refers to a systematic process in which the quality, worth, merit, or significance of something is assessed, and the goal of the evaluation is to promote learning and improve the program (Fitzpatrick, Sanders, & Worthen, 2004; W.K. Kellogg Foundation, 2014). According to Fitzpatrick, Sanders, and Worthen (2004), the primary difference between research and evaluation is the purpose of the investigation; research aims to contribute knowledge to a field, whereas evaluation aims to help those who have a stake in whatever is being evaluated. In this case, the stakeholders are the developers of the Harmony Project, Kelley Davey and Wendy Belfield, who are interested in finding out if their program impacted changes in attitudes related to trauma-informed care. Additionally, this study is considered a program evaluation due to the lack of generalizability of results, as evaluations tend to be specific to the context of the program being evaluated (Fitzpatrick, Sanders, & Worthen, 2004).

The type of program evaluation conducted was a summative evaluation of the second phase of the Harmony Project using an objectives-oriented approach. A formative evaluation strives to provide data for improving a program while it is in progress, whereas a summative evaluation provides information to assist in making decisions about the continuation or expansion of a program (Fitzpatrick, Sanders, & Worthen, 2004). It is important for the Harmony Project stakeholders to know if overall school staff attitudes related to trauma-informed care became more favorable after participating schools received the professional development modules. This data may help inform if the program should be continued, modified, or expanded to more schools. Using an objectives-oriented evaluation approach means that the study aimed to assess the extent to which the purpose of the program was achieved (Fitzpatrick, Sanders, &

Worthen, 2004). For this study, the developers of the Harmony Project were primarily interested in if there were significant changes in attitudes related to trauma-informed care after completing the program's training modules. It was important to investigate this phenomenon because it would demonstrate if staff experienced the mind-shift needed for schools to become more trauma-sensitive toward the needs of their students. For that reason, a specific measure was chosen that would assess that construct. The survey measure chosen, the Attitudes Related to Trauma-Informed Care Scale (ARTIC; Baker et al., 2016) will be discussed in the Measures section. This study also examined if participants reported changes in their perceived global knowledge of trauma-informed care in educational settings, as the developers hoped that the training would contribute to an increase in participants' knowledge of this concept. There were additional outcomes to be expected following the completion of the Harmony Project, however, those were not measured at this time due to limited resources and time constraints. As previously mentioned, it was determined that long-term outcomes such as a reduction in disciplinary referrals may not be apparent yet due to the project needing to be in place for a substantial period.

Evaluation Questions

The following evaluation questions were examined for this study:

1. To what extent is school training through the Harmony Project associated with overall staff changes in attitudes related to trauma-informed care as measured by:
    a. Educators' perceptions of the underlying causes of problem behavior and symptoms?
    b. Educators' responses to problem behavior and symptoms?
    c. Educators' on-the-job behavior?

d. Educators' self-efficacy at work?

e. Educators' reactions to the work?

f. Educators' overall attitudes related to trauma-informed care?

2. To what extent is school training through The Harmony Project associated with overall staff changes in perceived global knowledge about trauma-informed care in educational settings?
3. To what extent does perceived global knowledge about trauma-informed care before participating in the Harmony Project moderate changes in attitudes related to trauma-informed care?

Hypotheses

Based on the current literature available on trauma-informed care in schools, it was hypothesized that among schools who participated in the Harmony Project there would be a significant shift toward more favorable attitudes related to trauma-informed care (i.e., an increase in scores measuring attitudes related to trauma informed care) and that there would be a significant increase in participants self-reported global knowledge about trauma-informed care in school settings. It was also expected that participants who started the training with lower levels of perceived global knowledge about trauma-informed care may experience a greater shift toward more favorable attitudes relative to those who began the training with higher levels of perceived global knowledge. Therefore, it was hypothesized that perceived global knowledge about trauma-informed care in educational settings before the Harmony Project would moderate changes in attitudes related to trauma-informed care.

Measures

The following section will discuss the pre- and post-surveys for the Harmony Project professional development modules.

Attitudes Related to Trauma-Informed Care (ARTIC) Scale. The 35-item version of the Attitudes Related to Trauma-Informed Care Scale (ARTIC-35) (Baker, et al., 2016) was administered to school staff prior to and after their school participated in the Harmony Project. In general, the ARTIC aims to measure educator and service providers' attitudes related to trauma informed care. There are eight versions of the ARTIC scale; four versions are geared toward professionals in human service organizations, and four versions are geared toward professionals who work in the education setting. Both the education and human services versions of the ARTIC offer versions that consist of 75 items, 45 items, 35 items, and 10 items. The 35-item version of the ARTIC was determined to be the most appropriate measure for this study. Compared to the ARTIC-10, the ARTIC-35 is more in-depth toward looking at various aspects that contribute to overall attitudes related to trauma-informed care. Although the ARTIC-75 ARTIC-45 are more thorough measures, neither of them were selected because the ARTIC-35 was deemed to be more feasible to administer under time constraints. According to Baker and colleagues (2016), the ARTIC-35 is estimated to only take about 8 to 10 minutes to complete.

On each item of the ARTIC-35, participants were instructed to rate their beliefs on a bipolar one to seven Likert scale ranging from unfavorable to favorable attitudes toward trauma informed care. Each item consisted of two statements on each side of the spectrum, and participants used the one to seven scale to indicate which statement best represented their beliefs within the past two months at their job. On most items, higher scores represented more favorable attitudes related to trauma-informed care. A select number of items were reversed when scoring

because a higher score indicated less favorable attitudes toward trauma informed care (Baker et al., 2016).

The ARTIC-35 yields an overall score as well as five core subscales which includes: 1) underlying causes of problem behavior and symptoms, 2) responses to problem behavior and systems, 3) on-the-job behavior, 4) self-efficacy at work, and 5) reactions to the work. The "underlying causes of problem behavior and symptoms" subscale emphasizes symptoms and behavior as adaptations and malleable, rather than fixed and purposeful. The "responses to problem behavior and symptoms" subscale refers to relationships, flexibility, kindness, and safety as the agent of change rather than consequences, rules, and accountability as contributing to changes in symptoms and behavior. The "on-the-job behavior" subscale endorses staff behavior that is focused on empathy instead of control. The "self-efficacy at work" subscale endorses feeling able to meet the demands of working with a population that has experienced trauma rather than feeling unable to meet those demands. Lastly, the "reactions to the work" subscale refers to appreciating the effects of secondary/vicarious trauma by seeking support and coping instead of minimizing the effects of secondary/vicarious trauma or by coping by ignoring or hiding the impact. The overall score reflects an average of all items completed including reverse scored items (Baker et al., 2016).

A psychometric evaluation of the ARTIC was conducted by Baker and colleagues (2016) with 760 service providers. Of those service providers, 165 individuals worked in the school setting. Cronbach's alpha was used to calculate the internal consistency reliability. The overall reliabilities were excellent for the ARTIC-45 ($\alpha = .93$) and the ARTIC-35 ($\alpha = .91$). The results for the abbreviated ARTIC-10 were also very good ($\alpha = .82$). For the ARTIC-35, subscale alphas ranged from .71 ("reactions to the work") to .79 ("self-efficacy at work"). The authors indicated

that these analyses provide support for the ARTIC being a reliable measure of attitudes toward trauma informed care, and further supported its appropriateness for this study. Test-retest reliability calculations for the ARTIC-35 was equal to .84 at less than 120 days, .75 at 121-150 days, and .77 at 151-180 days (Baker et al., 2016). Confirmatory factor analyses (CFA) were conducted using the following criteria for good model fit: root mean square error of approximation (RMSEA)< .06, standardized root mean square residual (SRMR) <.08, comparative fit index (CFI) >.90, and non-normed fit index (NNFI) >.80 (Hooper et al., 2008). The results for the ARTIC-35 indicated support for the five-subscale model: RMSEA = .033, SRMR = .042, CFI = .922, and NNFI = .915. Chi-square analyses were included (Sattora-Bentler scaled $\chi^2(919) = 1867.77$, $p<.001$), however, the authors indicated that this may not be useful for evaluating model fit due to the sample size. Analyses conducted to assess the construct validity of the ARTIC-35 showed that subscales of this measure correlated with indicators of familiarity with trauma-informed care as well as some staff- and system-level indicators of TIC implementation.

Further analyses revealed that participants who were White, female, possessed higher education levels, had more experience, and had less face-to-face contact with clients or students had ARTIC scores that were more favorable toward trauma informed care. Another interesting finding was that individuals who worked in the health-care setting tended to produce scores that were more favorable toward trauma informed care than individuals who worked in the school setting. These findings suggest that more training is needed within educational settings to support the use of trauma-informed care (Baker et al., 2016).

Another psychometric evaluation of the ARTIC was recently conducted by Baker and colleagues (2020). The sample included 1395 individuals, with 888 of them being educators and

507 of them being human services/health professionals. Additional measures for this study included a single item asking about familiarity with trauma-informed approaches ("How familiar are you with trauma-informed care/trauma-informed schools?"), a single item asking whether participants received formal training in trauma-informed approaches, a multiple choice questionnaire with 11-14 items assessing their knowledge about trauma-informed approaches, the Professional Quality of Life Scale (Stamm, 2009), and the Trauma-Sensitive School Checklist (TSSC; Massachusetts Advocates for Children, 2012). Among the ARTIC-35 subscales completed by educators, internal consistencies ranged from .68 ("responses to problem behaviors" and "empathy and control", which was previously named "on the job behavior") to .75 ("self-efficacy"). Overall internal consistency was excellent ($\alpha = .90$). A CFA was conducted with the ARTIC-35 using the same criteria for good model fit as mentioned in Baker et al. (2016) with the following changes: CFI>.95 instead of .90, and Tucker Lewis Index (TLI) >.95 (Hu & Bentler, 1999). Results indicated mixed results regarding support for the ARTIC-35 five subscale model. On one hand the RMSEA (.051) and SRMR (.053) met the criteria, however, the results for the for the CFI (.824) and TLI (.807) did not meet criteria. Chi-square analyses were also included again (Sattora-Bentler $\chi^2(913) = 3735.77$, $p < .001$), but it was noted to consider the sample size regarding its utility. Regarding construct validity, the authors reported that the ARTIC was found to be related to many constructs related to TIC implementation (e.g., familiarity with and knowledge about TIC, secondary traumatic stress, burnout). Baker and colleagues (2020) reported that overall, their findings demonstrate the reliability of the ARTIC and shows some support for the validity of this scale. The note that future research is needed as they continue to improve the measure.

Perceived global knowledge of trauma-informed care. A single-item measure was used to assess the extent to which school staff perceived their global knowledge of trauma-informed care. Participants were asked, "On a scale of 1-10 (1 is low, 10 is high), how much would you say you know about trauma-informed care in educational settings?". On this item, a rating of 1 reflected no knowledge of trauma-informed care, and a rating of 10 reflected expert knowledge on trauma-informed care. This item was developed by Dr. Linda Raffaele Mendez, who oversaw data collection for the Harmony Project study.

Demographics form. In addition to the ARTIC-35, participants completed a demographic form that requested information regarding their gender, race, if they were instructional or non-instructional staff, and number of years working in education. For the question inquiring the number of years they had worked in education, the options provided to the staff members included five options: 1) 0-3 years, 2) 4-6 years, 3) 7-10 years, 4) 11-15 years, and 5) 16 or more years. One of the Harmony Project developers suggested adding a question for participants to indicate if they had attended the two-day training over the summer with the Harmony Project to determine if they were a Campus Champions (i.e., a trainer). This form can be found in Appendix C.

Overview of Analyses

The following section will describe the variables to be included and outline the analyses utilized for this program evaluation.

Variables. Continuous variables of interest included the five ARTIC-35 subscales (i.e., underlying causes of problem behavior and symptoms, responses to problem behavior and systems, on-the-job behavior, self-efficacy at work, reactions to the work), and self-reported knowledge of trauma-informed care. The "underlying causes of problem behavior and

symptoms" subscale most closely related to the content covered in the first module of the Harmony Project training, which aimed to increase participants' knowledge of the different types of trauma and how trauma impacts our behavior. The "responses to problem behavior" and "on-the-job behavior" subscales connected with the content covered across all of the modules, as the training repeatedly emphasized the importance of building relationships, understanding how trauma impacts emotion regulation, and promoting safety within the school environment. Lastly, the "self-efficacy at work" and "reactions to the work" subscales align mostly with the final training module, which emphasized the importance of self-care, self-awareness, and mindfulness when coping with secondary trauma. Continuous variables included perceived global knowledge of trauma-informed care, and number of years working in education.

Categorical variables included participants' race, gender, position at school, the number of years they worked in education, and the school they attended. The number of years worked in education was treated as a categorical variable because the item on the demographics form prompted participants to endorse a response to one of five categories: 1) 0-3 years, 2) 4-6 years, 3) 7-10 years, 4) 11-15 years, and 5) 16 or more years. These categorical variables were used for descriptive analyses to understand who completed the surveys.

Data entry. I entered all surveys manually into Microsoft Excel. To ensure data integrity, I cross-checked every tenth survey with the Excel database to check for any discrepancies. If discrepancies were found, I planned to verify and correct them in the survey database. No discrepancies were found during the data cross-checking process.

Preliminary analyses. Frequencies of categorical variables from the demographic form were examined by each school. Skewness and kurtosis were analyzed for the continuous variables at Time 1 and Time 2 to assess normality of the data. It was also anticipated that due to

the longitudinal nature of this data that participant attrition could lead to missing data. Only participants who completed surveys at both time points were included in the study to address the primary evaluation questions. Because the ARTIC-35 is a relatively new measure, a confirmatory factor analysis (CFA) was conducted to examine how well the items loaded onto their respective subscales. Internal consistencies were also calculated for each subscale.

Analyses to address evaluation questions. A series of repeated measures analysis of variance (ANOVA) were conducted to address the first and second evaluation questions. These analyses investigated the extent to which attitudes related to trauma-informed care and perceived global knowledge of trauma-informed care in educational settings changed from Time 1 (i.e., before the Harmony Project training began) to Time 2 (i.e. after their school participated in the Harmony Project training). This form of analysis also examined the extent to which participants' pre- and post-ARTIC scores varied by school.

Participant responses for each of the variables at Time 1 (i.e., ARCTIC-35 subscales and knowledge about trauma-informed care in schools, etc.) were serviced as the independent variables, and participant responses for the same variables at Time 2 were the dependent variable. The third evaluation question was addressed using multiple regression. This analysis involved examining the extent to which the interaction between attitudes related to trauma-informed care and perceived global knowledge of trauma-informed care at Time 1 predicted attitudes related to trauma-informed care at Time 2.

Data Collection Procedures

The following section will review the way the data was collected for this study. All data for the present study was existing data collected as part of the evaluation for the second phase of the Harmony Project. Prior to data collection, permission was requested from the Institutional Review Board (IRB) at the University of South Florida (USF). The IRB at USF determined that the activities presented in the application involved methods of program evaluation, quality improvement, and/or needs analysis, as the study results would not appear to contribute to generalizable knowledge. The activities did not meet the definition of human subject research under USF IRB policy, and USF IRB approval and oversight were therefore not required (see Appendix A). Permission to gather the data was also granted from the participating school district. Prior to analyzing the data for the present study, another application was submitted to the IRB. Consistent with the initial application, the USF IRB continued to determine that the activities within this study involved methods of program evaluation and would not appear to contribute to generalizable knowledge.

Surveys were administered to school staff at the Harmony Project kick-off event. The kick-off event took place in either late July or the beginning of August of 2018. Except for Campus Champions, this was prior to staff receiving any exposure to the Harmony Project content. The kick-off event was a schoolwide introduction to the Harmony Project initiative. Harmony Project staff delivered a presentation with accompanying activities that reviewed basic concepts surrounding trauma-informed care. Before the presentation, the ARTIC-35 and the demographics form were administered to all staff present at the training. Surveys were administered either by me or another district employee who was involved in the Harmony Project.

During survey administration at both time points, a script was used to verbally inform school staff that their participation in the survey was completely voluntary. The script can be found in Appendix B and was utilized by all individuals who delivered the survey. Participants were informed that their answers were completely confidential and would be put into a database by an outside team at the University of South Florida. They were also requested not to write their name anywhere on the survey. When filling out the surveys, participants were asked to refrain from talking to each other to ensure that everyone could complete the survey independently and privately. To match the pre-survey to the post-survey, participants were asked to provide information that would be utilized to generate a unique identification code. The identification code was generated using the first three letters of the participants' mother's maiden name and the two-digit day of their birth. For example, if their mother's maiden name was Johnson and they were born on January 25th, their participant identification code would have been JOH25. Participants were informed that they would be completing the same survey later in the semester after everyone had completed the five modules in the Harmony Project training. They were informed they would be requested to use this same code to match their pre-training surveys with the post-training surveys. Post-training surveys were administered to school staff following the school completion of the professional development modules using a similar script. Post survey administration occurred during November 2018 at all the participating elementary schools and in early January 2019 for the middle/high school.

Participants. The participants in this study included instructional and non-instructional staff who participated in the Harmony Project during the 2018-2019 school year. Across all six schools, 451 surveys were completed. Specifically, 362 surveys were completed at Time 1, and 335 surveys were completed at Time 2. Two-hundred and forty-six participants completed

surveys that could be matched to the same individual at both Time 1 and Time 2. The 246 participants who completed surveys during both rounds of data collection were retained for statistical analyses to answer the evaluation questions. Unfortunately, most of the participants skipped the question on the demographics form regarding whether they had attended the two-day training over the summer to become a Campus Champion. Therefore, whether an individual was a Harmony Project trainer was not able to be included in analyses. According to the Harmony Project developers, the number of Campus Champions at each school were as follows: School 1 = 10, School 2 = 15, School 3 = 19, School 4 = 21, School 5 = 14, and School 6 = 9. These numbers reflect the number of trainers at each school, but it is unknown how many of those individuals completed surveys at Time 1 and Time 2. Participant demographics are displayed in Table 2. The table below also reflects the number of participants by School ID. Most participants who completed surveys were female, White, and Instructional staff. Over half of the participants (58.9%) had more than 11 years of experience in education.

Participants came from five elementary schools (Schools 1-5) and one middle/high school (School 6) in the county. Three of the elementary schools for the present study were the wait-list control schools during the 2017-2018 school year. Educators at those three schools completed surveys during the 2017-2018 school year (in addition to completing surveys during the 2018-2019 school year), but a different set of schools received the Harmony Project training that year. Table 5 reflects demographic data and the school grade for each school. School grades are based on student achievement as measured by statewide standardized assessments and learning gains from the prior year. All the schools in this study receive Title 1 funding. The data in Table 3 were obtained from the Florida Department of Education website.

Table 2.

Participant Demographic Characteristics of the Sample

	Total Sample Retained for Analyses (N=246)	Total Sample for All Surveys Completed (N=451)	Sample for Surveys Completed at Time 1 (N=362)	Sample for Surveys Completed at Time 2 (N=335)
Gender				
Female	215 (87.4%)	390 (86.5%)	316 (87.3%)	289 (86.3%)
Male	30 (12.2%)	57 (12.6%)	43 (11.9%)	44 (13.1%)
Race				
White	237 (96.3%)	423 (93.8%)	344 (95.0%)	316 (94.3%)
African American	1 (.4%)	5 (1.1%)	3 (0.8%)	3 (0.9%)
Hispanic	16 (6.5%)	42 (9.3%)	30 (0.8.3%)	28 (8.4%)
Asian/Pacific Islander	3 (1.2%)	4 (0.9%)	3 (0.8%)	4 (1.2%)
Multiracial	0 (0%)	4 (0.9%)	3 (0.8%)	1 (0.3%)
American Indian or Alaskan Native	0 (0%)	1 (0.2%)	0 (0%)	1 (0.3%)
Native Hawaiian or Pacific Islander	1 (.4%)	1 (0.2%)	1 (.3%)	1 (0.3%)
Position				
Instructional	236 (95.9%)	372 (82.5%)	323 (89.2%)	285 (85.1%)
Non-Instructional	9 (3.7%)	74 (16.4%)	36 (9.9%)	47 (14%)
Years in Education				
0-3 Years	37 (15%)	79 (17.5%)	58 (16.0%)	58 (17.3%)
4-6 Years	32 (13%)	61 (13.5%)	49 (13.5%)	44 (13.1%)
7-10 Years	31 (12.6%)	55 (12.2%)	45 (12.4%)	41 (12.2%)
11-15 Years	53 (21.5%)	90 (20%)	74 (20.4%)	69 (20.6%)
16 or More Years	92 (37.4%)	162 (35.9%)	133 (36.7%)	121 (36.1%)
School ID				
School 1	29 (11.8%)	49 (10.9%)	36 (9.9%)	42 (12.5%)
School 2	28 (11.4%)	47 (10.4%)	42 (11.6%)	33 (9.9%)
School 3	40 (16.3%)	70 (15.5)	55 (15.2%)	55 (16.4%)
School 4	44 (17.9%)	87 (19.3%)	63 (17.4%)	68 (20.3%)
School 5	41 (16.7%)	73 (16.2%)	60 (16.6%)	54 (16.1%)
School 6	64 (26.0%)	125 (27.7%)	106 (29.3%)	83 (24.8%)

Table 3.

Characteristics of Schools Participating in the Harmony Project (2018-2019)

School	School Grade 2018	Demographic Data (2018-2019)	
		Percent of Minority Students	Percent of Economically Disadvantaged Students
Elementary School 1	D	41.7%	84.7%
Elementary School 2	C	43.7%	90.9%
Elementary School 3	B	24.8%	75.4%
Elementary School 4	D	45.8%	87.5%
Elementary School 5	C	44.9%	89.4%
Middle/High School 6	B	43.4%	42.9%

Evaluator's Role

I was invited to become part of the program evaluation of the Harmony Project for the 2018-2019 school year by my major professor, Dr. Linda Raffaele Mendez, who lead the data collection process with her research group for the 2017-2018 school year. During the 2017-2018 school year, I was the school psychologist at one of the wait-list control schools for the Harmony Project and I was one of the participants who completed surveys. The following school year I was reassigned to work at two other schools that were not participating in the Harmony Project, so I was no longer the school psychologist at that school. Although I had heard of the Harmony Project before I started working with Dr. Raffaele Mendez on this study, I did not have the opportunity to participate in any of the Harmony Project training modules. For the 2018-2019 school year, my role in the program evaluation consisted of administering the pre-surveys at the Harmony Project kickoff events and the post-surveys following the completion of the professional development modules with the exception of the school where I previously worked. I had worked at that school every day and many staff members were very familiar with me; therefore, having someone else administer surveys ensured that my presence would not impact participant responses or their choice to participate. There were two occasions in which a fellow district employee with the Harmony Project administered the surveys at other schools instead of myself due to scheduling conflicts. Although I did not have the opportunity to participate in any of the Harmony Project modules, as a school psychologist at one of the wait-list control schools I had firsthand experience understanding the need for trauma-informed care. I encountered many students who were victims of trauma and I worked with teachers who needed additional support in managing the emotional and behavioral challenges that were exhibited in the school environment.

My role in this study was as an external evaluator. Internal evaluators are carried out by program employees and often have greater familiarity with the program itself and its history (Fitzpatrick, Sanders, & Worthen, 2004). External evaluators are typically outsiders and bring more objectivity and technical expertise to the evaluation. Although I was an employee at the district where the project took place, my role in serving as an evaluator was through my affiliation as a graduate student at the University of South Florida. Input from the project developers, Wendy Belfield and Kelly Davey, were incorporated when selecting the measures used and coordinating times for data collection.

Chapter Four: Results

The present chapter describes the outcomes from the statistical analyses that were conducted for the current study. The first evaluation question sought to examine if there were significant changes in school personnel attitudes related to trauma-informed care after their school participated in the Harmony Project. Changes in attitudes related to trauma-informed care were measured by 1) educators' perceptions of underlying causes of problem behavior and symptoms, 2) educators' responses to problem behaviors and symptoms, 3) educators' on-the-job behavior, 4) educators' self-efficacy at work, 5) educators' reactions to the work, and 6) educators' overall attitudes toward trauma informed care. The second question addressed the extent to which school training through the Harmony Project was associated with changes in perceived global knowledge about trauma-informed care in educational settings. Lastly, the third evaluation question examined the extent to which perceived global knowledge before their school participated in the Harmony Project moderated changes in attitudes toward trauma informed care.

Preliminary Analyses

Data entry. I entered all surveys manually into Microsoft Excel. If a participant indicated more than one response on an item that were next to each other (e.g., ratings that equaled scores of 5 and 6), I flipped a coin to randomly select a response for that participant. If a participant selected more than one response on an item that were not next to each other (e.g., ratings that equaled scores of 1 and 7), then that item was counted as missing data. To ensure data integrity, I cross-checked every tenth survey with the Excel database to check for any discrepancies with the

Excel database. If discrepancies were found, they were to be verified and corrected. No discrepancies/errors were found during the data cross-checking process.

Missing data. Data were screened to assess the amount of missingness was in the sample. Eight participants who began the survey measures but completed less than 90% of the ARTIC-35 were removed from the database. There were also a substantial number of participants who did not complete surveys at both time points. Three-hundred and fifty-six staff members completed surveys at Time 1, and 337 staff members completed the surveys at Time 2. Two-hundred and forty-six staff members fully completed surveys at both time points and were retained for analysis. Of the participants who were retained, there was minimal missing data for demographic information. Thirty percent of these participants skipped the question indicating whether they had participated in the summer training to be a Campus Champion, therefore this variable was not included in analyses. This was likely due to participants not seeing the placement of the question on the survey.

Participant attendance. During the data collection phases for the 2017-2018 and 2018-2019 school year, it was assumed that participants completed the surveys had attended all of the Harmony Project sessions/modules because it was a school-wide expectation for all schools staff to participate. However, during the second round of data collection for post-Harmony Project surveys, a few individuals at one school verbally indicated that they did not attend many or any Harmony Project sessions because they were new to the school. These individuals still completed surveys; however, they were excluded from analyses to answer the evaluation questions because they did not complete surveys at Time 1. Their responses were included as part of the psychometric analyses of the ARTIC-35. At this time, the post-Harmony Project data had already been collected from four of the other schools and this issue was not brought up. For this

reason, a question was added to the surveys for data collection at the last school (Middle/High School 6). Participants were asked to indicate the number of sessions they had attended with the Harmony Project. The Harmony Project professional development consists of five modules, however, if additional time was needed for individuals to process and reflect on the content groups could complete a module across more than one session. For School 6, 36 out of 64 participants skipped this question. Of the 28 who responded, the number of sessions attended ranged from 2 to 7, with an average attendance of 4.59 sessions (*SD* = 1.92). The average attendance suggests that the typical intervention dosage (i.e., close to 5 sessions) was in line with assumptions/expectations, but the standard deviation supports that variability in dosage likely occurred. The average attendance suggests that the typical intervention dosage (i.e., close to 5 sessions) was in line with assumptions/expectations, but the standard deviation supports that variability in dosage likely occurred. It is unknown if those participants who skipped the question did so because they did not remember how many sessions they attended, they did not wish to report how many sessions they attended, or if they did not participate in Harmony Project at all. This data was not collected for the other five schools and is a limitation for this study.

Variable creation. To carry out analyses to answer the evaluation questions, composite scores were calculated for the constructs of interest. Mean scores for each of the five ARTIC-35 subscales (i.e., underlying causes of problem behaviors and symptoms, responses to problem behaviors and symptoms, on the job behavior, self-efficacy at work, reactions to the work) were calculated, as well as the mean of all items to create an overall score. Select items were reverse scored as described in the ARTIC-35 scoring instructions.

Descriptive analyses. Descriptive statistics (i.e., mean, standard error, skewness, kurtosis) for the continuous variables of interest (i.e., ARTIC scores, perceived global

knowledge) are presented in Table 4. The data reflected in the table were solely from the participants who completed surveys for both Time 1 and Time 2 and were retained for analyses. Descriptive statistics indicate that there were no violations of the assumptions of normality or homogeneity of variance. For all variables across both time points, the standard deviations were less than 1 and the levels of skewness and kurtosis fell within the acceptable range of $\pm$ 2.

Table 4.

Descriptive Statistics for the ARTIC-35 and Perceived Global Knowledge

Variable	*N*	Min.	Max.	*M*	(*SD)*	Skew.	Kurt.
Perceived global knowledge about trauma informed care							
Time 1	245	1	10	5.25	2.34	-.31	-.95
Time 2	246	1	10	7.44	1.45	-1.04	1.93
Underlying causes of problem behavior and symptoms							
Time 1	246	2.57	7.00	5.22	.84	-.42	.20
Time 2	246	3.00	7.00	5.25	.88	-.24	-.29
Responses to problem behavior and symptoms							
Time 1	246	1.86	7.00	5.37	.90	-.67	.98
Time 2	246	2.57	7.00	5.42	.93	-.33	-.33
On the job behavior							
Time 1	246	2.43	6.86	5.48	.78	-.87	1.21
Time 2	246	1.71	7.00	5.51	.80	-.59	1.24
Self-efficacy at work							
Time 1	246	2.00	7.00	5.61	.85	-.90	1.28
Time 2	246	2.14	7.00	5.47	.95	-.60	.37
Reactions to the work							
Time 1	246	2.57	7.00	5.58	.80	-.65	.63
Time 2	246	2.00	7.00	5.57	.91	-.60	.38
Overall attitudes related to trauma informed care							
Time 1	246	2.66	6.83	5.45	.70	-.74	1.28
Time 2	246	2.63	7.00	5.45	.76	-.27	.20

Correlational analyses. Pearson product-moment correlations were used to examine the bivariate relationships between perceived global knowledge and each of the ARTIC-35 subscales at Time 1 and Time 2. The results are presented in Table 5. All variables were positively

correlated with each other and they were all significant at the .01 level. Strong correlations were present between all the ARTIC Time 1 variables ranging from r = .54 to r = .86. All Time 2 ARTIC variables were also strongly correlated with each other ranging from r = .53 to r = .86. Small to moderate correlations were present between perceived global knowledge and each of the ARTIC variables. Correlations ranged from r = .24 to r = .33 for Time 1, and r = .16 to .28 for Time 2. Each ARTIC variable correlated strongly with its counterpart across time points (e.g., Time 1 self-efficacy at work with Time 2 self-efficacy at work). Correlations ranged from r = .53 to r = .63.

Psychometric Analyses

Because the ARTIC-35 is a relatively new measure, additional analyses were conducted to assess the psychometric properties of the ARTIC-35. Confirmatory factor analyses (CFA) were performed to verify the factor structure of the ARTIC-35, and internal consistency reliability estimates using Cronbach's alpha were carried out to assess the extent to which the items within each subscale are related to each other.

Confirmatory factor analysis (CFA). CFAs were carried out using Mplus (Version 7; Muthén & Muthén, 2015) to examine the five-factor model underlying the ARTIC-35. CFA were run separately for the data at Time 1 and Time 2. Model fit was estimated using the Sattorra-Bentler chi-square, comparative fit index (CFI), the Tucker-Lewis Index (TLI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). Indicators of an acceptable model fit was based on CFI and TLI values greater than or equal to .95, RMSEA values less than .06, and SRMR values less than .08 (Hu & Bentler, 1999). Chi-square values that are closer to 0 also reflect a good model fit (Byrne, 1998). Standardized loadings for individual items were also examined using recommendations from Hair et al.

(2014); acceptable standardized loading estimates were .5 or higher, and ideal estimates were .7 or higher. Overall, the results from the CFA met some but not all criteria for a good model fit at Time 1 or Time 2. The RMSEA fell below .06 at Time 1 and the SRMR fell below .08 at both Time 1 and Time 2. However, at each time points the CFI and TLI were well below .95 and the Sattorra-Bentler chi-square values were much greater than 0 (p<.001). The large chi-square value and significant lack of fit results may have been influenced from the size of the sample. The results from the CFA for the present study as well as the psychometric validation studies by Baker et al. (2016) and Baker et al. (2020) are portrayed in Table 6.

The standardized factor loadings are presented in Table 7. At Time 1, 22 out of 35 standardized loading estimates were above .5 (63%), and 2 of those 22 estimates were above .7 (6%). At Time 2, 29 out of 35 standardized loading estimates were above .5 (83%), and 4 of those 29 estimates were above .7 (11%). When examining the loadings by subscale, at Time 1 the standardized factor loadings ranged from 0.28 to 0.69 with an average of 0.55 for "underlying causes of problem behavior and symptoms", 0.45 to 0.79 with an average of 0.58 for "responses to problem behaviors and symptoms", 0.26 to 0.65 with an average of 0.51 for "on the job behavior", 0.49 to 0.71 for "self-efficacy at work" with an average of 0.59, and 0.36 to 0.59 with an average of 0.47 for "reactions to the work". At Time 2, the standardized factor loadings ranged from 0.28 to 0.79 with an average of 0.60 for "underlying causes of problem behaviors and symptoms", 0.45 to 0.74 with an average of 0.60 for "responses to problem behaviors and symptoms", 0.35 to 0.67 with an average of 0.52 for "on the job behavior", 0.53 to 0.74 with an average of 0.62 for "self-efficacy at work", and 0.46 to 0.67 with an average of 0.58 for "reactions to the work".

Table 5.

Bivariate Correlations of Perceived Global Knowledge and Attitudes Related to Trauma Informed Care Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Time 1														
1. Time 1 Perceived global knowledge	1.00	.												
2. Time 1 Underlying causes of problem behaviors and symptoms	.30**	1.00												
3. Time 1 Responses to problem behaviors and symptoms	.32**	.71**	1.00											
4. Time 1 On the job behavior	.24**	.69**	.67**	1.00										
5. Time 1 Self-efficacy at work	.28**	.57**	.54**	.55**	1.00									
6. Time 1 Reactions to the work	.23**	.62**	.56**	.61**	.63**	1.00								
7. Time 1 Overall ARTIC	.33**	.86**	.84**	.84**	.79**	.82**	1.00							
Time 2														
8. Time 2 Perceived global knowledge	.54**	.28**	.26**	.16**	.26**	.22**	.28**	1.00						
9. Time 2 Underlying causes of problem behaviors and symptoms	.27**	.61**	.57**	.45**	.38**	.41**	.58**	.29**	1.00					
10. Time 2 Responses to problem behaviors and symptoms	.32**	.49**	.62**	.43**	.34**	.37**	.54**	.28**	.72**	1.00				
11. Time 2 On the job behavior	.32**	.50**	.48**	.53**	.32**	.38**	.53**	.31**	.72**	.74**	1.00			
12. Time 2 Self-efficacy at work	.31**	.43**	.35**	.28**	.55**	.40**	.48**	.31**	.57**	.53**	.55**	1.00		
13. Time 2 Reactions to the work	.34**	.47**	.45**	.38**	.45**	.55**	.55**	.32**	.66**	.65**	.68**	.70**	1.00	
14. Time 2 Overall ARTIC	.37**	.58**	.58**	.48**	.49**	.50**	.63**	.36**	.86**	.86**	.86**	.80**	.87**	1.00

Note: p<.05, p<.01***

Table 6.

Fit Indices for the ARTIC-35.

	Pre-Harmony Project PD Time 1	Post-Harmony Project PD Time 2	Baker et al., 2016	Baker et al., 2020
n	361	334	760	1395
χ^2	1258.982	1294.754	993.98	2521.97
df	550	550	548	545
CFI	.778	.795	.922	.824
TLI	.760	.778	Not reported	.807
RMSEA	.060	.064	.033	.051
SRMR	.064	.065	.042	.053

Note: ARTIC-35 = Attitudes Related to Trauma-Informed Care Scale, 35 Item Version. PD = Professional Development, Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root mean square error of approximation (RMSEA), Standardized Root Mean Square Residual (SRMR)

Reliability. The internal consistency of the ARTIC-35 subscales for both time points are displayed in Table 8. Comparisons to the Baker et al. (2016) and Baker et al. (2020) results are included in the table. At Time 1, three of the five ARTIC factors yielded acceptable coefficient alphas (≥ .70). Alphas ranged from .67 (Reactions to the Work) to .77 (Self-Efficacy at Work). At Time 2, all ARTIC coefficient alphas were all acceptable ranging from .71 (On the Job Behavior) to .81 (Self-Efficacy at Work).

Overall, the psychometric analyses of the ARTIC-35 conducted in the present study yielded mixed results. Although the internal consistencies fell within the acceptable range (≥.70) for most subscales, they were not exceptionally high. Nunnally (1978) suggests that internal reliabilities greater than .90 would be ideal for clinical decision making. This was achieved on the overall measure for the ARTIC, however, this was not so for the individual subscales. Furthermore, the results from the CFA only met some criteria for good model fit (i.e., RMSEA, SRMR), but not all (i.e., CFI, TLI). Therefore, findings in the present study may be interpreted with some caution.

Table 7.

Standardized Factor Loadings for the ARTIC-35.

	Time 1 (N = 361)		Time 2 (N = 334)	
	Standardized Loading	St. Error	Standardized Loading	St. Error
Underlying causes of problem behaviors and symptoms				
Item 1	0.276	0.058	0.282	0.062
Item 6	0.604	0.050	0.592	0.057
Item 11	0.608	0.041	0.673	0.034
Item 16R	0.389	0.058	0.501	0.053
Item 21	0.685	0.054	0.787	0.027
Item 26R	0.578	0.046	0.696	0.039
Item 31	0.679	0.039	0.680	0.034
Responses to problem behavior and symptoms				
Item 2R	0.580	0.054	0.642	0.050
Item 7	0.565	0.045	0.632	0.043
Item 12R	0.447	0.056	0.451	0.061
Item 17R	0.790	0.040	0.738	0.037
Item 22R	0.619	0.046	0.626	0.047
Item 27	0.458	0.054	0.477	0.058
Item 32R	0.587	0.052	0.631	0.044
On the job behavior				
Item 3R	0.260	0.054	0.347	0.059
Item 8	0.590	0.045	0.540	0.049
Item 13R	0.643	0.040	0.648	0.059
Item 18	0.561	0.055	0.575	0.060
Item 23R	0.650	0.058	0.666	0.063
Item 28	0.398	0.054	0.381	0.064
Item 33R	0.430	0.057	0.513	0.043
Self-efficacy at work				
Item 4	0.539	0.060	0.561	0.058
Item 9R	0.495	0.053	0.534	0.063
Item 14	0.551	0.050	0.545	0.058
Item 19R	0.665	0.043	0.729	0.038
Item 24R	0.713	0.040	0.737	0.037
Item 29	0.648	0.047	0.697	0.039
Item 34R	0.485	0.059	0.543	0.057

Note: ARTIC-35 = Attitudes Related to Trauma-Informed Care Scale, 35 Item Version. Items that have the letter "R" after them were reverse scored per the instructions from the Traumatic Stress Institute on scoring the ARTIC-35.

Table 7 (Continued).

Standardized Factor Loadings for the ARTIC-35.

	Time 1 (N = 361)		Time 2 (N = 334)	
	Standardized Loading	St. Error	Standardized Loading	St. Error
Reactions to the work				
Item 5	0.505	0.051	0.561	0.055
Item 10R	0.490	0.066	0.584	0.052
Item 15R	0.525	0.052	0.593	0.053
Item 20	0.585	0.058	0.668	0.036
Item 25R	0.437	0.062	0.627	0.045
Item 30	0.362	0.068	0.588	0.052
Item 35R	0.408	0.060	0.459	0.063

Note: ARTIC-35 = Attitudes Related to Trauma-Informed Care Scale, 35 Item Version. Items that have the letter "R" after them were reverse scored per the instructions from the Traumatic Stress Institute on scoring the ARTIC-35.

Table 8.

Internal Consistency for the ARTIC-35 Subscales at Time 1 and Time 2 (Cronbach's Alpha)

	Pre-Harmony Project PD Time 1	Pre-Harmony Project PD Time 2	Baker et al. (2016)	Baker et al. (2020)
Scale	α	α	α	α
Underlying causes of problem behaviors and symptoms	.74	.79	.78	.73
Responses to problem behavior and symptoms	.76	.79	.76	.68
On the job behavior	.69	.71	.72	.68
Self-efficacy at work	.77	.81	.79	.75
Reactions to the work	.67	.79	.71	.69
Overall ARTIC	.92	.94	.91	.96

Note. ARTIC-35 = Attitudes Related to Trauma-Informed Care Scale, 35 Item Version. PD = Professional Development. Coefficient alphas in the table from Baker et al. (2016) include the overall sample whereas the coefficient alphas listed for Baker et al. (2020) is for educators only. The "On the Job Behavior" subscale is referred to as "Empathy and Control" in Baker et al. (2020).

Repeated Measures Analysis of Variance (ANOVA). The first and second evaluation questions asked to what extent there were changes in attitudes related to trauma-informed care and changes in perceived global knowledge from Time 1 to Time 2 for overall staff whose schools participated in the Harmony Project. Changes in attitudes related to trauma-informed care were measured by participants scores on the ARTIC-35, and changes in perceived global

knowledge about trauma-informed care was measured by their responses to the question, “How much would you say you know about trauma-informed care in educational settings?”. Possible scores ranged from 1 (*less favorable attitudes*) to 7 (*more favorable attitudes*) on the ARTIC-35, and scores ranged from 1 (*no knowledge*) to 10 (*expert*) on the perceived global knowledge item. Differences in scores from Time 1 to Time 2 on survey measures were also analyzed by school-level. Mean scores on each outcome at Time 1 and Time 2 are presented in Tables 9 (perceived global knowledge) and 10 (ARTIC-35), for the overall sample and by school. Most schools were demographically similar; however, it was anticipated there could be differences in outcomes for School 6. School 6 is a secondary school and less than half of the population are economically disadvantaged, whereas the other 5 schools are elementary schools and over 75% of the student population is economically disadvantaged. There is also a possibility that each school may have had a different climate regarding adopting trauma-informed practices or may have varied in fidelity for school staff participating in the Harmony Project modules. Unfortunately, data regarding school climate for adopting TIC practices and fidelity of Harmony Project implementation by school is not available for the current study. Analyses were still conducted by school to help determine if there were any significant interactions between school and changes in pre- and post- test scores in case this should be brought to the attention of the Harmony Project developers when interpreting the results. Means and standard deviations of responses on the ARTIC-35 and perceived global knowledge about trauma-informed care are presented in Tables 9 and 10. The overall/total sample of 246 participants was distributed across the six schools in the following manner: School 1, $N = 29$; School 2, $N = 29$; School 3, $N = 40$; School 4, $N = 44$; School 5, $N = 41$; School 6, $N = 64$.

Table 9.

Means and Standard Deviations of the ARTIC-35 by School

ARTIC-35 Variable	Time 1 *M (SD)*	Time 2 *M (SD)*
Underlying causes of problem behaviors and symptoms		
Overall sample	5.24 (0.87)	5.25 (0.88)
School 1	5.24 (0.87)	5.54 (0.69)
School 2	5.26 (0.57)	5.15 (0.94)
School 3	5.15 (0.92)	5.49 (0.86)
School 4	5.45 (0.66)	5.38 (0.82)
School 5	5.23 (0.92)	5.19 (0.89)
School 6	5.07 (0.90)	4.97 (0.89)
Responses to problem behaviors and symptoms		
Overall sample	5.37 (0.90)	5.42 (0.93)
School 1	5.31 (1.00)	5.47 (0.81)
School 2	5.47 (0.75)	5.43 (1.01)
School 3	5.49 (0.94)	5.72 (0.95)
School 4	5.58 (0.72)	5.58 (0.85)
School 5	5.38 (0.85)	5.45 (0.91)
School 6	5.13 (1.00)	5.09 (0.94)
On the job behavior		
Overall sample	5.48 (0.78)	5.51 (0.80)
School 1	5.42 (0.79)	5.63 (0.58)
School 2	5.51 (0.68)	5.45 (1.00)
School 3	5.56 (0.75)	5.62 (0.86)
School 4	5.76 (0.64)	5.72 (0.74)
School 5	5.55 (0.88)	5.61 (0.77)
School 6	5.21 (0.79)	5.20 (0.73)
Self-efficacy at work		
Overall sample	5.61 (0.85)	5.47 (0.95)
School 1	5.32 (1.11)	5.33 (0.77)
School 2	5.83 (0.76)	5.38 (1.02)
School 3	5.62 (0.84)	5.41 (1.13)
School 4	5.73 (0.73)	5.47 (0.93)
School 5	5.40 (0.98)	5.25 (1.02)
School 6	5.69 (0.72)	5.76 (0.78)
Reactions to the work		
Overall sample	5.58 (0.80)	5.57 (0.91)
School 1	5.52 (0.94)	5.50 (0.77)
School 2	5.62 (0.64)	5.54 (1.09)
School 3	5.63 (0.70)	5.83 (0.91)
School 4	5.72 (0.65)	5.65 (0.80)
School 5	5.48 (0.92)	5.43 (1.02)
School 6	5.53 (0.86)	5.50 (0.86)

Note. ARTIC-35 = Attitudes Related to Trauma-Informed Care Scale, 35 Item Version. Overall $N = 246$; School 1 $N = 29$, School 2 $N = 29$, School 3 $N = 40$, School 4 $N = 44$, School 5 $N = 41$, School 6 $N = 64$.

Table 9 (Continued).

Means and Standard Deviations of the ARTIC-35 by School

ARTIC-35 Variable	Time 1 *M (SD)*	Time 2 *M (SD)*
Overall ARTIC		
Overall sample	5.45 (0.70)	5.45 (0.76)
School 1	5.36 (0.82)	5.49 (0.57)
School 2	5.54 (0.53)	5.39 (0.88)
School 3	5.49 (0.69)	5.61 (0.85)
School 4	5.65 (0.57)	5.56 (0.71)
School 5	5.41 (0.79)	5.38 (0.80)
School 6	5.33 (0.73)	5.30 (0.70)

Note. ARTIC-35 = Attitudes Related to Trauma-Informed Care Scale, 35 Item Version. Overall $N = 246$; School 1 $N = 29$, School 2 $N = 29$, School 3 $N = 40$, School 4 $N = 44$, School 5 $N = 41$, School 6 $N = 64$.

Table 10

Means and Standard Deviations of Perceived Global Knowledge About Trauma-Informed Care in Educational Settings

Perceived global knowledge about TIC	Time 1 *M (SD)*	Time 2 *M (SD)*
Overall Sample	5.28 (2.35)	7.45 (1.46)
School 1	5.03 (2.56)	7.38 (1.24)
School 2	5.07 (2.52)	7.14 (1.30)
School 3	5.40 (2.15)	7.58 (1.68)
School 4	5.55 (2.64)	7.52 (1.53)
School 5	5.38 (1.97)	7.32 (1.25)
School 6	5.15 (2.37)	7.58 (1.55)

Note. Overall $N = 246$; School 1 $N = 29$, School 2 $N = 29$, School 3 $N = 40$, School 4 $N = 44$, School 5 $N = 41$, School 6 $N = 64$.

The evaluation questions were answered using a 6 (school) x 2 (time) repeated measures analysis of variance (ANOVA). The six levels for the between-group factor, school, reflects the six schools that were in the sample. The two levels for the within-group factor, time, reflects the two time points being compared (pre- and post- Harmony Project professional development). Each construct for attitudes related to trauma informed care and perceived global knowledge about trauma-informed care in educational settings was analyzed separately. Results from the repeated measures ANOVA are portrayed in Tables 11 and 12 below. Partial eta squared (η^2)

was used to assess effect size. Values for η^2 ranging from 0.01 to 0.05 were considered small, values ranging from 0.06 to 0.13 were considered medium, and values greater than 0.14 were considered large.

Table 11

Repeated Measures ANOVA for Attitudes Related to Trauma-Informed Care (ARTIC)

Scale	Time 1 *M (SD)*	Time 2 *M (SD)*	*F* ratio	*df*	*p*	η^2
ARTIC-35						
Underlying causes of problem behaviors and symptoms						
Time (Pre/Post)	5.24 (0.87)	5.25 (0.88)	1.184	1	.278	.005
Group (School ID)			1.870	5	.100	.037
Time X Group			2.960	5	.013*	.058
Responses to problem behaviors and symptoms						
Time (Pre/Post)	5.37 (0.90)	5.42 (0.93)	1.523	1	.218	.006
Group (School ID)			2.612	5	.025*	.052
Time X Group			.780	5	.565	.016
On the job behavior						
Time (Pre/Post)	5.48 (0.78)	5.51 (0.80)	.494	1	.483	.002
Group (School ID)			3.917	5	.002**	.075
Time X Group			.486	5	.787	.010
Self-efficacy at work						
Time (Pre/Post)	5.61 (0.85)	5.47 (0.95)	8.234	1	.004**	.033
Group (School ID)			1.865	5	.101	.037
Time X Group			1.944	5	.088	.039
Reactions to the work						
Time (Pre/Post)	5.58 (0.80)	5.57 (0.91)	.021	1	.885	.000
Group (School ID)			.847	5	.517	.017
Time X Group			.637	5	.672	.013
Overall attitudes related to trauma informed care						
Time (Pre/Post)	5.45 (0.70)	5.45 (0.76)	.008	1	.903	.000
Group (School ID)			1.270	5	.278	.026
Time X Group			1.020	5	.406	.021

**p<.05, **p<.01*

Table 12

Repeated Measures ANOVA for Perceived Global Knowledge on Trauma-Informed Care

	Time 1 *M (SD)*	Time 2 *M (SD)*	*F* ratio	*df*	*p*	η^2
Perceived global knowledge about trauma informed care						
Time (Pre/Post)	5.28 (2.35)	7.45 (1.46)	263.956	1	<.001***	.523
Group (School ID)			.311	5	.906	.006
Time X Group			.467	5	.801	.010

****p<.001*

From Time 1 to Time 2, there were two significant main effects for time. There was a significant increase in participants "perceived global knowledge on trauma-informed care" with a considerably large effect size ($p<.001$, $\eta^2 = .523$). On the other hand, there was a significant decrease in participants' "self-efficacy at work", although this effect size was small ($p = .004$, $\eta^2 = .033$). Significant main effects were also found for school membership in two areas: "responses to problem behaviors and symptoms" ($p = .025$, $\eta^2 = .052$) and "on the job behavior" ($p = .002$, $\eta^2 = .075$). Tukey post-hoc tests using pairwise comparisons by school were conducted. A more stringent significance level of $p<.008$ was applied to control for Type 1 error. Tukey post-hoc analyses yielded no significant differences between schools for "responses to problem behaviors and symptoms". For "on the job behavior", the only difference found was that the average scores across both time points for School 4 had significantly more favorable ARTIC scores in this domain than School 6, with a mean difference of 0.54 ($p = .001$). Although there was a significant difference between the two schools, this finding would need to be interpreted with caution due to the small sample sizes between schools ($N = 44$ and 64 for schools 4 and 6, respectively). Since there is not a clear pattern of multiple significant differences by school, this finding is not considered to be clinically meaningful. Overall, post-hoc analyses yielded that the

(few) differences in scores on the ARTIC subscales across both time points were not substantially different by school.

A significant interaction was found between school membership and time for "underlying causes of problem behaviors and symptoms", however, the effect size was small ($p = .013$, $\eta^2 = .052$). Post-hoc paired sample t-tests were conducted to examine changes in this ARTIC construct by school. To control for type 1 error, a more stringent significance level of $p < .008$ was also applied to these analyses. Follow up paired sample t-tests revealed a significant increase in "underlying causes of problem behaviors and symptoms" only for School 3 (t (39) =-2.847, p =.007). The mean scores for School 3 increased from 5.15 at Time 1 to 5.50 at Time 2. This finding should be interpreted with caution, as the sample size for School 3 is also small (N = 40).

Regression. The third evaluation question asked the extent to which prior perceived global knowledge about trauma-informed care in educational settings moderated changes in attitudes related to trauma informed care. Prior perceived global knowledge about trauma-informed care in educational settings was measured by participants response to the single item, "How much would you say you know about trauma-informed care in educational settings?" at Time 1. This question was included because it was hypothesized that individuals with lower perceived global knowledge at Time 1 could have more changes in ARTIC scores from Time 1 to Time 2 relative to individuals with higher perceived global knowledge at Time 1. This question was addressed using a series of multiple linear regression analyses. Three models were run for each of the constructs assessing attitudes related to trauma-informed care: (a) underlying causes of problem behaviors and symptoms, (b) responses to problem behaviors and symptoms, (c) on the job behavior, (d) self-efficacy at work, (e) reactions to the work, (f) overall attitudes related to trauma-informed care. In the first model, the school identification variable was entered

to control for school effects. The second model included one of the Time 1 ARTIC variables and the Time 1 perceived global knowledge variable (pre-Harmony Project training). To test for moderation, the third model included the interaction between the Time 1 ARTIC variable and Time 1 perceived global knowledge. For all three models, the dependent variable was the corresponding Time 2 ARTIC variable (post-Harmony Project training). Both the Time 1 ARTIC variable and the Time 1 perceived global knowledge variables were grand mean centered for all regression analyses.

Each of the Time 1 ARTIC variables predicted their corresponding Time 2 ARTIC variables. Prior perceived global knowledge predicted higher scores on all Time 2 ARTIC variables (p <.05) except for "underlying causes of problem behaviors and symptoms". No significant interaction effects were found in the third regression model; overall there were no significant moderation effects for Time 1 perceived global knowledge on changes in ARTIC scores from Time 1 to Time 2. The results of the regression analyses focusing on models 2 and 3 are portrayed in Tables 13-18.

Summary of Findings

The present study examined 1) changes in attitudes related to trauma-informed care, 2) changes in perceived global knowledge about trauma-informed care in educational settings, and 3) the extent to which prior perceived global knowledge about trauma-informed care in educational settings moderated changes in attitudes related to trauma-informed care among schools who participated in the Harmony Project. Participants came from six schools that participated in the Harmony Project training during the 2018-2019 school year. Analyses were conducted with 246 participants from six schools who had completed pre- and post-surveys.

Because it is a relatively new measure, preliminary analyses included a psychometric evaluation of the ARTIC-35. Overall, these findings were mixed. For the confirmatory factor analyses of the ARTIC-35 at Time 1 and Time 2, some but not all criteria were met for an acceptable model fit. Although the RMSEA and SRMR fell below .06 and .08 respectively, the CFI and TLI were well below .95. The levels of internal consistency using Cronbach's alpha were acceptable ($\geq$ .70) for most of the subscales, however, they were not exceptionally high. Cronbach's alpha levels that exceed .90 would be more desirable for clinical decision making (Nunnally, 1978). An in-depth psychometric evaluation was not the original intent of this study, however, these findings suggest that further investigation may be needed for examining the psychometric properties of the ARTIC-35. Therefore, results of this study may be interpreted with some caution.

Among schools who participated in the Harmony Project during the 2018-2019 school year, there were no significant changes in attitudes related to trauma-informed care in the areas of underlying causes of problem behaviors and symptoms, responses to problem behaviors and symptoms, on the job behavior, reactions to the work, or overall attitudes related to trauma-informed care. This finding was derived from examining the main effects of time for a series of repeated measures ANOVA of the various composite scores yielded on the ARTIC-35. No significant main effects for time were found in those aforementioned subscales or in overall attitudes related to trauma-informed care. It was anticipated that changes in ARTIC could be different for School 6 relative to the other five schools in the sample because it is a secondary school with a smaller proportion of economically disadvantaged students. Post-hoc analyses did not reveal any clinically meaningful school-level differences in changes of attitudes related to trauma-informed care. Although analyzing differences by school was included in this study, this

was not the primary focus of the evaluation questions that were addressed. One significant main effect was found regarding "self-efficacy at work", however, this main effect was in the opposite direction as hypothesized and reflected a *decline* in scores over time. This suggests that teachers became less confident in meeting the needs of traumatized youth from Time 1 to Time 2. Although a main effect was present in this domain, the effect size for this was small.

On the other hand, a repeated measures ANOVA indicated there was a significant increase in school staff self-report of perceived global knowledge on trauma-informed care in educational settings. The level of educators perceived global knowledge about trauma-informed care at Time 1 (pre-training) did not moderate pre- to post-intervention changes in attitudes related to trauma-informed care. Further discussion of these findings as well as limitations and implications of these findings will be discussed in the next chapter.

Table 13.

Testing the Moderation Effect of Pre-Perceived Global Knowledge (Time 1) on Post-Underlying Causes of Problem Behaviors and Symptoms (Time 2)

	Model 2				Model 3			
	B	St. Error	β	Sig.	*B*	St. Error	β	Sig.
School 1	0.49	0.15	.18	.001**	0.49	0.15	.18	.001**
School 2	0.09	0.15	.03	.548	0.09	0.15	.03	.545
School 3	0.49	0.14	.21	.000***	0.49	0.14	.21	<.001***
School 4	0.19	0.13	.09	.150	0.20	0.14	.09	.150
School 5	0.14	0.14	.06	.305	0.14	0.14	.06	.303
T1 UCB-gmc	0.60	0.05	.57	<.001***	0.60	0.06	.57	<.001***
T1 PGK-gmc	0.04	0.02	.10	.068	0.04	0.02	.10	.069
T1 UCB-Gmc*T1 PGK-gmc	--	--	--	--	0.00	0.02	.01	.906

Note: School effects were controlled for in Model 1 with School 6 as the reference group.T1 = Time 1. UCB = Underlying Causes of Problem Behaviors and Symptoms. Gmc = grand mean centered. PGK = Perceived Global Knowledge. *$p<.05$, **$p<.01$ ***$p<.001$

Table 14.

Testing the Moderation Effect of Pre-Perceived Global Knowledge (Time 1) on Post-Responses to Problem Behaviors and Symptoms (Time 2)

	Model 2				Model 3			
	B	St. Error	β	Sig.	*B*	St. Error	β	Sig.
School 1	0.28	0.16	.10	.081	0.27	0.16	.09	.100
School 2	0.15	0.16	.05	.378	0.14	0.17	.05	.405
School 3	0.41	0.15	.16	.006*	0.40	0.15	.16	.008**
School 4	0.21	0.14	.09	.143	0.20	0.14	.08	.157
School 5	0.20	0.15	.08	.162	0.20	0.15	.08	.177
T1 Responses-gmc	0.58	0.06	.56	<.001***	0.58	0.06	.57	<.001***
T1 PGK-gmc	.05	.02	.13	.015*	0.05	0.02	.13	.017*
T1 Responses-gmc*T1 PGK-gmc	--	--	--	--	-0.01	0.02	.03	.525

Note: School effects were controlled for in Model 1 with School 6 as the reference group. T1 = Time 1. Responses = Responses to Problem Behaviors and Symptoms. Gmc = grand mean centered. PGK = Perceived Global Knowledge. *$p<.05$, **$p<.01$ ***$p<.001$

Table 15.

Testing the Moderation Effect of Pre-Perceived Global Knowledge (Time 1) on Post-On the Job Behavior (Time 2)

	Model 2				Model 3			
	B	St. Error	β	Sig.	*B*	St. Error	β	Sig.
School 1	0.38	0.15	.15	.015*	0.38	0.16	.15	.015*
School 2	0.14	0.16	.06	.356	0.14	0.16	.06	.357
School 3	0.28	0.14	.13	.045*	0.28	0.14	.13	.046*
School 4	0.35	0.14	.17	.012*	0.35	0.14	.17	.012*
School 5	0.31	0.14	.15	.025*	0.31	0.14	.15	.026*
T1 OTJBgmc	0.35	0.05	.40	<.001***	0.35	0.05	.40	<.001***
T1 PGKgmc	0.06	0.02	.18	.002**	0.06	0.02	.18	.002**
T1 OTJBgmc* T1 PGKgmc	--	--	--	--	0.00	0.02	.00	.960

Note: School effects were controlled for in Model 1 with School 6 as the reference group. T1 = Time 1. OTJB = On the Job Behavior. Gmc = grand mean centered. PGK = Perceived Global Knowledge. *$p<.05$, **$p<.01$ ***$p<.001$

Table 16.

Testing the Moderation Effect of Pre-Perceived Global Knowledge (Time 1) on Post-Self-Efficacy at Work (Time 2)

	Model 2				Model 3			
	B	St. Error	β	Sig.	*B*	St. Error	β	Sig.
School 1	-0.22	0.18	-.07	.218	-0.22	0.18	-.08	.204
School 2	-0.46	0.18	-.15	.010*	-0.46	0.18	-.16	.009**
School 3	-0.33	0.16	-.13	.039*	-0.33	0.16	-.13	.034*
School 4	-0.33	0.15	-.14	.030*	-0.34	0.15	-.14	.026*
School 5	-0.37	0.16	-.15	.020*	-0.37	0.16	-.15	.020*
T1 SE-gmc	0.55	0.06	.50	<.001***	0.55	0.06	.50	<.001***
T1 PGK-gmc	0.07	0.02	.16	.004**	0.06	0.02	.16	.005**
T1 SE-gmc*T1 PGK-gmc	--	--	--	--	-0.03	0.02	-.07	.208

Note: School effects were controlled for in Model 1 with School 6 as the reference group. T1 = Time 1. SE = Self-Efficacy at Work. Gmc = grand mean centered. PGK = Perceived Global Knowledge. *$p<.05$, **$p<.01$ ***$p<.001$

Table 17.

Testing the Moderation Effect of Pre-Perceived Global Knowledge (Time 1) on Post-Reactions to the Work (Time 2)

	Model 2				Model 3			
	B	St. Error	β	Sig.	*B*	St. Error	β	Sig.
School 1	0.03	0.16	.01	.854	0.03	0.17	.01	.855
School 2	0.01	0.17	.00	.977	0.01	0.17	.00	.977
School 3	0.26	0.15	.11	.086	0.26	0.15	.11	.088
School 4	0.02	0.15	.01	.909	0.02	0.15	.01	.910
School 5	-0.06	0.15	-.02	.696	-0.06	0.15	-.02	.696
T1 Reactions-gmc	0.56	0.06	.50	<.001***	0.56	0.06	.50	<.001***
T1 PGK-gmc	0.09	0.02	.23	<.001***	0.09	0.02	.23	<.001***
T1 Reactions-gmc *T1 PGK-gmc	--	--	--	--	0.00	0.03	.00	.996

Note: School effects were controlled for in Model 1 with School 6 as the reference group. T1 = Time 1. Reactions = Reactions to the Work. Gmc = grand mean centered. PGK = Perceived Global Knowledge. *$p<.05$, **$p<.01$ ***$p<.001$

Table 18.

Testing the Moderation Effect of Pre-Perceived Global Knowledge (Time 1) on Post-Overall Attitudes Related to Trauma Informed Care (Time 2)

	Model 2				Model 3			
	B	St. Error	β	Sig.	*B*	St. Error	β	Sig.
School 1	0.18	0.13	.08	.163	0.18	0.13	.08	,194
School 2	-0.03	0.13	.01	.819	-0.04	0.13	-.02	.768
School 3	0.20	0.12	.10	.090	0.20	0.12	.10	.108
School 4	0.05	0.12	.03	.672	0.04	0.12	.02	.728
School 5	0.03	0.12	.01	.833	0.02	0.12	.01	.872
T1 Overall-gmc	0.61	0.06	.56	<.001***	0.62	0.06	.57	<.001***
T1 PGK-gmc	0.06	0.02	.18	.001***	0.06	0.02	.18	.001***
T1 Overall-gmc *T1 PGK-gmc	--	--	--	--	-.02	.02	-.04	.464

Note: School effects were controlled for in Model 1 with School 6 as the reference group. T1 = Time 1. Overall = Overall score on the ARTIC-35. Gmc = grand mean centered. PGK = Perceived Global Knowledge. *$p<.05$, **$p<.01$ ***$p<.001$

Chapter Five: Discussion

The widespread prevalence of childhood trauma has been a growing concern among educators, who are interested in how to meet these students' needs (Alisic, 2012; Blaustein, 2012; Blitz, 2016). According to trauma theory, children become traumatized when they experience one or more overwhelming events that attack their emotional well-being and/or physical safety for themselves or someone they care about (Bloom, 1999; Terr, 1990; Van Der Kolk, 1989). Children who come from traumatic backgrounds have increased sensitivity to perceiving new threats and may be triggered by minor events (Anda et al., 2006; Bloom, 1999). Within the school setting, these youth are more likely to exhibit significant externalizing behavioral problems (e.g., aggression) and internalizing problems such as depression and withdrawal. These difficulties are often associated with increased school absences, academic disengagement, and ultimately academic failure (Wolpow et al., 2009).

There has been a growing need for schools to meet the needs of children exposed to trauma by becoming *more trauma informed*. Within a transformative learning framework (Mezirow, 2000), adults can shift their thoughts and beliefs when presented with new information during professional development activities. Transformative learning is more likely to occur when the activities involved use reflective discourse (i.e., active dialogue) and critical reflection; for educators, this allows them to gain a fresh perspective on how they interact with students and their colleagues (Cranton & King, 2003). The nascent literature on evaluating trauma-informed care programs in educational settings shows promise that these initiatives can help educators become more trauma-informed (Dorado et al., 2016, Perry & Daniels, 2016;

Shamblin et al., 2016). Most studies have not incorporated psychometrically reliable and valid scales assessing educator attitudes related to trauma-informed care. The inclusion of such a measure is important because in theory individuals who possess more favorable attitudes related to trauma-informed care are more likely to use trauma-informed practices when working with students and their families (Baker et al., 2016).

The purpose of this study was to evaluate the outcomes of the Harmony Project professional development modules by examining changes in attitudes related to trauma-informed care and changes in perceived global knowledge about trauma-informed care in educational settings. Changes in pre- to post- scores from staff whose schools participated in the Harmony Project training were analyzed.. Additionally, this study examined the extent to which prior perceived global knowledge about trauma-informed care in educational settings moderated changes in attitudes related to trauma informed care. The current chapter offers a discussion and interpretation of key findings within the context of the literature, as well as outlines limitations and implications for research and practice.

Evaluation Question 1: Changes in Attitudes Related to Trauma-Informed Care

The purpose of the first evaluation question was to explore changes in attitudes related to trauma-informed care across schools that participated in the Harmony Project. It was hypothesized that school staff attitudes would shift toward more favorable attitudes related to trauma-informed care (as measured by the ARTIC-35) after their school had received the Harmony Project professional training modules. A series of repeated measures ANOVA analyses were conducted to examine changes in scores on the ARTIC-35. There was a possibility that educators from distinct schools could have differed in their responses on the ARTIC-35 due to differences in trauma-informed care initiatives prior to the start of the Harmony Project,

differences in how the Harmony Project was rolled out across schools, or potential differences in overall school climate and culture around TIC. Additionally, there was potential for the one middle/high school in the sample (i.e., School 6) to exhibit different responses than the other five (elementary) schools given that it was a secondary school with a smaller proportion of economically disadvantaged youth. For that reason, interactions between school identification and changes in ARTIC were examined to determine if there were any school-level differences.

When interpreting the findings from these scores on the overall and subscale level, it is important to note that there are no norms or cut scores available on the ARTIC (Baker et al. 2016). In other words, there is no indication of what the ideal score an educator within a school should strive for in terms of their level of attitudes related to trauma-informed care. Potential scores on the ARTIC range from 1 to 7, with 4 being an average or more neutral score. Both Time 1 and Time 2 scores in the present study were all above the mean. Across subscales, Time 1 average scores ranged from 5.24 ("underlying causes of problem behaviors and symptoms") to 5.61 ("self-efficacy at work"), and Time 2 average scores ranged from 5.25 ("underlying causes of problem behaviors and symptoms") to 5.57 ("reactions to the work"). When considering the interpretation of the findings presented in this section, it is important to note that although there could be potential room for growth, this sample was already leaning toward more favorable attitudes related to trauma-informed care before participating in the Harmony Project. On the subscale level, there were no significant pre- to post- intervention (i.e., Harmony Project training) changes on four out of five subscales, and the change on the fifth subscale was in the opposite direction as anticipated. The following section will examine the findings by each of the domains of attitudes related to trauma-informed care.

Educators' perceptions of underlying causes of problem behaviors and symptoms.

The first construct within the ARTIC-35 is underlying causes of problem behaviors and symptoms". This construct refers to the extent to which staff perceive problems to be internal and fixed (less trauma informed) versus external and malleable (more trauma informed). For example, participants were asked questions regarding beliefs on students' behaviors being rooted in mental health, students motives behind their behaviors (i.e., being manipulative versus trying to get their needs met), and students abilities and skills to meet behavioral expectations (Baker et al., 2016). Overall, staff responses at Time 1 (M = 5.24, SD = 0.87) did not significantly differ from their responses at Time 2 (M = 5.25, SD = 0.88). There was a significant interaction between time and school membership; in particular, School 3 was the only school that demonstrated significant pre- to post- increase in this domain. This finding should be interpreted with some caution given the small sample size of School 3 (N = 40). The overall lack of change from Time 1 to Time 2 in scores is unexpected because the Harmony Project professional development modules provide informational content on the biological basis of trauma and how it impacts behavior, as well as information on the adverse childhood experiences. Striving to aim for more favorable attitudes related to trauma-informed care in this domain is important because when staff are in the position of disciplining students due to poor classroom behavior, this can have a negative impact on levels of teacher emotional distress (Tsouloupas, 2010). A trauma-informed mind shift toward understanding that although poor behavior may be a symptom of the child's traumatic experiences, that child's behavior is malleable and can be supported within a safe and predictable environment with interventions. This mind shift could help mitigate the stress that accompanies responding to children experiencing significant behavioral difficulties. Findings in the current study support that improvements in educator understanding

of such underlying causes of problem behaviors and symptoms that may be associated with the intervention (Harmony Project) were detected in only one of the six settings (Elementary School 3). There may have been other factors that could explain the significant shift in changes for School 3, however, it is unknown what those variables are in this study.

Educators' responses to problem behaviors and symptoms. The "responses to problem behaviors and symptoms" domain of the ARTIC-35, refers to beliefs regarding the need to enforce rules and consequences (less trauma-informed) versus the need to build relationships (more trauma-informed). For example, staff were asked questions regarding their attitudes on needing to hold students accountable for their actions, using safety to minimize undesirable behavior, and emphasizing strictness first versus kindness and respect from the start (Baker et al., 2016). There were no significant changes in school staff responses to problem behaviors and symptoms from Time 1 (M = 5.37, SD = 0.90) to Time 2 (M = 5.42, SD = 0.93). This finding was unexpected because the Harmony Project training emphasized the importance of demonstrating unconditional positive regard and building healthy relationships within the school community. Individuals were frequently prompted to reflect upon how relationships connect to fostering trust and respect within the school community. Wolpow et al. (2009) indicates that when teachers are able to show unconditional positive regard and build healthy relationships with their students this can help foster resiliency for traumatized youth to cope with the stressors they face.

Within the Harmony Project program, there was an emphasis on adopting a "what happened to you" versus "what is wrong with you?" approach when responding to others' behaviors. A potential reason for the minimal shift observed in this mindset could be due to a belief that students still need to receive consequences and disciplinary actions for misbehavior in

order to learn how to do better next time. Students who come from traumatized backgrounds are more likely to have aggressive outbursts in school, and instead of the student being viewed as someone who is a potential victim of trauma they are more likely to be seen as someone exhibiting poor behavior that needs to be punished (Chafouleas, 2016; Van Der Kolk, 2014). Unfortunately when there is an over emphasis on discipline and punitive punishments, students are at risk for experiencing sanctuary trauma (i.e., re-traumatization in a place where student was seeking safety and compassion), which in turn can make students feel less connected to school and lead to poor academic achievement (Berkowitz, 2012; Ristuccia, 2013; Wolpow et al., 2009). Although the minimal change was not statistically significant, the Time 2 mean score of 5.42 is trending in the direction of being more favorable toward trauma-informed care.

Educators' on the job behavior. Similar to "responses to problem behaviors and symptoms", the "on the job behavior" domain of the ARTIC-35 considers how teachers interpret and perceive students who exhibit behavioral difficulties at school. This construct measures the extent to which staff attitudes endorse control-focused behaviors (less trauma informed) versus empathy-focused behaviors (more trauma informed). Respondents were asked questions regarding the extent to which a teacher may perceive if it reflects badly on them when a student is upset, the need for a student to apologize for misbehaving or the teacher will look like a fool, controlling poor behavior to prevent property damage, and the need to have healthy relationships versus boundaries (Baker et al., 2016). In this domain, there were no significant changes from Time 1 (M = 5.48, SD = 0.78) to Time 2 (M = 5.51, SD = 0.80). This was an unexpected finding because the Harmony Project covered content that would endorse empathic mindsets. For example, the module on emotional triggers encourages participants to delve into identifying their own triggers and consider how what they learned about emotional regulation ties into the social-

emotional indicators of other adults and students they work with at school. Interestingly, Baker et al. (2020) found that educators who worked in more trauma-sensitive schools endorsed less favorable ARTIC scores on this subscale. Perhaps this is an area that needs to be built upon when considering the development and implementation of trauma-informed care programs in school settings. Similar to previously mentioned attitudes related to trauma-informed care domains, a mean score of 5.51 at Time 2 is still considered to be trending in a more favorable direction.

Educators' self-efficacy at work. The "self-efficacy at work" domain of the ARTIC-35 examines educator attitudes around meeting the demands of working with populations of youth who have been traumatized. For example, individuals are asked questions endorsing the extent to which they may dread going to work because it's too intense, having what it takes to help their students, and feeling supported by colleagues when expressing how difficult the job is (Baker et al., 2016). Unexpectedly, there was a significant decrease in participants' scores from Time 1 (M = 5.61, SD = 0.85), to Time 2 (M = 5.47, SD = 0.95). This outcome was especially surprising given that participants from the 2017-2018 round of data collection reported an increase in self-efficacy as measured on the Teacher Self-Efficacy Scale (Phillipo & Stone, 2013). The "self-efficacy at work" subscale on the ARTIC-35 is 7 items instead of 13 items like the Teacher Self-Efficacy measure (Phillipo & Stone, 2013). Although both scales measure confidence in addressing the mental health needs of students, differences in responses on the two rounds of data collection across time could be related to the fact that the questions were phrased differently. On the Phillipo and Stone (2013) measure, participants responded on a scale of 1 (*not at all confident*) to 4 (*highly confident*). The ARTIC-35 format is quite different; participants had to rate the extent to which they agreed with statements on two opposing sides of the spectrum

ranging from less favorable attitudes to more favorable attitudes. Perhaps being more familiar with the format of the Phillipo and Stone (2013) may have influenced participants' scores.

Training in trauma-informed care strives to help teachers feel more confident and efficacious in their abilities to meet the needs of their students. It was expected that after participating in the Harmony Project that participants' scores in this domain would improve over time. One limitation that the Harmony Project developers faced is that compared to the previous year they had to modify their program by reducing some of the content that was covered due to time constraints. Maybe participants would feel more efficacious at work if they had the opportunity to learn more content through the Harmony Project on more strategies to directly support their students. This is important because studies have found that many teachers believed they lacked the skills and knowledge to address the mental health needs of their students (Reinke et al., 2011). When there are students in the class with significant trauma histories that may manifest as significant behavioral problems, teachers often struggle to balance the needs of those student(s) while meeting the needs of the whole class (Alisic, 2012). This is part of the reason why it is so important to take a universal approach to trauma-informed care so that trauma-sensitive strategies are carried out by all staff when working with all students. The "self-efficacy at work" construct is also tied to the emotional well-being of teachers; when teachers feel ill-equipped to meet their children's needs, they may feel discouraged and experience negative feelings of distress when interacting with coworkers, parents, and students (Tsouloupas et al., 2010). Additionally, when teachers find that they are not able to meet academic objectives due to responding to behaviors in their classroom, they may experience increased levels of stress and worry (Blitz et al., 2016).

Another explanation for the decrease in "self-efficacy at work" could be that teachers may have felt more confident in the beginning of the year, and then felt less confident over time when they began to have experiences that demonstrated that they may not have the skills and knowledge in meeting their students' needs as they had originally thought (Petrovic, 2018). In this study, educators completed the pre-Harmony Project surveys in July/August 2018 and completed post-Harmony Project surveys in October/November 2018. Between those two time points of data collection, educators may have also developed an increased awareness about trauma-informed approaches from participating in the Harmony Project; this newly developed awareness may have prompted them to think that they need to learn more about trauma-informed care in order to meet their students' needs. Another explanation could be that self-efficacy may have naturally decreased over time. At the beginning of the school year, teachers may feel excited about a fresh start to the new year. They may be looking forward to getting to know their new students and begin to implement strategies they learned from various professional development activities. As teachers approach the middle of the fall semester, the increase in academic demands placed on students are often associated with an observable increase in students' social-emotional difficulties in the classroom. As teachers get to know their students, it may become apparent that some of their students have significant trauma histories. This could lead to elevated levels of stress for both teachers and students as they try to balance academic demands with their social-emotional needs. This imbalance could in turn contribute to teachers feeling inadequate in their abilities to meet their students' needs (Alisic et al., 2012). A significant decline in teacher self-efficacy at work is consistent with Petrovic (2018). In this study, a sample of teachers completed "self-efficacy at work" subscale from the ARTIC. Petrovic (2018) found that teachers experienced a decrease in "self-efficacy at work" over the

course of the school year, and that there were main effects for teacher burnout and secondary traumatic stress on self-efficacy. Measures of burnout and secondary traumatic stress were not included in the present study on the Harmony Project; however, including such measures may be considered for future research. Interpretation of findings in the current study are hampered by the lack of a control condition which may demonstrate attitudes related to trauma-informed care throughout the year in the absence of intervention participation.

Although the decline in "self-efficacy at work" scores from pre- to post- the Harmony Project intervention was statistically significant, the effect size (η^2) was small. Although this was the only subscale where there was a significant decrease in scores, the mean score for "self-efficacy at work" was the highest at Time 1 across all of the ARTIC-35 domains (M = 5.61, SD = 0.85). As initiatives like the Harmony Project continue to be implemented in the future, it is important for schools to consider making sure that building teacher self-efficacy at work is part of their program.

Educators' reactions to the work. The "reactions to the work" domain of the ARTIC-35 refers to underappreciating the effects of vicarious trauma and coping by ignoring (less trauma informed) versus recognizing and acknowledging the impact of vicarious trauma and coping by utilizing support from others (more trauma informed). For example, participants were asked about their attitudes about needing to toughen up to ignore pain, seeking support out to cope with burnout versus not dwelling on it so it can pass, and taking care of oneself to support others (Baker et al., 2016). Participants' "reactions to the work" in the present study did not change significantly from Time 1 (M = 5.58, SD = 0.80) to Time 2 (M = 5.57, SD= 0.91). This was not an expected outcome, given that the Harmony Project also emphasized self-care, seeking support from colleagues, and recognizing vicarious trauma within their content. The need for

collaboration between colleagues is especially important because this allows educators to feel as though they have a sense of trust within their teams and feel more prepared to help their students (Aelterman, 2007). When educators lack effective coping skills, they may be at risk for experiencing vicarious or secondary trauma. This occurs when teachers begin to experience PTSD like symptoms in response to the trauma that their students face (Wolpow et al., 2006). When teachers have trouble meeting the needs of students with complex trauma, their own trauma histories may be triggered (Alisic, 2012). A limitation to interpreting this subscale is that participants were not explicitly asked about the frequency they engaged in self-care practices or how often they turn to their colleagues for support. Perry and Daniels (2016) found that 38% of individuals in their sample planned to use better self-care strategies following their professional development in trauma-informed care. It would be expected that after participating in the Harmony Project individuals would be more likely to attempt to incorporate more self-care practices into their routine and seek out support from coworkers, however, these were not outcomes that were measured in this study.

Educators' overall attitudes related to trauma-informed care. The findings of the current study indicated there were no significant changes in overall attitudes related to trauma-informed care as assessed by all items within the ARTIC-35 from Time 1 (M = 5.45, SD = 0.70) to Time 2 (M = 5.45, SD = 0.76). Overall, there were no significant interactions between time and school, so changes in overall ARTIC were not significantly different by school. Although it was hypothesized that there would be significant shifts toward more favorable attitudes related to trauma-informed care, the relatively stable scores observed in this study may not be as surprising when considering the test retest reliability of the ARTIC-35 (r = .84 at 120 days; Baker et al., 2016). Participants from Schools 1 through 5 completed surveys two months apart, and

participants from School 6 completed surveys five months apart. Even though the schools had completed the Harmony Project training by October or November 2018, the work of becoming a trauma-sensitive school is ongoing. There may need to be more time to process what it means to be trauma-informed and gain a deeper understanding of how that translates into practice for a significant mind shift to occur. Perhaps future studies examining longitudinal changes in ARTIC scores in evaluations of trauma-informed programs like the Harmony Project would consider administering measures in the beginning, middle, and end of the school year. This would allow more time to lapse between data collection points. Possibly the ARTIC-35 is not designed to be sensitive enough to detect significant change across two time points that are relatively close together. Additionally, it was expected that following the training some Harmony Project schools would begin directly incorporating lessons in the classroom with students using a universal social-emotional curriculum (i.e., MindUp). This program teaches students about how to use tools to manage stress and regulate their emotions through mindfulness. Schools from the 2017-2018 varied in how this phase of the Harmony Project was carried out, but it would have been insightful to assess school staff ratings on the ARTIC-35 after this phase of the project had been rolled out for the 2018-2019 schools.

Notably it is unknown the extent to which schools in this study were already striving to become more trauma-informed prior to participating in the Harmony Project. As a former employee at one of the schools in the present study, I know that some efforts from administration and members of student services to introduce the idea of being trauma-informed to faculty pre-dated the first session of the Harmony Project. Such efforts outside of the Harmony Project included conversations and presentations at staff meetings. Although those were not formal trainings on trauma-informed care, the aim for all schools to be more trauma-informed was a

district-wide goal. Schools were possibly already starting to make the shift toward becoming trauma-informed, which could be why baseline scores were already past the neutral point before the Harmony Project training technically began.

Another limitation in this study is that many participants skipped the question regarding whether they had participated in Harmony Project training with their administrator the summer before the Harmony Project formally began, as this would be an indication of whether or not they were a Harmony Project trainer (Campus Champion). Participants may not have been clear on the question or may have missed it, but the analyses for the present study were not able to control for the frequency of prior exposure to the content during the summer training for Campus Champions, and the potential impact of such prior exposure on scores at baseline (Time 1).

Aside from the fact that the baseline scores for the ARTIC subscales were above the mean, there could be other reasons for why there was not more of a shift in scores. As noted in Ristuccia (2013) it is difficult to measure teachers' perceptions of how important it is to implement trauma-sensitive practices. When being presented with more professional development training on this topic, some teachers may feel too stressed or overwhelmed to take the information in and translate it into their practice (Ristuccia, 2013). There could also be some individuals who feel as though the information is contradictory to their own beliefs (e.g., mental health needs should be addressed by student services, students need accountability and consequences for their behaviors). Future studies including qualitative data that further investigates educators' perceptions of trainings in trauma-informed care may offer more insight on their attitudes related to trauma-informed care.

Considerations for the ARTIC-35. Because the ARTIC is a relatively new measure, there are very few published studies available that have utilized this measure to examine changes

in attitudes related to trauma-informed care after participating in a TIC training. For example, Liang and colleagues (2020) found that participants pre- to post- scores significantly increased on the ARTIC-10 after participating in a 3-hour and 6-hour workshop on trauma-informed care. However, Liang et al. did not utilize the ARCTIC-35 at two time points due time constraints. Orapallo (2020) found significant changes in pre- to post- scores on the ARTIC-45 among a sample of educational staff from preschool programs who received training in trauma-informed care, however, contrary to the Harmony Project, staff in this study received training over the course of seven to nine months. When interpreting the results of other studies that have utilized the ARTIC, it is important to note that to date there have not been other published studies conducting in-depth analyses measuring the psychometric properties of the ARTIC-35 aside from the original developers of this measure (Baker et al., 2016; Baker et al., 2020).

The ARTIC may benefit from additional psychometric evaluations to assess the validity of this measure. In the current study, the psychometric properties of the ARTIC were evaluated by using a confirmatory factor analysis (CFA) as well as using Cronbach's alpha to calculate internal consistency. At both time points using the ARTIC-35, the levels of internal consistency were acceptable, but not exceptionally high, and the CFA results met some but not all criteria for good model fit. During the 2017-2018 round of data collection, Drymond (2020) reported that the internal consistency was low ($\alpha = .69$) and the CFA yielded marginal model fit ($\chi^2 = 136.39$, $df = 35$, $p < 0.001$, CFI = 0.774, TLI = 0.709, RMSEA = 0.098, SRMR = 0.064). When considering the use of the ARTIC, the bi-polar format of the questions is unique from the way many other measures are designed. During the 2017-2018 round of data collection, some educator participants expressed difficulty completing items on the ARTIC-10 (Drymond, 2020). Although this problem was not voiced as a significant concern during the 2018-2019 round of

data collection, it was apparent that a few individuals had difficulty completing the form. There were a few items that were omitted from analyses for a few participants because they responded to items with both an answer of 1 and 7, indicating they strongly agreed with both opposing statements. As more school systems aim to become trauma-informed, it is important to have psychometrically valid and reliable measures to assess staff attitudes toward trauma-informed care. Baker and colleagues indicated that future psychometric evaluations of the ARTIC using different samples will be helpful as they continue to improve the measure (Baker et al., 2020).

Evaluation Question 2: Changes in Perceived Global Knowledge

The purpose of the second evaluation question was to investigate changes in perceived global knowledge about trauma-informed care in educational settings across participants in schools that participated in the Harmon Project. Participants were asked to rate themselves on a scale of 1 (*no knowledge*) to 10 (*expert*) on how much they knew about trauma-informed care in educational settings. Overall, participants reported a significant increase in their perceived knowledge about trauma-informed care in educational settings from Time 1 (M = 5.28, SD = 2.35) to Time 2 (M = 7.45, SD = 1.46). The effect size for this change was considerably large ($\eta 2$ = .52). This finding was expected given that individuals who participated in the Harmony Project had the opportunity to learn about, reflect upon, and discuss trauma and how it manifests in the school setting, as well as what the tenets of trauma-informed care are and how it applies to their lives when interacting with coworkers and children. This finding was also expected because previous studies examining outcomes for trauma-informed care programs in educational settings have also found that teachers report an increase in their knowledge about TIC practices (Baweja et al., 2016; Dorado et al., 2016; Perry & Daniels, 2016). For this study, perceived global knowledge about trauma-informed care was assessed using a one item indicator. This was similar

to how in Baker et al. (2020) participants were asked a single-item, “How familiar are you with trauma -informed schools?” to measure familiarity with trauma-informed care. It would have been useful to also include a knowledge measure such as the one in Baker et al. (2020), in which participants were quizzed on their knowledge of trauma-informed care in educational settings. This would have allowed the developers to see how much participants learned and retained because of the training. A self-report item of perceived global knowledge also may be susceptible to social desirability effects; participants may have been more likely to report a higher score at Time 2 because they may have been aware that administrators and the developers were hoping that school staff perceived knowledge would increase after participating in the Harmony Project.

Evaluation Question 3: Moderating Effects of Perceived Global Knowledge

The aim of the third evaluation question was to investigate the extent to which prior perceived global knowledge moderated changes in attitudes related to trauma-informed care from Time 1 to Time 2. It was hypothesized that prior perceived global knowledge would moderate changes in attitudes related to trauma-informed care because it was anticipated that staff members who perceived they had less knowledge about trauma-informed care in educational settings would initially exhibit less favorable attitudes related to trauma informed care compared to those who started the training with higher levels of perceived global knowledge. When controlling for school effects, ARTIC-35 scores and perceived global knowledge scores at Time 1 significantly predicted their corresponding scores at Time 2. However, no significant interaction effects were found between Time 1 ARTIC-35 scores and Time 1 perceived global knowledge scores on predicting Time 2 scores. In other words, prior perceived global knowledge about trauma informed care did not moderate pre- to post- changes

in ARTIC-35. This was not an expected finding for the present study. Time 1 perceived global knowledge significantly correlated with all ARTIC-35 variables at Time 1, ranging from $r = .23$ ("reactions to the work") to $r = .33$ (Overall ARTIC). There were also significant correlations noted between Time 1 perceived global knowledge with ARTIC-35 variables at Time 2, ranging from $r = .27$ ("underlying causes of problem behaviors and symptoms") to $r = .37$ (Overall ARTIC). Perceived global knowledge at Time 1 also significantly predicted all ARTIC-35 scores at Time 2 except for "underlying causes of problem behaviors and symptoms" ($p = .069$). Because there was no moderation effect, these findings did not support the hypothesis that individuals with lower baseline perceived global knowledge about trauma-informed care would experience greater shifts in ARTIC from Time 1 to Time 2. Perhaps a more specific measure assessing participants' actual knowledge on trauma-informed care rather than their perceived knowledge may have been beneficial for this study. However, measures such as these were not available for analysis. Although it would be expected that individuals with higher perceived global knowledge about trauma-informed care would have more favorable attitudes related to trauma-informed care, more research is needed in this area (Baker et al., 2016).

Limitations and Future Recommendations for Research

There are some limitations that should be considered for the present study on the Harmony Project. One limitation is that only one multi-item measure (the ARTIC-35) was used for data collection, and there was not a full measure assessing participants actual knowledge on TIC. Therefore, other anticipated outcomes for the Harmony Project were not assessed through systemic data collection. The reason for this choice is because during the 2017-2018 school year the ARTIC-10 was utilized along with several other survey measures. The developers received feedback from participating schools that it was too time consuming for staff to complete the

amount of surveys they were given within the amount of time allotted. For the 2018-2019 school year, it was requested to select only one instrument that could be completed within a shorter time frame that would still assess the primary outcome of interest, attitudes related to trauma-informed care. In collaboration with the Harmony Project developers, the ARTIC-35 was determined to be the most appropriate single measure to use and the most feasible to administer. Future studies may include additional measures that offer further insight on attitudes related to trauma-informed care. This could include direct assessment of educator knowledge of trauma-informed care practices, and other measures such as adverse childhood experiences, burnout, compassion fatigue, and teacher stress which could also impact individuals' ARTIC (Loomis & Felt, 2020; Petrovic, 2018).

Teacher turnover presents another potential limitation for the present study. Stress due to vicarious trauma and emotional exhaustion have both been linked to teacher turnover (Tsouloupas et al., 2010; Wolpow et al., 2009). Teachers also may be more likely to miss work if they are amid experiencing high levels of stress when working with students who have experienced trauma. For these reasons it is possible that some teachers missed Harmony Project sessions and some teachers may have changed schools during the fall semester when data was collected. Teachers leaving their school or new teachers starting after the school year to fill in vacancies could also be a contributing factor to missing pre-and post-survey data. In this study, there were 451 educators who completed surveys, however, only 246 of them provided data at both Time 1 and Time 2. This concern became apparent during the data collection for Time 2, where some participants at School 1 expressed they participated in none to few of the Harmony Project sessions because they were new staff members. This issue was not brought up at other schools during data collection, however, it is possible that they faced similar issues with teacher

turnover. At this point, Time 2 surveys had already been administered to Schools 1 through School 5, so for School 6, a question was added to the survey asking how many Harmony Project sessions they attended. Twenty-eight of sixty-four participants from School 6 (44%) answered this question. Participants' responses ranged from 2 to 7 sessions with a mean of 4.59 sessions (SD = 1.92). Although there are only five modules, participants may have indicated they attended more sessions because Campus Champions could extend the module across multiple sessions if needed. The majority of those who responded attended the Harmony Project sessions, however, with such a substantial amount of missing data the fidelity of participant attending the Harmony Project sessions cannot be assessed. Therefore, results of this study reflect changes in ARTIC from a sample of staff members at participating Harmony Project schools regardless of whether that individual had substantially participated in the Harmony Project modules; intervention dosage is not considered.

The findings of this study could be indicative of the overall school culture regarding trauma-informed care after participating in the Harmony Project, however, future studies should include more stringent fidelity measures of the extent to which schools staff engaged with the content. Without stronger fidelity measures, we are unable to confidently determine if the results from the ARTIC-35 and perceived global knowledge about trauma-informed care are directly related to their participant in the Harmony Project. Given that modules could extend across multiple sessions, asking participants about the number of sessions they attended may not be the best way to capture treatment dosage. Another way to measure treatment dosage could be to list the names of all of the Harmony Project modules (i.e., Module 1 – Introduction to Trauma-Informed Care, Module 2 – Emotional Triggers, etc.) and ask participant if they participated in at least 80% of that modules activities by circling “yes” or “no”. This way the investigator can

assess if the participants received the majority of the content in each of the modules. If this data were to be included in future studies, analyses could be conducted to tease out the impact of the Harmony Project on those who participated in the majority of the professional development modules.

Another limitation is that initially a mixed-methods approach was considered for this study. Originally, I anticipated inviting school staff who participated in the Harmony Project to participate in focus group interviews following the training. Although participants in the Harmony Project schools from the 2017-2018 school year participated in focus groups, this form of data collection was not utilized for the current study focusing on the 2018-2019 school year. Focus groups were not conducted because there were concerns regarding the amount of time it took for teachers to participate in the focus group outside of their contracted hours. Additionally, the developers from the Harmony Project were already planning to seek qualitative feedback from participants through open-ended questionnaires through using Survey Monkey. This provided the developers with additional qualitative information regarding staff perceptions of the Harmony Project that would not have been captured in completing the quantitative surveys. In collaboration with the Harmony Project developers it was determined that qualitative interview data was not needed at the time, and the primary focus should be on quantitative data collection. The Survey Monkey data was not available for analysis in the present study because Harmony Project developers were primarily interested in this study focusing on the quantitative data. Qualitative data would have been especially insightful to follow up on teachers' perceptions of attitudes related to trauma-informed care, especially in self-efficacy where there was a decline in scores over time.

The lack of a control group also presents a limitation for this study. The participants in the current study were part of the control group during the 2017-2018 school year. The wait-list schools from the 2017-2018 data collection phase had the understanding that they would receive the Harmony Project training in the 2018-2019 school year. I was not able to recruit a control group of schools because the developers indicated it could not be promised that those potential schools could receive the Harmony Project training during the 2019-2020 school year. Without a control group, there are some limitations regarding external validity. However, there are several studies that have evaluated trauma-informed programs without using a control group (e.g., Dorado et al., 2016; Perry & Daniels, 2016; Shamblin et al., 2016). Furthermore, experimental designs that include a treatment and control group are not always appropriate for initiatives that involve systems change and are not within a fairly controlled environment (W.K. Kellogg Foundation, 2017).

As previously mentioned, only data from the 2018-2019 school year were included in this study. Because the ARTIC-10 was previously used instead of the ARTIC-35, responses were not compared across the two different school years. In terms of the training itself, the modules were modified and condensed after the 2017-2018 school year to reduce the amount of time teachers spent in the training. The Harmony Project includes five modules on trauma-informed care in schools. For example, topics included understanding adverse childhood experiences, how trauma impacts the brain, emotional triggers, the tenets of trauma-informed care, and the importance of self-care. Staff were often prompted to reflect on these topics regarding themselves and their interactions with colleagues and students; however, emphasis for this phase of the project was more so on the adults than the students. This is important to note because although the overarching constructs within the ARTIC-35 align with the Harmony Project content, several

items on the ARTIC-35 are focused on students. For this reason, perhaps the ARTIC-35 would have been more appropriate to administer after school staff had received more professional development on how to apply these concepts when working directly with students. It may have been helpful to also administer the ARTIC-35 at the end of the school year after staff have had more time to digest and apply the content they had learned to their daily practice.

Future Considerations for the Harmony Project

As the Harmony Project and other trauma-informed initiatives continue to be rolled out across schools, there are some considerations to keep in mind for future practice and research. Many schools across the district where the Harmony Project took place may have been in varying phases and stages of implementing school-wide positive behavioral interventions and supports (SWPBIS). SWPBIS framework aims to meet the behavioral and emotional needs of students across multi-tiered systems of supports (i.e., universal, supplemental, targeted/intensive). For example, some schools may have systems in place for students to earn rewards (e.g., points, tickets) and exchange those rewards for tangible items from a school store or other privileges. As Harmony Project schools strive to become more trauma-informed, it may be helpful for their school administration and student services teams to support teachers in building connections between the two separate yet related initiatives. This is especially important considering that students with trauma histories may engage in acting out behaviors that prompt a need for safety and security over harsh punishments (Cole et al., 2013; Evers, n.d.). Schools should emphasize that PBIS means more than handing out tickets for good behavior; on the Tier 1 level, it also includes universal instruction on social-emotional learning, adults modeling emotional regulation, incorporating predictable routines and physical breaks, as well as supporting safe places for students to calm down (Cole et al., 2013; Evers, n.d.; Overstreet &

Chafouleas, 2016). As supplemental and intensive supports are offered through PBIS, a trauma-sensitive lens should be applied when incorporating interventions such as Check-In Check-Out, or when developing functional behavioral assessments (FBA) and behavior intervention plans (BIP).These connections may have already been made for staff at participating schools, but in the event it has not, the Harmony Project can help support schools staff in continuing to utilize trauma-informed approaches through a PBIS framework.

Currently there is limited literature available on which aspects of teacher training in trauma-informed care directly link to improvements in student and teacher outcomes (Chafouleas et al., 2016). Given that teachers may not be aware of which students have been victims of trauma, professional development that targets all schools staff is an increasingly popular approach to help support the mental health of all students. A recent study conducted by Loomis and Felt (2020) examined how the content of trauma-informed training impacts attitudes related to trauma-informed care and teacher stress. More specifically, participants were asked about whether they had knowledge training (e.g., impact of trauma on children's brain, behavior, or mental health), skills training (e.g., recognizing and referring for trauma, managing trauma-related behaviors in the classroom), self-reflection training (e.g., impact of child or teacher's own trauma on stress and mental health, selfcare), or a combination of any of these training topics. Compared to those who had knowledge only training, participants who received training in self-reflection or a combination of self-reflection and skills training exhibited significantly more favorable attitudes related to trauma-informed care. Those who received a combination of self-reflection and skills training scored the highest on the ARTIC-35 compared to those who only received knowledge only. A strength of the Harmony Project is that self-reflection is embedded throughout all the modules. At the end of each module, school staff are prompted to take time to

process and reflect on the content they had just learned (e.g., safety) and connect it to how it manifests in their own lives when they interact with others and strive to promote healthy environments at school. Individuals are also prompted to reflect upon what action steps they can take to apply their increased awareness surrounding these concepts they learned and apply it to their work when interacting with school staff and students. In the area of skill building, the modules also covered a variety of topics that involved recognizing symptoms of trauma, identifying triggers, and building healthy relationships. Perhaps if there is consideration to increase content in the future, there could be more skill building on helping teachers learn and practice strategies for responding to trauma-related behaviors in the classroom.

For the professional development phase of the Harmony Project, most schools completed five modules over the course of a couple of months, and then schools varied in how they proceeded with the third phase of the project focused on students (e.g., social-emotional learning in the classroom or small groups). It is possible that in order for there to be a significant shift toward *more favorable* attitudes related to trauma-informed care as measured on the ARTIC-35, educators need to spend more time engaging in the Harmony Project content over a longer period of time (e.g., several months) and participate in more discussion on how to apply it to their work with students. The need for ongoing professional development on trauma-informed care is especially important given that the resent study found a significant decline in educators' self-efficacy at work as measured by the ARTIC-35 (e.g., "I don't have what it takes to help my students"). Educators' attitudes shifted toward being *less likely* to feel able to meet the demands of working with traumatized students. This shift may have occurred naturally over the course of the semester as the "honeymoon phase" of the beginning of the year (i.e., students and staff are excited to start a new school year and the frequency of emotional/behavioral difficulties is lower)

calms down and work demands increase (Petrovic, 2018). Notably, the Harmony Project was requested to reduce the time spent on training, however, the work that they are striving to accomplish in the county is very important. Other studies evaluating trauma-informed care program in schools took place over the course of several months or years (e.g., Dorado et al., 2016; Orapallo, 2020). It would be expected that more efforts linked to training staff to be more trauma-informed may help improve teachers' self-efficacy at work, which in turn increase staff engagement and improve employee retention.

Another future consideration for the Harmony Project and other trauma-informed initiatives is including a culturally responsive approach within the trauma-informed framework. In five out of six schools, the percentage of students from ethnically diverse backgrounds ranged from 41.7% to 45.8%. Regarding socioeconomic status, across five different schools 75.4% to 90.9% of their students belong to economically disadvantaged families. Within the sample for the current study, only 8.5% of participants self-identified as having an ethnically diverse background. Studies have found that students of color, students with disabilities, and students from low-income backgrounds are disproportionately more likely than their peers to receive disciplinary referrals in response to behavioral difficulties at school (Skiba et al., 2005; Skiba et al., 2006). Furthermore, studies such as those conducted by Downey and Pribesh (2004) have found that teacher race matters when rating students behaviors; in particular, White teachers were more likely to indicate poorer ratings of behavior for their Black students relative to Black teachers. An example of addressing cultural responsiveness was noted by Liang et al. (2020). In that study, school staff participated in a workshop on trauma-informed care. The workshop included elements on how racial discrimination is a form of trauma that can potentially impact students' emotional well-being, learning at school, and their relationships with teachers. The

topics of the workshop also covered information about how microaggressions and color-blind attitudes could influence practices within the classroom environment and students' overall well-being. These issues are especially important to address within the context of today's society where there has been increased attention to combating racism and promoting safe environments for students of all backgrounds. Potentially some staff in this district may not be ready to take in such content, and if such training were to take place it would be important that such sensitive topics are handled with care. In Blitz et al. 2016, they found that a district's attempt at including culturally responsiveness workshops into their professional development were not well-received by teachers who interpreted the content as trying to make them feel shameful or guilty. Although these issues are difficult to address, they may be considered in the future; becoming a more culturally responsive district directly aligns with the need to become more trauma-informed.

Contributions to the Literature and Implications

This program evaluation study has implications for the literature and practice. Currently there are limited studies available investigating changes in knowledge or attitudes related to trauma-informed care. Of those available, many rely on informal satisfaction surveys to measure the impact of the program rather than a psychometrically reliable and valid assessment tool (e.g., Dorado et al., 2016; Perry & Daniels, 2016). The ARTIC is a relatively new measure that has not been used in many studies yet. This study contributes to the literature on the utility of the ARTIC to evaluate programs on trauma-informed care. Analyses examining the psychometric properties of the ARTIC-35 (i.e., CFA, internal consistency) offered insight on the robustness of this tool. The results from this study suggest that the ARTIC-35 measure could benefit from future modifications to the instrument to help strengthen the internal consistency and incremental model fit. Another methodological issue being addressed is that many studies lack a pre- and

post- measure. Dorado and colleagues (2016) utilized a retrospective pre-post design (i.e., before and after data were collected at the same time), and Perry and Daniels (2016) only collected data after the program had been implemented. There could be concerns with participants accurately remembering what their thoughts were before the training, and without a baseline it is not possible to measure changes over time. The inclusion of a baseline for the present study allows an investigation of changes in attitudes related to trauma-informed care over time.

Previous studies have found that staff participation in professional development activities on trauma-informed care can have positive outcomes for students and staff (Dorado et al., Perry & Daniels, 2016; Shamblin et al., 2016). The findings of this study could be helpful for the Harmony Project developers in understanding pre- to post- changes in attitudes related to trauma-informed care. This data could be useful to help inform future endeavors for sustaining the implementation and the evaluation of the Harmony Project as well as other trauma-informed care initiatives across the school district.

Conclusion

In conclusion, this program evaluation study has contributed to the literature on trauma-informed care in educational settings. This was achieved by examining pre-to post- changes in educator attitudes related to trauma-informed care and perceived global knowledge about trauma-informed care among staff whose schools participated in the Harmony Project. For the 2018-2019 year, five elementary and one middle/high school participated in the Harmony Project. During the Fall 2018 semester, Classroom Champions (i.e., Harmony Project trainers) facilitated five professional development modules on their respective campuses about the biological basis of trauma, emotional triggers, the tenets of trauma-informed care (SAMSHA, 2014), and self-care. Surveys were completed at both time points by 246 individuals who worked

at these schools. As expected, the results showed that participants reported a significant increase in their perception of how much they know about trauma-informed care in educational settings. On the other hand, when examining attitudes related to trauma-informed care there were no significant pre- to post- changes in the areas of "underlying causes of problem behaviors and symptoms", "responses to problem behaviors and symptoms", "on the job behavior", "reactions to the work", or "overall attitudes related to trauma-informed care". Unfortunately, "self-efficacy at work" attitudes became *less favorable* over time, meaning teachers felt less confident meeting the needs of traumatized youth. These findings regarding educators' attitudes related to trauma-informed care after their schools participated in the Harmony Project were unexpected. It would be important for schools to consider how they can continue to foster teacher confidence and self-efficacy in meeting the needs of their youth to support staff in maintaining their emotional well-being in such a stressful job.

Although there were no significant shifts trending toward *more favorable* attitudes related to trauma-informed care, it would be premature to deem the Harmony Project professional development modules ineffective. There are several factors and limitations to consider when evaluating the efficacy of the Harmony Project professional development phase. The scope of this study was limited to pre- to post- survey data that were administered before and shortly after the professional development modules. These two time points were only a few months apart and may have been too close together for there to have been an observable shift in educator attitudes over time. Even with the sensitivity to time in question, the measure detected a decline in "self-efficacy at work", but the associated effect size was notably small. To further understand changes in teacher attitudes related to trauma-informed care, it would have been helpful to also administer the ARTIC-35 at the end of the school year after more time had lapsed since the pre-

Harmony Project round of data collection. At this point some schools had also shifted their focus toward engaging in trauma-informed care initiatives directly with students (e.g. mindfulness lessons) and the community. There would have also been more time for teachers to reflect on the content covered in the modules and apply what they had learned to their classroom practices. It is also important to consider that baseline levels on the ARTIC-35 were already trending in a desirable direction; without much room for growth on the ARTIC-35 measure, significant shifts from pre- to post- are difficult to observe. Unexpectedly, the findings evaluating the psychometric properties of the ARTIC-35 were mixed. The data in this study suggest that further evaluation of this new measure would be beneficial as schools strive to use data to evaluate their efforts to become more trauma-informed. In addition to these challenges associated with the ARTIC-35, this study did not include a control group nor a measure of treatment dosage. These limitations make it difficult to ascertain if the across-time trends observed in this study were directly due to the Harmony Project professional development.

Given these limitations, future research addressing these issues would be needed to evaluate the efficacy of the Harmony Project professional development modules. Further psychometric evaluations of the ARTIC-35 are warranted to help improve this tool as it continues to be used for research on trauma-informed care programs in school systems. Program evaluation studies of initiatives such as the Harmony Project may consider including additional survey measures that would be of interest to program stakeholders, as well as indicators of treatment integrity and qualitative data. These additional measures could provide schools and project developers with a deeper understanding of educators' insights on how these trainings are supporting the overall goal of becoming a trauma-informed school.

References

Aelterman, A., Engels, N., Van Petegem, K., & Pierre Verhaeghe, J. (2007). The well-being of teachers in Flanders: the importance of a supportive school culture. Educational studies, 33(3), 285-297.

Alavi, M., Visentin, D. C., Thapa, D. K., Hunt, G. E., Watson, R., & Cleary, M. (2020). Chi-square for model fit in confirmatory factor analysis. *Journal of Advanced Nursing*.

Aldrup, K., Klusmann, U., Lüdtke, O., Göllner, R., & Trautwein, U. (2018). Student misbehavior and teacher well-being: Testing the mediating role of the teacher-student relationship. *Learning and Instruction*, *58*, 126-136.

Alisic, E. (2012). Teachers' perspectives on providing support to children after trauma: A qualitative study. School Psychology Quarterly, 27(1), 51-59. doi:10.1037/a0028590.

Alisic, E., Bus, M., Dulack, W., Pennings, L., & Splinter, J. (2012). Teachers' experiences supporting children after traumatic exposure. *Journal of Traumatic Stress*, *25*(1), 98-101.

Anda, R. F., Felitti, V. J., Bremner, J. D., Walker, J. D., Whitfield, C. H., Perry, B. D., Dube, S. R. & Giles, W. H. (2006). The enduring effects of abuse and related adverse experiences in childhood. *European archives of psychiatry and clinical neuroscience*, *256*(3), 174-186.

Anda, R. F., Butchart, A., Felitti, V. J., & Brown, D. W. (2010). Building a framework for global surveillance of the public health implications of adverse childhood experiences. American journal of preventive medicine, 39(1), 93-98.

Baker, C. N., Brown, S. M., Wilcox, P. D., Overstreet, S., & Arora, P. (2016). Development and

psychometric evaluation of the Attitudes Related to Trauma-Informed Care (ARTIC) scale. School Mental Health, 8(1), 61-76.

Baker, C. N., Brown, S. M., Overstreet, S., & Wilcox, P. D. (2020). Validation of the Attitudes Related to Trauma-Informed Care Scale (ARTIC). *Psychological Trauma: Theory, Research, Practice, and Policy*. https://doi-org.ezproxy.lib.usf.edu/10.1037/tra0000989.supp (Supplemental)

Baweja, S., Santiago, C. D., Vona, P., Pears, G., Langley, A., & Kataoka, S. (2016). Improving implementation of a school-based program for traumatized students: Identifying factors that promote teacher support and collaboration. School Mental Health, 8(1), 120-131.

Berkowitz, S. J. (2012). Childhood trauma and adverse experience and forensic child psychiatry: The Penn Center for Youth and Family Trauma Response and Recovery. Journal of Psychiatry and Law, (1), 5.

Blaustein, M. E. (2012). Childhood trauma and a framework for intervention. In E. Rossen and R. Hull (Eds.), *Supporting and educating traumatized students: A guide for school-based professionals*, 3-21.

Blodgett, C., & Dorado, J. (2016). A selected review of trauma-informed school practice and alignment with educational practice. *Pullman: CLEAR Trauma Center, Washington State University*.

Bloom, S. L. (1999). Trauma theory abbreviated. From the Final Action Plan: A Coordinated Response to Family Violence, 1-17. Retrieved from: http://sanctuaryweb.com/Portals/0/Bloom%20Pubs/1999%20Bloom%20Trauma%20Theory%20Abbreviated.pdf

Burke, N. J., Hellman, J. L., Scott, B. G., Weems, C. F., & Carrion, V. G. (2011). The impact of

adverse childhood experiences on an urban pediatric population. *Child abuse & neglect*, *35*(6), 408-413.

Byrne, B. M. (1998). Structural equation modeling with LISREL, PRELIS, and SIMPLIS: Concepts, applications, and programming. Mahwah, NJ: Erlbaum.

Centers for Disease Control and Prevention (2019). Preventing adverse childhood experiences: Leveraging the best available evidence. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention.

Cieslak, R., Shoji, K., Douglas, A., Melville, E., Luszczynska, A., & Benight, C. C. (2014). A meta-analysis of the relationship between job burnout and secondary traumatic stress among workers with indirect exposure to trauma. Psychological Services, 11(1), 75-86.

Chafouleas, S. M., Johnson, A. H., Overstreet, S., & Santos, N. M. (2016). Toward a blueprint for trauma-informed service delivery in schools. *School Mental Health, 8*(1), 144-162.

Chang, M. L. (2009). An appraisal perspective of teacher burnout: Examining the emotional work of teachers. *Educational Psychology Review, 21*(3), 193-218.

Cranton, P., & King, K. P. (2003). Transformative learning as a professional development goal. *New Directions for Adult and Continuing Education, 2003*(98), 31-38.

Cole, S. F., O'Brien, J. G., Gadd, M. G., Ristuccia, J., Wallace, D. L., & Gregory, M. (2005). Helping traumatized children learn: Supportive school environments for children traumatized by family violence. Boston, MA: Massachusetts Advocates for Children Trauma and Learning Policy Initiative.

Costello, E. J., Pescosolido, B. A., Angold, A., & Burns, B. J. (1998). A family network-based model of access to child mental health services. *Research in community and mental health, 9*, 165-190.

Darney, D., Reinke, W. M., Herman, K. C., Stormont, M., & Ialongo, N. S. (2013). Children with co-occurring academic and behavior problems in first grade: Distal outcomes in twelfth grade. *Journal of School Psychology*, *51*(1), 117-128.

Davey, K. & Hughes, L. (2016). *Trauma informed care* [Powerpoint slides].

Delaney-Black, V., Covington, C., Ondersma, S. J., Nordstrom-Klee, B., Templin, T., Ager, J., ... & Sokol, R. J. (2002). Violence exposure, trauma, and IQ and/or reading deficits among urban children. *Archives of pediatrics & adolescent medicine*, *156*(3), 280-285.

Diamanduros, T. D., Tysinger, P. D., & Tysinger, J. (2018). Trauma and its impact on children. *Communique*, 46(6).

Dong, M., Anda, R. F., Felitti, V. J., Dube, S. R., Williamson, D. F., Thompson, T. J., ... & Giles, W. H. (2004). The interrelatedness of multiple forms of childhood abuse, neglect, and household dysfunction. *Child abuse & neglect*, *28*(7), 771-784.

Dorado, J. S., Martinez, M., McArthur, L. E., & Leibovitz, T. (2016). Healthy Environments and Response to Trauma in Schools (HEARTS): a whole-school, multi-level, prevention and intervention program for creating trauma-informed, safe and supportive schools. *School Mental Health*, 8(1), 163-176.

Downey, D. B., & Pribesh, S. (2004). When race matters: Teachers' evaluations of students' classroom behavior. *Sociology of Education*, *77*(4), 267-282.

Drymond, M. J. (2020). Examining role breadth, efficacy, and attitudes toward trauma-informed care in elementary school educators. (Thesis, University of South Florida School of Education).

Duckworth, A. L., Quinn, P. D., & Seligman, M. E. (2009). Positive predictors of teacher effectiveness. *The Journal of Positive Psychology*, 4(6), 540-547.

Evers, T. (n.d.). Using Positive Behavioral Interventions & Supports (PBIS) to help schools become more trauma-sensitive. *Wisconsin Department of Public Instruction*.

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., ... & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *American journal of preventive medicine, 14*(4), 245-258.

Finkelhor, D., Turner, H. A., Shattuck, A., & Hamby, S. L. (2015). Prevalence of childhood exposure to violence, crime, and abuse: Results from the national survey of children's exposure to violence. *JAMA pediatrics, 169*(8), 746-754.

Geller, S., & Lynch, K. (1999). *Teacher opinion survey.* Richmond: Virginia Commonwealth University Intellectual Property Foundation and Wingspan LLC.

Gharabaghi, K. (2008). Reclaiming our `Toughest' Youth. Reclaiming Children and Youth, (3), 30. Retrieved from: http://search.ebscohost.com.ezproxy.lib.usf.edu/login.aspx?direct=true&db=edsbl&AN=RN255485347&site=eds-live

Gilliam, W. (2008). *Preschool mental health climate scale.* Unpublished survey. Harvard University.

Goodman, R. D., Miller, M. D., & West-Olatunji, C. A. (2012). Traumatic stress, socioeconomic status, and academic achievement among primary school students. Psychological Trauma: Theory, Research, Practice, and Policy, 4(3), 252–259. doi:10.1037/a0024912

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). Multivariate data analysis (7th ed.). Pearson Education Limited.

Hamre, B. K., & Pianta, R. C. (2001). Early teacher–child relationships and the trajectory of

children's school outcomes through eighth grade. *Child development*, *72*(2), 625-638.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*, 1–55.

Ko, S. J., Ford, J. D., Kassam-Adams, N., Berkowitz, S. J., Wilson, C., Wong, M., ... & Layne, C. M. (2008). Creating trauma-informed systems: child welfare, education, first responders, health care, juvenile justice. *Professional Psychology: Research and Practice*, *39*(4), 396.

Lopez, S. & Sidhu, P. (2013, March 28). U.S. Teachers love their lives, but struggles in the workplace. Retrieved from: https://news.gallup.com/poll/161516/teachers-love-lives-struggle-workplace.aspx

Muthén, L. K., & Muthén, B. O. (2015). *Mplus User's Guide (7th Ed)*. Los Angeles, CA: Muthén & Muthén.

Nadeem, E., & Ringle, V. (2016). De-adoption of an evidence-based trauma intervention in schools: A retrospective report from an urban school district. School Mental Health. doi:10.1007/ s12310-016-9179-y.

Nunnally, J. C. (1978). Psychometric theory (2nd ed.). McGraw-Hill.

Orapallo, A. (2020). *Examining the effectiveness of the ARC training framework in the Head Start Trauma Smart Program: Preschool staff satisfaction, knowledge, and attitudes* (Doctoral dissertation, Tulane University School of Science and Engineering).

Overstreet, S., & Chafouleas, S. M. (2016). Trauma-informed schools: Introduction to the special issue.

Peter P. et al. v. Compton Unified School District, et al., No.CV153726MWFPLAX, 2015 WL 5754472 (C.D. Cal. 2015).

Petrovic, L. (2018). *Examining STS, burnout, and self-efficacy among teachers.* (Doctoral dissertation, Tulane University School of Science and Engineering).

Porche, M. V., Costello, D. M., & Rosen-Reynoso, M. (2016). Adverse family experiences, child mental health, and educational outcomes for a national sample of students. School Mental Health, 8(1), 44-60. doi: 10.1007/s12310-016-9174-3.

Prewitt, E. (2016). New elementary and secondary education law includes specific ‘‘trauma-informed practices’’ provisions. Retrieved from: http://www.acesconnection.com/g/aces-in-education/blog/new-elementary-and-secondary-education-law-includes- specific-trauma-informed-practices-provisions.

Raffaele Mendez, L., Reynolds, F. (2019, February). Shifting perspectives: Changes among educators following training in trauma-informed care. Paper presented at the Annual Convention of the National Association of School Psychologists, Atlanta, GA.

Reinke, W. M., Stormont, M., Herman, K. C., Puri, R., & Goel, N. (2011). Supporting children's mental health in schools: Teacher perceptions of needs, roles, and barriers. *School Psychology Quarterly*, *26*(1), 1.

Ristuccia, J. (2013). Creating safe and supportive schools for students impacted by traumatic experience. Supporting and educating traumatized students: A guide for school-based professionals, 253-263.

Rosenbaum-Nordoft, C. (2018). Building teacher capacity for trauma-informed practice in the inclusive elementary school classroom. Early Childhood Education, 45(1), 3-10.

Schwarzer, R., & Luszczynska, A. (2008). How to overcome health-compromising behaviors: The Health Action Process Approach. *European Psychologist*, *2*, 141.

Shamblin, S., Graham, D., & Bianco, J. A. (2016). Creating trauma-informed schools for rural

Appalachia: the partnerships program for enhancing resiliency, confidence and workforce development in early childhood education. *School Mental Health, 8*(1), 189-200.

Skiba, R. J., Poloni-Staudinger, L., Gallini, S., Simmons, A. B., & Feggins-Azziz, R. (2006). Disparate access: The disproportionality of black students with disabilities across educational environments. *Exceptional Children, 72*(4), 411-424.

Skiba, R. J., Poloni-Staudinger, L., Simmons, A. B., Feggins-Azziz, L., & Chung, C.G. (2005). Unproven links: Can poverty explain ethnic disproportionality in special education? *Journal of Special Education, 39(*3), 130-144.

Stempel, H., Cox-Martin, M., Bronsert, M., Dickinson, L. M., & Allison, M. A. (2017). Chronic school absenteeism and the role of adverse childhood experiences. *Academic pediatrics, 17*(8), 837-843.

Substance Abuse and Mental Health Services Administration. (2014). SAMHSA's concept of trauma and guidance for a trauma-informed approach. *HHS Publication No.(SMA) 14-4884*.

Terr, L. (1990). Too scared to cry: Psychic trauma in childhood. New York: Harper and Row.

Tsouloupas, C. N., Carson, R. L., Matthews, R., Grawitch, M. J., & Barber, L. K. (2010). Exploring the association between teachers' perceived student misbehaviour and emotional exhaustion: The importance of teacher efficacy beliefs and emotion regulation. *Educational Psychology*, *30*(2), 173-189.

Van der Kolk, B. (2014). *The body keeps the score: Mind, brain and body in the transformation of trauma*. Penguin UK.

Van der Kolk, B. A. (1989). The compulsion to repeat the trauma: Re-enactment, revictimization, and masochism. *Psychiatric Clinics of North America*, *12*(2), 389-411.

Wolpow, R., Johnson, M. M., Hertel, R., & Kincaid, S. O. (2009). *The heart of learning and teaching: Compassion, resiliency, and academic success*. Washington State Office of Superintendent of Public Instruction (OSPI) Compassionate Schools.

Wong, M. (2008). Interventions to reduce psychological harm from traumatic events among children and adolescents: A commentary on the application of findings to the real world of schools. *American Journal of Preventive Medicine, 35*(4), 398-400.

Appendix A: Institutional Review Board Response

USF
UNIVERSITY OF
SOUTH FLORIDA

RESEARCH INTEGRITY AND COMPLIANCE
Institutional Review Boards, FWA No. 00001669
12901 Bruce B. Downs Blvd., MDC035 • Tampa, FL 33612-4799
(813) 974-5638 • FAX (813) 974-7091

February 14, 2018

Linda Raffaele Mendez, Ph.D.
Educational and Psychological Studies
4202 E. Fowler Avenue, EDU 162
Tampa, FL 33620

RE: **Not Human Subjects Research Determination**
IRB#: Pro00033467
Title: Staff Training in Trauma-Informed Care in High Needs Schools: Impact on Staff Perceptions, Knowledge, Self-Reported Behaviors, and Attitudes Related to Trauma-Informed Care

Dear Dr. Raffaele Mendez:

The Institutional Review Board (IRB) has reviewed your application. The activities presented in the application involve methods of program evaluation, quality improvement, and/or needs analysis. While potentially informative to others outside of the university community, study results would not appear to contribute to generalizable knowledge. As such, the activities do not meet the definition of human subject research under USF IRB policy, and USF IRB approval and oversight are therefore not required.

While not requiring USF IRB approval and oversight, your study activities should be conducted in a manner that is consistent with the ethical principles of your profession. If the scope of your project changes in the future, please contact the IRB for further guidance.

If you will be obtaining consent to conduct your study activities, please remove any references to "research" and do not include the assigned Protocol Number or USF IRB contact information.

If your study activities involve collection or use of health information, please note that there may be requirements under the HIPAA Privacy Rule that apply. For further information, please contact a HIPAA Program administrator at (813) 974-5638.

Sincerely,

Kristen Salomon, Ph.D., Vice Chairperson
USF Institutional Review Board

UNIVERSITY of SOUTH FLORIDA

NOT HUMAN SUBJECTS RESEARCH DETERMINATION

September 25, 2020

Amira Mattison
14225 Shiloh Woods Court
Tampa, FL 33613

Dear Amira Mattison:

On 9/25/2020, the IRB reviewed the following protocol:

IRB ID:	STUDY001590
Title:	Changes in Educator Attitudes Toward Trauma Informed Care

The IRB determined that the proposed activity does not constitute research involving human subjects as defined by DHHS and FDA regulations.

This application falls under the Not Human Subjects Research (NHSR) category as it is focused on program evaluation of existing practices, quality improvement, and/or needs analysis.

IRB review and approval is not required. This determination applies only to the activities described in the IRB submission. If changes are made and there are questions about whether these activities constitute human subjects research, please submit a new application to the IRB for a determination.

While not requiring IRB approval and oversight, your project activities should be conducted in a manner that is consistent with the ethical principles of your profession. If this project is program evaluation or quality improvement, do not refer to the project as research and do not include the assigned IRB ID or IRB contact information in the consent document or any resulting publications or presentations.

Sincerely,

Gina Larsen
IRB Manager

Appendix B: Script for Harmony Project Data Collection

Good Morning Everyone! I want to introduce myself to you. My name is _____ and I am here today on behalf of The Harmony Project. As all of you know, your school will be participating in The Harmony Project this semester.

What we are going to do today is ask you to complete a pre-training survey. Of course, it is completely up to you whether you complete the survey, but the information will be very helpful to us as we continue to tweak and refine The Harmony Project in Pasco County. While filling out the surveys, ideally we would like for everyone to be a few feet apart and to please do your best to refrain from talking with one another. This is to help ensure that everyone can complete his or her surveys independently and with complete privacy.

As we are passing out the surveys, I want to let you know that we do not want you to write your name anywhere on this survey. The surveys will be put into a database by an outside research team at USF with whom we are partnering on this project. No one from your school will see any of the surveys that are completed. Your answers are completely confidential.

We do, however, need to be able to match the survey you take today with the one that you will complete at the end of the training in a few months. In order to be able to do that, we will create a code for you which will consist of:

The first THREE letters of your mother's maiden name and the two-digit DAY of your birth. So, if my mother's maiden name was Crawford and I was born on the 30th, my code would be CRA30.

The survey should take less than 10 minutes to complete. Please do your best to answer all of the questions, as we will not be examining any of your individual responses. In the upper right hand corner, indicate if you attended the Harmony Project training over the summer with your admin by circling yes or no. When you are finished just let us know, and we will come around and collect them. The surveys will be placed in a sealed box and delivered to the people analyzing the data. Let us know if you have any questions and thank you so much for your time!

Appendix C: Harmony Project Demographics Form

Did you attend the Harmony training this summer with your administration? (circle) Yes/No

Please do not write your name anywhere on this survey. Instead, we will match the survey you complete today with the one you complete at the end of the training by the first 3 letters of your mother's maiden name and the two-digit day of your birth (see #1 below).

Question	Your Response
1. What are the FIRST 3 LETTERS of your mother's maiden name and the two-digit DAY of your birth?	FIRST 3 LETTERS (e.g., CRA) of your mother's maiden name _____ Two digit DAY of your birth (e.g., 30)_____
2. Are you of Hispanic or Latino origin?	A. Yes B. No
3. What is your race?	1. White 2. Black 3. Asian 4. Multiracial 5. American Indian or Alaskan Native 6. Native Hawaiian or Pacific Islander
4. What is your gender?	A. Male B. Female
5. What is your position at this school (e.g., teacher, guidance counselor)?	A. Instructional. B. Non-instructional
6. How many years have you been working in education?	1. 0-3 2. 4-6 3. 7-10 4. 11-15 5. 16 or More
7. On a scale of 1-10 (1 is low, 10 is high), how much would you say you know about trauma-informed care in educational settings?	Circle one number: 1 2 3 4 5 6 7 8 9 10 No Knowledge Expert