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# Understanding Trauma Through a Behavior Analytic Lens: A Comparative Case Study

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# UNDERSTANDING TRAUMA THROUGH A BEHAVIOR ANALYTIC LENS: A COMPARATIVE CASE STUDY

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## ABSTRACT

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Although other therapeutic approaches across human service disciplines have acknowledged the importance of understanding the impacts of trauma, the field of behavior analysis has seen less frequent discussions. To address this growing need, the purpose of this study was to explore how three participant board certified behavior analysts (BCBAs): (a) define trauma-informed behavior analysts (TIBA), (b) use TIBA to guide their decisions for identifying appropriate interventions, (c) determine appropriate evidence-based interventions for students with a history of trauma, and (d) obtained their training to confidently implement TIBA in their practices. Using a comparative case study, the participants provided information about their approaches through an interview as well as by providing a copy of their resumes and a redacted behavior intervention plan (BIP). Commonalities and differences among the participants' uses of behavior analytic practices are identified and discussed. Through a cross-case analysis, the results of the study demonstrated important practices in behavior analysis which include: (a) developing a therapeutic relationship with both the client and their caregivers, (b) training for generalization, (c) identifying meaningful reinforcement contingencies, (d) teaching social and self-management skills, (e) implementing antecedent strategies, and (f) limiting or avoiding punishment and extinction.

The implications for practice resulting from this study identified important elements to incorporate into a BIP. In conjunction with providing an operational definition of the targeted behaviors, BIPs that are trauma-informed should also describe personal and medical histories which may impact a student's behavior (for example, if the behavior is more likely to occur as the result of a medication or if the client has any psychiatric or neurological conditions). In addition, the BIP should provide antecedent interventions, skills to be taught, and appropriate reactive strategies that reduce the risk of retraumatization.

Next, implications of evidence-based practices were discussed. Although a list of evidence-based practices utilized by the participants was described, the study looked beyond what behavior analytic research says and provided details on what the participants have determined to be effective and ineffective. For example, although it is identified to be an evidence-based practice, all three participants described how extinction of a behavior can not only lead to retraumatization but can actually do more harm than good. Furthermore, the study addressed the question on whether the field should expand its practices beyond interventions deemed effective based upon single-subject designs such as dialectical behavior therapy (DBT).

Lastly, the paper discussed ways to expand upon the research provided in this study. For instance, this study consisted of three BCBAs who use a trauma-informed approach within their practices. This number limits the number of experiences and resources BCBAs within the field have found to be effective in behavior change procedures. To gather more perspectives and experiences, the paper identified using a survey method of research. In addition, the paper suggested conducting a phenomenological study gathering the perspectives of parents or caregivers who have had experiences working with BCBAs who utilize a trauma-informed approach and those who do not. This would add to the social validity of TIBA with the hope to

ignite a desire for change within the field. Finally, this study added to the limited body of literature on trauma-informed practices within the field of behavior analysis. Because the concept of using a trauma lens within the field is a relatively new concept, it is critical to explore the perceptions and experiences of BCBAs within the field.

## DEDICATION

To my grandparents who left this world five years ago. They were able to see me start the program but were unable to watch me finish it. Their love and encouragement have driven me to be the person I am today. I strive daily to be more like them by showing kindness to all and by being a pillar to my family.

## ACKNOWLEDGEMENTS

First and foremost, I have to thank God. Because of Him, I found the inspiration and dedication to complete this program as well as this paper. He was also instrumental in placing each of the following people in my life.

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To all my family members who have encouraged me and had faith in me to accomplish all that I have. They have continuously teased me about my many degrees yet have stood by me through them all. Mom, thanks for your love and all the times you have been there to listen to me. Dad, thanks for having such high expectations for me. You are one of the reasons I strive so hard to achieve what I have thus far.

Finally, to my fiancé, Tim, whose famous words the past few months have been “I just want you to get your paper done.” He has not only tolerated my moodiness during this and other writing processes but was also there as I worked towards becoming a BCBA. When I failed, he encouraged me. When I cried, he consoled me. When I complained, he listened. Thank you for everything.

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# CHAPTER I

## INTRODUCTION

In the United States, 45% of children have experienced at least one adverse childhood experience (ACE) (Bryant et al., 2020). Children who have been exposed to ACEs are more likely to have difficulties with self-regulation, focusing, paying attention, and trouble with social interactions (Sciaraffa et al., 2018). These adverse experiences can impact a student in many ways. They can lead to a recommendation for special education services due to the physical, mental, and emotional consequences which often manifest in the form of both behavioral and emotional problems (Ray, 2014). By contrast, exposure to adverse childhood experiences can also result in under-identifying students with a history of trauma who may exhibit characteristics similar to those with emotional disturbances but who may not qualify for special education services because they did not meet all criteria outlined in IDEA (the Individuals with Disabilities Education Act) (Winder, 2015). Further trauma can also be linked to a diagnosis of post-traumatic stress disorder (PTSD) which can lead to ongoing behavior, academic, and social challenges if untreated. Essentially, trauma can impact a student's life in a multitude of ways throughout their education. Consequently, it is essential for educators to consider the personal histories of students when determining effective behavioral interventions.

Behaviors typically displayed by students who have experienced trauma can have different topographies (what the behavior looks like) and may be exhibited across different environments. This paper will identify the types of behaviors that are often displayed within a school setting by students who have experienced trauma including academic and behavioral

challenges such as aggression, inattention, anxiety/withdrawal, attendance issues, and delayed language and cognitive development (Cavanaugh, 2016).

## Behaviors Commonly Seen in Today's Schools from Students with Trauma and Anxiety

To better understand common problem behaviors that students with trauma and anxiety typically display in their classrooms, Harrison et al. (2012) conducted a study on common problem behaviors of students in general education classrooms. To begin their study, the authors identified the prevalence and incidence of problem behaviors through various methods including surveys, office discipline referrals (ODRs) analysis from existing data sources, and teacher ratings of behavior. Through one analysis of existing ODR data, Harrison et al. (2012) found the most frequent behaviors of elementary students to be aggression. In middle school, disrespect was the most frequent behavior, and the most frequent behavior in high school students was tardiness (Harrison et al., 2012).

In addition, two other studies found by Harrison et al. (2012) evaluated ODRs in elementary schools. These studies included Putnam et al. (2003) which analyzed ODRs for 188 students in a public elementary school in Maryland and Tidwell et al. (2003) which evaluated ODRs from 16 elementary schools in Oregon and Hawaii. The results of these studies identified the most frequent behaviors being disruption, defiance, disrespect, and fighting (Harrison et al., 2012). Along with ODR studies, Harrison et al. (2012) identified a previous study using surveys and rating scales completed by teachers. In this study, conducted by Walter et al. (2006), a mental health needs assessment of 119 inner city elementary teachers from six neighborhood schools found that 48% of participants believed disruptive classroom behaviors was the largest behavior concern in their schools (Harrison et al., 2012). Walter et al. (2006) gave examples of

disruptive behavior to include getting out of seat, talking out of turn, arguing, and failing to comply with rules and requests.

In their personal study, Harrison et al. (2012) looked at data for 3,600 students aged 6-18 to identify the most common teacher-rated behavior problems through a standardized assessment of multiple dimensions of behavior. The study included children in public and private schools, mental health clinics, and hospitals in 257 cities across 40 different states. Recruited teachers were given the Behavior Assessment Scale for Children (2nd ed.) (BASC-2) teacher rating scale (TRS). The BASC-2 is a comprehensive rating measure which assesses a range of adaptive skills and problem behaviors utilizing rating scales, a self-report scale, a developmental history, and a system for direct observation (Harrison et al., 2012). The rating scales are typically completed by a teacher and a parent to assess skills at both school and home. The results of the measure identified the areas of externalizing behaviors, internalizing behaviors, and academic problems as the most common problem behaviors within the classroom.

**Externalizing Behaviors**

The results of the teacher-rated BASC-2 identified the most common externalizing behaviors seen within classrooms to be distractibility, hyperactivity, and disruptive behaviors. Disruptive and hyperactive behaviors were described as restlessness, moving, tapping, talking loudly, misbehaving when attending to others, and talking (Harrison et al., 2012). In all of the ODR studies within their research, the authors found aggression (e.g., fighting and defiance) as the most frequent behavior in elementary schools, disrespect (e.g., defiance and disruption) as the most frequent in middle school, and attendance issues (e.g., tardies, skipping school, and leaving the building) as the most frequent in high schools.

Distractibility was also a common problem behavior of children and adolescents using surveys and teacher ratings. Examples of distractibility included trying to gain others' attention, answering without thinking, playing with things, and losing or forgetting materials (Harrison et al., 2012). Oftentimes, this behavior can be confused with a student trying to either escape an assignment or to gain the attention of peers.

**Internalizing Behaviors**

Behaviors described as internalizing were commonly consistent with worry (Harrison et al., 2012). The highest reported behaviors associated with worry included students worrying about making mistakes and what others think about them (Harrison et al., 2012). Upon reviewing classroom behaviors, the researchers also found that anxiety was a common problem, presented with self-doubt and the need to reach perfection. Notably, students with anxiety are far more likely to avoid social interactions due to the worry of being rejected by others and will consequently withdraw to cope with their worry rather than experience rejection (Killu & Crundwell, 2016). When it comes to making mistakes, Killu and Crundwell (2016) stated students with internalizing behaviors develop a sense of learned helplessness which results in avoidance in tasks they judge to be too difficult and leads to low levels of persistence causing withdrawal from tasks where failure is perceived. Although these behaviors are important to consider, Harrison et al. (2012) noted they may not be as easy to recognize in a classroom setting or they could be demonstrated in association with externalized behaviors (e.g., social withdrawal). In fact, upon surveying the discipline referrals for the study, it was determined that externalized behaviors were most noted by teachers. Frequently, these referrals included behaviors such as harassment, verbal threats, inappropriate language, fighting, talking out, theft, and bullying (Harrison et al., 2012)

**Academic Problems**

Non-compliance (not following directions) was the most rated problem behavior noted by teachers within the study. Teachers also noted that students often made careless errors and misunderstood questions that resulted in a need for directions to be repeated. It is also important to note that attendance tends to be an issue for students who have experienced trauma.

The results of the above studies also relate to common behaviors displayed by students who have a history of trauma. To begin with, students with at least three ACEs are 3 times more likely to experience academic failure and 6 times more likely to have behavioral problems (Sciaraffa et al., 2018). One reason for academic failure is a result of how trauma affects a student's ability to process information and communicate with others. For example, students who have experienced trauma have difficulty organizing materials sequentially which can cause difficulty processing the content of academic lessons. Trauma can also impact their ability to problem-solve and damage a student’s language and communication skills (Winder, 2015). This, in turn, disrupts their ability to process verbal information and effectively utilize language to communicate.

Students with three or more ACEs are six times more likely to display behavioral challenges (Sciaraffa et al., 2018). These behaviors can include, but are not limited to, difficulties in emotional regulation, paying attention, and interpersonal interactions. It is also important to note that students who live in stressful family environments are more likely to exhibit avoidant behavior (e.g., elopement and noncompliance) and less likely to engage in problem-focused coping strategies (e.g., deep breathing and positive self-talk) (Sheffler et al., 2019).

For students who have experienced complex trauma, the behaviors often displayed in schools include maintaining a state of hyperarousal or hypervigilance with a tendency to overreact to stimuli that may go unnoticed by others (Razuri et al., 2016). Hyperarousal includes symptoms of sleeping, hypervigilance, and irritability (Ehlers et al., 2004). It is important to note that hyperarousal often extends to conditions that are not necessarily consistent with the trauma that occurred (Friman et al., 1998). For example, hyperarousal can include fear, panic, and uncontrolled anger (Spence et al., 2021). At times, it can also be confused with attention deficit hyperactivity disorder (ADHD) or attention deficit disorder (ADD) as trauma can impair a student's ability to control their impulsive reactions. If a student is unable to grasp that they have control over their actions, it can result in a lack of motivation, timeliness, and attentiveness (Winder, 2015).

Finally, Deutsch et al. (2020) stated youth with chronic or complex trauma may disconnect from their peers, isolate themselves, take part in alcohol and drug use, inflict self-harm, and engage in risky sexual behavior. Students who experience severe and ongoing trauma can also have trouble accessing and identifying emotions, coping with emotions, tolerating emotional expression, and have an impaired ability to regulate their impulses (Kliethermes et al., 2014). This can lead to difficulty in developing and retaining peer relationships, responding appropriately to disappointment or failures, and difficulty in identifying the emotion of peers and teachers. Social interactions can also be challenging for these students due to their limited abilities to empathize with others and form attachments (Spence et al., 2021). Additionally, students with a history of trauma have trouble with social and emotional communication as they tend to ostracize themselves from others by language and actions (Winder, 2015). Trauma can

impact a neurotypical student's life socially, academically, and behaviorally; however, students with disabilities tend to be more susceptible to it (Keesler, 2020).

**Trauma and Disabilities**

It is suggested that the range of potentially traumatic experiences is greater in people with intellectual and developmental disabilities (IDD) compared to those with a relatively higher intellectual functioning (Keesler, 2020; Mevissen & de Jongh, 2010). In fact, Thomas-Skaf and Jenney (2021) stated recent studies indicate students with IDD are 4.3 times more likely to experience maltreatment than students without disabilities. One reason for this statistic may be due to a deficit in language and an inability to communicate. For example, a student's impairment in receptive and expressive language can make it difficult for clinicians to understand and respond to them. This difficulty may stem from a reliance on the individual being able to provide verbal descriptions of his or her experiences and emotional states (Mevissen & de Jongh, 2010). When it comes to resilience and dealing with traumatic events, it is also important to note that an individual's developmental level has been found to have a major impact on their ability to cope with traumatic events (Mevissen & de Jongh, 2010). For example, individuals with IDD, particularly autism, may be at greater risk for more intense and enduring stress response to traumatic events because of their neurobiological differences (Keesler, 2020).

These neurobiological differences can also lead to more susceptibility of being victimized due to a stigma being more vulnerable. For example, they may be perceived as being gullible or too trusting of others. Also, because of their disability, there is a possibility of them not being believed if they do report abuse (Thomas-Skaf & Jenney, 2021). Students with disabilities are also at a greater risk of trauma because of their needs. For example, abuse by caregivers, such as parents, is often attributed to an increase of strain because the student requires more care than

one without disabilities (Thomas-Skaf & Jenney, 2021). Since behavior analysts typically work with students having IDD, it is important for them to be prepared to appropriately recognize and address trauma in these individuals.

## Need for More Research About Trauma in the Field of Applied Behavior Analysis

Limited research studies have been conducted to determine the perspectives of teachers in trauma and teaching students who have experienced it. To better understand these perspectives, Alisic (2012) conducted a qualitative study to gain an understanding of teachers' perspectives on their support for students in elementary schools who have experienced trauma. The themes gathered from this study included identifying the teacher's role, a need for professional knowledge, and the emotional impact working with students having experienced trauma were discussed. These results demonstrate teachers want more training in becoming trauma aware. The field of behavior analysis, however, is a different story.

Although the field of applied behavior analysis (ABA) has become well known for the treatment of individuals who have autism spectrum disorder (ASD), there is a lack of evidence for ABA being an empirically effective treatment in other areas (e.g., psychological and emotional disorders) (Ross, 2007). This is largely due to the absence of data and formal application of ABA. Behavior analysts must be willing to use terms outside of the discipline to address areas that are typically described as "psychological" or "emotional" rather than behavioral.

Behavior analytic services are not often considered when it comes to emotional or psychological responses triggered by trauma. The purpose of this study was to explore how BCBAs: (a) define TIBA, (b) use TIBA to guide their decisions for identifying appropriate

interventions, (c) determine appropriate evidence-based interventions for students with a history of trauma, and (d) obtained their training to confidently implement TIBA in their practices. Before identifying their practices, I present information about trauma and the impact it can have on student behavior. Next, I will address how interventions that fall within the purview of ABA should be considered for students who have experienced traumatic events. Furthermore, I will illustrate how the principles of ABA can explain the relationship between traumatic experiences and problem behaviors. Next, I will describe ACT to aid in understanding how these learning histories not only occur, but also ways to appropriately reshape such undesirable responses. Finally, I will establish a need for further research in the areas of ABA, trauma, and the need for behavior analysts to consider the impact trauma may have on their students.

## Statement of the Problem

Over the past 50 years, the effectiveness of ABA-based interventions in ASD has been well documented by using single-subject methodology in controlled areas of study (Dillenburger et al., 2012). During the first five years of the *Journal of Applied Behavior Analysis* (JABA), the percentage of articles involving people with autism and other developmental disabilities was 24.7%; however, during the 2000-2004 publications, there was a notable increase to 61.8% (Axelrod et al., 2012). These findings demonstrate a narrowed focus of ABA to the population of individuals with ASD, almost dismissing the many other areas.

Despite the science of ABA, its application, and relevance to consider trauma, the field greatly neglects adequate understanding and research of the consideration for trauma. In 2020, the Behavior Analyst Certification Board (BACB) published demographic data demonstrating the primary areas of professional emphasis held by board-certified behavior analysts (BCBA). The study consisted of 48,124 BCBAs across the United States. According to their responses, 73.16%

of BCBAs and BCBA-Ds identified ASD as their primary area of professional emphasis. Among the other top five areas of emphasis of BCBAs included: no answer (8.80%), education (7.16%), clinical behavior analysis (4.36%), and IDD (2.95%) (BACB, 2020) In retrospect, there are currently no published qualitative studies to provide information on the perspectives of behavior analysts in trauma.

The misconception of ABA being exclusively for individuals with developmental disabilities, especially those with ASD, can be explained by a few factors. These factors include the abundance of ABA research conducted with students who have developmental disabilities, the employment opportunities in ABA, the desire of many ABA practitioners to work exclusively with individuals who have developmental disabilities, and the increased support for ABA being directly attributed to its success in individuals with ASD that have all contributed to the public perception that ABA is not for students in general education (Axelrod et al., 2012). It is also important to take into consideration medical insurance and funding for ABA. In these cases, ABA is only an acceptable form of treatment if the student has a medical diagnosis of ASD. It is because of this work that society has witnessed major improvements in the lives of individuals who have ASD. The science of ABA, however, has largely neglected individuals without developmental disabilities, including those impacted by adverse childhood experiences.

## Significance of the Study

The field of behavior analysis has not yet defined trauma-informed practice through research. In addition, the field has not provided any guidance or direction when it comes to utilizing a trauma-informed framework approach (Rajaraman et al., 2022). It is also important to note that literature regarding trauma in behavior analytic practice is also sparse.

Although the field has not provided any guidance or direction regarding trauma-informed practice, it does not mean that practicing behavior analysts are not working with students who have experienced trauma, and consequently, implementing trauma-informed behavior analysis (TIBA). If we can identify themes among behavior analysts who utilize a trauma-informed approach (TIA), we can begin to identify common philosophies and practices that could provide direction for all BCBAs in practice.

## Purpose of the Study

The purpose of this study was to explore how BCBAs: (a) define TIBA, (b) use TIBA to guide their decisions for identifying appropriate interventions, (c) determine appropriate evidence-based interventions for students with a history of trauma, and (d) obtained their training to confidently implement TIBA in their practices. To understand such approaches and perspectives, BCBAs were interviewed using qualitative methodology. Practicing BCBAs were asked questions pertaining to their personal experiences and beliefs regarding using a TIA when assessing the impact trauma has on student behavior and how to address it through intervention. The goal of the study was to identify themes among the BCBAs regarding how they define and utilize TIBA in practice.

## Research Questions

This study focused on the perspectives of BCBAs who use TIBA when working with students who have experienced trauma and exhibit challenging behaviors. Currently, there are no published studies alluding to TIBA practices of BCBAs. To fill this gap in research, the questions for this qualitative study included:

Q1 How do the BCBA participants operationally define TIBA within their practices?

Q2 How do behavior analytic principles guide the BCBA participants' decision-making process for students who have a history of trauma and exhibit challenging behaviors (e.g. disruption, defiance, and physical aggression)?

Q3 What evidence-based interventions have the BCBA participants found to be most beneficial for students who have a history of trauma?

Q4 What knowledge and skillset are described by the BCBA participants as being necessary in providing TIBA?

## Definition of Terms

**Abolishing operation (AO):** A type of motivating operation that decreases the value or desire of something (Cooper et al., 2020).

**Acceptance and commitment therapy/training (ACT):** A behavior analytic approach to addressing problematic verbal behavior. The overall goal is to increase psychological flexibility which consists of engaging in skillful behavior in the presence of aversive experiences in order to live a rich and meaningful life (Tarbox et al., 2022).

**Acute trauma**: A short-term, unexpected, single-traumatic incident. Quick recovery is more likely to occur with this type of trauma (Keller-Dupree, 2013).

**Adverse childhood experiences (ACEs)**: A subset of childhood conditions (such as abuse, neglect, etc.) that have been found to consistently correlate with long-term negative effects (Finkelhor, 2020).

**Applied behavior analysis (ABA):** A science devoted to understanding and improving socially significant human behavior (Cooper et al., 2020).

**Challenging behavior:** Irritability and angry outbursts, loss of concentration or attention, sudden and extreme emotional reactions such as crying, noncompliance (refusal to complete a task or activity), disruption (noise or movement which prohibits learning or concentration), physical aggression (hitting, kicking, spitting, or throwing objects at

someone), verbal aggression (use of profanity geared towards an individual and yelling at an individual calling them names such as “loser”).

**Chronic trauma***:* Repeated and prolonged exposures to traumatic events (Keller-Dupree, 2013).

**Complex trauma***:* Results from exposure to severe stressors that most often begin in childhood or adolescence, occur repeatedly over time, and are typically abuse by a parent or other caregiver who is typically expected to be a source of security, protection, and stability (Lawson & Quinn, 2013).

**Establishing operation (EO):** A type of motivating operation that increases the value or desire of something (Cooper et al., 2020).

**Evidence-based interventions**: Behavior analysts prefer single-subject experimental designs which involve repeated observations to compare an individual’s behavior during a baseline period when no intervention is presented to the behavior in one or more intervention phases with the intervention added (Smith, 2013).

**Motivating operation (MO):** Environmental variables that either increase or decrease the value of a stimulus, object, or event as reinforcement (Cooper et al., 2020).

**Operant conditioning***:* Basic process by which operant learning occurs which includes a consequence (stimulus changes that immediately follow a behavior) which results in either an increased (reinforcement) or decreased (punishment) frequency of the same behavior occurring under similar conditions (Cooper et al., 2020).

**Respondent conditioning**: Also known as classical conditioning, respondent conditioning involves the pairing of a neutral stimulus (such as the sound of a bell ringing) with an unlearned stimulus (such as good) until the neutral stimulus elicits the conditioned response (salivating) (Cooper et al., 2020).

**Secondary traumatic stress**: Emotional duress that results when an individual hears about the first-hand traumatic experiences of another (National Child Traumatic Stress Network, 2011).

**Trauma***:* Situations or events that are shocking, terrifying, or overwhelming such that they produce intense feelings of fear or helplessness (McLeod et al., 2015, p. 939).

## List of Acronyms

**ABA:** applied behavior analysis

**ABAI:** The Association for Behavior Analysis International

**ACT***:* acceptance and commitment therapy/training

**ACEs:** adverse childhood experiences

**ADD***:* attention deficit disorder

**ADHD***:* attention deficit hyperactivity disorder

**AO:** abolishing operation

**ASD***:* autism spectrum disorder

**BACB:** Behavior Analyst Certification Board

**BCBA:** Board certified behavior analyst

**BIP**: behavior intervention plan

**CEU**: continuing education unit

**EBD**: emotional and behavioral disorder

**EO:** establishing operation

**IDD**: intellectual and developmental disabilities

**IISCA**: interview informed synthesized contingency analysis

**MO**: motivating operation

**PFA:** practical functional assessment

**PTSD**: post-traumatic stress disorder

**SBT**: skills-based training

**TIBA**: trauma-informed behavior analysis

**TIC:** trauma-informed care

# CHAPTER II

# REVIEW OF LITERATURE

## Understanding Trauma Through a Behavior Analytic Lens

It is estimated that 30% of adolescents with emotional and behavioral disorders (EBD) have experienced trauma or show signs of post-traumatic stress disorder (Cavanaugh, 2016). In fact, according to the Child and Adolescent Health Measurement Initiative (2019), 39.3% of children ages 3-17 who have experienced at least one or more adverse childhood experiences have at least one or more mental, emotional, developmental, and/or behavioral diagnosis. Examples include post-traumatic stress disorder (PTSD), bipolar disorder, borderline personality disorder, emotional behavior disorder, oppositional defiant disorder, and anxiety disorders. Consequently, the American Psychological Association indicates that trauma can lead to challenges with emotional regulation and social relationships and can even lead to the development of physical symptoms which can be a result of anxiety (Cavanaugh, 2016). Further, traumatic events ranging from witnessing domestic violence to experiencing sexual abuse are potentially greater for individuals with intellectual disabilities than they are for individuals who have a higher level of intellectual functioning (Mevissen & de Jongh, 2010). This information is rather staggering considering schools, which are underprepared and under supported in providing trauma-informed services, are often the primary provider of mental health services for students (Cavanaugh, 2016).

Most teachers have had minimal to no training in the form of preservice preparation or professional development regarding behavior management, including understanding and learning about the importance of social-emotional competence for classroom learning (Waajid et al., 2013). According to Brown et al. (2020), teachers have expressed a desire and need for training in strategies to address students' traumatic stress. In a qualitative study, Alisic (2012) found that teachers also struggle with understanding their role in helping students who have a history of trauma. Additionally, these teachers expressed a need for professional knowledge and "know-how," which included determining a balance between meeting student demands while also making sure they are taking care of their own emotional well-being. Researchers have found that a teacher who understands a student's challenging behavior and the difficulty the student may have with self-regulation because of previous trauma may show greater concern and empathy resulting in more meaningful interventions instead of punitive or coercive tactics (Jennings & Greenberg, 2009). Thus, as these researchers and others have begun to unravel the impacts trauma may have on student behavior, they have also identified a strong need for more attention and training in educator preparation. Consequently, this study explored how BCBAs are using a trauma-informed approach (TIA) in behavior analysis for students who have a history of trauma and exhibit challenging behaviors. Also, the study sought to understand their training experiences to use a TIA and the types of evidence-based interventions they use to address these challenging behaviors. I begin this chapter by providing a definition of trauma as well as behaviors commonly exhibited by students who have experienced trauma. Next, the theories of applied behavior analysis (ABA) and acceptance and commitment therapy (ACT) are described to assist the reader with understanding the importance of trauma-informed care (TIC) and how to better understand how stimuli can lead to reexperiencing traumatic events. Following this

discussion, I present effective strategies in both ABA and ACT that have been identified as interventions to assist students with self-regulation, such as noticing triggering events and engaging in coping strategies. Finally, I discuss the importance of behavior analysts using a TIA in practice; however, I identify the limited research currently available for them to do so.

## Trauma Defined and Explained

Research indicates that as many as 68% of children have experienced at least some form of trauma by age 16 (Pappano, 2014). Some school personnel may be aware that possible traumatic events can consist of physical or sexual abuse, neglect, and witnessing or experiencing domestic violence; however, some less known traumatic events can include the sudden, unexpected loss of a loved one (e.g., COVID19 loss), natural disasters (e.g., hurricanes, tornadoes, earthquakes, etc.), or man-made disasters such as war or terrorism (Cavanaugh, 2016). The definition of trauma used within the context of this paper includes "situations or events that are shocking, terrifying, or overwhelming such that they produce intense feelings of fear or helplessness" (McLeod et al., 2015, p. 939).

### Types of Trauma

As previously discussed, trauma is the exposure to an actual or threatened event (e.g., death of a loved one, serious injury, or sexual violence) by either directly experiencing it, witnessing it, or learning that the event occurred to someone close (Deutsch et al., 2020). It can be a response to a single incident (acute), an incident repeated over time (chronic), or the result of varied repetitive and prolonged exposure to traumatic events (complex) (Deutsch et al., 2020).

#### *Acute Trauma*

Acute trauma, or Type I events, is a short-term, unexpected, single traumatic incident, and quick recovery is more likely to occur with this type of trauma (Keller-Dupree, 2013).

Examples of this type of trauma can include exposure to community violence or severe injury by an acquaintance, stranger, parent, caregiver, vehicle, or other accident (Deutsch et al., 2020). For example, acute trauma may include a car accident because it was an accidental, single event (Winder, 2015). In contrast, chronic trauma, or Type II events, is repeated and prolonged exposures to traumatic events (Keller-Dupree, 2013). It can result from multiple acute traumas occurring one after the other or repeated acts of domestic violence or abuse (Deutsch et al., 2020). Chronic trauma exposure may lead to difficulties with behavior management, affect, and self-concept (Cook et al., 2005). Examples of chronic trauma can include years of physical abuse by a spouse or parent, sexual abuse at a workplace, or a student witnessing repeated domestic violence.

### *Complex Trauma*

The term complex trauma was first explored in 2003 by the National Child Traumatic Stress Network's Complex Trauma Task Force which included a collection of professionals who represented a dozen universities, hospitals, trauma centers, and health programs across the United States (Souers & Hall, 2016). They determined that complex trauma results from exposure to severe stressors that often begin in childhood or adolescence, occur repeatedly over time, and are typically abuse by a parent or other caregiver who is expected to be a source of security, protection, and stability (Lawson & Quinn, 2013). Cook et al. (2005) identified seven domains of impairment with complex trauma. These impairments can include attachment, biology, regulation, dissociation, behavioral control, cognition, and self-concept (Cook et al., 2005). It is also important to note that because complex trauma experiences are often the result of a caregiver, the student may be cautioned or threatened to conceal the abuse by creating a sense of conflict, guilt, or betrayal (Lawson & Quinn, 2013). Exposure to complex trauma can

cause deficits in relationships and attachment, emotional and behavior regulation, cognitive functioning, attention, and biological changes which can affect physical health (Kliethermes et al., 2014).

**Retraumatization**

Finally, it is important to prevent retraumatization among students or clients who have experienced trauma. Retraumatization refers to the process of re-experiencing distress associated with a past trauma because of events or reminders (Racine et al., 2020). When a student experiences a situation that is in some way like the initial event or experiences of the original trauma, it can ignite the same overwhelming feelings and reactions associated with the initial event. In general, inconsistency, chaos, loud disruptive behavior, and overstimulating environments can trigger retraumatization for students (Jennings, 2019). Along with these, the use of seclusion and restraints can also lead to retraumatization. Currently there are no federal laws which regulate the use of seclusion and restraints, even though research has shown it can cause injury, death, and trauma (Strunk & Houlihan, 2017). Unfortunately, students with challenging behaviors often experience seclusion, and sometimes restraint, when their behaviors become too disruptive. Therefore, the core commitment of TIA is to consider minimizing the risk of retraumatization or replicating prior situations where the client felt powerless (Rajaraman et al., 2022).

**Secondary Trauma Stress**

The National Child Traumatic Stress Network (2011) defined secondary trauma stress (STS) as the emotional duress that results when an individual hears about the first-hand traumatic experiences of another. Symptoms of STS can mimic those of PTSD such as hyperarousal, avoidance, negative thoughts, feeling and a change in mood (Whitt-Woosley et al., 2022). Any

professional who works directly with students who have a history of trauma is at risk of developing STS from hearing about the traumatic experiences (National Child Traumatic Stress Network, 2011).

## Identifying Traumatic Events

One method of determining traumatic experiences is through identifying an individual's adverse childhood experiences score. Adverse childhood experiences are a subset of childhood conditions that have been found to consistently correlate with long-term negative effects, described later (Finkelhor, 2020). The term ACE is used to describe types of abuse, neglect, and other traumatic childhood experiences that may have a later impact on the health and well-being of an individual. Adverse childhood experiences were first identified in a large study conducted by the Centers for Disease Control and Prevention (CDC) and Kaiser Permanente's San Diego Health Clinic. The purpose of that study was to assess the long-term impact of childhood abuse and household dysfunction on disease risk factors, quality of life, healthcare utilization, and mortality (Felitti et al., 1998). The primary component of the ACE study included a standardized medical evaluation. Individuals who participated in these large-scale studies were mailed the ACE study questionnaire which consisted of seven different categories. The first three categories were specific to child abuse including psychological abuse, physical abuse, or contact sexual abuse (Felitti et al., 1998). Meanwhile, the last four categories assessed exposure to household dysfunction during childhood including exposure to substance abuse, mental illness, violent treatment of mother or stepmother, and criminal behavior (Felitti et al., 1998). Table 1 provides sample questions from the Felitti et al. (1998) study.

**Table 1**

*Sample Questions from the Felitti Study*

| Type of Question | Sample Question |
|---|---|
| Psychological | Did a parent or other adult in the household often or very often swear at, insult, or put you down?<br>Did a parent or other adult in the household often or very often act in a way that made you afraid that you would be physically hurt? |
| Physical | Did a parent or other adult in the household often or very often push, grab, shove, or slap you?<br>Did a parent or other adult in the household often or very often hit you so hard that you had marks or were injured? |
| Sexual | Did an adult or person at least 5 years old ever touch or fondle you in a sexual way?<br>Did an adult or person at least 5 years old ever have you touch their body in a sexual way?<br>Did an adult or person at least 5 years old every attempt oral, anal, or vaginal intercourse with you? |
| Substance abuse | Did you live with anyone who was a problem drinker or alcoholic?<br>Did you live with anyone who used street drugs? |
| Mental illness | Was a household member depressed or mentally ill?<br>Did a household member attempt suicide? |
| Violent treatment of mother (or stepmother) | Was your mother (or stepmother) sometimes, often, or very often pushed, grabbed, slapped, or had something thrown at her?<br>Was your mother (or stepmother) sometimes, often, or very often kicked, bitten, hit with a fist, or hit with something hard?<br>Was your mother (or stepmother) ever repeatedly hit over at least a few minutes?<br>Was your mother (or stepmother) ever threatened with, or hurt by, a knife or gun? |
| Criminal behavior | Did a household member go to prison? |

Note: From "Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults: The Adverse Childhood Experiences (ACE) Study," by V. J. Felitti, R. F. Anda, D. Nordenberg, D. F. Williamson, A. M. Spitz, V. Edwards, M. P. Koss, and J. S. Marks, 1998, *American Journal of Preventive Medicine, 14*(4), 245-258.

It is important to know that some students who experienced trauma may not have a clinical diagnosis. In other words, not all trauma leads to mental health diagnosis. According to Bishop et al. (2018), approximately 60% of men and 50% of women experience a traumatic event, yet only 6% of the U.S. population meet the criteria for PTSD in their lifetime. To determine the impact trauma may have on adults, it may be worthwhile to identify behaviors displayed by students who have faced adversity. Sciaraffa et al. (2018) stated that even though every student responds differently to adversity, some students who have been exposed to adverse experiences are likely to have a difficult time with self-regulation, focusing, paying attention, and interpersonal interactions. In fact, trauma can negatively impact a student's cognitive, academic, social, emotional, and behavioral functioning (Pataky et al., 2019). These are all areas in which an educator or BCBA could intervene to improve student outcomes.

## Trauma and the Brain

Trauma acts as a threat to an individual's well-being; thereby, activating a neurobiological stress response (Carrion & Wong, 2012). Preclinical and clinical studies have shown alterations in memory and function following traumatic stress (Bremner, 2006). In his research, Perry noted the brain develops sequentially and its plasticity allows it to learn and develop in relationship to what and whom it is exposed to within its environment (Steele & Malchiodi, 2012). When it comes to traumatic stress, changes occur in brain areas such as the hippocampus, amygdala, and prefrontal cortex (Bremner, 2006). To help better understand how each of these are affected by trauma, each will be discussed in more detail.

### Hippocampus

The hippocampus plays an essential role in learning new information and memory formation. The hippocampus of a healthy individual readily encodes and retrieves information.

However, during and after exposure to a traumatic experience, hyperarousal can result in difficulty regulating memories (Carrion & Wong, 2012). In this case, the memories may be processed abnormally, leading to intrusive thoughts, nightmares, an inability to recall memories, or even selective amnesia (Carrion & Wong, 2012).

**Amygdala**

The amygdala is on the lookout for anything that might indicate potential harm (Pittman & Karle, 2015). If it detects potential danger, it sets off the fear response which acts as an alarm in the body. Souers and Hall (2016) referred to this as *survival mode* when the brain triggers a flight, fight, or freeze response. When the brain is triggered by a threat or the perception of a threat, it releases chemicals into the body, setting off the survival mode. When released in large doses, the chemicals become toxic to the body and can lead to significant developmental impairment (Souers & Hall, 2016).

**Prefrontal Cortex**

The prefrontal cortex (PFC) plays an essential role in fundamental cognitive processes which contribute to learning (Carrion & Wong, 2012). It is where processes called *executive functions* involve planning, working memory, perspective-talking, and other higher order cognitive functions. In their study, Carrion and Wong (2012) found children with symptoms of PTSD had reduced total cerebral gray volume and that high cortisol levels were associated with reduced left ventral PFC gray volume. With smaller PFC volumes leading to reduced executive functioning skills, students demonstrate more problem behaviors such as inattention, impulsivity, and hyperactivity (Jennings, 2019).

**Coronavirus Disease 2019 and Trauma**

In March 2020, the world faced the pandemic known as coronavirus disease 2018 (COVID-19). The pandemic resulted in mandated closures of business, churches, and schools across the United States. Because of this, families across the country began to face persistent economic implications. The impact of the pandemic created a significant socioemotional and financial stress for families due to challenges in attaining necessities and appropriate medical care (Minkos & Gelbar, 2021; Phelps & Sperry, 2020). The pandemic also resulted in dramatic changes in activities of daily life including social distancing, wearing masks, telecommuting, and schooling from home (Whitt-Woosley et al., 2022). Although the impact of COVID-19 may be minimal for some students, it may present itself as an ACE for others (Minkos & Gelbar, 2021). Within the context of the COVID-19 pandemic, more students will likely present with increased social-emotional needs. This information demonstrates how the COVID-19 pandemic could contribute to cumulative trauma for many students across the country (Phelps & Sperry, 2020).

Aside from the stressors of the pandemic described above, Bryant et al. (2020) stated there is emerging evidence that several forms of ACEs increased during the pandemic. For example, the National Institutes of Health and the *New York Times* covered the rise of partner violence during the pandemic because individuals were in lockdown at home with an abusive partner resulting in the abuse worsening under the circumstances (Bryant et al., 2020). Although there is limited information on students being home witnessing this violence, Google searches demonstrated an increase in phrases such as “my mom beat me” and “my dad hit me” and searches about how to report and identify child abuse (Bryant et al., 2020). In addition, a study from the Kaiser Family Foundation found an increased risk in parent mental health challenges and substance abuse because of school being closed, social isolation, job loss, and income

insecurity (Bryant et al., 2020). These behaviors are also known to be ACEs having a long-term effect on students. Therefore, the prevalence of trauma is certain to present itself among more students in the future. Simply put, BCBAs are more likely to encounter students or clients demonstrating trauma-related behaviors more than they ever have historically.

## Applied Behavior Analysis Overview

One way to explain student problem behavior patterns that stem from trauma is through the lens of ABA, a science devoted to understanding and improving socially significant human behavior (Cooper et al., 2020). Specifically, ABA sets itself apart from other sciences by focusing on socially significant behaviors and using evidence-based interventions designed to make behavior changes. When it comes to trauma, ABA can explain how stimuli can become triggers to reexperiencing traumatic events. Evidence-based interventions of ABA can also be used to lessen or diminish the triggering effect of these stimuli. In the following section, I will provide information on the history of ABA, discuss principles of ABA which help explain how stimuli can become triggers for reexperiencing trauma, and identify practices that can help behavior analysts develop a trauma-informed lens.

### A Brief History of Applied Behavior Analysis

B. F. Skinner, known to many as the father of behavior analysis, first identified and studied operant behavior. Unlike respondent behaviors, which focus on the effect a stimulus had on a behavior, operant behavior looked closer to how behaviors are influenced by the stimulus changes that follow the behavior. Skinner named this new science the experimental analysis of behavior (Cooper et al., 2020).

Along with being the founder of experimental analysis, Skinner also discovered what he would call radical behaviorism. Unlike methodological behaviors, which deny the existence of

unobservable behaviors such as thoughts or emotions (also referred to as private events in behavior analysis), radical behaviorism seeks to understand *all* human behavior. According to Cooper et al. (2020), Skinner's radical behaviorism operates within three major assumptions regarding the nature of private events. These include: (a) private events (unobservable behaviors), like thoughts and feelings are indeed behaviors; (b) behaviors within the skin are distinguished from observable, or public, behaviors due to inaccessibility; and (c) private events (unobservable behaviors) influence the same kinds of variables as observable ones (Cooper et al., 2020). For students who have experienced trauma, these private events can include memories of previous traumatic experiences or thoughts of "not being good enough" because of verbal and physical abuse.

Behavior analysis comes from three interrelated domains which include the philosophy of radical behaviorism (as described above), basic research of experimental analysis, and the applied domain that improves behavior ABA (Cooper et al., 2020). Baer et al. (1968) recommended that ABA be applied, behavioral, analytic, technological, conceptually systematic, effective, and able to generalize results (Cooper et al., 2020). These are often referred to as the seven dimensions of ABA. These dimensions are said to guide the conduct of behavior analysts.

The first dimension to discuss in more detail is applied. Baer et al. (1987) stated this dimension ensures the targeted behavior is one that troubles an individual or people within the individual's environment. To meet this dimension, behavior analysts must be certain that the targeted behavior is socially significant enough to better either the individual's life or the lives of those who interact frequently with the individual. Everyone's socially significant behavior is unique to them. For students with a history of trauma, social significance may include better

interpersonal skills or self-regulation. They are skills that will allow the individual to function within their environment more successfully.

It is also important for behavior to be both observable and measurable. This constitutes the behavioral dimension. Behavior can sometimes have a bad connotation because most individuals immediately think undesirable behaviors. However, behavior is described as an organism's interaction with its environment that involves movement of some type (Cooper et al., 2020). With trauma, some individuals may only consider private events, which include feelings and emotions; however, trauma can also present itself as visible challenging behaviors.

When someone is said to be analytical, it typically means they look at data and make decisions based upon it. The dimension of analytic is no different. Behavior analysts make determinations about reliable relationships between an intervention and behavior. Another dimension, effective, also relies on outcomes and data. For the effective dimension to be met, the data moves in the desired direction, meaning the intervention is working and causing a behavior change. These dimensions are also consistent when it comes to interventions for individuals who have experienced trauma. For behavior change, it is important to ensure interventions have an impact on the behavior (analytic), and the behavior is changing in the desired direction by either increasing or decreasing (effective). For example, a student who has experienced trauma may exhibit challenging behaviors in the form of physical aggression. To meet the dimensions of analytic and effective, the intervention must decrease the behavior of physical aggression since it is undesirable.

Conceptually systematic means the intervention is research-based and represents the principles of ABA. According to their rationale, Baer et al. (1968) shared that being conceptually systematic is important for behavior analytic technology to become an integrated discipline

instead of a “collection of tricks” (Cooper et al., 2020). For clients with a history of trauma, unlike other clinical disciplines, ABA provides empirically validated instructional procedures and practical methods for promoting adaptive behavior in a student’s environment (Harvey et al., 2009).

An intervention that falls within the purview of ABA should be written clearly and detailed enough for anyone to replicate it. To accomplish this, all the techniques that make up the intervention should be identified and fully described. These factors ensure the technological dimension. When a behavior intervention is written technologically, it is easy to replicate and more likely to be followed precisely. This dimension is applicable for any behavior whether it is rooted in trauma or not. The main purpose intent with designing interventions is for others to be able to pick up the plan and implement with fidelity.

As behavior analysts work to ensure behavior changes are socially significant, it is also important that the change lasts over time and across various environments, beside the intervention environment (Cooper et al., 2020). This dimension is called generality. Baer et al. (1987) identified the importance of training for generality by repeating effective behavior change procedures in other settings. Although extremely important, these dimensions are not only a small portion of ABA. For trauma survivors, generality provides an opportunity for them to carry over what they have learned about their trauma and the interventions they found to be effective to other areas of their lives. This, in turn, allows them to be future successful citizens, perhaps one of the major tenets of ABA.

**Major Principles of Applied Behavior Analysis**

Explaining behavior through the three-term contingency is an essential component of ABA. Sometimes referred to as the ABCs of behavior, the three-term contingency includes the

antecedent, behavior, and consequence. The antecedent describes the stimulus or event that occurs directly before the behavior. Antecedents occur every day and all around us. When a stoplight turns green (antecedent), it is a signal for the driver to proceed forward (behavior). A stop sign can also be an example of an antecedent. It signals for the driver to stop and look for oncoming traffic. If a smoke alarm sounds, it signals possible danger within the house resulting in a quick escape by its occupants. The beeping of the smoke alarm is an example of an antecedent. For some students who have experienced trauma, antecedents to problem behaviors can include triggering senses that are associated with previous trauma, such as a smell (e.g., cologne or perfume), taste (e.g., school snack), sound (e.g., male voice), sight (e.g., task associated with trauma, such as reading), and/or touch (e.g., unexpected touch on their back or neck), which may lead to re-experiencing traumatic events. Such antecedents may be inconsistent and hard to identify. This could be due to a temporal delay of events which occur prior to the problem behavior. In this case, a setting event is said to be in effect. These will be discussed in more detail later in the paper.

An antecedent evokes a behavior. As a reminder, behavior is an organism's interaction with its environment that results in some type of movement of the organism (Cooper et al., 2020). Behavior analysts look for observable and measurable behaviors to determine why the organism is trying to obtain or escape something. Analysts also look for measurable and observable behaviors to make it easier for them to determine changes that either increase or decrease its occurrence.

Consequences are the stimuli the organism receives because of the behavior; thereby, only affecting the occurrence of future behavior. Consequences can either reinforce or punish the likelihood of future behavior. For a consequence to be considered reinforcement, there must be

an increase in the occurrence of the future rates of behavior. For example, if a parent pays their child money for each good grade he receives and the student increases the likelihood of receiving good grades in the future, this could be a form of positive reinforcement.

Skinner concluded that voluntary behavior is impacted by reinforcement and punishment. In fact, he stated that contingencies of reinforcement change the way we respond to stimuli (Skinner, 1989). Reinforcement does not always have to include the presentation of a preferred stimulus because of a desired behavior, such as positive reinforcement. It can also consist of the termination, reduction, or avoidance of an undesirable stimulus, referred to as negative reinforcement (Cooper et al., 2020). For students who have experienced trauma, escape from undesirable stimuli would be an example of negative reinforcement, provided there is an increase in the student's avoidance behavior. For example, a student who has repeatedly witnessed domestic violence within their home can become negatively reinforced to escape any perceived conflict. By avoiding these conflicts, the likelihood of the student escaping increases.

Unlike reinforcement, punishment is used to decrease future occurrences of behavior or rates of behavior. Much like the word "behavior," punishment has gained a rather bad connotation. Many individuals pair the word with corporal punishment and painful actions; however, any consequence that results in a decrease of the future occurrence of the target behavior can be considered punishment. While positive punishment is the presentation of a stimulus (often aversive) to decrease the likelihood of a behavior occurring again, negative punishment is the withdrawal of a stimulus (often preferred) to also decrease the likelihood of the behavior occurring again (Cooper et al., 2020). Examples of possible positive punishment may include a verbal reprimand or an extra chore. Possible negative punishment examples typically include the loss of a privilege (e.g., playing a video game, access to cell phone, etc).

Reinforcement and punishment are both consequences per operant conditioning. Operant conditioning refers to the process and selective effects of consequences on behavior (Cooper et al., 2020). These consequences affect the future occurrences of behavior. A consequence which increases the future rate of responding by an organism is called a reinforcer, and a consequence that decreases the future rate of responding is called a punisher (Cooper et al., 2020). To further clarify through example, consider a kindergarten student learning how to sit on their carpet spot. If the student sits crisscross on their carpet spot with their hands in their lap, praise is often provided to the student. If the praise increases future occurrences of this behavior, praise is a reinforcer. By contrast, if the kindergarten student is lying down on the floor or is touching other students on the carpet and receives a verbal reprimand from the teacher to "stop," this would be a punisher if there are no future occurrences of the behavior.

## Understanding Trauma through Operant Conditioning

According to Skinner (1989), we do what we do because of what *has* happened and not because of what *may* happen. He also established that the frequency, intensity, and duration of voluntary human behavior are modified through operant conditioning (McLeod et al., 2015). Operant conditioning provides an explanation on how a person, object, or event (stimulus) can become associated with fear due to traumatic experiences. For example, through verbal or physical abuse, the inflicting adults can become conditioned punishers for students. This means the presence of an abusive adult can trigger emotional responses of a student presenting in the form of a problem behavior (e.g., elopement/running away) to avoid the punisher. It is also important to note a relationship is possible between two different objects or people by some similarity. Consequently, given the statistics of students who have experienced ACEs and the sheer amount of problem behaviors exhibited in today's schools, it is highly possible many of

those students have been impacted by trauma and have acted out in response to previous trauma. Of relevance to the analysis of emotion and trauma includes literature on relational responding such as stimulus equivalence (Friman et al., 1998).

**Stimulus Equivalence**

Stimulus equivalence explains how relationships can be formed by teaching how two of the stimuli are related, and yet, without any direct instruction, the student is able to identify how a third stimulus relates (Cooper et al., 2020). For example, a student is shown a picture of a dog and asked, "What is this?" When the student provides the appropriate response, "dog," he is provided some type of reinforcement such as praise. After a few trials, the student has mastered the connection between the picture of a dog and the spoken word "dog." The student is then presented with the written word "dog" and asked, "What is this word?" Again, he is provided reinforcement each time he can identify the written word with the correct verbal response until he demonstrates mastery. After these two trained relations, the student is then able to identify an untrained relationship between the written word "dog" and a picture of a dog. Relational responding, such as stimulus equivalence, describes how human response patterns can be influenced by indirect relationships between public (observable) and private (unobservable) responses to events (Friman et al., 1998). For example, the thought (private event) of a highly aversive event can instigate a public response such as avoidance behavior. To better explain this, consider a student who has experienced trauma in the form of verbal aggression. The verbal aggression consists of continuously being called "dumb" or "stupid" by a parent because they struggle with math homework. As a result of relational responding, the student has developed the thought that they are "dumb at math" which leads to either escape or noncompliance when given

a math assignment. Stimulus equivalence provides one explanation of how stimuli can evoke behavior because of trauma; however, motivating operations can also be in play.

**Motivating Operations**

Motivating operations have two defining effects. The first is by altering the impact reinforcers or punishers have on a response (value-altering effect). One value-altering effect, known as EO, refers to any event that increases the impact of the given response to a behavior (Laraway et al., 2003). To better understand an EO, consider a glass of water after mowing the lawn in the hot sun. A loved one brings out an ice-cold glass of water. The value of the water increases due to the thirst developed from mowing the lawn and not having your own water. Deprivation (of water) creates desire and an EO for that water.

For students who have experienced trauma, an EO could take on several different forms. According to Sciaraffa et al. (2018), research demonstrates that the most important protective factor for children exposed to ACEs is the availability of a safe, nurturing, and dependable relationship. These protective factors are EOs for students who have experienced trauma because of the environments in which they live. It is because of this lack of safety and love that the value of relationships and safe environments increases. In fact, teachers can also establish themselves as EOs through a trustworthy relationship with students, an intervention recognized as trauma informed practice (Rajaraman et al., 2022).

Another example of a value-altering effect includes an abolishing operation (AO). While EOs increase the effectiveness of a given consequence, AOs decrease the effectiveness of a given consequence. To better explain this concept, consider the glass of water again. If an individual has been drinking water all day from their water bottle, they are less likely to find

value in that glass of ice-cold water presented to them. Essentially, when someone is satiated, the value in the stimuli is more likely to act as an AO.

To better explain an AO for a student who has experienced trauma, consider verbal redirection. Most students within a classroom will typically respond to redirections such as “sit down” or “raise your hand before speaking” with relative ease. However, students who have experienced trauma may be less likely to respond to these redirects but, instead, it may lead to an increase in problem behaviors. This may be a result of previous traumatic experiences associated with redirections given in the forms of verbal or physical abuse. In this case, redirection should be given with caution and awareness of the student. Meanwhile, the behavior-altering effect involves a change in the frequency of a behavior due to the occurrence of some stimulus (Cooper et al., 2020). An example for a student who has experienced trauma could include a change in the frequency of escape behavior. This change is based on the presence of a parent who physically abused him.

Abolishing operation and EO have two different effects on the recurrence of a behavior. The first is the evocative effect, which is an increase in the frequency of a behavior due to a history of reinforcement. Going back to the glass of water, after mowing the lawn in the hot sun, we know the value of the water increases (EO). Also, because an individual has a history of their thirst being quenched by the water, water has an evocative effect meaning the frequency of the drinking behavior increases.

For individuals with a history of trauma, an evocative effect may consist of an increase in escape behavior. For example, a student who has learned that eloping (leaving the area without permission) from an unpleasant situation, such as a verbal reprimanded by the teacher, helps him avoid re-experiencing feelings of fear and sadness associated with the verbal abuse he endured

from his abusive family member. Because the student can avoid re-experiencing such feelings, the likelihood of his elopement behavior increases.

Meanwhile, an abative effect means the frequency of the behavior occurring decreases due to the stimulus and its history of reinforcement or punishment. In the AO example above, the value of the water decreased for the individual because they had consumed water throughout the day and, therefore, water had no value. Because of this effect, the water also has an abative effect, meaning the frequency of drinking behavior decreases.

To further explain this effect on individuals who have experienced trauma, consider compliance. Previously, I addressed the impact, or lack thereof, verbal redirection may have on a student. This example is also relevant for an abative effect; however, this time the focus is not on the stimulus, or redirection, but more so on the compliant behavior. If a student receives continuous redirection through verbal abuse, they are less likely to comply because the constant redirections have lost their value.

**Setting Events**

Unlike antecedent events, which are described as "fast" triggers that occur immediately before the onset of a problem behavior, setting events can have a temporal delay of hours or sometimes even days or years (with the case of trauma) prior to the occurrence of the problem behavior, thereby earning the nick name "slow trigger" (Iovannone et al., 2017). Setting events are not always discrete and present to observe in the student's immediate environment; however, they can be instrumental in understanding problem behavior. Setting events can be described as the same set of environmental variables as those identified as MOs, more specifically EOs, because they make a problem behavior more likely to occur (Cooper et al., 2020); Iovannone et al., 2017). Examples of a setting events could include, but are not limited to, death in the family,

divorce, getting in an argument with parents the night before, parents fighting in the home, illnesses, and not getting enough sleep.

Trauma can take many forms including displacement, abuse, neglect, or even terrorism and school shootings (Cavanaugh, 2016). One example of a setting event in this context can include hunger because of neglect abuse with parents not feeding their child. In this case, the observable behaviors of the child may include stealing food, noncompliance, or even possibly aggressive behaviors toward other students who have food. Another example of a setting event resulting from trauma could include a lack of sleep due to homelessness. The child may have no regular home to sleep, and often sleeps on the couches of unknown people, in shelters, or even in cars. These examples and many others highlight the importance of determining setting events when identifying behavioral patterns and functions of behavior. Table 2 provides more examples of possible setting events for students who have experienced trauma.

**Table 2**

*Examples of Possible Setting Events for Children Who Have Experienced Trauma*

| Setting Event | What It May Look Like |
|---|---|
| Physical abuse | Noncompliance |
| Verbal abuse | Elopement |
| Domestic violence | Poor social interactions with peers |
| Experiencing a natural disaster (e.g., tornado or hurricane) | Sleeping through class |
| Homelessness | Withdrawn behavior |
| Unexpected loss of loved one | Yelling/screaming |
| Neglect (physical, emotional, educational) | Impulsive responses |
| Sexual abuse | Difficulties with self-regulation |

## Acceptance and Commitment Therapy: An Approach Embedded in Applied Behavior Analysis to Address Trauma

Unlike psychological interventions (e.g., cognitive behavior therapy, dialectical behavior therapy) which attempt to change the way a student thinks or feels, ACT provides a way to help the student live proactively instead of reactively. In other words, instead of the student being told to "get over it" or not to "think about it," ACT provides the student the opportunity to identify how they can carry the burden of the experiences without feeling overwhelmed (Walser & Westrup, 2007). Acceptance and commitment therapy is a behavior analytic approach founded within the field of ABA, based on relational frame theory (RFT) and functional contextualism

(FC). Functional contextualism focuses on the ongoing behavior of an individual within the environment where it is occurring (Bach & Moran, 2008). In behavior analytic terminology, this can be described as the three-term, or four-term, contingency previously discussed. Three-term contingencies include the antecedent, behavior, and consequence (A-B-C). The four-term contingency also includes antecedent, behavior, consequence, but also includes motivating operations such as setting events (MO-A-B-C). Meanwhile, RFT is a behavioral theory based on human language and cognition (Harris, 2009a). The core claim of RFT demonstrates that humans learn to relate events mutually, in combination, without being limited by their form (Fletcher & Hayes, 2005). In other words, a derived relationship can occur based on stimuli size, color, shape, sound, class membership, value, texture, attractiveness, etc. (Bach & Moran, 2008). To help better explain this concept, consider the word "orange." As an individual reads the word, several response forms could occur. The individual could potentially see an image of an orange, smell it, or taste it. Perhaps the individual can even feel the orange juice bursting in their mouth at the presentation of it. The word could even evoke memories or emotions within the individual stemming from childhood, including songs with the word orange or even images of orange fields. In this case, relational responding has taken place.

**Relational Responding**

Relational responding occurs when the behavior of a person or animal is influenced by features or properties of two or more stimuli (Bach & Moran, 2008). It refers to the ability to respond to relations between two stimuli instead of responding to each stimulus separately (Blackledge, 2003). Derived relational responding is based upon verbal descriptions of events, rather than on direct contact with those events (Bach & Moran, 2008). A well-known example to better describe this phenomenon can be explained by a chaotic school day. When a teacher is

asked “How was your day?,” a teacher’s response for a bad day may include, “I need a drink” (referencing alcohol). This verbal description of the school day allows those who have not directly experienced it a direct insight into the stress and chaos of the individual’s day. Research on equivalence classes and derived stimulus relations show that avoidance behavior is partly due to the relation derived between emotions and verbal evaluations (Tarbox et al., 2022). In other words, individuals are likely to avoid a particular situation or stimulus due to it being labeled as “bad,” “scary,” or maybe even “embarrassing.” For students who have experienced trauma, an example may include a student labeling public restrooms as a “scary place” due to previous sexual abuse they experienced in a different public restroom. The student then avoids going into all public restrooms alone. Another example of a derived stimulus relation can include the consumption of alcohol. As a teenager, a student was physically abused when his mom became drunk. Because of this experience, he identifies all alcohol as “bad,” even as an adult. He avoids any gatherings where he believes alcohol consumption will take place. If alcohol is present, he finds an excuse to leave the event early.

Why is RFT important to ACT and how does all of this relate to trauma? Relational frames add an additional dimension to case conceptualization, functional assessment, and treatment planning (Bach & Moran, 2008). In his book, Harris (2009b) provided the following example to help explain RFT, ACT, FC, and ABA. Acceptance and commitment therapy is like driving your car, where RFT, ABA, and FC are how the car engine works. You can drive well without knowing anything about the engine; thus, there are plenty of good ACT therapists who know little or nothing of RFT, ABA, and FC. However, if you do know something about the engine, you’ll be better equipped and prepared should your car break down (Harris, 2009b, p. 2)

Also known as acceptance and commitment training (ACTr) outside psychotherapeutic settings, the ACT model identifies psychological flexibility as the ability to contact the present moment, regardless of the aversive thoughts and feelings based upon one's experiences or personal values (Kelly & Kelly, 2022; Tarbox et al., 2022). Unlike other therapies, such as cognitive behavioral therapy, ACT does not try to modify thoughts, feelings, or physiological reactivities, but rather to alter the functions of those thoughts, feelings, and reactions (Walser & Westrup, 2007). Instead, Harris (2009a) stated the aim is to "create a rich, full, and meaningful life while accepting the pain that inevitably goes with it" (p. 36).

**Acceptance and Commitment Therapy Hexaflex**

The ACT hexaflex comprises six core therapeutic processes. These include acceptance, defusion, present-moment attention, self-as-context, values, and committed action. In the field of behavior analysis, value interventions support rule-following repertoires that are oriented toward a larger and longer-term positive reinforcer (Tarbox et al., 2022). Values are how a person wants to act or behave on an ongoing basis (Harris, 2009a). Unlike goals which include one's desire to accomplish something in the future, values are similar to directions we want to move throughout our lives. An example to help better explain the difference includes the difference between "being loved" and "getting married." Getting married is an action and something that is achievable. Being loved, however, is ongoing. It is not something you can check off your list.

Acceptance means a willingness to be fully aware of what one is experiencing "fully without defense" (Hayes & Wilson, 1994). It is important to note that acceptance does not mean the individual likes or wants the experience to reoccur. Instead, it signifies a willingness of the individual to experience the feelings which may arise when triggers or setting events are brought to attention and the individual does not attempt to avoid those feelings.

Society and many psychotherapies have instilled with us all the belief of the mind being the source of behavior. However, defusion coaches individuals that the mind does not control our behavior (Tarbox et al., 2022). The core process of defusion includes separating oneself from thoughts and not getting entangled within them. To convey the concept of defusion, an individual is encouraged to notice or observe thoughts and not invest time or energy in responding to them (Harris, 2009a). Therefore, the aim of defusion is not to feel better about it or get rid of unwanted thoughts, but to become psychologically present and engaged in life. For example, a student who has experienced verbal or physical abuse may develop the thought "I am a failure." They may become fused with this thought and believe it is a reality. Through defusion, the student can recognize it simply as a thought and not a true statement.

Some practitioners new to ACT may have a difficult time discerning the differences between the core processes of self-as-context and defusion. Like defusion, self-as-context encourages the recognition of thoughts and feelings as mere observations. Unlike defusion, which targets rules and thoughts as being part of the outside world, self-as-context helps individuals identify their perspective on thoughts and feelings (Tarbox et al., 2022). To help better explain the difference, take the example of an elementary teacher struggling with some classroom behaviors. The teacher may think, "I'm never going to get these behaviors under control." Using a strategy from defusion, the teacher notices the thought and changes the wording to "I'm having the thought that I'm never going to get these behaviors under control." On a different day the teacher may think, "Maybe I am in the wrong profession." Using a strategy for self-as-context, the teacher's thinking may change to "I am a new teacher with only two months experience noticing myself thinking that maybe I am in the wrong profession." For students who have experienced verbal abuse, a thought which may present itself could include "I

am a bad kid." Using defusion, the student could change the thought to "I am having the thought that I am a bad kid." Likewise, thinking of self-as-context, the thought of "I am a bad kid" could change to "I just made a mistake that I rarely make noticing myself thinking I am a bad kid."

An everyday present moment example can best be described through motorists' driving habits. Drivers can often find themselves daydreaming or pondering about life's problems and not focusing on the road at hand. Suddenly, the driver takes notice of his wandering mind and redirects his attention back to the road. Present moment attention involves strengthening one's ability to attend to the stimuli in the current environment and lessening attention to past, future, or imagined events (Tarbox et al., 2022). One common intervention used to guide students into the present moment is mindfulness defined as "paying attention in the present moment and non-judgmentally" (Walser & Westrup, 2007, p. 20). For example, Jenny is a second-grade student who has recently been turned over to her grandmother for custody. Since then, Jenny has had zero contact with her mom. To begin her school day, Jenny is given time to practice deep breathing and other mindfulness activities to help her be more focused on school than events at home.

The final component of the hexaflex to describe is committed action. It can be considered the measurable part of the hexaflex. It occurs when the student engages in relevant behaviors which suggest improvement (Bach & Moran, 2008). A couple of examples of behavior analytic interventions that could be utilized within committed action include behavior skills training and systematic desensitization (Harris, 2009a).

## Embedding Acceptance and Commitment Therapy into Understanding Trauma

Both ABA and ACT can play a role in serving students with traumatic backgrounds in today's schools. For a student who has experienced trauma, what appears to be displayed as a

lack of "emotional development" may, instead, be the failure to exhibit appropriate behaviors due to discriminative stimuli (Sds), cues for learned behaviors to occur, motivating operants that increase or decrease the value of reinforcement, and other principles of reinforcement and punishment (Prather & Golden, 2009). Simply put, people learn to avoid certain stimuli as a form of "flight" or "escape" because they had previously bad experiences (i.e., trauma) related to certain stimuli. To avoid experiencing these events again, individuals will attempt to avoid interaction or reoccurrence of the stimulus. This is an example of experiential avoidance.

Experiential avoidance describes a progressive pattern of behavior where individuals become intolerant of certain internal stimuli, such as feeling, memories, and physical sensations, and actively work to avoid these experiences (Bishop et al., 2018). These stimuli have become conditioned punishers due to previous traumatic experiences. Experiential avoidance could also explain the importance trauma has on client behavior. Examples of this could be anything ranging from participation in each activity (reading a story) to the color shirt an individual is wearing, etc.

Of relevance to the analysis of emotion includes the literature on derived relational responding, such as stimulus equivalence (Friman, et al., 1998). A behavioral explanation may be when an individual exhibits a negative emotional behavior that becomes an Sd (stimulus) for an aversive situation, the individual is then negatively reinforced for numbing or blocking emotional behavior that is associated with the aversive situation (Prather & Golden, 2009). Take for example a student who has experienced verbal abuse and, as a result, learned that hiding from the abuser allows him to escape from the feeling associated with the abuse. Because this student is negatively reinforced by escaping the aversive event, he is more likely to run away or hide from situations perceived as being aversive. As a result, Skinner's position is that emotional

distress and disordered behavior typically arise from environmental factors and, therefore, therapists should explore environmental factors before beginning treatment (Goddard, 2014). In his model, Prather (2007), stated that the primary approach to address trauma is to teach parents and students who have experienced abuse new stimulus-response learning patterns to reinforce healthy emotional regulation and responsiveness. Evaluating and using both the establishing operations (EO) and the MO are instrumental in the treatment process. Establishing Operations are environmental events, operations, or stimulus conditions that affect behavior by changing the effectiveness of the reinforcer or punisher. These principles of ABA provide some insight on how stimuli can become triggers leading to reexperiencing traumatic events. Further research is needed, however, to identify behavior analytic interventions that can be utilized to alleviate the anxiety or fear associated with these triggering events.

The information presented above demonstrates ABA and ACT as promising methodologies in understanding and addressing trauma. The problem, however, lies within the amount of trauma training and exposure practitioners have encountered. Because the concept of a trauma-informed approach in behavior analysis is fairly new, there have not been many studies to identify it. There is a need for research to identify the perspectives and exposure behavior analysts have in a trauma-informed approach.

## Board Certified Behavior Analysist Certification Requirements and Guidelines for Practice

Children who have experienced trauma and exhibit challenging behaviors are likely to receive services from a BCBAs. The BACB exists not only to meet the credentialing needs by establishing, disseminating, and managing professional standards, but they also facilitate ethical behavior in the profession (BACB, 2017). In 1998, the BACB was established because of poor

service quality by less qualified practitioners. This, in turn, had an adverse effect on the field in general (Shook & Favell, 2008). The BACB offers different levels of certification; however, for the purpose of this study, only two will be discussed. The BCBA is a graduate-level certification for practitioners who provide behavior analytic services in a variety of settings including, but not limited to, schools, residential facilities, clinics, etc. All BCBAs have two types of requirements for obtaining certification. The most common route for obtaining BCBA certification requires applicants to obtain either a masters or doctoral degree, graduate-level coursework in behavior analysis, and supervised fieldwork (Luke et al., 2018). After fulfilling these preliminary requirements, the applicant must then pass the BACB examination to obtain credentials. The second certification, Board Certified Behavior Analyst-Doctoral (BCBA-D), is not a separate certification and does not grant any privileges beyond the BCBA certification. A BCBA-D is earned by an individual who either attends an accredited doctoral program or one who completes a doctoral degree with a behavior-analytic dissertation (BACB, 2022). The behavior-analytic dissertation includes completion of a single-subject research design study. Once certified, BCBAs and BCBA-Ds must adhere to the BACB's Professional and Ethical Compliance Code for Behavior Analysts and earn 32 hours of continuing education in behavior analysis during each two-year certification (Luke et al., 2018).

**Behavior Analyst Certification Board Fieldwork Requirements**

In addition to academic preparation, individuals pursuing BCBA certification require supervised experiences with applying behavior analysis in their chosen area of practice (e.g., autism, developmental disabilities, education, etc.), while under the supervision of an approved BCBA supervisor. The most recent fieldwork requirements, announced in October 2017, took effect in January 2022. Under these requirements, BCBA trainees are required to complete either

2,000 hours of "supervised fieldwork" or 1,500 hours of "concentrated supervision fieldwork" (Luke et al., 2018). The difference between the two supervision options includes the intensity of supervision. Supervisors must meet one of the following criteria: (a) an active BCBA without current disciplinary sanctions who have been certified for at least one year and meets ongoing supervision CEU requirement; (b) an active BCBA without current disciplinary sanctions who has been certified for less than one year and is receiving consultation on monthly basis from a qualified consulting supervision; (c) a licensed or registered psychologist certified by the American Board of Professional Psychology in Behavioral and Cognitive Psychology who was tested in applied behavior analysis; or (d) an authorized verified course sequence instructor (BACB, 2022). Fieldwork must include activities that are related to the BACB task list (described next) and consistent with the dimension of ABA (Luke et al., 2018).

**Verified Course Sequence**

Individuals with an interest in a career in ABA must complete a program through a facility having a verified course sequence (VCS). Although a VCS is not an endorsement graduate training program, it does indicate the program teaches the content required by the BACB for certification (Alligood et al., 2019). Currently there are 250 VCS for individuals seeking certification as a BCBA; however, only 20 of these have obtained accreditation from The Association for Behavior Analysis International (ABAI). This accreditation is designed to indicate a quality program based on criteria such as a training model, mentoring practices, attrition rate, and post-graduation employment status (Alligood et al., 2019). It is important to note, however, that endorsement by either the BACB or ABAI simply means the graduate program has met the minimal standards they have established. Aside from the BACB's list of

passing rates on the certification exam, there are no current resources to compare course sequences and training opportunities provided by VCS programs (Dixon et al., 2015).

## Behavior Analyst Certification Board Task List

It is important to identify the training requirements necessary for individuals aspiring to be BCBAs. The BACB task list (5th ed.) took effect in January 2022. The task list identifies skills and knowledge that serve as the foundation for the BCBA examination (BACB, 2017).

Regarding practitioners who consider the importance of trauma, the BACB includes Task Item F-1 states "the importance of reviewing records and available data which includes educational, medical, and historical" (BACB, 2017). With this task list item, many behavior analysts consider the educational and medical histories of students; however, despite the acknowledgement of setting events and the impact they can have on student behavior, BCBAs largely focus on what present events they see leading to the challenging behavior (Rajaraman et al., 2022). This focus may overlook a history of trauma, including any impact the experiences could have on the student's behavior. These traumatic events may be the MO for the occurrence of the behavior. As an example, take into consideration the previous discussion about the student who learned how to elope (leave the area without permission) from an unpleasant situation, such as a verbal reprimand by the teacher. This, in turn, helped him avoid re-experiencing feelings of fear and sadness associated with the verbal abuse he endured from his abusive family member. Consequently, it is important for behavior analysts to identify any potential setting events based on previous trauma and to create an effective behavior intervention plan designed to address the student's needs.

## Board Certified Behavior Analyst Code of Ethics

The Code of Ethics (hereafter referred to as the Code) applies to BCBAs in all the professional activities, including direct service delivery, consultation, supervision, training, management, editorial and peer-review activities, research, and any other activities that fall within the ABA profession (BACB, 2020). When faced with complex and multifaceted ethical dilemmas, a BCBA should identify problems and solutions with care and deliberation. To do this, they should address any of these dilemmas through a structured decision-making process that considers the full context of a situation (BACB, 2020). When it comes to trauma and utilizing a TIA, the Code provides some guidance to ensure a holistic approach is utilized to determine reasons for a student's behavior.

The first Code to address trauma is 2.01. It states behavior analysts should provide effective treatment to clients. Two different examples of how to provide this effective treatment are provided. First, the BCBA must consistently provide services that are consistent with behavioral principles, based on scientific evidence, and designed to maximize desired outcomes to protect all clients from harm. Second, Code 2.01 notes behavior analysts should only implement services with clients if they have received the required education, training, and professional credentials for delivering (BACB, 2020). For example, a BCBA with limited to no knowledge or experience with trauma ethically should not provide services to clients or students with trauma-related behaviors.

Another Code that guides BCBAs in their practices is 2.12. This Code states that behavior analysts must ensure medical needs are assessed and addressed if there is any likelihood that a referred behavior is influenced by medical or biological variables (BACB, 2017). Because trauma can affect both an individual's mental and physical health, the Code directs BCBAs to

acknowledge how a trauma history can impact the behavior(s) addressed within planning. For BCBAs who want to learn strategies to further their knowledge, they may take CEUs.

### Continuing Education

Cooper et al. (2020) highlighted the importance of behavior analysts who practice within their area of competence, based on training, experience, and performance. Because the task list, Code, and verified course sequence do not directly acknowledge trauma and assessments to identify whether problem behaviors are a result of it, practicing BCBAs may be less likely to consider trauma histories. For practicing BCBAs to receive such training, it is often necessary for them to do so through CEUs. The purpose of the BACB's CEU requirement is to ensure BCBAs engage in activities that will expand their behavior-analytic skills beyond the requirements for initial certification and help them stay up to date on developments within the profession (BACB, 2022). As previously noted, the BACB requires 32 CEUs on a 2-year recertification cycle. While the BCBA may select the area of content in which they wish to obtain CEUs, they must receive four CEUs in ethics and three CEUs in supervision (if they wish to be a supervisor) (BACB, 2022). One approach that is not covered in the BACB task list but is identified in CEU opportunities includes ACT, an effective approach for individuals who have experienced trauma.

## Conclusion

Despite the lack of research on the benefits of utilizing a trauma-informed framework in ABA, it is difficult to deny that data suggest a prevalence of trauma within the range of populations who receive ABA services (Rajaraman et al., 2022). As many as 68% of students have experienced at least some form of trauma (Cavanaugh, 2016). In fact, the sheer number of traumatized students attending school is a public health concern (Ray, 2014). Many of these students walk into classrooms exhibiting problem behaviors that have manifested because of

trauma. To help these students reduce their problem behaviors and replace them with more socially appropriate behaviors so that they can become more successful individuals, it is important to not only identify the triggering events leading to the behaviors, but also to implement evidence-based interventions designed for effective behavior change. One promising scientific practice used to achieve these outcomes is ABA.

This chapter served as a review of literature to explain how the principles of ABA can identify stimuli that can trigger re-experiences of trauma in students. To better understand this process, a brief explanation of RFT and derived relationships was provided. Behavior analytic explanations of MOs, Sds, and the principles of reinforcement and punishment were also used to help understand how stimuli can become aversive and lead to re-experiences of traumatic events.

Finally, the purpose of this chapter was to provide a rationale about how behavior analysis can be used to address problem behaviors associated with trauma. Much like dealing with other problem behaviors, the first step includes identifying the problem behavior and any related setting events that may lead to re-experiencing previous trauma; however, the importance of this work lies not only within the identification of possible setting events leading to the behavior, but also in identifying evidence-based practices to reduce or replace the problem behaviors.

Most behavior analytic studies that evaluate interventions for individuals with known trauma histories have failed to (a) describe the learning history and (b) provide evidence that trauma history was factored into treatment decisions (Rajaraman et al., 2022). With the prevalence of trauma, especially after COVID-19, it is important for the field of ABA to begin addressing these areas. Not only will further research on how contemporary practices of ABA contribute to the improvement of the practices of TIBA, it will also boost the public's perception

of the field. In order to identify these contemporary practices, it is important to gain the perspective of BCBAs who are currently using TIBA. By determining how BCBAs identify and address trauma within their practices, resources will be identified to further advance the practices of BCBAs wanting to practice TIBA.

# CHAPTER III

# METHODOLOGY

## Purpose of Study

Despite a growing acknowledgement of the importance for understanding the impact trauma can have on therapeutic approaches across various disciplines of human service, behavior analytic literature has been less prevalent (Rajaraman et al., 2022). Because of this lack of behavior analytic literature, the purpose of this study was to explore how BCBAs: (a) define TIBA, (b) use TIBA to guide their decisions for identifying appropriate interventions, (c) determine appropriate evidence-based interventions for students with a history of trauma, and (d) obtained their training to confidently implement TIBA in their practices. Specifically, this case study explored the perceptions of practicing BCBAs related to their experiences and training to implement TIBA.

Rajaraman et al. (2022) identified barriers which has limited the attention of TIBA to include: (a) the field of ABA has difficulty interpreting the phenomenon of trauma with a functional definition focusing on observable behaviors rather than psychological states; (b) lack of published research that demonstrates trauma history was taken into consideration when determining interventions in treatment decisions; and (c) the absence of literature detailing data-informed practices resulting in improved client outcomes for those with a history of trauma. To address these barriers, one goal of this study was to add to the limited research of TIBA by gaining insight from practicing BCBAs who utilize TIBA. In addition, another goal of this study

was to identify possible resources, CEUs, and any other resource for BCBAs who wish to gain knowledge in TIBA.

The experiences of BCBAs were examined through a phenomenological study. Qualitative interviews were conducted with BCBAs using TIBA to work with individuals who have a history of trauma. The purpose of the interviewing was to determine how these BCBAs received training in TIBA so that they can work effectively with individuals who have a history of trauma. The interviews provided information on how the BCBAs utilize TIBA to determine meaningful interventions.

## Explanatory Research Questions

The research questions for this study focused on identifying perspectives and current practices of BCBAs who utilize TIBA when working with students who have experienced trauma and present challenging behaviors. Currently, there are no published studies in this much-needed area of ABA. My goal was to fill that gap with the data I collected through this research study. As previously discussed, trauma is defined as "situations or events that are shocking, terrifying, or overwhelming such that they produce intense feelings of fear or helplessness" (McLeod et al., 2015, p. 939). There are three areas of particular interest in this study in reference to a sample of current BCBAs' perspectives and practices: (a) BCBA practitioners' definition of TIC in behavior analytic terms; (b) BCBA practitioners' identification and description of TIBA that guide decision-making when trauma is suspected for a student who presents challenging behaviors; (c) BCBA practitioners' description of and rationale for implementing evidence-based interventions for students who have a history of trauma and present challenging behavior; and (d) BCBA practitioners' recollection and explanation of any training that they attribute to their preparation of implementing TIC. Specifically, the research

questions looked to identify similarities among BCBAs who report using TIBA within their ABA practices. The overall guiding research questions include:

Q1 How do the BCBA participants operationally define TIBA within their practices?

Q2 How do behavior analytic principles guide the BCBA participants' decision-making process for students who have a history of trauma and exhibit challenging behaviors (e.g., disruption, defiance, and physical aggression)?

Q3 What evidence-based interventions have the BCBA participants found to be most beneficial for students who have a history of trauma?

Q4 What knowledge and skillset are described by the BCBA participants as being necessary in providing TIBA?

**Research Question 1**

The purpose of this question was to identify a sample of participating BCBAs who can operationally define TIBA within their practice. With this question, I looked to understand their knowledge of TIBA within the field of ABA. The similarities within the BCBAs' responses then helped me construct my own functional definition within the scope of this research that will ultimately contribute to a very under-researched area. The functional definition of trauma will provide BCBAs a start to interpreting trauma through a behavior analytic lens and apply its interpretation in practice (Rajaraman et al., 2022).

**Research Question 2**

With this question, I sought to understand the behavior analytic principles (i.e., BACB task list, Code of Ethics, etc.) that guide the sample of BCBAs' decision-making process when utilizing TIBA in behavior change procedures. Although I have discussed the importance of the BACB Code of Ethics and Task List items, I was looking to see if behavior analysts who report using TIBA in behavior analysis refer to these guidelines in practice. I was also curious to see if there are guidelines they utilize that are not addressed by the BACB. The information from this question will help guide my practice as a behavior analyst utilizing a trauma-informed approach.

**Research Question 3**

The purpose of this question was to understand the BCBAs' personal experiences regarding evidence-based interventions rooted in applied behavior analysis. I wanted to know more about program outcomes when working with students who have experienced trauma and who exhibit challenging behaviors. Specifically, I sought to find commonality among their responses of TIPs when it comes to this population of students, including how they designed behavior change procedures without retraumatizing their students. Using my own knowledge and background in ABA, I was able to identify whether the strategies or interventions discussed are evidence-based practices.

**Research Question 4**

The final question looked to identify any previous or current training opportunities the sample of BCBAs experienced regarding implementation of TIBA in ABA. From their responses, I not only looked at the amount and types of training they have encountered, I sought to identify potential learning opportunities that contributed to their knowledge and experience. Finally, I wanted to know the outcomes of BCBAs who seek additional education on TIBA.

## Research Design

This research study used a qualitative methodology. Brantlinger et al. (2005) defined qualitative research as a systematic approach to understand qualities, or the essential nature, of a phenomenon within a particular context. Qualitative researchers are interested in understanding how people interpret their experiences, how they construct their worlds, and the meaning they attribute to those experiences (Merriam & Tisdell, 2016). Four characteristics are identified as key to understanding the nature and intent of qualitative research. These include: (a) focus on the process, understanding, and meaning of the phenomena; (b) the researcher is the primary

instrument of data collection and analysis; (c) the process is inducive (process of reasoning from specific to general); and finally (d) the product is richly descriptive (Brantlinger et al., 2005; Merriam & Tisdell, 2016). As the primary instrument of both data collection and analysis, the researcher generates the ideas to study and develops the research questions. The researcher also typically collects their own data by observing in the field and/or interviewing participants. Finally, the researcher sorts through the data by reading transcripts and field notes to make sense of all the information collected and then "tells the story" of the results (Brantlinger et al., 2005). After these steps are taken, the researcher disseminates the results.

Qualitative researchers must also ensure that their studies are empirical. Ensuring validity and reliability in qualitative research involves conducting investigations in an ethical manner (Merriam & Tisdell, 2016). Ethical practices, such as credibility and trustworthiness, are commonly used to indicate the audience can trust the results of the research (Brantlinger et al., 2005). Some qualitative inquiry methods that have been found to increase the credibility and trustworthiness of research include triangulation, audit trail, external auditors, and member checks (Brantlinger et al., 2005). Further discussion on the details of the credibility and trustworthiness proposed for this study is addressed in greater detail within the following sections.

**Case Study**

A case study is an empirical inquiry that investigates a case or cases by addressing the "how" and "why" questions concerning the phenomenon of interest (Yazan, 2015). Case study research should rest upon multiple sources of evidence, with data needing to converge in a triangulating fashion, and benefit from prior development of theoretical propositions to guide data analysis and collection (Yazan, 2015). Multiple or comparative case studies involve

collecting and analyzing data from several cases (Merriam & Tisdell, 2016). In a multiple-case study, there are two stages of analysis. These include within-case analysis and cross-case analysis (Merriam & Tisdell, 2016). For a within-case analysis, each case is treated as a comprehensive case in and of itself. The data are gathered so the researcher can learn as much as possible about the variables that may have relevance to the case (Merriam & Tisdell, 2016).

**Cross-Case Analysis**

Once each of the cases has been analyzed, a cross-case analysis, also known as a cross-case synthesis, begins. The purpose of a cross-case analysis is to identify patterns from the within-case analysis (Yin, 2018). Although there may be differences across the cases, the researcher examines whether there appears to be replicative relationships across the case studies (Merriam & Tisdell, 2016; Yin, 2018). Examples of relationships that could be revealed in this case study may include common philosophies, experiences, or trainings which guide practices and treatments in TIBA.

To carry out a cross-case analysis, several data sources must be obtained from each participant. For this study, these data sources included interviews, resumes or vitas, and BIPs created by the participants. Attention to data management is particularly important to make sense out of the data (Merriam & Tisdell, 2016). For data management purposes, a table was constructed to provide an easy-to-read visual analysis of the similarities and differences among the data sources. The title for the columns consists of pseudonyms for each case study participant. The title for each row is labeled for the various data sources described below.

Descriptive data were then placed in the appropriate cells for each participant and the information gleaned from the data source. I then compared each cell to identify these similarities and differences.

## Data Sources

Unlike research conducted in a controlled environment such as a laboratory, case study researchers must learn how to integrate real-world events with the needs of their data collection plan (Yin, 2018). For researchers wishing to conduct case studies, Yin (2018) suggested making use of six evidentiary sources which include documentation, archival records, interviews, direct observations, and physical artifacts. For the purpose of this study, the evidentiary sources included interviews, physical artifacts, and archival records such as the participants' resumes or vitas, past social media posts, and completed BIPs.

## Interview Protocol

Brantlinger et al. (2005) stated qualitative data are typically collected through either observing in the field or by interviewing participants. For this research study, data collection consisted of interviewing participants. The interview protocol (Appendix C) was developed using relevant information from literature reviews, the researcher's previous experiences, and feedback from experts which are part of the researcher's dissertation committee. The questions focused on how the participants' training and experiences have developed their practices as a BCBA. Particularly, questions were asked about the types of training the participant received. In addition, the questions asked about behavior analytic principles which guided their practices when working with students who may have a history of trauma. The interview protocol consisted of semi-structured, open-ended questions that encouraged participants to share their thoughts and experiences of using a trauma-informed approach in behavior analysis. After developing the protocol, one member of the doctoral committee who is a BCBAs was asked to review the protocol to ensure interview questions accurately address the research questions.

Agee (2009) stated research questions need to articulate what a researcher wants to know about the intentions and perspectives of those involved in social interactions. To construct my research questions, I considered the variety of question types as suggested by Patton (2015). These include: (a) background/demographic questions; (b) knowledge questions; (c) experience and behavior questions; (d) opinion and value questions; (e) feelings questions; and (f) sensory questions. The semi-structured interview protocol focused on four areas of BCBA practice. These included: (a) providing an operational definition explaining a trauma-informed approach in behavior analysis; (b) identifying and describing behavior analytic principles that guide the practicing BCBAs' decision-making process for students who have a history of trauma; (c) describing evidence-based interventions the participants have found to be beneficial for students having a history of trauma; and (d) identifying and describing the types of training and supervision in trauma the participants received to prepare them for practice. Demographic questions were also part of the interview protocol, including identifying the participant's job title, highest level of education, years of experience as a BCBA, and the number of clients or students having a history of trauma with which the participant has worked.

All questions and sub-questions allowed the researcher to describe the experiences and perspectives of BCBAs regarding the use of a trauma-informed approach in practice. Probes or follow-up questions were used to seek more information or clarity about what the person has said (Merriam & Tisdell, 2016). The interviews provided me with an understanding of these participants and their experiences of TIBA. The experiences shared by these BCBAs allowed me to identify areas of needed research in TIBA to address the gap in literature currently available for BCBAs wanting to use TIBA in their practices.

**Interview Methodology**

Interviewing is necessary when the researcher wants to gain a deep understanding of the feelings or interpretations people experience in the world around them (Merriam & Tisdell, 2016). Therefore, the researcher relies heavily on the experiences and perspectives of the individuals to understand the phenomenon of interest. Merriam and Tisdell (2016) identified three various types of interviews including highly structured, semi-structured, and unstructured or informal. Semi-structured interviews include a mixture of more to less structured interview questions. There is no predetermined order of questions to ask, and the largest part of the interview is guided by the list of questions or issues to be explored (Merriam & Tisdell, 2016). This interview format provides the researcher with a structure yet flexibility to respond according to the participants' responses. With the intent to gain insight about practicing BCBAs' experiences with TIBA, a semi-structured interview protocol with open-ended questions was utilized for this study.

By using a semi-structured interview methodology, I gained insight into BCBAs' use of TIBA to address challenging behaviors including disruption, physical aggression, etc. Peoples (2021) stated a semi-structured interview protocol allows the researcher to construct interview questions relevant to the research questions to ensure the key aspects of the study are covered. However, the semi-structured protocol also allows participants to discuss other information that may end up being relevant to the study.

For this study, the semi-structured questions served as a guide in identifying the overarching themes relevant to this study including: (a) definition of TIBA, (b) using TIBA in their decision-making process, (c) the identification of evidence-based interventions they use in TIBA, and (d) the knowledge or skillset which helps them in TIBA. When a participant provided

a response to one of the questions, I was able to ask another question, prompting the participant to provide further details about their experiences. Through this process, the information gleaned from the experiences of these BCBAs will add to the limited published studies currently available. The information could also serve as a starting point for further research in the area of TIBA.

**Behavior Intervention Plans**

Behavior intervention plans outline strategies and tactics for dealing with problem behavior (Killu, 2008). Behavior intervention plans are developed after a functional behavior assessment (FBA) is conducted to identify environmental modifications which lead to the targeted behavior and the appropriate accommodations to implement to address these challenging behaviors (Maag & Katsiyannis, 2006). They also consist of an operational definition which is an objective, precise, and complete description of a behavior that allows the reader to understand whether the behavior has occurred (Cooper et al., 2020). The purpose of the BIP is to prevent the problem behavior from reoccurring by altering various environmental factors and expanding a student's skill repertoire (Maag & Katsiyannis, 2006). For the purpose of this study, I looked at redacted BIPs created by the participants to address the challenged behavior exhibited by students who have experienced trauma. More specifically, I looked at the guiding philosophies and principles used by the participants to develop the BIPs using TIBA.

**Resume/Vitae**

As part of the case study data collection, I collected a resume or vitae from each of the participants. A resume or vitae is a brief description of an individual's career experiences, education, and training or professional development. For this study, I used the information from the participants' resumes or vitas to identify their experiences working with children, their

educational history in ABA and other fields, and the types of training they have received in TIBA. This information was another component of the case study to develop a deeper understanding of the participant and how they may have developed their philosophy in TIBA.

**Second Interview**

The purpose of this interview session was to ask any clarifying questions regarding the BIPs, resumes or vitas, and past social media posts. I also asked the participants questions to help me gain a deeper understanding of the rationale of information within some of the data sources (Appendix G). For example, I asked participants to provide me with their rationale for interventions they identified within the BIP they developed. Another example included asking participants clarifying questions about their vitae. This was to gain more information to identify how their previous work experience(s) lead them to a current career in ABA. Each of the questions was guided by the theoretical lens I used during this study to provide me a better understanding on how the BCBAs make sense of using TIBA.

**Theoretical Lens**

Theoretical frameworks exist in research so that the researcher(s) can consider other thoughts to increase objectivity (Peoples, 2021). The method of this qualitative study included a theoretical perspective of interpretivism and an epistemological perspective of constructivism. According to Crotty (1998), the epistemology qualitative researchers tend to invoke is constructivism. Constructivism suggests everyone's way of making sense of their world is valid and worthy of respect (Crotty, 1998). The theoretical perspective of interpretivism assumes reality is socially constructed and there is no single, observable reality (Merriam & Tisdell, 2016). With these theoretical and epistemological perspectives in mind, the research questions

for this study were developed to gain a better understanding of how practicing BCBAs learn about and utilize TIBA in their practices.

## Researcher's Stance

Within qualitative inquiry it is important for the researcher to clarify any bias or "reflexivity" and how that bias can impact the interpretation of the results. As a qualitative researcher, it is important to explain biases, dispositions, and assumptions regarding the research to be undertaken (Merriam & Tisdell, 2016). Therefore, it is important for me to share my beliefs and values about this study. I am a BCBA with additional licensure in K-12 school counseling, K-12 special education, and elementary education for grades Pre-K to 6. I have worked within each of these fields throughout my professional career. As a BCBA and school counselor, my current interests involve the application of behavior analysis in conjunction with mental health services and support.

I chose the topic of understanding trauma through a behavior analytic lens for two major reasons. First, I believe it is important to bring awareness about trauma to the field of education altogether, especially in behavioral sciences. My experiences have led me to believe that practicing BCBAs should consider a TIBA within their scope of practice, if they are working with students who have experienced trauma. To become a BCBA, one must complete an approved course sequence and supervision from a qualified BCBA. Throughout both learning modes, I never received any instruction on trauma, nor about the importance of its consideration within the field of behavior analysis. Instead, it has been through my own personal learning and experiences as a school counselor where I have learned the prominence of trauma and the impact it can have on student behavior. Therefore, I was interested in learning the experiences of other BCBAs.

Second, I wanted to explore this area of research to bring more awareness in behavior analytic practices. By conducting this research, I hoped to gain potential ideas, strategies, and insights that could build content in this under-researched area. Although the field of behavior analysis recently began to identify the need for TIBA, there are currently no known published studies seeking to understand the experiences of BCBAs using TIBA. This study addressed the gap in information and added to any existing literature about TIBA.

## Participant Recruitment

In 2021, the BACB began collecting data regarding the primary area of professional emphasis for individuals in behavior analysis. As of April 1, 2022, the BACB reported 55,628 individuals holding certification as either a BCBA or BCBA-D. Of these behavior analysts, 71.4% identified their primary area of professional emphasis in ASD. The second highest area of professional emphasis identified was education at 12.45%, and the third highest was 5.08% in IDD. The data demonstrate an unequal distribution among areas of primary specialties among BCBAs. For the purpose of this study, it was important to recruit BCBAs who have experience working with students who have a history of trauma. The participants were identified by using a purposeful sampling having inclusionary and exclusionary criteria. The purposeful sampling took place using a social media forum.

Participants for this study were selected through a Facebook group (Appendix A) designated for behavior analysts with an interest in TIBA. The group, Trauma (ACES) from an Applied Behavior Analysis Perspective, consists of 6,668 members. The purpose of the group is for behavior analysts and students of behavior analysis to explore topics related to the understanding of behavior exhibited by individuals who have experienced trauma events through a behavior analytic lens.

From this comprehensive list of 6,668 BCBAs, three were purposefully selected based upon years of experience as a BCBA, the number of clients who have a trauma history the BCBA has worked with, and the amount of trauma training in behavior analysis the BCBA has taken. For the purpose of this study, participants had to possess current BCBA certification through the BACB, at least three years of experience as a BCBA, received training or mentorship in TIBA, and have worked with at least two clients who have a history of trauma and exhibit challenging behaviors (e.g., disruption, disrespect, defiance, or physical aggression).

A typical sample reflects the average person, situation, or instance of the phenomenon of interest (Merriam & Tisdell, 2016). In this case, it was important to recruit a sample of participants who have shared similar instances or experiences of working with students having a history of trauma. This purposeful sampling helped to ensure an accurate representation of BCBAs practicing with a trauma-informed approach.

After obtaining Institutional Review Board approval (Appendix B), I began the recruitment process. To begin with, I posted a brief description of the purpose of the study and a link for a Qualtrics questionnaire with some inclusionary criteria questions. The purpose of the qualifying questionnaire was to identify the training received by the participants, their experiences as a BCBA using TIBA, contact information, and consent to provide the data sources described above. From the responses of the questionnaire, a sample of three BCBAs were selected. These BCBAs were then emailed an invitation to participate in the study.

## Inclusionary and Exclusionary Criteria

To determine the most appropriate BCBAs to participate in the study, the qualifying questionnaire included questions regarding the criteria for participation. Participants were selected based on the following criteria: (a) possesses current BCBA certification as designated

through the BACB; (b) had at least 3 years of experience working as a BCBA; (c) was an individual who has either received at least one year of direct supervision in TIBA, at least two trainings in TIBA, or taken at least one course in a TIBA; and (d) has worked with at least two clients who have a history of trauma and exhibit challenging behaviors. Participants who did not meet the above criteria were excluded. Specifically, the exclusionary criteria includes an individual: (a) who is working towards BCBA certification as determined by the BACB; (b) who has allowed their certification to lapse and is no longer recognized by the BACB; (c) who has worked as a BCBA for less than three years; (d) who has not received any supervision or training in trauma and behavior analysis; and (e) who has not worked with two or more clients having a history of trauma. In order to ensure the participants recruited met these criteria, they first answered qualifying questions (Appendix C).

**Procedures**

After meeting the sampling criteria, the three selected BCBAs were sent an email (Appendix D) to explain the purpose of the study and offered an opportunity to participate in the study. The email included a brief description about the purpose of the study as well as a request to schedule a 45–60-minute interview with them. At this point, the BCBA determined whether they would like to participate by providing a response to the request. The BCBA could also decline to participate in the study by not responding to the email or by not scheduling a day and time for the interview. If the BCBA did respond back with days and times to schedule the interview, they also received a copy of the participation consent form (Appendix F).

Another email was sent after one week (7 days) to any BCBAs who had not responded to the initial email. If the BCBA did not respond to the second email, another BCBA who met the inclusionary criteria was selected and invited to participate in the study. This process continued

until three BCBAs agreed to participate in the interview study. Once participants responded to the qualifying questionnaire and demonstrated an interest to participate in the study, a follow up email was sent to schedule a date and time for the interview. Interviews were conducted by Zoom and were audio-recorded for the purposes of transcription. All audio-recordings, emails, and documentation related to the study were kept on a secure, password-protected device. Interviews lasted approximately 45-60 minutes, depending upon the responses provided by the participants.

## Data Analysis

Qualitative researchers seek illumination, understanding, and extrapolation to similar situations (Golafshanie, 2003). In a qualitative study, although the researcher may know what the problem is and may select a purposeful sample to collect data to address the problem, they still do not know what will be discovered or the final analysis outcome. Without an ongoing analysis of data, research can become unfocused, repetitive, and overwhelming due to the volume of material that needs to be processed (Merriam & Tisdell, 2016). Consequently, data analysis occurred throughout the data collection process and after data collection was completed.

## Qualitative Analysis

All the data (interviews, social media posts, BIPs, and resumes or vitas) were analyzed using the steps described below. Each piece of data was at first treated separately, then triangulated using a cross-case analysis. To begin the process, I transcribed the audio recordings. To ensure the transcripts were accurate and reflected the interview experience, I compared the transcribed interviews with the audio recording (Moser & Korstjens, 2018). Once this step was complete, I then read-through the transcription to complete any necessary edits. These transcripts were kept in a secure file on a password-protected device. The transcriptions were then uploaded

into Google Docs where the three phases of coding (open, axial, and selective) were utilized for data analysis.

Coding is a term assigned to the process of making notations of transcript data seen as being potentially relevant to the research questions (Merriam & Tisdell, 2016). Open coding is what one does at the beginning of data analysis to tag any unit of data which may be relevant to the study (Merriam & Tisdell, 2016). Google Docs was used to develop categories using open coding because I was able to manage the data in a single location while adding, modifying, connecting, and cross-referencing data (Oliveira et al., 2015). I began this process by using a highlighter to demonstrate where each code was used. Google Docs also allowed me to record my ideas in the form of memos as I found themes within the data. Because the number of codes can accumulate quite quickly, a codebook was developed. A codebook is a compilation of codes, their content descriptions, and a brief data example to reference. Next, I began the axial coding stage.

Axial coding is the process of relating categories and properties to each other (Merriam & Tisdell, 2016). This process was used to identify emergent themes within the transcribed interviews. Within another Google Doc, axial coding was carried out by highlighting sections of transcriptions and assigning codes to them. For example, two different open codes (e.g., code of ethics and task list items) that fell under a larger descriptive theme (e.g., framework) were listed as subthemes. These thematic comparisons and analysis are central to axial coding as the critical focus is to organize themes into comprehensive categories. As more nodes are created, I organized them into tree nodes. Tree nodes are groupings of nodes (Leech & Onwuegbuzie, 2011). With these tree nodes, I used a constant comparison method which is a data organizing and refining activity (Williams & Moser, 2019). By using this method, I continually compared

the data themes created during open coding to continually refine, or even create new categories, in preparation for selective coding.

Selective coding is the third level of coding which enables the researcher to select and integrate categories of the organized data from the axial coding (Williams & Moser, 2019). The groups of themes identified during axial coding were condensed into 3-4 overarching themes for each of the research questions identified previously. When selective coding was complete, I began to identify main themes from the most prominent themes of the participants' responses. This allowed me to ultimately construct meaning from the data.

## Credibility and Trustworthiness in Qualitative Research

In quantitative research, the quality of the study is described by providing the internal validity, generalizability, reliability, and objectivity (Korstjens & Moser, 2018). Although qualitative research is based on assumptions of reality, it is still important to carry out the investigation in an ethical manner by ensuring the validity and reliability of the study (Merriam & Tisdell, 2016). Coined as the trustworthiness of a qualitative study, the validity and reliability are provided by discussing the credibility, transferability, and reflexivity of a study. I discuss these in more detail below.

### Credibility

Credibility establishes whether the findings of the research appropriately represent the original data collected from the participants and if the information is a correct interpretation of the participants' views (Korstjens & Moser, 2018). Traditionally described as the extent to which research findings can be replicated, reliability can sometimes be seen as problematic in social sciences because human behavior is not static. In qualitative research studies, reliability looks to determine if the results of the study are consistent with the data collected (Merriam & Tisdell,

2016). To maintain reliability within this study, a second independent coder was recruited for the data analysis procedures. The second coder was a professor within the special education department who is familiar with qualitative research methodology. The recruited second coder had knowledge about both ABA and trauma. Awareness of these topics was necessary to effectively identify themes during coding.

The second coder assisted in every stage of the data analysis, including open, axial, and selective coding. First, the second coder listened to the interviews and ensured the transcriptions were accurately recorded. If the second coder noticed any discrepancies between the recorded interviews and the initial transcribed documentation, they advised the researcher about it. Next, they participated in open coding procedures, followed by axial coding. During this phase of coding, the second coder compared the categorical themes identified by the researcher to ensure all themes have been identified and appropriately grouped. Finally, during selective coding, the role of the second coder included examining the 3-4 overarching themes of each research question identified by the researcher and validating that the data are appropriately represented by them. Throughout the entire process, both individuals compared codes listed in the codebook for reliability and discussed any discrepancies until they came to an agreement.

**Member Checking**

Member checking is another strategy used to ensure credibility of this study. The process of member checking involved providing a preliminary analysis to the participants and asking them whether the researcher's interpretations "ring true" (Merriam & Tisdell, 2016). After transcribing the interviews, the first level of member check coding involved providing the interview transcripts to the participants prior to analyzing and interpreting the results. The

participants then had the opportunity to validate the transcribed interview or correct it by identifying what they perceived to be invalid. After this was complete, axial coding began.

Next, as the research progresses, the second level of member checking includes providing the participant the identified themes for validation of the researchers' conclusions (Brantlinger et al., 2005). Because this study sought to understand participants' experiences regarding a TIBA in practice, they were provided the opportunity to review the categories or main themes identified after all the interviews were coded and data had been analyzed. The participants then had the chance to agree or disagree with the main themes identified by reading through their within-case analysis data. This information was shared with them through a Google Doc. The Google Doc also gave the participants an opportunity to submit written feedback about any other feelings, experiences, or clarifications they wanted to add by creating a note within the data. This information was added to the manuscript to ensure the participants felt as if the main themes accurately represented the thoughts and feelings of their experiences.

**Transferability**

Within any research study, it is important to provide the reader an opportunity to make sense of the study and apply its results to their own lives. Typically referred to as generalization in quantitative studies, transferability is the degree to which results of a qualitative study can be transferred to the context or setting of other respondents (Korstjens & Moser, 2018). The first measure in transferability I used included rich and thick descriptions. By providing the reader detailed information about the participants and findings of the study, I increased its applicability to their lives. This was accomplished by using direct quotes from participant interviews as well as providing the reader an opportunity to assess the similarity between them and the study

(Merriam & Tisdell, 2016). By providing these rich and thick descriptions, the readers should be able to identify how the findings of the study apply within their own practices as a BCBA.

**Triangulation**

Gathering multiple sources of data provides a richer description of a case study. In fact, Yin (2018) stated "case studies using multiple sources of evidence were rated more highly in terms of overall quality" (p. 126). With the triangulation of multiple sources, any case study's findings or conclusions are likely to be more convincing and accurate if they are based on several different sources of information (Yin, 2018). By comparing the physical artifacts, such as BIPs and either a resume or vitae, with what the participants stated in the interview, I increased the credibility of the data (Merriam & Tisdell, 2016). Also, the triangulation of these sources was important to ensure the case study accurately provides the participants' perspectives (Yin, 2018). Along with this method of credibility, I next provide a brief description of my personal reasons for conducting this study.

**Reflexivity**

Reflexivity is typically understood as the awareness of the influence a researcher has on what is being studied and how the research process affects the researcher (Merriam & Tisdell, 2016). According to Mortari (2015), reflexivity is largely practiced in qualitative research to legitimate and validate research procedures. Because the researcher is the key instrument in collecting the data for a qualitative study, it is important for them to identify their beliefs and experiences up front.

As previously discussed, I chose to conduct this study for a few reasons based on my various roles and experiences. Within my first year of teaching, I developed an interest in understanding why student behaviors happen and determining ways to teach appropriate skills to

change them. Because of this interest, I thought a career in school counseling was a step in the right direction; however, towards the end of my school counseling program I learned that special education was the actual path. Therefore, directly after finishing my degree in school counseling I began a degree in special education.

I worked as a special education teacher for seven years. My experiences as a special education teacher involved working with students having IDD and students with emotional and behavioral disorders (EBD). In fact, my last two years as a special education teacher were in an alternative school setting. Although I learned about becoming a BCBA in a previous position, my desire to obtain this training and certification grew even more during this time, so I began researching programs. I also considered reverting back to my school counseling certification and began applying for a position as a school counselor. I felt I would be able to have a bigger impact on students at this time.

As a school counselor, I continued working with students exhibiting challenging behaviors; however, I also began noticing a pattern on home environments many of these students grew up in. Most of the students in constant crisis came from a home with a history of abuse, drugs, and/or poverty; therefore, I became interested in trauma and completed training to become a certified trauma and resilience practitioner (CTRP). I then began working closely with one of our school social workers who was a certified trauma trainer. We began discussing ways to make my building more trauma-informed, and she provided me guidance in making my practices as a school counselor more trauma aware.

It was about this time that I found a BACB VCS doctoral program, applied for admission, and was accepted. Once I began coursework, I started looking for ways to complete my required supervision hours. This led me to a company that provided in-home behavioral services for

individuals with IDD. As I began reading my clients' FBAs and working with them, I again noticed a pattern of trauma history. For example, one of my clients had a history of verbal abuse and another a history of sexual abuse. As an individual with counselor training, I was able to identify how the clients' current behaviors could have been a result of previous trauma history. Unfortunately, none of the training I received in my coursework or supervision provided me any direction on how to work with these clients using a behavior analytic approach.

This lack of initial training led me to doing my own research. During this research, I came across many different resources and practices used by BCBAs in TIBA including ACT. I also ran across several articles describing how the principles of ABA could be used to explain trauma and how traumatic experiences can lead to challenging behaviors. What I could not find, and still have not found, are published resources providing experiences of BCBAs in TIBA.

**Peer Feedback**

The credibility of this study was also addressed by obtaining feedback from the researcher's doctoral committee. Feedback and support were recruited through either email or organized meetings. The doctoral committee was made up of four university faculty members at a medium-sized state university in northern Colorado. The committee was composed of faculty members from three disciplines within the College of Education and Behavior Sciences. Three faculty members worked within the special education department, taught classes in the university's ABA program, and had extensive knowledge in the field of ABA. The research advisor was an expert in qualitative research design and ensured the methodology was thoroughly reviewed and analyzed to ensure a strong research design. Another faculty member was a professor within the Applied Psychology and Counselor Education program. She taught classes in the counselor education department and had extensive knowledge in trauma. Using

their individual expertise and knowledge, the committee provided valuable feedback regarding the methodology to assure a sound and credible study investigating how BCBAs utilize TIBA within their practices.

## Conclusion

The concept of providing a trauma-informed approach has become a focal point of practice guideline development and policymaking across several education and behavior sciences disciplines (Rajaraman et al., 2022). In the field of behavior analysis, however, the concept of trauma has been somewhat less discussed or addressed within behavior analytic literature (Rajaraman et al., 2022). Through qualitative inquiry, this study sought to identify definitions, philosophies, and practices used by practicing BCBAs who work with students who have experienced trauma and exhibit challenging behaviors. Although there is a limited amount of research literature on the topic, there are practicing BCBAs who have the knowledge and experiences of a trauma-informed framework within their scope of practice. The themes identified through the analysis of participants' responses to the research questions not only provide the field with insight on how BCBAs can incorporate a trauma-informed approach within their practices, but also addresses the gaps in research by: (a) recognizing similarities among the BCBAs' definition of TIBA; (b) identifying how TIBA guides the BCBAs' decision-making process when working with students who have a history of trauma; (c) pinpointing evidence-based interventions found to be efficient for students who have a history of trauma; and (d) describing the knowledge and skillset necessary for BCBAs to use TIBA in practice. Ultimately, the analysis of responses given by the participants serve to bring about awareness on the importance of utilizing a trauma-informed approach in behavior analysis and as a resource for BCBAs seeking ways to incorporate such practices.

# CHAPTER IV

# FINDINGS

The purpose of this study was to explore how BCBAs: (a) define TIBA, (b) use TIBA to guide their decisions for identifying appropriate interventions, (c) determine appropriate evidence-based interventions for students with a history of trauma, and (d) obtained their training to confidently implement TIBA in their practices. Specifically, this multiple-case study research explored the perceptions of practicing BCBAs related to their experiences and training for implementing TIBA. This chapter will detail the research questions and findings. Each case study participant will be presented individually followed by a cross-case analysis that presents both similarities and differences across the three case studies. The participants are identified by the pseudonyms: Joseph, Jessica, and Jodi.

## Joseph

### Demographic Information and Work Experiences

Joseph lives in the northeastern United States. He described himself as being "a classically trained mental health counselor, and marriage and family therapist, as well as, licensed . . . in behavior analysis." His first experiences included working with kids in orphanages in Romania. There he did a lot of work with the first wave of the Bucharest early intervention study that came out in 1996. Joseph also studied trauma by assisting in the development of foster care systems and consulted on trauma-based care to the Bridge of Love project. In addition, Joseph was part of the initial ACE study that came from the Kaiser

Permanente research. He credits the results of this study as what "really started the process of trauma informed care."

Joseph is currently the founder and president of a company that provides services for individuals with autism. Before this, he maintained a private psychotherapy practice supporting children and adolescents. Within this practice, his emphasis was working with individuals who had intellectual disabilities. Other previous work experiences included overseeing clinical operations at rehabilitation facilities, managing psychiatric services at a children's inpatient unit and trauma center, and developing behavioral health service systems across two states in the northeast. In 2011, Joseph was awarded Clinician of the Year for his place of employment.

**Education, Certifications, and Trainings**

Joseph began his career working in the field of mental health. He received his Bachelor of Arts in Psychology and a Master of Education. He has been a licensed mental health counselor and marriage and family therapist since 1982. In addition to this training, Joseph is also a certified dialectical behavior therapist. He received his training in dialectical behavior therapy (DBT) from Marsha Linehan who developed the approach. It was later in his life, as a senior level manager, when Joseph identified the need to obtain his BCBA certification. According to Joseph, "Since I was going to supervise them [BCBA licensed staff], I went back and got training and got my license." He also received the proper training necessary to become a BCBA supervisor for individuals who wish to pursue certification.

During the interview with Joseph, he stated that he has not collaborated or attended professional development in either field (mental health or ABA) because he does not feel supported. "So everybody, the mental health people decide it's not in their realm. The behavioral people decide it's not in their realm. In fact, it's in both of their realms." Here, Joseph identifies

how both the fields of ABA and mental health tend to avoid working with students who exhibit challenging behaviors because of trauma because they feel out of their scope of practice. The behavior analysts who make such statements are out of their scope because of the trauma component being more mentalistic. Meanwhile, the mental health professionals steer clear of these students because of the topography of the challenging behaviors (e.g., physical aggression). Joseph further explains his frustration with all fields by stating "I know how much I hate each of us [mental health and ABA], so it's a very hard place to live in. I stopped going to things [professional events]. there's no value anymore in talking about it." Sadly, this statement identifies how the two fields tend to be reluctant in finding a middle ground or even acknowledging the other's practices.

To address trauma and behaviors in his own practice, Joseph was instrumental in designing a trauma-informed, strength-based, person-centered approach. This approach combines positive behavior interventions and supports (PBIS) with motivational interviewing techniques to support behavior change. This approach also teaches individuals prerequisite self-regulation skills that are identified as necessary to managing emotions in real-time, engaging in meaningful relationships, and actively participating in a fulfilling life. Finally, Joseph's person-centered approach strives to build stronger personal capabilities, aims to secure individually valued outcomes, and believes that challenging behaviors stem from deficits within the person's environment and are not deficits of the person themselves. Next, I describe how this translates into Joseph's philosophy about trauma-informed behavior analysis.

## Philosophy in Trauma-Informed Behavior Analysis

Joseph defined TIBA as a "healthy marriage between the trauma-informed sort of antecedent management processes." He further explains how trauma can show up at any point

during the intervention process instead of simply at the beginning. “I think a lot of times people try to put it in some order and it’s almost like the trauma process just oozes through . . . the intervention process. It can show itself up at any time during the treatment.” He then describes the importance of practitioners being able to recognize how stability must first be achieved with the client before implementing any type of interventions. “You have to kind of have that . . . ability to work back and forth between the stable baseline, looking for intervention opportunities and the opportunity to kind of restabilize the baseline using a trauma informed approach.” Joseph then explained how he developed his definition using his backgrounds in both ABA and mental health. He described how a crossover of the two approaches “helps evaluate cases in a more organized way.” Therefore, it is important for practitioners to “open their eyes wider and be more humble in what we can do and what we should do.” Consequently, he states the importance of “setting up criteria for safe behavior which then provides the child a sense of control.”

Joseph also developed much of his understanding about trauma while working in the Romanian foster system. He described this experience by saying,

> We learned in Romania . . . that the kids who had been in these institutional settings had developed the capacity to shut off and turn on the frontal lobe in a very obvious way.
>
> When we did fMRI (functional resonance magnetic imaging) on the kids, we saw it.

This information is vital for BCBAs to consider since the challenging behaviors exhibited by the child may be out of their control. It is no longer an immediate environmental factor. Instead, it has become a biological factor. Furthermore, Joseph explains the types of environments that may produce such effects on the brain. He states,

> Longer-term interruption from normal developmental, and nurturing supports like foster care, adoptive kid, long term medical stay, respite facilities . . . transferring from one

> family to another family, living with a family member who has substance abuse or mental health problem, sometimes just being autistic and not being able to engage in reciprocal behaviors . . . socio economic stuff, poverty, and all that stuff gets in the way of nurturing.

Meanwhile, when it comes to both fields, mental health and behavior analysis, regarding providing services to students who have a history of trauma, he shared that sometimes "egos" and "education" can get in the way. He stated,

> I know that a lot of stuff really just becomes language and people wanting to be right and justify their, you know, great college degrees and wonderful teaching that they've had from Cooper and all that other crap. I think when you do trauma-informed work, you begin to think about opening your eyes wider and also being a little bit more humbled in what it is we can do and, more importantly, what we should do.

In fact, Joseph suggests looking at simple explanations for the behavior's occurrences without getting into the technicalities of behavior analysis. For example, he discusses the importance of being parsimonious when it comes to working with students who have a history of trauma. Cooper et al. (2020) stated parsimony requires that all simple and logical explanations are investigated and ruled out before a more complex or abstract explanation is considered. As previously explained, it is important for practitioners to consider the types of environments the child was raised in. To be more parsimonious, Joseph states the practitioner should consider "that kid had a shitty life" or "the kid lives in a bad environment." He shares his belief that practitioners do not always look at these "simplistic explanations" for the children's behavior because they rely too heavily on the data from research studies. To better explain this, Joseph pinpoints information in some practitioners' BIPs. "It's not parsimonious, and our formulations

are not parsimonious. Because when we say, 'Hey, what about the trauma?,' they go, wow, let me show you five rooms that did data that talk about different tests." Here, he is talking about how some practitioners will identify interventions because of research data rather than looking at simple explanations for behaviors such as trauma.

Instead of looking at the parsimonious explanation for student behaviors, sometimes practitioners tend to teach new skills before addressing the deficits. Joseph shares how "building skills upon skills doesn't work when you don't take care of the foundation." In fact, if the foundation is not appropriately addressed, Joseph says

> At some point when we teach them that we're not going to care enough about what it is that happened to them, that we're trying to pile teaching on top of that. The kids are so angry at that point . . . they're done with ABA, they're done with therapy, they're done with you.

Instead, he identifies the importance of the waiting strategy. He describes this as "be present, quiet, observe, and be confident." By being present and observing the child's behavior before attempting to teach new skills, practitioners can establish a caring working environment for the child which then builds a rapport. This rapport not only encourages the child to feel comfortable with the practitioner but can also translate into the child being open to try hard tasks because they trust them.

Joseph states that practitioners should not "cover the problem, instead of finding the cause for the behavior." While most BCBAs do look for the function of behaviors, Joseph's statement is more about how practitioners may omit considering the mentalistic, or unobservable, reasons for the behavior to occur. More specifically, how setting events like traumatic ones have led to the behavior.

## Practices in Trauma-Informed Behavior Analysis

Joseph described his practices in TIBA as "understanding what the organism [student] is going through and evaluating it." Data analysis revealed important themes within Joseph's description of TIBA. These themes include: (a) establishing and maintaining a therapeutic relationship, (b) caregiver relationship and training, (c) control the physical environment with antecedent intervention, (d) avoiding the use of punishment and extinction to refrain from retraumatization, (e) implementing social skills and self-management skills, and (f) training for generalization.

### Establishing and Maintaining a Therapeutic Relationship

As detailed in his own TIBA practices, Joseph consistently discussed the importance of "making connections and building relationships with children" as a trauma-informed approach. Joseph described why it is important for practitioners to take time at the beginning of the therapeutic relationship to get to know the child and their preferences. By taking the time to know the child and the things they like, practitioners can identify similarities they may have in the types of food they like to eat or maybe even the type of movies they like to watch. Additionally, he mentioned how practitioners should be constantly available for students to build upon the relationship and "acknowledge their experiences." By listening and acknowledging the child's experiences, the practitioner demonstrates that they hear what is being said which can translate into "I care about you." Similarly, Joseph notes the importance of being flexible in TIBA approaches because "bad [traumatic] experiences can make it difficult to get buy-in." He also discussed how his team provides frequent checks-ins with clients.

> We have a . . . morning routine and night routine kids go through that they're self-checking. And so, we're now talking about doing that [on] Zoom. We have one of our staff that's going to work from 6 to 9 every night and do an hour with each of our four kids. So, she'll do a half hour of monitoring the evening routine and then . . . half an hour a lot of times it's gaming. Sometimes it's just chatting with them and kind of having that conversation.

Within his behavior training protocol, Joseph writes, "Human beings need trusting relationships to survive. We are, by nature, social and, without meaningful relationships, we will become isolated, disconnected, and unmotivated." This demonstrates the importance Joseph emphasizes for the practitioner to develop a trusting relationship with the child so they do not become disconnected or unmotivated. When the child trusts the practitioner and feels as if they care about them, they become more motivated to complete the given tasks. Therefore, this theme identifies the importance of not only developing a meaningful therapeutic relationship with clients, but to also maintain that relationship. By doing so, the practitioner is more likely to have a trusting and engaged client.

### Caregiver Relationship and Training

Parents and caregivers are also important components of successful behavior change procedures. When designing intervention programs, Joseph believes parents or caregivers should receive training. To help better explain this, he shares

> You know, if you've got a parent who is unable or unwilling to be engaged in treatment and everything depends on . . . it depends on a parent's ability to work within the framework. If that person is not ready to do that, then how do you get beyond the obvious

> treatment during an unstable baseline? But that's where parent training became so critical.

Here, Joseph is describing how the success of a behavior change program depends upon the caregiver's ability to work within its framework. If the caregiver is knowledgeable about the behavior change components, they are able to incorporate and carry out the interventions. If the practitioner does not develop a therapeutic relationship with the caregiver or does not train them on implementation of the behavior change program, it will be harder to treat the challenging behaviors.

For caregiver training, he identified the significance of setting clear expectations with parents ahead of time and stressed the importance of "over-teaching techniques to families instead of pointing out the mistakes they have made." This, in turn, helps continue building the relationship and establishing trust with the adults. Joseph also mentioned the importance of staying away from using ABA jargon. According to Joseph, it "can turn parents away from practices." He suggested identifying procedures in ABA language and adapting them. "And I always say to families, if you want to make mistakes, it's ok but I'm not going to ever point them out. I'm gonna assume you don't understand."

### Manipulate the Physical Environment with Antecedent Interventions

Joseph also discussed the impact the environment can have on behavior. When talking about the implementation of intervention programs, he stated, "Given what we know about the effects of trauma on the developing child, it is critical that we get it [behavior intervention] right the first time." According to Joseph, 80% of problem behavior can be eliminated by addressing the issues that we control within an individuals' physical environment and our voluntary interactions. He stresses the importance of teaching within the moment. Specifically, he brought

up how training in-vivo within the community can be helpful. When a situation arises, he explained one way to teach is by "talking through situations and prompting them [child] to use skills taught." To help explain his in-vivo social skills process, he provided details on his groups.

> I do social skills groups with kids. We have a mentoring program. I have a gamer's club that they go to a pixel place called Pixel Paradise which is a virtual reality place. I opened up a center a couple of nights a week. We've got a pool table and some gamer's club. They [clients] are talking about doing something in the community around volunteerism.

In addition, Joseph shares the importance of allowing the client to have some control over their environment.

> Individuals must exert some degree of influence or control over their environment to develop the confidence they need to succeed in today's complex society. Influence is defined as the power to affect other people and make things happen. When a person's attempt to influence their environment is ignored, they become frustrated. Aggression is the universal response to frustration.

By allowing the child opportunities to have some control over their environments, the practitioner is likely to see fewer challenging behaviors occur. Similarly, the practitioner is likely to see more compliance from the child during treatment.

**Identifying Meaningful Reinforcement**

Next, Joseph shared several evidence-based practices he uses with his clients. One of the practices he discussed is reinforcement. Within the interview, he alluded to the importance of finding meaningful reinforcers to the child, "I gotta pay them through the nose because they don't take stickers in stocks...They want gift cards for video games. They want to go out to pilot places. They love pizza." For behavior change to occur, it is imperative that the practitioner finds

something the child will work towards. In some situations, the child may work for time watching a preferred video or maybe even a Skittle. However, as Joseph described, it is important the practitioner can pinpoint what motivates the child to engage in the behavior change tactics. By determining what reinforcer the child would work towards, the practitioner has more buy-in from the child, and skill acquisition is more likely to occur.

Regarding how Joseph uses reinforcement in practices, he provides an example of a client learning calming strategies through DBT. “If he does that, we’re going to give him a gift card for every 10 successful practices.” This demonstrates a fixed ratio of 10 (FR10) meaning the client receives reinforcement for every 10th time he correctly demonstrates the skill. Without meaningful reinforcement, the child would be less likely to engage in the DBT practices. Similarly, the child may demonstrate more challenging behaviors as a means of resistance to the intervention. In some cases, the practitioner may even see behaviors more frequently or with more intensity to escape the intervention. Therefore, identifying meaningful reinforcement for the child makes the practitioner's job easier and the client is more cooperative. It is also less likely for retraumatization to occur because the child is not being forced to do something they do not want to do.

**Programming for Generalization**

Joseph then described the importance of training for generalization. Within his training protocol, he writes, “Without generalization, even well-learned skills are often deemed irrelevant.” For a skill to truly be acquired, it is important for the child to be able to demonstrate it across multiple people or settings. For example, when the skill being taught is self-management, the child needs to be able to manage themselves at home, school, or in the store.

Joseph explains that "as frustration grows, individuals must learn to manage emotions, forestall impulsive reactions, and control their behavior in real-time."

Joseph then provides an example of how he programs for the generalization of skills. He described what he calls a "3 x 3 box" where he put three staff in three different environments for three different activities. This way, if one of the staff members leaves, he does not have to worry about the child refusing to demonstrate skills with others. He tries to "teach kids that you have to do different things with different lead people in different places." If the child only receives training within their bedroom, it does not necessarily mean they will be able to demonstrate the same skill at school or in the store. Similarly, if the child is only required to practice the skill with the BCBA, it does not mean the skill would automatically occur with their caregiver or teacher. It is important for the training to occur in multiple locations and with multiple staff members to ensure it will occur in many different situations.

### Teaching Social and Self-Management Skills

When it comes to social skills, Joseph states, "Teaching social skills that can be used to access positive social experiences is the single most important action we can take to support an individual's quest for independence." He explained the importance of teaching self-management skills by stating they "create and sustain a meaningful life" and how "developing focused self-management and emotion regulation skills is critical." To accomplish this, Joseph describes how practitioners should provide active engagement opportunities where the children and staff can "develop, discuss, and rehearse their self-management scripted protocol in a supportive environment." One such supportive environment he developed, which is referred to as a "mentoring program," includes a virtual reality center that is open a couple times a week. Along with playing games and socializing, the group discusses opportunities for community

volunteerism. To attend these outings, however, the clients must use their self-management skills. If they engage in "unsafe behaviors," they are told they must take the week off to stay home and do some work with DBT. This work would allow them to get "their tools in order" and get themselves ready for the next week. In other words, Joseph is stating the client needs to take time to practice the self-management tools he has provided them to prepare themselves in being more successful the next week.

Joseph defined self-management skills as "knowing what to do and when to do it." By teaching children about self-management skills, he states it makes it possible for them to avoid challenging behavior. Furthermore, Joseph described how teaching self-management skills can make it possible for clients to avoid challenging behaviors and are also more effective strategies than punishing the mistakes made by the client after the fact. In other words, he believes self-management skills are a more effective proactive measure for behavior change than providing punishment after the behaviors occurred. In fact, Joseph also shared that practitioners should make an intervention shift from punishment-oriented procedures to those of teaching self-management practices.

### Avoid Extinction and Limit Punishment to Prevent Retraumatization

Finally, Joseph stated "Retraumatization can be triggered by anything or anyone and not necessarily on purpose." To avoid this from happening, he shared some practices he tries to avoid and use only if necessary the first being extinction. To avoid using extinction, he described the importance of instruction through social skills groups and training parents. He claimed it to be a "very soft way to avoid extinction." Joseph also discussed punishment. Although he did not specifically state the use of punishment should be completely avoided, he did suggest only low-

level punishment procedures, such as verbal reprimands, should be used. To demonstrate this use, he provided an example of a client becoming angry and displaying challenging behaviors

> "I know you're angry. Why didn't you use your self-management stuff instead of blowing up at me? And now we're two days later trying to figure out what to do. Remember what we said you were going to do; you're going to take the DBT backpack out and take 15 minutes to do your protocols. But you didn't do that." That's punishment, right? But it doesn't sound like a punishment. I'm stopping the organism. I'm reminding them about something. I'm reprimanding them at a very low level.

Joseph also explained that punitive interventions should not be used if a child's behavior is a result of trauma. For example, if the child is displaying challenging behaviors and the practitioner decides to take away a preferred item as a method of punishment, this method should not be implemented when the practitioner knows the child has a history of witnessing domestic violence. The preferred items, such as a teddy bear, may have been the child's source of coping when seeing or hearing the abuse, and losing it may result in the child being retraumatized. Similarly, he discussed the importance of "making sure the child does not stay in a state of punishment." It is extremely important that children are not constantly being reprimanded or losing items because of their behavior. If the child never feels successful, the likelihood of seeing any type of behavior change is very minimal.

Within his training staff training protocol, Joseph wrote, "Symptom-reducing extinction practices yield frustration which only leads to an increase in aggression (fight), escape (flight), and/or inaction (freeze)." It is important to remember that with extinction, oftentimes, comes an extinction burst. Cooper et al. (2020) stated an extinction burst occurs when there is a rapid increase in the rate of response. In other words, there is an increase in either the frequency or

intensity of a behavior that is no longer receiving reinforcement. In children who have a history of trauma, these extinction bursts may be a result of the fight, flight, or freeze response described above by Joseph. It is important to understand the impact extinction or punishment may have on an individual with a history of trauma. These extinction bursts may be due to retraumatizing the child. Therefore, it is important for practitioners to outweigh the cost and benefit of every procedure they decide to implement. As Joseph shared, "When the right people do the right things at the right times, we can move beyond extinction."

## Jessica

### Demographic and Work Experience

Jessica lives and practices in the midwestern part of the United States. She initially began her professional career as a group home manager and activities coordinator for adults with disabilities. Here she developed and implemented activities for residents to participate both on- and off-site. Later, she worked as an intervention specialist within a school district. In this position, she coordinated services for students with special needs and collaborated with related service providers (e.g., speech and language pathologist, occupational therapists, physical therapists, etc.). Currently, Jessica is a BCBA working as an independent contractor. She also provides remote supervision through an agency for individuals who are seeking board certification.

### Education, Certifications, and Trainings

Jessica received her bachelor's degree in early childhood intervention. She acquired her master's degree in special education with a focus in behavior support and then completed a VCS (verified course sequence) in ABA. The VCS was based upon the BACB 4th Task List. Most recently, Jessica completed a graduate certificate in trauma-informed studies. The graduate

certificate was 9 credits long. Jessica provides further details to describe the expectations of the course.

> We met every other week for class and then, on those off weeks, we met for reflective supervision. The class was made up of behavior specialists, educators, intervention specialists, and administrators. There was a capstone project that we all completed. I feel like what really prepared me was the guided supervision pieces and then hearing what other people were experiencing and how they were able to make systematic changes within their school building, district, [and] within their community as well.

She also shared the content of study within the course.

> Some of it focused on just what is trauma, looking at ACEs, what the CDC says about the ACEs. That kind of stuff. So, they spent a lot of time focusing on the Kaiser Permanente Study and then leading into the Wisconsin study afterwards. So, we focused on that, then went into what trauma-informed classrooms looked like. How you can set up those environmental supports to reduce the stress response within the classroom setting but also to refocus on the generational trauma piece [and] systemic trauma.

In addition, Jessica holds several certifications in education, trauma, and behavior analysis. Along with being a BCBA, she holds state licensure as an early childhood intervention specialist (PK-3), a certified trauma-informed specialist, and a certified professional in practical functional assessment (PFA) and skills-based treatment (SBT) of severe problem behavior.

Jessica has also provided presentations and trainings throughout her career. Type II CEU presentations relating to TIBA with titles *Trauma Informed ABA, Supervision in Action*, *Looking at Trauma Through a Behavior Analytic Lens,* and *Introduction to Trauma and ACEs* were

included. She has also been part of an ethics panel discussion and provided para-educator training on *Functions of Behavior, Antecedent Interventions, and Visual Supports.*

## Philosophy in Trauma-Informed Behavior Analysis

When asked how she defines TIBA, Jessica stated

> I think about looking at every situation through a trauma-informed lens, essentially. So keep in the back of your mind that we may have had those adverse childhood experiences in the past, or the clients that we're working with. That in turn, changes our viewpoint on kind of where we're going and how we approach different situations.

For example, she describes how practitioners should "take everything a student has experienced into account" and how situations should be approached differently based upon any ACEs experienced. She also brought up the fact that "everyone, statistically, has probably experienced at least one adverse childhood experience (ACE)." In fact, Jessica noted that even staff go through trauma. It is also important to understand "not everyone is going to tell you about their history." Therefore, practitioners should focus more on Maslow's Hierarchy of Needs rather than to simply work to make behavior changes. According to Jessica "if basic skills aren't met, we can't teach them new skills."

Jessica was referring to Maslow's Hierarchy of Needs, developed by Abraham Maslow who was a famous psychologist. His research contributed significantly to the growth and development of human psychology (Aruma & Hanachor, 2017). Upon studying human needs and motivation, he developed a hierarchy of needs theory which proposes that people are motivated by five levels of needs. These levels include physiological needs, safety needs, love and belonging needs, esteem needs, and self-actualization needs (Aruma & Hanachor, 2017).

Physiological needs are basic human needs which are critical for human living. These include food, water, clothing, shelter, sleep, and procreation.

Safety needs deal with the protection and survival from chaotic situations, social disorder, social disturbance, and physical dangers in the human environment. Examples of these include conflicts, wars, riots, kidnapping, terrorism, etc. (Aruma & Hanachor, 2017). Love and belonging needs describe the needs for individuals to be part of a group. This may include a family group, peer group, or friendship group.

While the previous three levels describe needs that are extrinsic, the final two are intrinsic or developed within the individual themself. Level four, esteem needs, are feelings of self-worth, respect, recognition, and strong confidence (Aruma & Hanachor, 2017). The last level of Maslow's hierarchy is self-actualization. This involves the individual's need to develop inborn talents, potential, resources, and accomplishments.

Along with paying attention to Maslow's Hierarchy of Needs, Jessica discussed the importance of knowing what is developmentally appropriate for children and to understand brain development in order to provide TIBA. She shared

> There are many times these preschoolers would come up to kindergarten with IEP goals and objectives . . . will independently self-regulate. And the more research I did within, like the trauma-informed approach, the brain isn't developed enough until around age 7 or 8 to even start to independently self-regulate. So, looking at where they're at developmentally age wise, you know, I may reconsider.

When it comes to practices in TIBA, Jessica mentions the importance of understanding the roles phylogeny and ontogeny play in challenging behavior; more specifically, understanding

how traumatic experiences may impact the biology (phylogeny) of the brain due to stress and serotonin levels.

> Looking at the serotonin levels and stress levels in Holocaust [survivors] and how they respond to all that, like, that's ontogeny. So, we're not just looking at, yes, we're working with the operant behavior, the phylogeny, but also knowing that the ontogeny piece, you know, plays a huge factor [and] huge role in it, too.

By having this knowledge, practitioners have a better understanding of how to identify traumatic environmental factors (ontogeny) that may trigger challenging behaviors when it is not something directly within the environment.

## Practices in Trauma-Informed Behavior Analysis

As Jessica described her practices in TIBA, she mentioned the field of ABA sometimes misses the "empathy piece that is the human piece." In fact, she stated, "If basic needs aren't met, we can't teach them new skills." She describes some of these basic needs as being clothed, fed, and safe. Many of the needs are part of Maslow's Hierarchy as previously referred to. When discussing her practices in TIBA, several themes did occur. These themes included: (a) creating appropriate reinforcement contingencies for her clients; (b) establishing a meaningful therapeutic relationship; (c) Hanley's PFA and SBT protocols to design appropriate behavior change interventions; (d) shaping behaviors into more desirable ones; (e) programing for skill generalization; and (f) teaching social skills and self-management skills. Each of these will be discussed in more depth.

## Creating Appropriate Reinforcement Contingencies

Jessica described the importance of reinforcement contingencies; more specially, making sure "reinforcers are appropriate based on trauma history." For example, not using food as a reinforcer if the child has a history of neglect or homelessness. Within her BIP, Jessica also provides a list of sample functional reinforcers. These reinforcers are categorized as low-cost, medium-cost, and high-cost. Jessica reports that each of these reinforcers are made available to the client as a menu of choices to work towards. The low-cost items included choosing a song/dance, mom/adult does a problem, 5-minute break, 5-minute device time, candy, and sensory toy. Although available to the student, these items were designated as low-cost because they were less desirable than the medium- or high-cost items. To receive the medium- or high-cost items, the client would have to earn many points. This would mean the client had to work harder to obtain these more preferred items.

The medium-cost items include a board game, 10-minute break, skip a chore, 10-minute device time, Hot Wheels, treasure box, and science experiment. High-cost possible reinforcers include outing with Grandpa, ice-cream trip, 15-minute break, visit with Grandma and Grandpa, 15-minute device time, trip to a local donut store, wrestler toy, trip to Five Below, movie, and extra pool time. All these reinforcers were also noted by possible functions. For example, outing with Grandpa was followed by the letter 'A.' This means the client receives attention with this reinforcer.

Jessica also mentioned the use of differential reinforcement of alternate (DRA) behaviors within the BIP she constructed. When asked to further explain how she uses DRA within practice, she stated

> Looking at our ethical guidelines, we want to make sure we're looking at appropriate reinforcement contingencies, so I always make sure that that reinforcement is in place using reinforcers that are appropriate for the individual [like] their preferred activities.

It is by using these preferred activities, the practitioner can reinforce the desired replacement behaviors. For example, if a student's behavior includes throwing their math paper across the room when they are unable to complete a math problem, the practitioner would use reinforcement to increase the likelihood of an alternate behavior to occur. In this example, alternate behaviors may include requesting a break, asking for help, or walking over to the calming corner. As Jessica stated, it is important for the reinforcers to be items the client prefers to work towards.

**Establish Meaningful Relationships**

Jessica also shared her beliefs regarding the importance of relationships within her practice. She discussed the emphasis practitioners should place on pairing and rapport building. Jessica identified the need for pairing as a reinforcer with the clients themselves, and that practitioners should "pair with parents as much as we have to pair with our clients or caregivers." Pairing, as Jessica refers to, involves establishing oneself as a reinforcer. This occurs by engaging in preferred activities or giving preferred items (e.g., edibles, time with preferred items, etc.) to the client. When this happens frequently enough, the practitioner becomes a "fun" or "trustworthy" person the client or caregivers enjoy being around. It is through this form of rapport building where the practitioner is likely to learn more about the client's history and build a sense of trust and safety. This is especially important if the practitioner suspects any type of trauma has occurred in the child's life. By developing a sense of trust and safety, the client or

caregiver are more likely to discuss traumatic experiences with the practitioner. This focus on relationship and pairing is also evident in her BIPs.

> Jessica references pairing in her BIP under antecedent interventions, where she writes,
>
> His operational control procedures include having more fun with staff than without staff, stopping when the student indicates they are no longer having fun, incorporating known reinforcers into the student engagement, replacing demands with comments and sound effects, pairing the student's name when delivering fun, and engaging with the student so they get immediate fun.

As previously discussed, by creating and establishing a meaningful therapeutic relationship with the client and caregivers, the practitioner tends to have more buy-in. This buy-in results in the client working harder for the practitioner and the caregivers being more willing to incorporate the practices themselves. Additionally, a meaningful relationship translates into a more enjoyable experience for all.

### Practical Functional Assessment and Skills-Based Treatment

When it came to practices in TIBA, Jessica referenced Greg Hanely's PFA and SBT a great deal. She explains her rationale for the approach being trauma-informed, by stating

> So, his whole rationale behind the trauma and . . . behind his IISCA [Interview-Informed Synthesized Contingency Analysis], PFA, SBT, like your skill-based treatment is that it should be safe, televisable, and it's trauma informed. So, having things like we should never be putting a child through that crisis scenario and asking them to work through it.

Jessica also discussed how PFA and SBT provide "that empathy piece that is the human piece sometimes missing." Here, Jessica is referring to how some behavior analytic practices do not tend to consider how they emotionally affect a client. Instead, the goal is to simply see a

behavior change. She further explains this by sharing, “I never want to cause harm or retraumatize a child and how do you know that what you’re doing is causing harm if you don’t look at things through a trauma lens?”

In fact, when it comes to PFA and SBT, Jessica shares that “parents are comfortable with the program.” When asked to describe how she came to that conclusion, she stated, “Some words they’ve used [include] it’s more nurturing.” Jessica then provided her own belief as to why parents seem to prefer it. “It doesn’t appear as punishment. It’s easier on the parents to implement and generalize into different settings. I don’t have that . . . it hurts their heart kind of thing.”

According to Jessica, a large emphasis of SBT is to help the client be in a state of happy, relaxed, and engaged (HRE). This is first achieved by pairing (or rapport building) with the client. It is then best practice of SBT to keep the client in HRE even when requests are given. To better explain this, Jessica states, “Those EOs might be a little bit more difficult for someone. We never want them to get to, you know, that point of no return essentially.” The point of no return Jessica is referring to is the client exhibiting those more intense challenging behaviors. For example, in the BIP Jessica provided, some of these behaviors would include self-injurious behaviors and aggression towards others.

To keep from getting to that point of no return, Jessica explains how SBT teaches there are different levels of behavior.

> And if we see, he breaks things down into like R1 level behaviors and your R2 level behaviors. Your R1 are your severe dangerous problem behaviors. We . . . never want to get to that point. If we see R2s, which are like precursor or lower-level behavior, you know, so for some kids, I know that every time they drop their head, then they’re gonna

> punch. So as soon as I see them drop their head, we're gonna back down. We'll get to the point; we'll take it back a step and then come back to where we're at. We're never teaching through a crisis.

Jessica provides examples of R1 and R2 behaviors within her BIP. Examples of R1 behaviors included eloping, self-injurious behaviors, aggression towards others, property destruction, and aggression towards pets/animals. To ensure anyone could identify the child's self-injurious behavior, she gives precise examples. These include "headbanging," "choking self," "removing teeth," and "drawing blood by scratching." Likewise, she provides examples of aggression toward others such as "kicking, hitting, biting, headbutting, and throwing objects at others."

The R1 behaviors described by Jessica are seen as a precursor to those more dangerous R2 behaviors. Once an R1 behavior is displayed, the practitioner often stops the demand to keep from continuing to escalate the child into those R2 behaviors. Once these do occur, it is much more difficult to redirect the student or even de-escalate them. Similarly, with students who have a history of trauma, these R1 behaviors may signify the possibility of retraumatization occurring. Therefore, it is important for the practitioner to back away from the given demand to ensure more damage is not done and the rapport destroyed.

Jessica did share how she initially struggled with the protocols of PFA and SBT. "It at first feels wrong because like, why am I reinforcing them yelling? Or, you know, why am I not pushing them further? But you get there. You must trust the process and give it a whirl." Jessica trusts the process so much; she believes it should be a requirement for all aspiring BCBAs. She stated, "I think it should just be a course that we take in college at this point, honestly."

Finally, Jessica shares how the skill acquisition of other clients has been impacted by SBT.

> One of my previous practicum students . . . was looking at . . . a skill acquisition between the skill-based treatment and just a regular standard ABA approach. And our clients that were using this skill-based treatment, their skill acquisition rate was so high, and their behaviors decreased so dramatically, like it was just awesome, super cool to see.

### Shaping Behaviors into More Desirable Ones

In addition to the above descriptions of SBT, Jessica identified and described shaping as being another practice found within TIBA. She commented, "And we really do . . . micro shape every little thing we can." This is also evident with her BIP. Jessica's goals were written as contextually appropriate behaviors (CAB). Common CABs include relinquishing favorite items, transitioning to a workspace, completing academic work, playing independently, playing according to the rules of a game, completing chores, or completing self-care tasks (FTF Behavioral Consulting, 2023).

The process of shaping is evident as you progress through each of the CABs. For example, for the first CAB within the BIP, the goal is for "instructional control of stopping ongoing activity and relinquishing all positive reinforcers" (i.e., pause game, look at me, or hand me iPad). Once this goal has been successfully achieved, the next CAB is "transitioning to alternative areas and readying to listen/learn." The third CAB, which is conducive to shaping, is "instructional control of a few (1-3) responses/time units of cooperation within a single relevant activity." The activities specific for this client includes tabletop activities and playing alone.

**Programing for Generalization**

Within the interview, Jessica noted how SBT "generalizes so nicely." The other three CABs within her BIP demonstrate this practice. While the previous CABs were geared towards the client relinquishing a preferred item, transitioning to an activity, and engaging in that activity for a given amount of time or tasks, the final three CABs seem to generalize these skills. For example, CAB 4 is "instructional control of a few (1-3) responses/time units of cooperation within multiple relevant activities."

In addition, CAB 5 increases cooperation among the number of response or time units to 1-10 and is within multiple activities. For example, in CAB 4, the client was expected to work 4-6 minutes alone. In CAB 5, that time has been increased to 10 minutes. The final CAB which promotes generalization is CAB 6. Like CAB 5, the client will demonstrate 1-10 responses/time units of cooperation within multiple activities. A change from this, however, is the client will also be challenged. Unfortunately, there are no explanations of how the client will be challenged given within the description.

**Teaching Social Skills and Self-Management**

To address social skills within her BIP, Jessica identified skills currently taught and upcoming targets. According to the BIP, two of the social skills currently taught include "identifying feelings in self and others (what does their body look like) and identifying feelings in self and others using a body scan." These skills not only help the client be able to identify their own feelings, but also allows them to recognize and understand how their peers or classmates may be feeling. The body scan technique reminds the client to first pause and breathe. They are then encouraged to rewind, which prompts the student to notice their body sensations and what they are feeling before they react.

Another skill currently being taught to the client includes the ability to identify choices in how to respond to a situation and to choose one to act upon. Referred to as "play," these choices are all available in a "playbook." This is a visual the client can refer to which helps them solve any problem they may encounter. Additionally, the client is being taught how to utilize mindfulness activities and coping strategies in their daily lives. Similarly, psychological flexibility such as acceptance and defusion are also skills currently taught to the client.

The upcoming target skills include keeping an open mind, accepting a consequence, and identifying whether an incident is accidental or intentional. Again, these skills teach the client to take a step back and think before they react. For example, by being able to identify whether a behavior is accidental or intentional, the client is more likely to reflect on appropriate responses to the behavior rather than treating all incidents as being intentional.

Additional upcoming target behaviors include teaching the client appropriate play skills. These play skills involve asking others to play, appropriately playing with others, and being a good sport. Perspective taking is also another upcoming targeted behavior. Finally, Jessica identified further practices of psychological flexibility including being in the present moment (mindfulness), values, committed action, and self as context. Although not specifically described, Jessica also recommends her client's school incorporate social skills activities.

## Using Systematic Desensitization for Behavior Change

Systematic desensitization is a well-known practice in both the mental health and behavior analytic fields. Cooper et al. (2020) stated it involves substituting one behavior for the unwanted behavior. Typically, a client identifies a hierarchy of situations from the least to most fearful and then learns to relax while imaging the anxiety-producing situations. In the case of

Jessica, her client was too young to develop a hierarchy; however, with the assistance of the mother, she was able to slowly reduce the amount of anxiety experienced by the child.

> I had a kiddo who had experienced abuse in a prior setting, not in the home setting, in the past and therefore had a very strong attachment to Mom. And when she would leave, like even leave the room, behaviors would escalate. So, it was important that we spent that time pairing with him [and] with Mom in the room that were able to, you know, expand the distance that she was away, or you know, even she could step and go into the bathroom alone, and then come back out.

By slowly increasing the distance between the client and his mother, Jessica was able to reduce the amount of anxiety the separation would trigger. As we consider children who may have experienced trauma, systematic desensitization procedures, as described by Jessica, may need to be incorporated into practices more frequently than thought. This may especially be true for children who have experienced abandonment or who may experience retraumatization by certain images, smells, or sounds.

## Jodi

### Demographic and Work Experience

Jodi currently lives and practices in the southwestern part of the United States. She initially began her career working as a foster care manager. There, she would contract and supervise 46 home providers. She also conducted home visits, in-service trainings, and implemented service goals as well as hired and evaluated home providers. Along with this position, she has also worked as an intake coordinator with the Department of Intellectual and Developmental Disabilities and as a case worker with the Department of Children's Services. Jodi also has experience working as a child and family therapist as well as a mobile crisis

therapist where she conducted suicide assessments on children in emergency rooms. Currently, she works as a BCBA for a corporation.

### Educations, Certification, and Trainings

Jodi received her bachelor's degree in sociology and then her master's degree in psychology with an emphasis in ABA. Currently, she is working towards her doctorate degree in ABA. Within her resume, Jodi notes some areas of training and certifications. She has training in ACT, trauma-informed cognitive behavior therapy, and DBT. She used these practices as a child and family therapist and BCBA. She also shared some practices that have helped her utilize TIBA.

> I have Level 5 credentialing with FTF. Dr. Hanley's team for PFA/SBT. So, I did the credentialing all the way up to Level 5. In the past, before I started working as a BCBA, I did credentialing through the trauma institute.

### Philosophy in Trauma-Informed Behavior Analysis

When asked to provide her operational definition of TIBA, Jodi described it as the "emotional well-being before statistical outcome." By this definition, Jodi is stating how the emotional well-being of a child is more important than the published research data on interventions. She discussed the importance of acknowledging the child and providing comfort to them when they are upset. To be more specific, she said, "If a child is crying, be best a person not a behavior analyst. There should be no reason for a child to cry and sob." When asked to further explain this, Jodi described a scenario regarding a child playing Fortnite. She described how the child may "stomp their little feet and slam the thing [gaming console] down" when asked to turn off the game. Jodi then described how she would acknowledge and empathize with

the child by stating, “Hey buddy, I know this is hard for you. I’m so sorry you’re going through this. I can see this has really upset you and made you sad.” She also discussed how the practitioner can help the child identify their feelings by saying, “You look really mad and sad. Are you mad?” If the child responds they are mad or sad, Jodi states, “Now, you are reinforcing them labeling their emotions.”

Jodi also mentions that BCBAs should not be too focused on data, but they should be able to empathize with clients. She identified the importance for all ABA practitioners to have some basic understanding of how children may respond differently to various stimuli. This is especially important to consider refraining from any retraumatization of the clients.

### Practices in Trauma-Informed Behavior Analysis

In discussing her practices in TIBA, Jodi points out the importance of making sure the child’s well-being is at the forefront of the practitioner's mind. The emphasis on the child’s well-being should be what drives the decisions in developing appropriate behavior analytic interventions. She states,

> Because we learn all that exists within the signs of ABA does not mean it’s all ethical or all should be used. We have . . . application and we have experimental and there are certain techniques that, yes, we can say we will. We know this is part of the science but that doesn’t mean we use it all.

Here, Jodi describes how the science of ABA is how a lot of research backs up the field’s practices; however, just because the data demonstrate its effectiveness, does not mean it is ethical in every scenario. It is important for practitioners to be cognizant of their client’s needs and use practices accordingly.

Throughout the research study, themes for Jodi's practices in TIBA were discovered. These themes include: (a) using universal protocol as identified by Hanley's PFA and SBT practices, (b) training for generalization, (c) using effective reinforcement contingencies, (d) the importance of parent and caregiver training, (e) avoiding extinction and punishment to avoid retraumatization, (f) providing choices within the child's environment, and (g) teaching self-management and social skills. Each of these will be described in more detail below.

**Practical Functional Assessment and Skills-Based Treatment**

When it comes to challenging behaviors, Jodi also follows the SBT/PFA process. Another component of the PFA/SBT process is the Interview Informed Contingency Analysis (IISCA). The Interview-Informed Synthesized Contingency Analysis, developed by Greg Hanley, is a functional analysis based on an interview format. It begins with an open-ended interview and is followed by presentation of the synthesized antecedents and consequences which imitate the context in which natural contingencies of problem behavior have been reported (Coffey et al., 2020). By identifying possible antecedents or consequences which trigger the challenging behavior through an open-ended interview, it is not necessary to expose the child to them. This procedure is extremely important as we think about children who may have experienced trauma. Board certified behavior analysts should avoid any means of retraumatizing a child, especially at the beginning of their therapeutic relationship. Not only may it cause emotional distress to the client, but it could cause them to no longer trust the practitioner and to avoid them.

She believes "parent reports are good enough to know behavior is occurring." To better explain this practice, she provided a few examples:

> When I do a functional analysis, I don't need to see the child beating his head on the wall or biting his hand. I don't need to see them crying huge tears. If the teacher or the parent tells me they do it, okay. I believe you.

As a component of TIBA, Jodi believes "we need to have less putting people in positions to have their most dangerous, most uncomfortable, most painful behaviors" exposed. To prevent her clients from engaging in these behaviors, Jodi looks for any precursor behaviors. She states,

> If I do an analysis and . . . eloping is their thing, and they try to run out into the street, I'm gonna count in my IISCA that they want to stand up. That's good enough. I don't need to see [them] run into the street and be chased.

Aside from exposing the child to these triggers, which are known to lead to challenging behaviors, Jodi also shares how typical FAs may lead to trauma themselves.

> They're [clients] not locked in the room. We used to do these functional analyses and assessments where the door is shut. They have to stay in the room. If they try to leave, we block them right there. I already feel anxious just talking about being locked in a room.

This is another reason why Jodi identifies the IISCA as being a more TIA in determining the function of behaviors.

**Generalization**

Within her BIP, Jodi identifies the importance of promoting generalization. To achieve it, she identifies the importance of teaching within the natural routines and environment, engaging caregivers in instructional and behavioral processes, relying on natural cues and reinforcers over time by fading prompts and cues, thinning contrived reinforcers, and expanding exemplars and contexts for implementation.

By teaching the skills within the natural environment and routines, the practitioner is increasing the opportunities for generalization to occur. Here the child is more likely to receive naturally contrived reinforcers (e.g., verbal praise) instead of contrived ones (e.g., piece of candy). Additionally, generalization is more likely to occur if the caregivers, who spend more time with the client, are engaging in the behavior change programs. This allows for the client to practice the targeted skill across different people instead of simply exhibiting it for the BCBA.

Jodi also wrote, "To enhance generalization, behavior intervention goals and strategies will be integrated into the client's home life with their family." She further identified ways to prompt generalization through reinforcement. She wrote,

> When skills are first being taught, they will be reinforced immediately and continuously after every correct replacement behavior occurs. Once goals are met, the BCBA will generalize and maintain the client's acquired skills by reinforcing behaviors on an intermittent schedule. Along with the intermittent-reinforcement schedule, the BCBA will fade out prompts and teach self-management to promote maintenance of client's acquired skills.

As we think about acquiring new skills, Jodi's example of providing reinforcement after each occurrence of the behavior is an example of how the client is motivated extrinsically. By fading the schedule of reinforcement from continuously to intermittently, the client is more likely to develop intrinsic motivation. Eventually, the client will not need to receive any reinforcement because the skill becomes second nature to them. Again, this is an example of how new skills can be generalized and maintained across people, places, and settings.

**Reinforcement Contingencies**

To determine appropriate reinforcers for her client, Jodi reported that she will typically conduct a preference assessment. The preference assessment is completed by using observations and through interviews conducted with the family. It is determined that the client was highly motivated by people (his mom and dad), tangibles (Jodi notes specific toys and preferred activities were redacted), and activities (which were also redacted).

Jodi also discusses the use of differential reinforcement in both her interview and within her BIP. These include DRA and differential reinforcement of other (DRO) behaviors. Aside from these, she discussed the use of the Premack Principle within reinforcement contingencies. The Premack Principle, also known as Grandma's Law, is typically best explained as an opportunity for a higher preferred item or activity to be provided once a lower preferred item or task is completed (Cooper et al., 2020). It is typically given as a first/then or if/then statement. For example, a child wants a cookie, however, their bedroom is messy and needs to be cleaned. Using the Premack Principle one may state, "If you clean your bedroom, then you will earn a cookie." To address the Premack Principle within her BIP, she writes, "State first do their task, then receive reinforcement."

**Parent/Caregiver Training**

> Another practice evident within Jodi's BIP is parent or caregiver training. She writes, Parent training is conducted monthly during scheduled visits. During the parent-education trainings, case supervisors will ensure fidelity of treatment and provide feedback for [the] client's family regarding the use of behavior strategies.

Additionally, the BIP consists of parent goals. These goals included "implement antecedent and management strategies stated in the behavior support plan for target behavior and basic

principles of ABA such as functions of behavior, ABC, and protocols." The BIP also contained fidelity goals for the parent. It states, "80% fidelity with implementation of antecedent and management strategies stated in the behavior support plan during BCBA observation across 4 data points per month." Finally, the BIP addresses the goal of fading out the BCBA so the parent can incorporate the plans consistently. As the parent becomes more proficient in implementing behavioral strategies with [the] client, the BCBA and the therapist will fade out their presence slowly from the proximity of the parent to allow for generalization, thus resulting in the parent taking more control over client's behaviors and program.

The ultimate goal any BCBA should have is for the client and/or caregiver to no longer require their services. It is the job of the practitioner to equip both the client and caregiver with the skills to successfully continue seeing progress. In her BIP, Jodi not only identifies how this will occur, but also provides goals for the BCBA for what to look for in the caregiver's skill acquisition. This allows for the BCBA's services to be faded until no longer needed.

### Avoid Using Extinction and Punishment to Avoid Retraumatization

Jodi's overall belief for her TIBA practices is to ignore behavior, not the child. She provides the following example to explain her philosophy.

> There should be no ignoring to the level of ignoring the whole child. There is a difference in ignoring a behavior and ignoring the child. You can say, "Okay, well, they're stomping their feet and saying f,f,f,f." Okay, let's ignore that and not see that behavior, but we're not going to ignore the child because obviously, they're hurting.

Therefore, she does not use extinction. She does not use planned ignoring when a child is crying because "it teaches the child that the adult isn't going to be there for them" and can also be

"traumatic." Instead, she coaches the child through the difficult situation by helping them label their feelings. She empathizes with them and shows them that she cares for them. These characteristics are especially important for children who have a history of trauma. Not only does this help maintain the rapport the BCBA established at the beginning, but it also continues to demonstrate how the child can trust the practitioner.

Although Jodi discusses the importance of not using extinction or punishment because they can lead to retraumatization, she describes how her use of DRA behaviors can incorporate the use of some extinction procedures. She shares "there is a minor amount of . . . extinction in the DRA but it's not total extinction." The minor amount of extinction she refers to is how the targeted behavior is not reinforced when it occurs; however, the child is still able to receive reinforcement. This can occur if the child demonstrates the replacement behaviors outlined by the BCBA. For example, a student who struggles in math may tear up their math paper and throw it on the floor because they perceive one of the problems is too hard. In this instance, the child is more than likely attempting to get out of doing the math which is an escape-maintained behavior. Obviously, the child needs to complete their math assignment, so the teacher provides them another worksheet. This time, however, the teacher may say, "I know this is really difficult for you, and I would like to help you be successful. If you need help, you can walk up to me or raise your hand and I will help you." When the student raises their hand or walks up to the teacher, they receive reinforcement unlike when they tore up their paper. The reinforcement they receive may be a piece of candy or it could be praise given to them by the teacher. It all depends upon what works for the child.

## Offering Choices

Jodi's BIP also addresses the need for the client to have the opportunity for choices. To do so, she writes, "Enrich the environment." She provides examples of how the therapist or parent can accomplish this. "Ensure multiple preferred and or generally liked activities are available and arranged to allow for choice. Rotate and vary activities even if it's unclear if the client will prefer the new ones." In addition to enriching the environment, she also identifies how the practitioner should follow the client's lead. The examples she provides for this include "allow client to wander and explore with non-dangerous boundaries, answer all questions asked by client even if they are repetitive, and honor all reasonable requests (verbal and non-verbal)." By offering these choices, the BCBA is building even more rapport with the client. They are demonstrating to the client how they are present and listening to their needs.

Finally, Jodi describes how the therapist should provide choices before essential demands. These include "where to spend time, what activities (be proactive in providing choices among things that are accessible), and what to eat (when feasible, such as during snack times and within reason) what materials to use [while eating]." These types of choices provide the client some control over their environment. This could then be viewed by the client as having some independence.

## Teaching Self-Management and Social Skills

According to the redacted BIP, the client had deficits in social skills, safety skills, daily living skills, and . . . maladaptive behaviors." Reasons for referral also states, "The client's challenging behaviors impact their quality of life by limiting access to least restrictive education, community, and social environments, as well as limiting opportunities for socialization with same-aged peers." Many of the goals Jodi wrote within the BIP address the need for teaching

both self-management and social skills. For social skills, she identified social play and taking turns as skills which the client needs to learn. The goal specific to social play states, “Client will play with another person for at least 10 minutes, something chosen by the other person, when given the instruction ‘let’s play what I want.’” The taking turns goal reads, “Client will play with another person by taking turns for 5 exchanges or more, when engaged in a multiplayer activity or game.” By working on these social skills, the BCBA is broadening the client's ability to appropriately interact with peers.

Although not specifically explained within the BIP, self-management skills are also addressed. Cooper et al. (2020) identified self-management skills as a personal application of behavior change strategies to produce a desired change in behavior. Jodi states self-management skills will be taught to promote maintenance of the client’s skills. Examples of some of the self-management skills Jodi may have targeted for this client include recognizing their feelings, identifying appropriate stress management techniques, developing organizational skills, or even setting personal goals.

## Other Evidence-Based Practices Addressed

In conjunction with the practices described above, there are other evidence-based interventions Jodi addressed within her interview, one such strategy being functional communication training (FCT). With FCT, Jodi states you can “prompt a behavior without increasing the future rates of that behavior significantly.” Jodi also mentions the use of systematic desensitization and shaping within the interview; however, no information was found within the BIP to address these. She did state, however, that “[systematic] desensitization or gradual exposure, FCT, [and] shaping theory were all part of SBT.”

## Cross-Case Analysis of Participants

After a thorough within-case analysis was conducted for each participant, a cross-case analysis was conducted. During this phase of analysis, the themes and codes created from the within-case analysis were examined. Both similarities and differences among all three participants were identified. By completing a cross-case analysis, the depth of the analysis of data is greater. Like the within-case analysis, common themes regarding demographic information, TIBA practices, education, and trainings were examined across each participant.

### Similarities Among Participants

The analysis revealed several themes that were common among all three of the participants. Each of the participants have engaged in careers outside of behavior analysis. They all attended and completed post-secondary education programs and are current BCBAs in good standing. The participants all provide supervision for individuals working towards their certification as a BCBA. They each also had similar beliefs in how the field of ABA should address the lack of trauma training. In addition to these, the BCBAs also shared many similarities when it came to practices in using a TIA.

### Building Rapport and Maintaining a Therapeutic Relationship

To begin the discussion of similarities among the participants' practices, building rapport and maintaining a therapeutic relationship was the most common similarity in TIBA. In fact, each of the participants discussed the importance of building rapport and maintaining a relationship with not only their clients, but also the parents and caregivers. In addition to creating a strong partnership for behavior change to take place, the participants also noted how generalization was more likely to occur. This, in turn, would result in the learned skills to carry

over to other people and places and help the client to have a more productive life within their community.

### Hanley's Practical Functional Assessment/Skills-Based Training Protocols

Another similarity among the participants was the topic of Hanley's PFA/SBT protocols. In fact, two of the participants, Jodi and Jessica, took training in Hanley's PFA/SBT and use the protocols extensively in their practices. Both discussed the importance of the child being in HRE (happy, relaxed, and engaged). Similarly, they identified the importance of having knowledge of precursor, or Level 2, behaviors that lead to more dangerous behaviors such as self-injury or physical aggression. By being aware of these precursor behaviors, practitioners can remove the demand from the client which prevents the occurrence of the more dangerous R1 behaviors. Although he was not as knowledgeable about Haney's protocols, Joseph did refer to them when discussing effective evidence-based practices.

### Use Caution in Using Practices that Could Result in Retraumatization

Next, all three participants discussed caution in using practices that could result in retraumatization. To avoid this, they identified the importance of understanding how punishment procedures and extinction could trigger emotional responses. For example, Jessica discussed the importance of having enough knowledge of the child's history to determine whether a punishment or extinction procedure can be used. Jodi also stated she uses "a minor amount of extinction in DRA, but it's not total extinction." When it comes to the extinction of behaviors, you cannot just "put on glasses, turn your head, and ignore the kid." In other words, when the child feels sadness or disappointment during an extinction procedure, it is important to acknowledge their pain even though they do not receive the desired reinforcement. In addition,

Joseph states, “We’re trying to avoid punishment” and “We never punish,” but does explain that reprimands are sometimes used by stating, “Come on now, we talked about this,” and “This is what gets in the way.” In addition to this, his training protocol described how extinction can “yield frustration which only leads to an increase in aggression (fight), escape (flight), and/or inaction (freeze).”

### Identifying and Developing Meaningful Reinforcement Contingencies

Finally, the participants agreed that identifying and developing meaningful reinforcement contingencies was of extreme importance. To begin with, Joseph discussed the importance of not only using reinforcement in practice, but also explaining to parents how reinforcement works because sometimes they saw it as giving “him extra stuff.” In addition, Jessica described how background knowledge and being aware of setting events can help determine appropriate reinforcement contingencies. For example, she shared how she was less likely to use food as a reinforcer with clients who endured neglect. Lastly, Jodi discussed schedules of reinforcement and the importance of fading it. She describes how the reinforcement should be immediate and continuous when the client is first learning the new skill. Once the goals are met, she notes how reinforcement should then be given on an intermittent schedule. This promotes maintenance and generalization of the skill. The table below provides further details on the behavior analytic practices the three participants agreed were important to use in TIBA.

**Table 3**

*Similarities in Behavior Analytic Practices among Participants*

| Behavior Analytic Practices/Themes | Joseph | Jessica | Jodi |
|---|---|---|---|
| Meaningful reinforcement contingencies | X | X | X |
| Building rapport/relationship | X | X | X |
| Hanley's preferred functional assessment/skills-based training | | X | X |
| Self-management | X | X | X |
| Promote generalization | X | X | X |
| Avoid extinction | X | | X |
| Limit or avoid punishment | X | | X |
| Offer choices | | X | X |
| Teaching social skills | X | X | X |

## The Field of Applied Behavior Analysis and the Need for More Attention to Trauma

Throughout the study, I found agreement from each of the participants on how the field does not provide enough guidance or resources of TIBA. Each also believes the BACB should mandate trauma training as they do ethics. None of the participants felt as there is enough current research available to BCBAs. To further explain this need, Jodi discussed her desire for more research in the field which put the emotional well-being of the client above the statistical outcomes. She gave the example of brushing teeth, "They may do it to 90% success rate of

brushing their teeth, but they were emotionally damaged in the process." She gave a scenario to provide further details. She discussed a client who had oral aversion from brushing their teeth to now brushing the molars. She states, "It took a long time, but the child's not vomiting every time we try to brush their teeth. Now they're not panicking that we're blocking them in the bathroom and not letting them out."

Joseph addressed the need for more trauma awareness in the field by identifying a lack of information given about setting events in the Cooper et al. (2020) text. When discussing the function of a client's behavior and the setting events which may lead to it, he states, "What's driving this? Well, it's because the mother was raised with a strict mother and that's the only thing she knows." Joseph also expressed concern over the fact that the BACB does not require trauma training as they do ethics. In fact, he states, "It should be a mandatory part of your training and in 2022? Are you kidding me?" Joseph also mentioned how most people he talks to about the ACEs study have no idea what he is talking about: "These are the professionals, and I think, well, if you're doing this care and you don't know the most prevalent study that taught us everything. It was 20 years ago!"

Additionally, Joseph shared concerns of how individuals in the field of ABA will refer to practices outside of the field as "pseudoscience," regardless of the positive effect demonstrated within research. For instance, he talked about his research in ACEs and trauma and how yoga and meditation "help people calm down." He asks the question, "Why wouldn't we build that in our practices?" Although he wishes interventions could cross over from the mental health field to the behavior analytic and vice versa, he states he is not willing to take on the "big fight" with certification boards such as the BACB. Instead, he says he'll "keep doing what I'm doing like I think good practitioners should."

## Behavior Intervention Plans

Each of the participants was asked to provide a redacted BIP they developed for one of their clients. In the case of Joseph who did not write any BIPs, he provided the protocol he uses for training his staff. Several similarities were noted among these documents: (a) operational definitions of behaviors, (b) antecedent interventions, (c) personal and medical histories, (d) replacement behaviors, (e) reinforcement contingencies, (f) generalization, and (g) social and self-management skills. Each of these are described in more detail.

## Operationally Defined Behaviors

Providing an operational definition for a behavior is a fundamental element of a BIP. By providing an operational definition of the target behavior, everyone reading the BIP has a clear understanding of the nature of the problem. The redacted BIPs provided by two of the participants consisted of target behaviors that were operationally defined. For example, the targeted behavior addressed within the BIP Jodi wrote was tantruming. Labeled "topographical definition," she described how the client would "increase the volume and intensity of their vocal demand and begin a loud screeching noise." In addition to this, Jodi provided an example and non-example for the targeted behavior. The example given was "loudly shrieks and shouts 'I want to play now! I want it now!'" The non-example she provided was described as the client exclaiming, "Ah! a spider on my foot!" or "Mom, I'm in here, can you hear me?"

Being true to Hanley's SBT protocol, Jessica's behaviors are grouped in categories. The first category she describes is R1, or non-dangerous behaviors. The other category is R2, dangerous behaviors. Each of these categories contains targeted behavior. To better describe the behaviors, Jessica provided bulleted points as a means of an operational definition. For example, one of the targeted behaviors identified within the BIP is self-injurious behaviors. The bullets she

provides to better describe this behavior includes: (a) headbanging, (b) hitting/slapping face, (c) drawing blood by scratching, (d) choking self, (e) using objects to cause harm to self, and (f) removing teeth.

**Antecedent Interventions**

Jessica stated antecedent interventions can be implemented "before the interfering behavior to decrease the likelihood of interfering behaviors and to increase the likelihood desirable behaviors happen more often." She titled the section of the BIP containing the interventions as "antecedent interventions." She provided four different strategies as antecedent interventions. These include pairing, expectation fluency, visual supports, and "work given at his ability while incorporating high interest activities." She explained expectation fluency as: (a) knows what the expectations are, (b) why they are, (c) hear them every day, and (d) can repeat if necessary.

Within her BIP, Jodi calls her antecedent interventions "preventative strategies." The strategies she included in the BIP include: (a) showing continuous positive regard and empathy, (b) enriching the environment, (c) following the client's lead during the reinforcement period, (d) limiting non-essential demands, (e) providing choices especially before an essential demand, and (f) using first/then statements (Premack Principle). To better explain an enriched environment, she suggests that multiple, preferred, and/or generally liked activities be available and arranged to allow for choice. She also recommends the various activities be rotated. When preferred activities are rotated out, they should be removed from the environment and the client should be advised when they will be available once again. This rotation helps keep the preferred activities from becoming satiated or less desirable.

Joseph stated 80% of problem behavior can be eliminated by addressing the issues we can control within the child's physical environment. Such issues, he suggested, include developing meaningful relationships, providing interesting activities, and implementing naturally occurring skill-building exercises. He stated these "create effective teaching and learning environment(s)." In addition to these, Joseph discussed the importance of allowing the client to have some control of their environment. This gives them the opportunity to "develop the confidence they need in today's complex society." Some ideas of ways the client can have control over their environment includes letting them choose where to conduct sessions, allowing them which skills to address first within sessions, or even by allowing them to choose who facilitates the sessions.

**Personal and Medical History**

Another similarity between the BIPs was the amount of information given regarding the child's medical and personal histories. For example, Jodi's BIP consisted of medical diagnoses, a list of medications, and information on how the behavior affects the child's daily life. Within the first interview, Jessica did state she did not leave information about setting events within her BIP because she felt it was "too identifying." Because this information was lacking, a second interview took place to ask Jessica about the type of medical and personal information she would typically place within her BIP. She stated,

> Looking . . . from the biological standpoint of everything, are there any medical conditions, allergies, or any other diagnosis that would impact [the behavior]. Then making sure their basic needs are being met. Are they getting enough sleep? Do they have access to food, water, shelter, clothing, and those kinds of things.

Since Joseph did not provide a redacted BIP, a thorough analysis was completed to determine if he did include information about identifying the personal and medical histories of his clients. Under a section of the protocol titled *Health & Well-Being*, he discussed the importance of including the individuals' health. More specifically, he identified medical issues such as medications used, behavioral health, neurological and psychiatric issues, trauma concerns, and substance abuse history.

**Replacement Behaviors**

Replacement behaviors are important to a BIP because they identify more socially appropriate behaviors that serve the same function as the behavior targeted for change. In her BIP, Jodi provided replacement behaviors within a three-column table. While the other two columns described the antecedent interventions and reactive strategies, the middle column identified what skills would be taught. For example, with the targeted behavior of tantruming, Jodi identified the replacement behaviors to be taught included: (a) teach to request delay of task, (b) teach to request break from task, (c) teach to emit a tolerance response to persevere to complete a non-preferred task, and (d) teach client to complete task as instructed.

In her BIP, Jessica's replacement behaviors are broken down into CABs. These CABs are like a task analysis where a skill is taught step by step. For example, CAB 1 identifies how the client will receive "instructional control of stopping ongoing activity and relinquishing all positive reinforcers." To further identify how each CAB builds replacement skills upon each other, CAB 2 describes how the client will then transition to an alternate location once they have completed the skill in CAB 1. These skills continue to grow in complexity until the client can provide up to 10 cooperative responses while being challenged.

**Reinforcement Contingencies**

Jessica includes a token system as a method of reinforcement for her client. As discussed earlier, her BIP provides a list of sample functional reinforcers. From this list, Jessica then constructed a hierarchy of reinforcers through a menu of choices the client can work towards. The menu is broken into three sections including low-cost, medium-cost, and high-cost. The low-cost items include tangibles or activities such as having five minutes of device time, candy, or time to play with a sensory toy. She stated these items should be less desirable than higher-cost items, yet attainable for the client. The medium-cost items included activities such as playing a board game, being able to skip a chore, or conducting a science experiment. Some of the high-cost items included an outing with Grandpa, ice-cream trip or a trip to Five Below. Jessica stated that times will be predetermined as to when the client can "cash in" for access to their reinforcers.

Within her BIP, Jodi shared how she conducted a preference assessment to identify appropriate reinforcers for her client. She also discussed how she uses differential reinforcement throughout the BIP. The types of differential reinforcement Jodi identified included DRA and DRO. In addition to these, she discussed how she used the Premack Principle within reinforcement contingencies. This can be best explained as an if/then statement. For example, "If you eat all your vegetables, then you can have a cookie."

Although Joseph did not provide a BIP because of his position, he did allude to the importance of finding meaningful reinforcers for children. As previously shared, he described how sometimes he has to provide pizza or even gift cards to ensure the reinforcement is something that motivates the child to engage in behavior change tactics. When meaningful

reinforcement is used, it makes the practitioner's job easier because the client is more cooperative and less likely to demonstrate challenging behaviors to escape tasks.

**Reactive Strategies**

To address appropriate reactive strategies for caregivers and staff to use if a targeted behavior did occur, Jessica created a section within her BIP labeled *Reactive Strategies*. She provided a disclaimer to the section by stating the strategies are not meant for long-term behavior change but should be used to ensure "everyone stays safe and to help the behavior from spiraling into a more intense event." The strategies were given in a two-column table where the title of the first column is labeled *Stages of Client Behavior*. Here, Jessica identified both the stages of the child's emotional response and the observable behaviors often displayed. For example, the emotional response of the first stage is labeled *Anxiety*. The behaviors typically displayed during this stage include flipping off, grunting, stomping feet, squeezing fists, and dropping head. The second column of the table is labeled *Recommended Responses*. It provided appropriate responses for each of the emotional response stages. For example, the appropriate responses staff should give if the client is within the anxiety stage included offering choices, giving the client a safe area to go to, modeling deep breathing with the client, and for the practitioner to keep their voice calm, low, and soothing.

As previously discussed in the reactive section, Jodi provided a three-column table. The first two columns addressed antecedent interventions and the replacement skill. Within the third column, she identified appropriate reactive strategies for when the targeted behavior occurred. First, she began by describing reactive strategies for when precursor behaviors occurred. For example, she stated, "When you observe precursor behaviors which are associated with physical aggression and verbal aggression, prompt the client to ask to delay the task or to request a

break." She also noted that this prompt should be given with verbal praise. If the targeted behavior, such as tantruming, occurred, the BIP states to "prompt the client to ask to delay or request a break from task." Then, the client should receive praise for providing the request. Also, the BIP states to "stop all task demands until the client has returned to a calm and engaged state within synthesized reinforcement following their request."

**Social Skills and Self-Management**

When it comes to teaching social skills, Joseph stated it is the "single most important action" a practitioner can take to promote the child's independence. Although the teaching of these skills was not documented in a BIP, he did provide information on how his staff trained for them. For example, Joseph identified the importance of discussing and rehearsing self-management and social skills protocols within a supportive environment. In his practice, this often occurred through a mentoring program where the children engaged in community outings. Here the clients were provided opportunities to use their learned skills. These outings typically took place at a virtual reality center where the children socialized with other clients and engaged in games to practice their social and self-management skills.

Jessica addressed social skills within her BIP by identifying skills that are currently being taught and those that are upcoming. She titled the section with these skills as *Emotional ABCs/Social Skills*. An example of one skill given was the body scan technique. This technique encouraged the client to identify sensations within their body. In addition, the client was taught to use a visual they can refer to in order to solve problems they may encounter. This visual is called the "playbook." It helped teach the client appropriate choices on how to respond to certain situations and to choose one response to act upon. Other social and self-management skills

addressed within Jessica's BIP included instructing the client on using mindfulness activities and coping strategies within their daily lives.

Jodi addressed the need for social skills instruction by identifying how the skill deficit impacts the client's quality of life. For example, she stated that the client had "limited access to least restrictive education, community and social environments." In addition to this, she described how the client had limited opportunities to socialize with same-aged peer. To address the skill deficit, she created goals for the client to work towards. One such goal was created to increase social play by teaching the client to take turns. The goal read, "the client will play with another person for at least 10 minutes." Similarly, another goal found within the BIP addressed the client's need to take turns. The goal read that the "client will play with another person by taking turns for five exchanges or more when engaged in a multiplayer activity or game." Regarding self-management skills, Jodi did not provide much detail, except how it would be taught to promote maintenance of the client's skills.

**Addressing Generalization**

Within his training protocol, Joseph identified the importance of training for generalization. He explained how he used a "3 x 3 box" to ensure skills are generalized. To do this, Joseph described how he made sure clients were placed with three different staff members in three different environments and across three different activities. Not only does this alleviate the worry that a skill will not be demonstrated if one staff member leaves, but it would also train the child that they must do different things with different people. This, then, promoted the skill to be exhibited in settings not trained and across people who had not provided instruction.

Although not directly referenced within her BIP, Jessica did describe how SBT "generalizes so nicely." While the first three CABs are more skill building, the last three seem to

promote ways for those skills to be generalized. For example, CAB 4 builds upon the number of cooperative responses (1-3) necessary, but also adds in multiple relevant skills. In addition, CAB 5 increases the number of cooperative responses to 10 or more while multiple relevant skills are still included. Finally, CAB 6 expects the client to continue the skills in CAB 5 but adds challenges. Unfortunately, there were no indications of what type of challenges would be added.

Finally, Jodi addressed generalization throughout her BIP. For example, when discussing the lifestyle changes needed to improve behavior, she wrote that the behavior plan will be "integrated into the family's daily routines to ensure generalization." In addition, Jodi included a section within the BIP titled *Integration Generalization and Maintenance*. Here, she described how specific strategies were used to promote generalization across people, settings, and circumstances to "improve the durability of the behavior outcomes." Jodi also identified how the teaching of specific skills will occur within "natural routines and environment, engaging caregivers in instruction and behavioral processes, and by relying on natural cues and reinforcers." Finally, she described how reinforcement schedules will be adapted and changed to promote generalization and the maintenance of learned behaviors. The table below shows the similarities found within each of the participants' behavior change protocol. For Jessica and Jodi, these included redacted BIPs. In the case of Joseph, his training protocol was used to determine the components of a behavior change protocol.

**Table 4**

*Similarities Found within Participants' Behavior Change Protocols*

| Found Similarity | Joseph | Jessica | Jodi |
|---|---|---|---|
| Operationally defined behaviors | | X | X |
| Replacement behaviors | | X | X |
| Antecedent interventions | X | X | X |
| Reinforcement contingencies | X | X | X |
| Reactive strategies | | X | X |
| Social skills/self-management | X | X | X |
| Personal and medical histories | X | X | X |
| Addressing generalization | X | X | X |

## Differences Among Participants

The cross-case analysis also revealed several differences between the three participants. One of the biggest differences among the participants included their background experiences. For example, Joseph has worked as a therapist for several years. He has been part of several studies looking at how trauma can affect children. Along with working with children in Romanian orphanages, Joseph was part of the original ACEs study in the '90s. Jodi has also worked as a mental therapist; however, much of her previous career experience has been working as a social worker in the foster care system. Unlike Jodi and Joseph, Jessica has not worked as a mental health therapist. Most of her previous career experiences have been in education as an intervention specialist where she coordinated services for students with related service providers.

These differences can also be seen in the educational training they have received. Joseph has his bachelor's degree in psychology, while Jessica's degree is in special education, and

Jodi's degree is in sociology. Each of the participants also have master's degrees; however, they studied different areas. Joseph's master's degree is in marriage and family therapy, while Jessica's is in special education, and Jodi's is in psychology. The three participants also received their ABA verified coursework sequence from different universities.

Another difference among the participants was where they live and practice TIBA. Joseph resides in the northeast and provides services there. Jessica lives and provides services in the Midwest, while Jodi is in the southwest. Jessica is an independent BCBA contractor, Joseph is a senior clinician for a foundation as well as founder and CEO of his own practice which he has managed for the past 35 years. Jodi currently works for a behavior support corporation as a BCBA.

**Behavior Intervention Plans**

As previously stated, each of the participants were asked to share a redacted BIP. The purpose of getting these documents was to look at guiding philosophies and principles used by the participants to develop the BIPs using TIBA. The BIPs were compared to one another to determine the similarities and differences among them. Here, the differences found within the BIPs will be discussed.

The structures of the BIPs were very different. Jessica's BIP was modeled after information she learned from Hanley's PFA/SBT training. She included R1 and R2 behaviors. The R1 behaviors being dangerous, and the non-dangerous were called R2. Examples of R1 behavior include headbanging, choking self, biting, etc. She identifies the following R2 behaviors as threatening suicide or using threats such as "I'm going to kill you." Jessica also included CAB which are also a part of Hanley's PFA/SBT training.

Another difference between the two BIPs include the description of reinforcers. Within her BIP, Jessica identifies a hierarchy of reinforcers based upon the child's value. For example, the possible reinforcers were categorized as *high-cost*, *medium-cost*, and *low-cost*. Jodi's BIP did provide a list of reinforcers; however, the list was not quite as extensive, and a hierarchy was not established. In addition, Jessica described a token system within her BIP to "reinforce desired skills and also address identified skill deficits." The BIP states money is earned when the student "engages in appropriate behavior during the fixed interval." The student can earn his token, in the form of money. The student will earn 10 cents for 0 incidents of inappropriate behavior or 5 cents for 1 incident of behavior.

A detailed response cost was different between the BIPs. Although Jodi's BIP did not consist of one, Jessica's did. The response cost she wrote provided the targeted dangerous behaviors and the amount of money it would cost the student for displaying those behaviors. For example, if the student displays aggression, it would cost them $1 and the loss of a toy. If the student elopes, it will cost them $1. Property destruction would cost 50 cents, verbal threats to others would be 30 cents, and swearing or name calling would result in a loss of 20 cents.

Finally, there are sections within Jessica's BIP that are not addressed in the others. For example, she has one section labeled *additional recommendations/trauma supports*. Here she states the importance of making sure the student's space is comfortable. She also identifies the need to respect the client's personal space, especially by not placing hands on them without asking for permission. Finally, Jessica expresses the importance of avoiding any power struggles. In addition to these, she also provides school recommendations including visual schedules, timers, increasing positive praise and comments, and engaging in social skills activities such as conversations with peers at lunch.

Within Joseph's training documents, a few items are noticeable with regard to treatment. For example, Joseph adds a lot of references and recommendations towards mental health interventions. It discusses the importance of incorporating DBT. He states, "DBT is the single most effective, evidence-based treatment for individuals with a history of trauma and trouble regulating emotions." He suggests DBT should be modeled, rehearsed, planned, and practiced encouraging positive behavior change.

Joseph's training resource also discusses motivational interviewing techniques and person-centered planning. Also called the "language of change," he describes it as "the most effective evidence-based practice available to deescalate individuals and reestablish interpersonal connections post crisis." Motivational interviewing practices increase negotiation and conflict resolution skills for those who use them. It is a "directive, client centered counseling styles that enhances motivation for change by helping the individual clarify and resolve ambivalence about behavior change." The goal is to create and amplify discrepancies between a child's present behavior and their goals.

Similarly, person-centered planning is "an individualized approach to planning that supports an individual to share his or her desires and goals, to consider different options for support, and to learn about the benefits and risks of each option." It allows the team to develop an implementation plan based upon the "goals and visions important to the focus person." It also provides an occasion to review and celebrate the lives of those supported.

**Background and Experiences in Trauma**

The types and amount of training or experiences the participants have also differ. Joseph's experience has been more so in the areas of research than learning. As previously stated, he was part of the initial ACEs study that came out from Kaiser Permanente which "really

started the process of trauma informed care." He also states he did a lot of work with the first wave of the Bucharest Early Intervention Study that came out in 1996.

While Joseph gained most of his trauma knowledge from his own studies and research, Jessica reported that she "came about it just having been in the classroom." Throughout her career she had several students with "trauma background, reactive attachment . . . those kinds of things." It was one student, however, that brought her to "all this." The student was going through physical abuse and had been his entire life. When it came to getting the student out of the abuse, she reports, "It took all year to get us there and to continuously call Children's Services and the police." Because of this experience, she got her graduate certificate in Trauma Informed Specialist.

Like Jessica, Jodi obtained most of her learning about trauma through the educational route. Before becoming a BCBA, she received credentialing through the trauma institute. She also contributes her knowledge and background in trauma from personal experiences. She explains, "Being neurodivergent and having neurodivergent children on the spectrum helps recognize, hey, sucks being treated like that." Table 5 shows the differences between the participants' background and experiences in trauma.

**Table 5**

*Differences among Participants' Background and Experiences in Trauma*

| Differences among Participants | Joseph | Jessica | Jodi |
|---|---|---|---|
| Training in mental health | X | | X |
| Conducted research in trauma | X | | |
| Received graduate certificate in trauma | | X | |
| Personal traumatic experiences | | | X |
| Worked in a school setting | | X | |
| Years of experience as BCBA | 9 | 5 | 3 |

# CHAPTER V

# DISCUSSION AND CONCLUSION

The consequences of traumatic exposure can be serious and long lasting (Alisic, 2012). The number of students who attend school with high ACE scores is consistent across schools and states (Bethell et al., 2014). Students who have histories of trauma can display unsafe and undesired behaviors in a classroom setting that can not only affect their academic performance, but also make the setting unsafe for themselves and others (Blodgett, 2014). Therefore, it is important to acknowledge the prevalence of potentially traumatic experiences and the effect they have on behavior in any disciple (Rajaraman et al., 2022).

Behavior analytic practice is largely focused on current contingencies. In fact, most of the behavior analytic studies, which have evaluated interventions for individuals with a documented history of trauma, do not describe the histories or provide any evidence that the history of trauma was factored into any treatment decisions (Rajaraman et al., 2022). The purpose of this study was to explore how BCBAs: (a) define TIBA, (b) use TIBA to guide their decisions for identifying appropriate interventions, (c) determine appropriate evidence-based interventions for students with a history of trauma, and (d) obtained their training to confidently implement TIBA in their practices. A major focus of this multiple-case study analysis was to investigate the training, experiences, and practices utilized by practicing BCBAs who report using a TIA in behavior analysis. Specifically, three BCBAs were recruited and interviewed. In addition, the BCBAs provided their resume and a redacted BIP they had written for one of their clients. The resumes were used to identify both previous work and educational experiences which prepared the

BCBAs to use TIBA within their practices. Similarly, the redacted BIPs were used to pinpoint the trauma-informed practices used by the BCBAs for behavior change.

## Research Question 1

Q1 How do the BCBA participants operationally define TIBA within their practices?

The field of behavior analysis is known for defining things in a clear, objective, and concise manner. However, the field has yet to recognize the need to develop a definition for trauma-informed practices. Why is this important? Rajaraman et al. (2022) argued that a functional definition of trauma, which focuses on behavioral rather than the psychological state, may prove to be useful for both behavior analysis and practitioners in other fields. In addition, Slocum et al. (2014) stated a well-conceived definition can promote conceptual understanding and set the context for effective action. In other words, once a definition is adopted by the field, not only will it signify the field has officially recognized the need for trauma-informed care in behavior analysis, but it will also serve as a guide for all behavior analysts. Therefore, it makes the practice of behavior analysis safe for all and reduce, or even eliminate, the risk of retraumatization.

Before developing a definition for TIBA, it is important to understand TIC. Rajaraman et al. (2022) stated the four core commitments of the practice of TIC is to: (a) acknowledge trauma and its potential impact, (b) ensure safety and trust, (c) promote choice and shared governance, and (d) emphasize skill building. The participants within this research also highlighted these four practices throughout the study.

As previously shared, the purpose of this study was to explore how BCBAs: (a) define TIBA, (b) use TIBA to guide their decisions for identifying appropriate interventions, (c) determine appropriate evidence-based interventions for students with a history of trauma, and (d)

obtained their training to confidently implement TIBA in their practices. This, in turn, would lead to developing my own functional definition of TIBA. As discussed above, this is important because the field of behavior analysis has yet to construct its own functional definition. This is very evident based upon the responses given by the BCBAs in this study who are individuals who have training and experiences in trauma. Joseph's definition of TIBA reflects his practices in both ABA and mental health. As previously mentioned, he described it as a "healthy marriage between trauma-informed sort of antecedent management processes and . . . the sort of the traditional ABA involved interventions." He also stressed the importance of practitioners realizing how trauma "oozes" through the intervention process. This is imperative to recognize as BCBAs consider behavior change procedures. It is also consistent with how Jessica defined a trauma-informed process in behavior analysis. She also shared how one should "keep in the back of your mind that we may have those adverse childhood experiences in the past" when working with clients. This, in turn, may result in a changed viewpoint of what types of interventions to use or the directions to take with those behavior changes. Like Joseph, her definition identifies the importance of noting how trauma can "show up" during any part of the behavior change process.

Meanwhile, Jodi's definition identified the importance of putting the emotional well-being of the client before the statistical outcome. In other words, it is important for a BCBA to choose behavior change procedures that are emotionally beneficial to the client and not just those proven to be effective through research and data. Behavior analysts must consider the *whole* person and not just the targeted behavior. Based upon data analysis, TIBA is defined across these three participants as "Treating the whole person by considering the emotional well-being of a

client and identifying interventions for behavior change that take into account the personal history of the client which ensures more harm does not occur."

## Research Question 2

Q2 How do behavior analytic principles guide the BCBA participants' decision-making process for students who have a history of trauma and exhibit challenging behaviors (e.g., disruption, defiance, and physical aggression)?

This question was developed to understand the behavior analytic principles that guide the BCBA participants' decision-making process when using a trauma-informed approach to develop behavior change procedures. Although this study does refer to the BACB Code of Ethics and Task List items and how those could possibly be referenced in using a TIBA, I was curious to see if any of the participants directly addressed them within the interview. Although they do not specifically refer to the task list or the code of ethics, they do share principles from each that help guide their decision-making process.

Rajaraman et al. (2022) argued that omitting TIC from behavior analytic practices can be detrimental with both the public's perception of ABA and the effectiveness of assessment and treatment procedures. Similarly, the participants in this study shared similar views. As previously addressed, Jodi states "Just because we learn all that exists within the signs of ABA does not mean it's all ethical or should be used." Not to be confused with the evidence-based practices, which will be discussed in the next session, behavior analytic principles are the philosophies of the field that drive practices. For example, Jessica describes the importance of identifying the differences between the impact trauma can have on the ontogeny or phylogeny of an individual.

### Ontogeny and Phylogeny

Ontogeny and phylogeny are consistent with selectionism, a theory that all forms of life naturally and continually evolve (Cooper et al., 2020). As previously defined, phylogeny is the

natural evolution of an individual, while ontogeny is more consistent with how the environment impacts the evolution of an individual. Jessica shares how important it is for BCBAs to understand how trauma can have a phylogenetic role in challenging behaviors. This is in part due to the structural and chemical changes the brain can encounter as a result of traumatic experiences. These fall under Task List Item A-2.

Joseph also addresses similar principles from Task List Item A-2. Within his interview, Joseph discussed the importance of looking at behavior in a parsimonious way. Instead of doing so, sometimes behavior analysts get too tied up into strategies that have proven to be effective without first addressing the missing foundational components. Clarity in understanding the meaning behind this can best be summed up by revisiting one of Joseph's statements. He says, "When we say 'hey, what about trauma?' they go, "Wow, let me show you five rooms that did data that talk about different tests that we did to negate that are, you know, parsimonious."

**Generalization**

Additionally, the participants discussed the importance of generalization. Cooper et al. (2020) explained generalization as when a learner emits a trained behavior in different places or times without having to be retrained completely in those places or times. Luczynski et al. (2014) discussed three categories to promote generalization which include: (a) make use of current functional contingencies by selecting responses that would likely recruit natural consequences and by modifying consequences so that reinforcement is provided for newly acquired responses and withheld from nontarget response; (b) teach diversely by using many exemplars of stimuli and responses by making programmed antecedents and consequences less discriminable during teaching; and (c) incorporate functional mediators by including common physical and social stimuli during teaching and by teaching self-mediated physical and verbal responses (p. 248).

Joseph best explained the importance of generalization when he wrote, “Without generalization, even well-learned skills are often deemed irrelevant.” Joseph described how he promotes generalization among staff. Primarily, he does this so his client’s skills are transferred from one staff member to another. By rotating staff members through clients, he states he does not have to worry about refusal to demonstrate skills with others. He also shares his goal is to teach clients that “you have to do different things with different lead people in different places.”

Generalization is not a process that simply occurs after teaching but is the product of thoughtful programming during teaching (Luczynski et al., 2014). In her interview, Jessica discussed how SBT helps to generalize skills. The way she trains for it is by having clients engage in various activities for different amounts of time. She also adds stimuli to “challenge” the client to determine whether the problem behavior will reappear once it has decreased.

Similarly, Jodi addresses generalization in her BIP. She plans for programming to be integrated into the family daily routines to assure it occurs. She also discusses the importance of engaging caregivers in instructional behavior processes and relying on natural cues. Additionally, she shares how fading prompts, thinning contrived reinforcers, and expanding exemplars and contexts promote generalization. For example, she writes, “When skills are first being taught, they will be reinforced immediately and continuously after every correct replacement behavior occurs.” Then, once goals are met, reinforcement will occur on an intermittent schedule.

Finally, I’d like to address this question and how this research has changed my own understanding of using a trauma-informed lens in behavior analysis. After completing this study, I feel as if the wording of this question is not conducive to a true TIBA. In its current form, the question signifies that behavior analytic principles drive the decision-making process in TIBA.

Instead, the question should reflect how trauma guides which behavior analytic practices to use in TIBA. If I were to rewrite this question, it would read: "How does your knowledge of trauma and its impact on behavior guide which behavior analytic principles to use in your decision-making process for students who have a history of trauma and display challenging behaviors (e.g., disruption, defiance, and physical aggression)?" This reflects how trauma should be at the forefront of programming for behavior changes and drive what principles and practices best meet the client's needs.

## Research Question 3

Q3 What evidence-based interventions have the BCBA participants found to be most beneficial for students who have a history of trauma?

Harvey et al. (2009) affirmed the empirically validated instructional procedures and practices within ABA promote adaptive behavior by the manipulation of the client's environment. Behavior analysts are likely to characterize most problems of human behavior, including trauma, as being either a deficit of a behavior or the behavior occurs too frequently. When deficits are identified, the skills are taught to increase the client's repertoire of skills. When behaviors such as dangerous ones or those that impede the client's social integration occur, skills are typically taught in an effort to "replace" the undesirable behavior with a more appropriate one (Rajaraman et al., 2022).

The National Clearinghouse of Autism Evidence and Practice (NCAEP) identified 28 practices as being evidence-based. The participants in this study identified some of these practices as being important for having a trauma-informed approach in behavior analysis. One of the evidence-based practices addressed by each of the participants was antecedent interventions. Cooper et al. (2020) defined antecedent interventions as being implemented prior to and independent of the target behavior. Examples of antecedent interventions include making

changes to the physical environment, providing choices, and modifying demands. Implementation of these interventions increases the occurrence of the desired behavior and can lead to the reduction of challenging behaviors.

Differential reinforcement is another evidence-based practice identified by the NCAEP and participants of this study. Differential reinforcement includes providing reinforcement contingent on the desired behavior and withholding reinforcement if the problem behavior occurs (Cooper et al., 2020). Another evidence-based practice that deals with reinforcement is extinction. Extinction is the removal of reinforcement for a challenging behavior to reduce the future occurrence of it (Cooper et al., 2020). For example, if a child cries at the grocery store because they want a candy bar and the parent does not purchase the candy bar because of the crying, the parent has put their child's behavior on extinction. They are not reinforcing the child's behavior when they leave the store without purchasing the candy bar.

Functional communication training (FCT) is an antecedent intervention where an appropriate communicative behavior is taught as a replacement behavior (Cooper et al., 2020). For example, a student may be taught to give their teacher a break card as an appropriate way of escaping an activity or task for a short period of time. This would take the place of the child eloping from the classroom or disrupting the class as a means of escape. Other evidence-based practices used to teach replacement behaviors include social skills training and self-management. Social skills training is instruction on targeted behaviors for improvement. Similarly, self-management includes instructing children of appropriate behaviors, but also teaches the child how to monitor their own behavior.

Although the question asked specifically for evidence-based practices used by the participants, the purpose of this section is to move beyond what is discussed in Chapter IV. The

goal is to identify how an evidence-based practice is not automatically safe for individuals with a history of trauma. Another goal is to discuss how some of the practices identified within the study may not be considered evidence-based in the field of ABA but have had enough research to prove their implementation is valid. Finally, I will address the PFA protocol designed by Hanley. Although it consists of evidence-based practices such as reinforcement, the process itself deserves more attention as a TIA in behavior analysis.

**Extinction**

Although shown to be successful in many cases, extinction procedures are intrusive, may be considered inappropriate for certain clients, and have even been discouraged and prohibited in certain settings (Rajaraman et al., 2022). Joseph's training protocol discusses how extinction can "yield frustration which only leads to an increase in aggression (fight), escape (flight), and/or inaction (freeze)." The inaction is more than likely seen as noncompliance.

Rajaraman et al. (2022) stated the extinction component of treatment for problem behavior can produce collateral effects. For example, when a client's problem behavior is placed on extinction, one effect could be an extinction burst. An extinction burst is the immediate increase in the frequency and intensity of a problem behavior (Cooper et al., 2020). Despite the fact it is an evidence-based practice, the participants within the study each discussed how the use of extinction should be used with caution or not at all. For example, Jodi stresses the significance of ignoring a behavior, but not the child. She discusses the importance of being empathetic to a child if they must stop a preferred activity. Some of the language she gave to model this includes "I'm so sorry you're going through this. I see that this has really upset you and made you sad." Similarly, Rajaraman et al. (2022) stated rather than relying on extinction, efforts to disrupt

contingencies between problem behavior and attention may be best addressed by providing attention noncontingently.

Jessica leans more towards using extinction with caution. She shared the importance of having enough information about a child to determine whether an extinction procedure should be used. For example, Rajaraman et al. (2022) discussed abstaining from physical prompting as an extinction procedure because some clients may have experienced emotional, sexual, or physical abuse. To best identify this, she noted the importance of a thorough investigation of a child's history. Oftentimes, this information can come from interviewing parents or caregivers. While extinction is an evidence-based practice, the participants and research have demonstrated how it should be used sparingly or not at all. What are the criteria for a practice or intervention to be evidence-based in the field of ABA?

According to Smith (2013), behavior analysts favor studies with single-subject experimental designs which involve repeated observations to compare an individual's behavior during baseline to the behavior in one or more intervention phases. The goal is to establish a functional relation between the intervention and a change in behavior. The participants of this study identified a couple of practices they use that are not evidence-based due to the rigorous, single-subject design the field of ABA requires; however, there is evidence in other studies which demonstrates the effectiveness of these practices. On such practice is DBT.

**Dialectical Behavior Therapy**

Dialectical behavior therapy is an evidence-based psychotherapy with strong empirical support for treating borderline personality disorder (BPD) as well as suicidal and self-injurious behaviors (Harned et al., 2022). It is highly structured, particularly during the initial stage of treatment when the individual is lacking behavior control and is engaging in dysfunctional and

life-threatening behavior (McMain et al., 2001). Within this study, Joseph referred to DBT 14 different times. He discussed how DBT can be used to teach coping skills and calming strategies. With that said, he also shares how DBT is not evidence-based by ABA standards; however, to justify its use for funding reasons, he incorporates behavior analytic principles in conjunction with it.

A comprehensive cognitive-behavioral treatment for complex, difficult-to-treat mental disorders, DBT was originally develop for chronically suicidal individuals (Dimeff & Linehan, 2001). It has since evolved and been adapted to address other behavioral disorders such as bipolar disorder, substance abuse, and emotional dysregulation. Dialect and behavior therapy is highly structured, particularly during the initial stage of treatment when the individual is lacking behavior control (McMain et al., 2001). It is used in a variety of settings including inpatient and partial hospitalization and forensic settings (Dimeff & Linehan, 2001). Behavioral targets of DBT include decreasing quality of life interfering behaviors and increasing coping skills (McMain et al., 2001).

Procedures in DBT include mindfulness and a variety of validation and acceptance-based strategies. It is also important to note how maladaptive behavior change strategies and problem-solving techniques in DBT include skills training, contingency management such as reinforcement and punishment, cognitive modification, and exposure-based strategies such as systematic desensitization (Dimeff & Linehan, 2001). Comprehensive treatment in DBT serves five functions. These include: (a) enhances behavioral capabilities, (b) improves motivation to change (by modifying inhibitions and reinforcement contingencies), (c) assures that new capabilities generalize to the natural environment, (d) structures the treatment environment in essential ways to support client and therapist capabilities, and (e) enhances therapist capabilities

and motivation to treat clients effectively (Dimeff & Linehan, 2001). Even though DBT uses behavior analytic principles such as reinforcement, punishment, and generalization, the field does not recognize it as an evidence-based practice.

In his article, *There is No Such Thing as a Bad Boy: The Circumstances View of Problem Behavior,* Friman (2021) provided four obstacles for the dissemination of behavior analysis. Two of these reasons provide some explanation as to why DBT is not considered an evidence-based practice within the field. The first reason he gives for the limited impact and dissemination of behavior analysis is due to the field deliberately avoiding population-based research methodologies (Friman, 2021). Slocum et al. (2014) stated decision-making is a discipline as complex as ABA requires clinical expertise in identifying, defining, and analyzing problems by determining what evidence is relevant and deciding how it should be applied. The research behind the effectiveness of DBT is one such example.

Within their research, Harned et al. (2022) determined there have been 18 randomized controlled trials that have established DBT's efficacy. Randomized controlled trials (RCT) are prospective studies that measure the effectiveness of a new intervention or treatment (Hariton & Locascio, 2018). The process of conducting RCT is rather rigorous. Researchers must carefully select the population, the interventions to compare, and the outcomes of interest. Once these are defined, the number of participants needed to reliably determine if such a relationship exists is calculated (Hariton & Locascio, 2018). The participants are then randomly assigned to either the intervention or placebo group. For a study determining the effectiveness of DBT, the intervention group would receive training and protocols in it. In contrast, the placebo group would not receive any of the DBT training or protocols. It is important to note that the participants are unaware of which group they have been assigned.

In closing, the field's reluctance to consider research from other fields is another barrier given for the dissemination of behavior analysis. According to Friman (2021), the field of behavior analysis is often unwilling to speculate beyond their own data. As previously stated, the field sees research studies using single-subject experimental designs as the only means of being evidence-based. These types of designs typically consist of a small number of participants, unlike the large RCT used in other scientific studies. Perhaps having the skillset or knowledge of evidence-based practice such as DBT is a solution.

## Research Question 4

Q4 What knowledge and skillset are described by the BCBA participants as being necessary in providing TIBA?

The field of behavior analysis has a wealth of resources to support physical safety; however, a handbook on ensuring emotional safety in ABA practices has yet to be written (Rajaraman et al., 2022). The purpose of this question was to determine the type of skillset and knowledge the participants felt would be beneficial for BCBAs wanting to incorporate a trauma-informed lens in their practices. They are also items not necessarily addressed in the field's Task List or Code of Ethics. In fact, some of the information shared is not typically addressed within the field of ABA itself.

### Establish a Meaningful Relationship with Choices

Friman (2021) described how a large amount of literature shows that the relationship between the therapist and client is a significant determinant of both whether the treatment will be followed and whether it will work. For example, one of the obvious agreements between two of the participants was the need to develop a relationship with the client. In his training protocol, Joseph identifies "relationships are critical to our well-being. A person in crisis needs people

who care, people who have hope about the future, people who take the long view." Similarly, Jessica discusses the importance of relationship building; however, she identifies it as pairing. Within the interview, she discussed "a large emphasis on especially the beginning, like on pairing, your main goal is that your client, student, [or] whomever you're working with, should be at HRE which is happy, relaxed, and engaged".

While Jessica identifies the importance of pairing oneself with the client to build a therapeutic relationship, Rajaraman et al. (2021) also shared how providing the client multiple choice-making opportunities is an endorsed practice in ABA literature. They further identify various ways to incorporate choice throughout the course of therapeutic relationship. These include allowing the client to choose which stimuli should shape their behavior and incorporating choices into interventions for the problem behavior (Rajaraman et al., 2021). Jessica and Jodi provide examples of how to do this within their BIPs.

As previously shared in Chapter IV, Jodi identifies various ways to incorporate choice throughout programming. These include allowing the client to decide where to spend time, what activities to do, what to eat during snack times, and what utensils to use while eating. She recommends providing these choices before essential demands are given. Additionally, she described the importance of enriching the environment by having multiple, preferred activities to allow the client opportunities for choice. These opportunities to provide choices during programming are likely to decrease the probability of problem behavior and increase cooperation from the client (Rajaraman et al., 2021).

**Adverse Childhood Experiences**

A thorough explanation of ACEs and criteria to identify them is shared in Chapter II; however, the results from this study justify identifying the importance of considering ACEs in a

behavior analytic practice. For example, Rajaraman et al. (2022) emphasized ACEs as being well documented and preventative TIC approaches to acknowledge and potential impact they can have. Joseph, who was part of the original ACEs study, accredits it as "really starting the process of trauma informed care." When asked to identify the skillsets or knowledge BCBAs should have to practice TIBA, Jessica expressed the importance of having knowledge of ACEs. "There's great information on the CDC website to know about ACEs . . . but I think having a background of what the ACEs are and how they impact your life, short-term and long-term." Rajaraman et al. (2022) differentiated a trauma-informed approach in behavior analysis from a "traditional" view is when ACEs and the client's history (e.g., neglect, physical abuse, homelessness, etc.) are considered. Other individuals in the field of behavior analysis have also addressed the importance of knowing how past experiences (e.g., ACEs) can lead to present day problem behaviors.

In a recent article by Friman (2021), he discussed the Circumstances View that calls for individuals to not attribute the source of a problem behavior to the person themselves. Instead, he identified the importance of considering what has happened to a person over the course of their life up to the occurrence of the behavior of concern. This demonstrates the importance of taking time to fully understand a client's history. If the BCBA focuses solely on current contingencies of behavior, they may miss identifying the true reason behind the behavior.

**Practical Functional Assessment**

Another skillset discussed in the study is Hanley's PFA and SBT. This practice was fully implemented by two of the participants and mentioned by the third. Each of the participants shared how the practices could easily be identified as having a trauma-informed focus. As previously addressed, Jodi identified "we need to have less putting people in positions to have

their most dangerous, most uncomfortable, most painful behaviors." She achieves this by using the PFA and IISCA.

As previously discussed in Chapter IV, the PFA begins with an open-ended interview to identify the types of contingencies that may influence the problem behavior. The results from the interview are then used to design an individualized functional analysis, IISCA, which typically involves multiple test conditions to identify the contingencies leading to the problem behavior (Hanley et al., 2014). The information obtained through the PFA process directly informs the contingencies manipulated in SBT. Rajaraman et al. (2021) discussed how SBT can systematically and progressively teach social skills such as communication, toleration, and cooperation with adult instruction. The treatment for SBT involves six different steps or levels. These include: (a) teaching a simple functional communication response (FCR), (b) increasing the complexity and developmental appropriateness of the FCR, (c) introducing delays and denials from an adult and teaching specific response cues, (d) chaining simple responses during denial- and delay-tolerance training, (e) chaining more difficult responses during denial and delay tolerance training, and (f) extending the treatment to ecologically relevant situations (Hanley et al., 2014, p. 22).

Also known as CABs, these six levels or steps of the SBT process are evident within Jessica's BIP. For example, the first CAB, teaching a simple FCR, involves having the child pause their game, look at the instructor, and hand over their current reinforcer (e.g., iPad, toy, etc). These then progress to transitioning to an alternate activity (CAB 2), working on cooperation within a single relevant activity (CAB 3), continuing to work on cooperation but within multiple activities (CAB 4), increasing the number of cooperative responses and time (CAB 5), and then implementing challenges within the programming (CAB 6). These challenges

may include harder tasks to complete for the child such as self-care, chores, or presenting triggers which are known to escalate challenging behaviors.

**The Role of the Brain**

Participants within the study also address the importance of practitioners having an understanding of the brain and its development. Additionally, Jessica identified the importance of practitioners knowing developmentally appropriate interventions. This knowledge not only includes awareness of the developmental progress of brain development, but also of how ACEs can make changes in brain development. To begin with, Jessica discussed how some of the IEP goals she read had kindergarten students learning to self-regulate. According to her, "The brain isn't developed enough until around age 7 or 8 to even start independently self-regulate." Although previously discussed within Chapter II, the participants have identified a need to briefly revisit this topic.

According to Bremner (2006), the normal brain undergoes changes in structure and function across the lifespan from early childhood to late life. The bulk of this growth, however, tends to be in utero. The brain increases in size by 4-fold during the preschool period, reaching approximately 90% of adult volume by age 6 (Stiles & Jernigan, 2010).

Aside from having an understanding of the development of the brain, participants also discussed the importance of knowing how ACEs and stress impact the brain. For example, Joseph mentioned within his interview how his research in Romani identified "kids who had been in these institutional settings had developed the capacity to shut off and turn on the frontal lobe in very obvious ways." He justifies this information by referring to the MRI studies that were also part of the research he completed. According to Bremner (2006), preclinical and clinical studies have shown alterations in memory function following traumatic stress.

## Limitations of the Study

It is important to note the information from this study is limited to the experiences and perspectives of the three participants. Although they did have a broad range of experiences, it is not representative of all BCBAs who use TIBA. For example, the training, education, or supervision of other BCBAs may be more extensive than what was described in the study. In contrast, BCBAs claiming to use TIBA within practice may have much less background knowledge than what was described.

The difficulty to recruit participants was another limitation to this study. Of the 6,668 members on the social media platform where the recruitment message was shared, only 12 BCBAs responded to the call. Of these 12, only 9 and met the criteria to become a participant. In attempting to contact these 9 participants to set up an interview, 4 of the 9 responded back to the researcher. An initial interview was then conducted with each of these 4 participants. Unfortunately, 1 of the participants never provided the required documents for the case study. These documents included a redacted BIP and their resume. Therefore, the study consisted of only 3 participants.

## Implications for Practice

Despite these limitations, the information from this study provides detailed and specific information that can be used to further behavior analytic practices. Further, this study adds to the limited number of research publications associated with TIBA, and this study extends the research to include practices and trainings in TIBA. These practices include implementing antecedent interventions, writing BIPs, and content for possible trainings to help BCBAs become more aware of trauma and the implications.

Behavior intervention plans outline strategies and tactics for dealing with a problem behavior (Killu, 2008). When it comes to working with children who have a history of trauma, it is extremely important for BIPs to include strategies that are not likely to lead to retraumatization. During this study, there were similarities among the participants' BIPs which identified appropriate interventions to address challenging behaviors exhibited by these children. To begin with, it is important for the BCBA to include antecedent interventions relevant to the child's need. For example, all three of the participants discussed the importance of including choice within the child's environment. Choices may include allowing the child the option of where they would like to work within the classroom. Choices may also include the type of writing instrument the child would like to use to complete their work.

In addition to choices, the BIP should address preventive strategies, replacement skills to teach, and trauma-friendly reactive strategies to use if the behavior does occur. Jodi addresses each of these in a three-column table. The first column is labeled *preventative strategies*. Within this column, she identifies appropriate antecedent-based strategies that should be practiced. For example, some of the antecedent-based strategies she identifies include showing continuous positive regard and empathy, providing non-judgmental listening, ensuring multiple preferred and generally liked activities are available, and limiting non-essential demands.

In the second column, which is labeled *replacement skills related to function*, Jodi provided a list of replacement skills to teach the child to use instead of the targeted behavior. For example, when the targeted behavior is tantruming, the skills noted to teach the child include learning to accept no, asking for my time, and accepting alternative activities or items. It is extremely important for BIPs to identify the desired replacement skills to be taught to the child.

Otherwise, the individuals implementing the plan will not know what behaviors to teach and reinforce.

The final column was labeled *management strategies (consequence based*). Within this column, Jodi provided appropriate reactive strategies for when the desired and problem behaviors occur. For example, when the child demonstrates the desired replacement behavior of asking for an additional 5 minutes with their preferred item, the staff should provide that time to the client. Similarly, if the child accepts being told "no" appropriately, they should be given verbal praise and provided access to a preferred item or activity. If the problem behavior of tantruming does occur, the plan states the child should be prompted to use a functional communication response, then provided praise and reinforcement once used. This section is extremely beneficial for students who have experienced trauma. It is within this section the BIP can contain information about reactive strategies that *should not* be used for students who have a history of trauma.

Finally, it is important for the BIP to consist of information about setting events. For example, if a child's challenging behavior is known to be more frequent or intense when they are hungry, this should be addressed. For students who have experienced neglect, this would be a more appropriate way to express this concern without blatantly stating the child may not have had food to eat. Other examples of setting events that could be written in the BIP include changes in medication or routines, illnesses, and sleepiness or fatigue.

The results of the study could also be used as a guide for supervising BCBAs to use for training purposes. The supervision of fieldwork involves teaching and improving the trainee's behavior-analytic, professional, and ethical repertoires and facilitating high-quality services for the trainee's clients (Luke et al., 2018). The supervisors could use this information from this

study to develop competencies. Sellers et al., (2016) stated creating competencies should begin by reviewing the BACB task list in detail and then by organizing the tasks and content into groups and sequences. Although not specifically addressed in the BACB Task List, using a TIBA could be integrating into Task List Items such as F-1 where the BCBA should review the client's records and any other available data such as educational, medical, or historical information at the beginning of the case (BACB, 2017). Since experiencing traumatic events would be part of a client's historical, and possibly medical, information, the supervisor could incorporate a performance-based content assessment. With this, the supervisor would assess whether the supervisee thoroughly looks through the client's records and/or asks appropriate questions of the family members to identify any trauma from the client's history.

Another task list item supervisors could use to create a competency in TIBA is H-3. This states that intervention goals and strategies should be based upon factors such as client preferences, supporting environments, risks, constraints, and social validity (BACB, 2017). By acknowledging and thoroughly teaching this Task List Item, the BCBA could ensure the supervisees' interventions are less likely to retraumatize clients. As Rajaraman et al. (2022) stated, behavior analysts using a TIA should acknowledge the importance of skill building and give priority to treatment strategies that develop skills over those that do not (e.g., differential reinforcement of other behavior, noncontingent reinforcement, or punishment). Within the study, the participants provided certain intervention strategies which could be used as part of the supervisees' competency-based training. Strategies to limit or refrain from using to ensure a student does not experience retraumatization include the use of extinction and punishment. As stated by Joseph, it is extremely important a child is not in a constant state of punishment. Strategies encouraged by the participants include building rapport, creating meaningful

reinforcement contingencies, teaching self-management and/or social skills, and promoting opportunities for generalization of those new skills. The use of these strategies could be measured using both knowledge- and performance-based criteria.

Finally, the information from the study could be used to develop future coursework at the university level. One of the primary requirements for BCBA certification is to complete academic training in behavior analysis (Luke et al., 2018). As of January 2022, 315 hours of graduate-level coursework was required for these individuals. The required areas of study include: (a) ethics and professionalism; (b) philosophical underpinnings, concepts, and principles; (c) measurement, data display, and interpretation and experimental design; (d) behavior assessment; (e) behavior-change procedures; and (f) personnel supervision and management (Luke et al., 2018). These required areas of study are taken directly from the BCBA Task List. Although not directly addressed in the Task List, there are specific skills which call for using a TIA in behavior analysis.

Rajaraman et al. (2022) discussed behavior analytic ethics outlined in its code of ethics without specifically mentioning trauma. Such codes include respecting client preference (Codes 2.13 and 2.14), maximizing benefit and reducing harm in possible retraumatization (Codes 2.15 and 3.01), prioritizing reinforcement-based procedures (Code 2.14), and meeting the diverse needs of the client (Code 2.14) (BACB, 2020). In preparing aspiring BCBAs to use a trauma lens within their practices, universities could identify these codes within the ethical portion of coursework. While this is true, it would be much easier for universities to have the ability to identify task list items that specifically address the consideration for trauma. This would not only make it easier for universities to incorporate the information within lectures and coursework, but it would also create a requirement where every university would have to acknowledge the

importance of trauma in behavior analysis. In addition to this, it could stimulate the amount of research universities conduct in TIBA. It all starts with awareness.

Aside from BCBAs, the information from this study could also be used by any individual wanting to implement a TIA in behavior. By examining the data and results presented, researchers and educators can increase their knowledge in becoming more trauma aware when it comes to behavior. Even though they may not be a BCBA, many of the practices discussed would be similar.

## Suggestions for Future Research

Although the information from this study is very useful for any individual wanting to incorporate TIBA within their practices, additional research should be conducted. These studies should focus on a larger population of BCBAs using TIBA. By widening the number of participants' experiences, further details could be gleaned about the most common practices used in TIBA. Another important component that could be learned through a larger group is the various trainings available for individuals wanting to become more trauma-informed in practice. As with this study, some of those practices may be behavior analytic, and some may not. Regardless of the intended audience, information gained from these could benefit any individual wanting to implement a TIA in behavior.

To collect data from a larger sample of BCBAs, a survey study may be the most logical next method of research. By asking questions in a survey format, more BCBAs may be willing to participate because it would require less of their personal time. In addition, sending out a survey link across multiple social media sites may recruit more responses. The questions within the survey could be very similar to the questions asked in this study. One of the goals would be to identify evidence-based practices used by BCBAs who utilize a TIA. Another goal would be to

identify how trauma drives the BCBAs' decision making in the appropriate interventions to incorporate within the child's plan. Finally, the survey study could consist of questions to identify the knowledge and skillsets the BCBA feels would be most beneficial to incorporate TIBA.

Further research could also be instrumental for the advocacy for the field of behavior analysis to be more trauma informed. In fact, within this current study, each of the participants stressed the importance of *all* BCBAs having some understanding of trauma and making trauma-informed decisions. There are many ways this could be accomplished, the first being more published research demonstrating the need for TIBA to be directly stated within the BACB task list. If added to the task list, it would ensure further required trainings to be offered to both BCBAs in training and those already in practice. For BCBAs in training, the TIBA could be required by universities' VCS. It could also result in mandatory training during supervision.

To demonstrate the importance of receiving instruction in TIBA, another research study could compare BCBAs' perceptions of the importance of using TIBA. To accomplish this, BCBAs without any prior knowledge of trauma would be asked to provide their perceptions and identify specific skillsets related to behavior change procedures. Once these data have been gathered, the BCBAs could receive instruction in trauma and trauma-informed approaches in behavior analysis. After receiving this instruction, the BCBAs would be asked to share their perceptions and identify the skillsets they gained through the instruction. In addition, the study would ask the BCBAs to identify the level of importance related to TIBA in their practices.

The results from this research study could lead to trauma requirements in CEUs for recertification. The CEUs may address any aspect of behavior analysis including practice, science, methodology, theory, or profession (BACB, 2022). Currently, the BACB requires 4

ethic CEUs and 3 supervision CEUs. The rest of the 25 hours are up to the BCBA if it is new knowledge or expands skills. With advocacy for more research which demonstrates the importance of trauma-informed practices, the BACB may require 1 or 2 CEUs which would still provide the BCBA 20 hours in their interest or practice.

Finally, a phenomenological research study could be conducted to identify the perceptions of parents or caregivers. The participants of this study would need to have experiences with BCBAs who use TIBA and those who do not. It would be interesting to hear what practices they identify as being the most beneficial for the child. In addition, the data from this study would allow the field to hear first-hand experiences about how trauma-informed approaches in behavior analysis are perceived.

## Conclusion

The purpose of this study was to explore how BCBAs: (a) define TIBA, (b) use TIBA to guide their decisions for identifying appropriate interventions, (c) determine appropriate evidence-based interventions for students with a history of trauma, and (d) obtained their training to confidently implement TIBA in their practices. I looked to identify specific trainings and strategies used by the participants within their own trauma-informed practices. One of the trainings identified by all three participants was Greg Hanley's PFA/SBT protocols. These protocols stress the importance of building rapport and making sure practices are safe and televisable. Other common themes identified within their practices include: (a) limiting the use of punishment; (b) avoiding extinction as a means of behavior change; (c) creating meaningful reinforcement; (d) teaching self-management skills; (e) building rapport; (f) offering choices; (g) promoting generalization; (h) using systematic desensitization; (i) teaching FCT; and (j) teaching social skills.

Along with this information, suggestions for future research were discussed, particularly a discussion on how information from the study could be used to advocate for requirements regarding trauma training within the field of ABA. The study also offers direction and insight into improving the field of ABA to better equip practitioners in meeting the needs of students who have a history of trauma. These insights include knowledge and skillsets needed for practitioners wishing to use TIBA. Examples of these include: (a) recognizing factors that contribute to trauma; (b) knowing about ACEs; (c) being aware of Maslow's hierarchy of needs; and (d) understanding what is developmentally appropriate for the client.

Lastly, suggestions for future research were discussed. With more research in TIBA, the field may finally see the need to require all BCBAs to have knowledge of trauma. Once determined the necessity for BCBAs to be more trauma aware, the BACB may require trauma awareness to be included within VCS coursework. In addition, they may require maintenance CEUs in TIBA as they do ethics. This would ensure the practitioners would be aware of the most recent research on trauma and how it can impact behavior.

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# APPENDIX A

## RECRUITING POST ON SOCIAL MEDIA

Social Media Recruitment Post

Greetings! My name is Kevin Bland and I am a doctoral student in the special education program at the University of Northern Colorado. I am reaching out today to see if any of you would be interested in participating in a research study about BCBAs and their practices using a trauma informed approach. The purpose of the study is to investigate your training, experiences, and practices in trauma-informed behavior analysis. Specifically, I want to know your practices in trauma-informed behavior analysis for students who exhibit challenging behaviors (e.g. disruption, disrespect, defiance, or physical aggression) as a result of a history of trauma.

With your permission, I would like to set up an interview. The interview will consist of questions related to your experiences as a BCBA using a trauma-informed approach within your practice. The interview will be about 45-60 minutes over the phone. Also, I will be asking for you to submit a few documents to help me conduct my study. These documents include a resume or vitae and a redacted BIP you have created using TIBA. If you are interested in participating, you will first need to complete a qualifying questionnaire. The link for this questionnaire is located below and contains close-ended questions. If you qualify to participate, you will be contacted by the method identified within the qualifying questionnaire to set up a day and time for the interview.

With Appreciation,

Kevin D. Bland, Ed.S., BCBA
School of Special Education
College of Education and Behavior Sciences
University of Northern Colorado

# APPENDIX B

## INSTITUTIONAL REVIEW BOARD APPROVAL

UNIVERSITY OF
NORTHERN COLORADO

Institutional Review Board

Date: 06/30/2022

Principal Investigator: Kevin Bland

Committee Action: **IRB EXEMPT DETERMINATION – New Protocol**

Action Date: 06/30/2022

Protocol Number: 2205039177

Protocol Title: Understanding Trauma Through a Behavior Analytic Lens: A Comparative Case Study

Expiration Date:

The University of Northern Colorado Institutional Review Board has reviewed your protocol and determined your project to be exempt under 45 CFR 46.104(d)(702) for research involving

Category 2 (2018): EDUCATIONAL TESTS, SURVEYS, INTERVIEWS, OR OBSERVATIONS OF
PUBLIC BEHAVIOR. Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met: (i) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects; (ii) Any disclosure of the human subjects' responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation; or (iii) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by 45 CFR 46.111(a)(7).

You may begin conducting your research as outlined in your protocol. Your study does not require further review from the IRB, unless changes need to be made to your approved protocol.

**As the Principal Investigator (PI), you are still responsible for contacting the UNC IRB office if and when:**

UNIVERSITY OF
NORTHERN COLORADO

Institutional Review Board

- You wish to deviate from the described protocol and would like to formally submit a modification request. Prior IRB approval must be obtained before any changes can be implemented (except to eliminate an immediate hazard to research participants).
- You make changes to the research personnel working on this study (add or drop research staff on this protocol).
- At the end of the study or before you leave The University of Northern Colorado and are no longer a student or employee, to request your protocol be closed. *You cannot continue to reference UNC on any documents (including the informed consent form) or conduct the study under the auspices of UNC if you are no longer a student/employee of this university.
- You have received or have been made aware of any complaints, problems, or adverse events that are related or possibly related to participation in the research.

If you have any questions, please contact the Research Compliance Manager, Nicole Morse, at 970-351-1910 or via e-mail at nicole.morse@unco.edu. Additional information concerning the requirements for the protection of human subjects may be found at the Office of Human Research Protection website - http://hhs.gov/ohrp/ and https://www.unco.edu/research/research-integrity-and- compliance/institutional-review-board/.

Sincerely,

Nicole Morse
Research Compliance Manager

University of Northern Colorado: FWA00000784

# APPENDIX C

# INTERVIEW PROTOCOL

Interview Protocol

1. How would you operationally define a trauma-informed approach in behavior analysis?

   **Follow-up question:** How did you develop this definition (e.g. training, supervision, experiences)?

2. How would you describe your use of a trauma-informed approach in behavior analysis?

   **Follow-up question:** How did you come to develop that definition (e.g. supervision, experiences, CEUs)?

   **Follow-up question:** Do you feel as if the field provides BCBAs enough guidance or direction when considering students with trauma? If so, how? If not, what changes should be made to do so?

3. What types of training or supervision did you receive that prepared you with the knowledge and skill sets to use a trauma-informed approach in behavior analysis?

   **Follow-up question:** Do you feel as if the BACB provides enough guidance regarding training requirements to prepare BCBAs for students who have a history of trauma? If so, how? If not, what changes could be made to do so?

4. How do behavior analytic principles guide your decision-making in terms a student's history of trauma and the challenging behaviors they exhibit as a result?

   **Follow-up question:** What specific principles do you feel help you with this decision-making process? Briefly explain them and how they provide guidance.

   **Follow-up questions**: Do you feel as if there is enough current literature or research to available to guide a BCBAs decision-making process in regard to using a trauma-informed approach in behavior analysis? If so, where have you found this information? If not, what type of research do you think is needed as a reference?

5. What evidence-based interventions have you found to be most beneficial for students with a history of trauma?

   **Follow-up question:** What lead you to this conclusion (e.g. literature, experience, etc.)

   **Follow-up question:** What advice do you have practicing BCBAs who are looking for evidence-based interventions for a student who has a history of trauma?

6. What knowledge and skill set do you feel is necessary in utilizing a trauma-informed approach in behavior analysis?

   **Follow-up question**: Briefly describe how you came to obtain this knowledge and skillset (e.g. supervision, experience, training).

   **Follow-up question:** Do you feel it is necessary for **all** BCBAs to have some type of knowledge or skill set in regard to trauma-informed behavior analysis? If so, why and what type of knowledge or skill set is necessary? If not, why?

   **Follow-up question:** What advice do you have for individuals wanting to gain more knowledge and skill set in regard to trauma-informed behavior analysis?

7. Is there any other important information you feel should be addressed in regard to trauma-informed behavior analysis that I haven't asked you?

# APPENDIX D

# FOLLOW-UP EMAIL

Follow-Up Email

Dear Fellow BCBA,

Thank you for agreeing to participate in this study and completing the qualifying questionnaire on (date). Given your responses to the qualifying questionnaire, I would like to proceed with the interview process. The interview will consist of several open-ended questions related to your experiences in trauma-informed behavior analysis. Please provide me with 2-3 days and times over the next two weeks that you will be available to complete a 45-60 minute Zoom interview. I also ask that you provide me with a redacted BIP plan you have written for a student who exhibits challenging behaviors and has a history of trauma. Finally, I ask that you provide me a current resume or vitae to help me understand your work, educational, and professional development histories which may contribute to your current position and practices. After I have had time to look through this data, I will schedule a second 30-minute interview with you to ask any clarifying questions I may have about the documents you provided me.

With Appreciation,

Kevin D. Bland, Ed.S., BCBA
School of Special Education
College of Education and Behavior Sciences
University of Northern Colorado

# APPENDIX E

## QUALIFYING QUESTIONS FOR BOARD CERTIFIED BEHAVIOR ANALYST

Qualifying Questions for BCBAs

1. Are you an active BCBA without current disciplinary sanctions who has been certified for at least three years?
2. Have you received supervision and/or training regarding a trauma-informed approach in behavior analysis?
3. Have you worked with at least two clients who have a history of trauma and exhibit challenging behaviors?
4. Are you willing and able to provide a resume or curricular vitae and a behavior intervention you wrote to address a student's challenging behavior resulting from a history of trauma?
5. Please provide an email address for further communication if you are to be recruited for the study.

If the participant answers "no" to any of the above questions, they will be thanked for their time.

# APPENDIX F

# CONSENT FORM

Consent Form


**Informed Consent Form for Participation in Research**

**Title of Research Study:** Understanding Trauma Through a Behavior Analytic Lens: A Qualitative Study

**Researcher(s):** Kevin D. Bland, School of Special Education
Phone Number: email: blan8834@bears.unco.edu
**Research Advisor:** Dr. Tracy Gershwin, School of Special Education
Phone Number: (970) 351-1664 email: Tracy.Gershwin@unco.edu

**Procedures:** We would like to ask you to participate in a research study. The purpose of this comparative case study is to (a) explain how a BCBA operationally defines trauma informed behavior analysis (TIBA) within their practices; (b) determine behavior analytic principles that guide the BCBA participants' decision-making process for student who have a history of trauma and exhibit challenging behaviors; (c) identify evidence-based interventions BCBAs found to be most beneficial for students with a history of trauma; and (d) describe knowledge and skill sets the BCBAs state are necessary to provide TIBA. Along with these initial interviews, I will also ask that you provide me a BIP you have written for a student who exhibits challenging behaviors and has a history of trauma and a current resume/vitae. I will also be looking through posts you have made on Trauma (ACEs) from an Applied Behavior Analysis Perspective.

**Questions:** If you have any questions about this research project, please feel free to contact Kevin Bland at kdbland1980@yahoo.com. If you have any concerns about your selection or treatment as a research participant, please contact Nicole Morse, Research Compliance Manager, University of Northern Colorado at nicole.morse@unco.edu or 970-351-1910.

**Voluntary Participation:** Please understand that your participation is voluntary. You may decide not to participate in this study and if you begin participating, you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in loss of benefits to which you are otherwise entitled.

**Please take all the time you need to read through this document and decide whether you would like to participate in this research study.**

If you decide to participate, your completion of the research procedures indicates your consent. Please keep this form for your records.

# APPENDIX G

# SECOND INTERVIEW PROTOCOL

Second Interview Protocol

**Q1:** Tell me more about your experiences.

**Follow-Up Question:** How did you become interested in trauma and being trauma-informed?

**Follow-Up Question:** How did you decide which ABA program to attend?

**Q2:** Tell me more about your BIP and how you used a trauma-informed approach writing it.

**Follow-Up Question:** Tell me more about the FBA process. More specifically, the indirect assessments you used.

**Follow-Up Question:** How did you decide what interventions you would include?

**Q3:** Tell me more about the posts you made on the social media group.

# APPENDIX H

# MEMBER CHECK

Member Check

Dear BCBA,

I am excited to report that the study you participated in is progressing nicely. I am sending this email to check the accuracy and interpretation of the data gathered as it related to the research questions. Please complete this "member check" by following the steps below:

1. Review your original transcript to ensure all text was recorded accurately. If there are any corrections or additions, please type them directly into the manuscript using a different color or by adding a comment in the margin.
2. Review the themes identified from the interview. Please read through the member checking document. If there are any corrections or additions, please type them directly into the document using a different color or by adding a comment in the margin.
3. If you desire, using a different color font, please add any additional thoughts or experiences below each of the subtitles that you think would add to the strength of the study. For example, if you feel there is important information under "Demographic and Work Experience", please type that information at the end of the section. You could also add comment in the margins if preferred. If you do not have any additional thoughts, you do not need to do anything."

Once again, I'd like to express my gratitude and appreciation for your willingness to participate in this study. I look forward to seeing your responses.

With Appreciation,

Kevin D. Bland, EdS, BCBA
Doctoral Student
University of Northern Colorado