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Allison Sampson
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*INFORMING SOCIAL WORK PRACTICE THROUGH THE ENHANCEMENT OF THE
BIOLOGICAL PERSPECTIVE: A COURSE INTERVENTION MODEL FOR HUMAN SERVICE
PROFESSIONALS WORKING WITH YOUTH AND PROBLEMS OF CONDUCT.*

A dissertation submitted

by

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in partial fulfillment of
the requirement for the
degree of

DOCTOR OF PHILOSOPHY

in

Social Work

This dissertation proposal has been
accepted for the faculty of
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Allison Sampson

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I am a child ...
By Allison Sampson, PhD, LCSW

I am a child ... I remember hearing the voices of my mother and father when I was still deep inside the womb. Sometimes they were loud and full of hate... But sometimes they were soft and full of dreams... I often wondered what my life would become within these sounds of the world ...

And so I was born. There were still moments of dreams and moments of softness ... and yet now all I can remember is what was loud

The loud voices of my father ... and then the absence of his voice at all ... the loud voice of my mother ... and the tears that were soon to follow... the loud crashing sound as I felt their hands hit my skin ... the sight of my mother in the corner of the kitchen ... I was too small to protect her

I remember the loud sounds of the ambulance and the neighbor's voices. The loud sounds of the police car as they drove me to a large building where people helped kids "like me" ... the sounds of the people laughing, and then their silence as I came in.....

With the sounds come pictures ... pictures of my life ... Pictures of my first foster family and my second Pictures of my father behind bars and my mother in the hospital ... pictures of my brothers and sisters who no longer live with me They ask me where my picture of family ... is but that seems to be the one picture I am missing ... because I am not really sure what family is and the only family I ever loved is gone ...

And now back come in the sounds Sounds of loud voices and children crying ... sounds of rage and pain and hurt ... sounds that are so common now and familiar ... they are perhaps the only thing I can depend on Only now they are my sounds ... my voice ... my actions

And so I sit before you now ... and you are asking me what path my life took ... what choices did I make Where is my responsibility ... my empathy Why did so many others choose the right path ... and why am I here ... do I realize what I have done

And I say ... I am a child ... there were many paths I could have taken ... why am I here ... Will you help me without me asking .. will you give me new sounds .. will you change my picture of myself ... others .. and the world ... will you be able to see me past all I have done

.....

Will you ?

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Abstract

The purpose of this study is to evaluate the effectiveness of an intervention model designed to enhance practitioners' biological lens when using a biopsychosocial-spiritual model of holistic assessment and planning. The specific intervention utilized is a course curriculum developed to broaden human service professionals' (including clinical social work professionals) understanding of attachment theory, neuroscience and trauma informed methods of practice. The course teaches professionals how to apply this knowledge to clinical assessment and intervention planning with youth who have experienced significant trauma in their lives and exhibit problems of conduct. Using an experimental design, participants from a large private mental health organization were asked to evaluate the impact of curriculum on their 1) knowledge of attachment theory, trauma informed practice and neurobiology; 2) attitudes concerning the relevance of trauma-informed practice, the biological perspective and consequence focused models of intervention; and 3) assessment and intervention planning strategies. The curriculum focused its application on youth who have experienced significant levels of trauma and display conduct related behavior problems. Group differences for the workshop intervention group and waitlist control group are discussed. Additionally, a preliminary evaluation of differences between two different intervention groups (participants in the Distance Learning version of the course and the Workshop Seminar version of the course) was conducted.

CHAPTER I

Introduction

This chapter will provide an overview of the current study, which is designed to enhance human service professionals' knowledge, attitudes and behaviors as they intervene with youth who have experienced significant trauma in their background. The chapter will discuss prevalence of conduct related disorders and the need for effective interventions with this clinical population. In order to provide effective interventions for this population, key findings from neurobiology must be incorporated. These findings impact the way in which practitioners understand disruptive and externalizing behavior problems in children who have experienced trauma and also their relationships with authority figures in general and their own caregivers specifically. Based on the relevance of the neurobiological perspective, the chapter provides a review of social work's investment in a balanced biopsychosocial spiritual approach to practice as well as presents evidence of the minimal inclusion of the biological perspective in actual social work practice. The chapter will then provide more focused discussions on the role of attachment theory and neuroscience knowledge in providing a more holistic and trauma informed practice with youth who express defiant and aggressive externalizing behaviors. Finally the chapter will present the focus of the current study and its relevance for social work practice and knowledge development.

Scope of the Problem

Traditional treatment practices for youth with Conduct Disorder focus on parent management training and providing/teaching problem solving skills (Thomas, 2010). Cognitive Behavioral Theory (CBT) is most frequently used to teach problem solving skills and work with thought distortions. The focus, therefore, of the treatment for the youth is on changing and

improving higher level thought processes. Yet, this primary treatment approach does not take into consideration the relevance of trauma exposure and the neurobiological impact of trauma on youth with conduct related disorder such as Conduct Disorder, Oppositional Defiant Disorder, and/or Reactive Attachment Disorder.

Research evidence suggests that trauma is key in understanding the development and persistence of conduct related problems in youth (including sexually harmful conduct behaviors). Greenwald (2002) uses the following definition from Krystal (1978) in defining trauma: “an event in which the child or adolescent experiences intense horror, fear or pain, along with helplessness” (p.6). Greenwald uses this definition in his focus on studies with antisocial youth that have found self-reported trauma exposure ranging from 70% to 92%. Additional studies indicate that antisocial youth exhibit high rates of Post Traumatic Stress Disorder (PTSD), ranging from 24% to 65% (Greenwald, 2002). Research has also indicated high levels of trauma in the experiences of youth having conduct related problems (Bowers, 1990; McMackin, Morrissey, Newman, Erwin, & Daley, 1998; Rivera & Widom, 1990; Steiner, Garcia, & Matthews, 1997).

Current research on the effective treatment of youth who have experienced trauma suggests that focusing treatment on skill development which requires higher cortex functioning may not be the most effective approach to treatment with youth who have experienced abuse, neglect or other forms of trauma (Perry, 2009). New research in neurosequential models of therapeutics suggest that the sequence in which treatment interventions are introduced is important. If trauma has impacted the development of lower brain functions, then the “most effective intervention process would be to first address and improve self-regulation, anxiety, and impulsivity before cognitive problems become the focus of therapy” (Perry, 2009, p.252). Given the significance of

this biologically informed perspective to the effective treatment of youth with conduct related mental health disorders, social works' inclusion of a “*bio*” in the biopsychosocial-spiritual perspective in treatment planning is of particular interest to this study. Understanding key features of conduct related mental health problems is a starting place for understanding these disorders and exploring them from the biopsychosocial spiritual lens.

Oppositional Defiant Disorder

While it is developmentally appropriate to exhibit negative behavior in moderation, Oppositional Defiant Disorder (ODD) represents a disorder where a youth’s “active refusal to comply with all rules, and annoying behaviors exceed expectations” (Sadock & Sadock, 2003, p.1232). To be diagnosed with this disorder a pattern of “negativistic, hostile, and defiant behavior lasting at least 6 months” (Sadock & Sadock, p. 1233) must be present. It is estimated that between 2% and 16% of children have ODD. This disorder is more prevalent in boys. Family intervention is the recommended treatment for this disorder including parent education and assessment of family interactions. Individual therapy is recommended during which the child can practice more appropriate responses to authority figures (Sadock & Sadock).

Reactive Attachment Disorder

According to Sadock & Sadock (2003), Reactive Attachment Disorder (RAD) is “marked by an inappropriate social relatedness that occurs in most contexts” (p.1266-1267). Symptoms of this disorder appear prior to the age of 5 and are linked to significant child maltreatment (“gross pathological care”). Characteristics expressed by children having this disorder include: failure to appropriately respond to most social interactions, hyper-vigilance, contradictory responses to others, and an inability to create appropriate attachments to others (often including

strange approach-avoidance interactions with caregivers). No specific data on the prevalence of Reactive Attachment Disorder is available (Sadock & Sadock) . Possible interventions suggested by Sadock and Sadock include: assuring child safety, providing case management services often to improve the caregivers access to resources and decreasing the family's isolation, psycho-educational services for the family, and close monitoring of the child. Outcomes for children with RAD can range from death to becoming developmentally healthy. Children with this disorder tend to recover physically faster than they do emotionally.

Conduct Disorder

Conduct Disorder (CD) is diagnosed if there is a repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated (American Psychiatric Association, 2000). To be diagnosed with this disorder, a client must have three or more characteristic behaviors from a list of about 15 behavioral characteristics. Examples of these characteristic behaviors include “bullying, threatening, or intimidating others” (Sadock & Sadock, 2003, p. 1234). The disturbance in behavior must also have caused clinically significant impairment in social, academic or occupational functioning. Conduct disorder may also be diagnosed if the individual is aged 18 years or older, and the criteria are not met for antisocial personality disorder (American Psychiatric Association).

Prevalence of Conduct Disorder

Thomas (2010) argues that Conduct Disorder is the longest and most studied disorder in child and adolescent mental health. In more than one-third to one-half of cases that are referred to mental health clinics, the child or adolescent is diagnosed with Conduct Disorder. Literature indicates that 9.5% of youth in the community have Conduct Disorder (12% for males, 7.1% of females) (Nock et al, 2007). However, among juveniles who are considered “delinquent” or

have been detained due to criminal charges, the percentage is much higher. Estimates reveal that 69.9% of detained youth have a mental illness, with Conduct Disorder being the most frequent diagnosis (46.4% of detained youth diagnosed with Conduct Disorder) (Colins, 2010).

Additionally, 19.8% of detained youth were diagnosed with Oppositional Defiant Disorder. Not only is the prevalence of Conduct Disorder significant among pre-adolescents and adolescents, Hughes (2010) notes a rise in the number of youth under age 5 with Conduct Disorder. Hughes argues that the rise of Conduct Disorder among young children, children, and adolescents gives prevalence to the urgent need for effective interventions and research among this clinical population.

Estimated Cost of Conduct Disorder

By definition, CD involves the commission of behaviors which are against the law (e.g., intimidation, physical cruelty, destruction of property, theft, use of a weapon that can cause physical harm or forcing sexual activity). Logically then, CD is a prevalent diagnosis for youth who enter the juvenile justice system. Therefore, there is more available evidence concerning the cost of CD, while the cost of ODD and RAD is more invisible and difficult to calculate. Looking at the estimated cost of caring for these youth within the criminal justice system is a good place to begin when assessing some of the financial cost of this disorder. Again, while it is difficult to calculate the exact cost of these youths' crimes, the Legal Analysts Office in the California Criminal Justice System (1995) estimates that nationally the direct and indirect costs of juvenile crimes are in the tens to hundreds of billions of dollars. If close to 46.4% of these youth have Conduct Disorder, then close to half of these dollars are being spent on the care of youth with this diagnosis. Costs which go into calculating these figures include costs to government, medical costs to individuals, property stolen and damaged, loss of productivity due

to death or mental disabilities as a result of juvenile crime, loss of work time, loss of property values in high crime rate areas, pain of suffering of victims, and the loss of a potentially productive citizen (i.e. the youth committing the crimes). Cohen (1998) estimates that the costs to victims of juvenile crime are between \$62,000 and \$250,000 and the costs to the criminal justice system are between \$21,000 and \$84,000 annually per incident. Again, almost 50% of these youth are likely suffering from Conduct Disorder, meaning that half of these estimated costs are related to the behaviors of this clinical population. Again, while limited information is available on the cost of ODD and RAD, examining the cost of CD alone is evidence of the need for effective treatment of CD and other disruptive behavior disorders.

Social Work and the Biopsychosocial-Spiritual Perspective

Social work practitioners frequently provide services to youth with conduct related disorders and have a responsibility to provide the most effective treatment available to these youth. Effective treatment in social work necessitates the utilization of a biopsychosocial spiritual model of practice. Social work embraces the biopsychosocial-spiritual approach as a means of engaging in holistic assessment and effective intervention with individuals, families, groups, organizations and communities. Yet, in practice the clinical models taught primarily focus on the psychosocial forms of assessment and intervention, with little attention paid to the biological and spiritual domains. As a social work practitioner for the past 15 years I have made use of many theories; however, psychosocially focused assessment and cognitive behavioral therapy (CBT) forms of intervention were the core of my practice experience. As a social work practitioner working with youth with conduct related behavior problems and or diagnoses of Conduct Disorder (CD), Post Traumatic Stress Disorder (PTSD), or Reactive Attachment Disorder (RAD), I found that CBT approaches were limiting my ability to help clients stay out of

residential placements. My clinical experiences with youth's biological reactions to stress and the closely ensuing emotional, physical or sexual harm they caused others became of paramount importance to my understanding and treatment of these youth holistically.

Understanding why social work commits itself to a biopsychosocial-spiritual approach to practice, one finds that the approach stems from models of practice utilized in the 1960's and 1970's. Through the 1970's, social work generally demonstrated a preference for the "person in environment" approach to practice. Beginning in the 1960's and 1970's, the ecological model began to surface as a lead theoretical approach to social work practice (Hepworth, Rooney, Rooney, Strom-Gottfried, & Larsen, 2006). The ecological model arose from the environmental movement in biology. This model of thought promoted the importance of understanding an organism's biology within the context of its environmental habitat and niches. The social work profession soon adopted this model as a mainstay for assessment and intervention, yet did not (for the most part) adopt the biological components of the model. Combining this ecological model with a general systems approach to practice, social work came to support the idea of a biopsychosocial-spiritual approach to macro, mezzo, and micro work.

The ecological perspective and application of general systems theory provided the social work profession with a systematic overview of the profession's commitment to understanding the ways in which multiple systems in an individual's life can impact his/her functioning. The Council on Social Work Education (2001) also emphasizes the importance of the biopsychosocial-spiritual approach to practice by encouraging social work educators to provide content which includes "theories and knowledge of biological, sociological, cultural, psychological, and spiritual development across the life span" (p.9).

Yet, despite this profession's commitment to an integrated approach to practice, one of the criticisms of this broad perspective is that it does not provide guidance in approaching specific populations or problem areas. In order to enhance the ecological perspective (including the biological lens), it became clear that social workers need to utilize theories and interventions developed for specific populations. The profession's selection of practice theories has changed over time. Reid (2002) notes that as a profession, we have undergone "practice movements," which have defined the theories and interventions we utilize.

Despite shifts in practice movements and an expressed commitment to the biopsychosocial-spiritual model, social work has predominantly focused on psychosocially based approaches to practice (Reid, 2002; Farmer, 1998; Farmer, 1999; Timberlake, Sabatino, & Martin, 1997). This focus on the psychosocial components of the biopsychosocial-spiritual perspective was beneficial to clients and practitioners. However, there were also costs and risks which coincided with utilization of the CBT approach in clinical social work. Johnson (1986) notes that one liability of this strong CBT focus was lack of awareness of environmental and biological factors in the assessment and intervention planning of social work with families. Foa and Kozak (1997) also note concerns about the dominance of CBT in social work and the resultant limitations in terms of effectiveness and progress. Based on these and other concerns by social work educators, Reid (2002) argues that "without incorporating new knowledge of human behavior and cognition, cognitive behavioral interventions run the risk of losing their innovative edge and remaining stuck at current levels of effectiveness" (p.22). Therefore, it is essential that social work practitioners and human service professionals in general expand their biopsychosocial-spiritual theoretical frameworks, particularly with regard to specific target populations. One way this can be done is through the inclusion of theories which enhance

practitioners' understanding of the biological-social experience. One such theory is Attachment Theory.

Integrating Biological and Social Perspectives in Practice

Social work professionals and human service professionals in general would benefit from training to enhance their biological lens in clinical assessment and intervention planning. As noted by Johnson (2001), social workers face many challenges today in their work with individuals and families, and neurobiological knowledge is essential for a complete biopsychosocial understanding of persons struggling with substance addictions, mental health disorders, as well as in understanding human behavior in general. Johnson further notes that the past 20 years of neuroscience research has dispelled the belief in mind-body dualism. She argues that social workers are now finally taking note of recent research. Given the significance of social neuroscience (the linkage of social processes and neuroscience), social workers are now looking at ways to educate themselves, individuals, families and other providers about the neurobiological applications of this research to various mental health diagnoses relevant to the clients they serve. Educating social work professionals and other professionals across child-related disciplines in the basics of neuroscience and neurodevelopment will “over time, lead to innovations and improved outcomes” as well as improved “practice, programs, and policy for child maltreatment” (Perry, 2009, p.253). Perry further notes that given the significance of relational-related problems for youth who have experienced trauma, being trauma-informed is not enough; professionals need to be attachment-informed as well.

Attachment Theory

Attachment theory offers a beneficial foundation for understanding the connections between biology and social experience and it is a foundational theory. Using the works of John

Bowlby (1969, 1979, & 1980), Mary Ainsworth (Ainsworth, Blehar, Waters, & Wall, 1978), Allan Schore (1997, 2001, & 2002), Daniel Siegel (1999 & 2001), and Bruce Perry (1995 & 2001) as well as others, this author created a curriculum that uses attachment theory as a spring board to achieve multiple learning objectives. These learning objectives aim to provide the participant with a historical and a current lens from which to understand the theory of attachment and its applicability to clinical work with youth who have experienced significant trauma in their backgrounds. At the same time, the curriculum highlights ways in which this theory can assist in the understanding of the biological components of the attachment and bonding process for youth who experience secure and insecure patterns of attachment. It is from this social neuroscientifically informed lens that arguments for an enhanced understanding of the brain are made and the introduction of neuroplasticity and the experience-based nature of the brain are presented.

Neuroplasticity and the Experience-Based Brain

Participants in this study are being asked to create a link between the value of biological and social experience when assessing and treating youth with conduct related disorders. The bridge for this link starts with practitioners' long standing interest in the way in which learning occurs (how do our clients learn best?). Interest in the way learning occurs in the psychotherapy process dates back to the mid-nineteenth century. The person most commonly credited with the discovery of the concept of neuroplasticity is Hebb (Liggan & Kay, 1999). In the book *The Organization of Behavior* (1949), Hebb presents his idea of neuronal synaptic plasticity in memory structure and perception (Hebb's Rule). Subsequent to Hebb's finding, Liggan and Kay (1999) noted that "synaptic plasticity became the target of much neurobiological research as its role in memory formation was elucidated" (p.103). The term neuroplasticity refers to the idea

that the brain has the capacity to change its structure and functioning, primarily through the way it conducts information. Thus, social experiences (activities) result in the firing of neurons (information) which results in the wiring of certain structural and functional neural pathways. For this reason, we now know that the brain's structure and functioning are experience dependent and not in fact determined solely by one's genetic makeup.

In looking at the brain as an adaptive system of neuronal pathways which engage in a constant appraisal of the environment, resulting in the pruning of certain neural networks and the “wiring” of others in early childhood , it became clear that the brain had the ability to adapt not only its functioning but its structure via environmental experience. Therefore, interactions with the environment, especially relationships with other people, directly shape the development of the brain's structure and function. This includes the brains of youth who cause sexual harm, youth who have Conduct Disorder (CD), and youth with the diagnosis of Reactive Attachment Disorder (RAD).

While a full discussion of the research and implications of neurobiology are beyond the scope of this chapter, the argument here is that understanding the experience based nature of the brain and the implications of neuroplasticity are essential in maintaining a holistic biopsychosocial context for our work with clients in general, and specifically with youth who have significant trauma histories in their background.

Biological Nature of Emotions

In order to enhance psychosocial treatment approaches for youth who have experienced trauma, the application of theories of attachment and the concept of neuroplasticity is helpful in emphasizing more biologically informed approaches for assessment, intervention planning, and treatment. In order to understand more fully the implications of neuroscience and overall human

anatomy and their impact on such issues as arousal and regulation, an enhanced understanding of the brain and overall body functioning is essential. This section will focus on very specific interactions in the brain and between the brain and the heart, for example. The most recent evidence suggests that the entire brain is involved in creation of all emotions (McCraty, 2003). Not only is the entire brain involved in the creation of emotions, but also the neuronal and hormonal information being sent from organs to the brain (afferent input) and the neuronal and hormonal information being sent from the brain to the organs (efferent input). Therefore, while some isolated functions of the brain and body may be highlighted in this and later chapters, current research indicates that there is no simple input/output process for any emotion, despite science's interest over the last 100 years in reducing it to such (McCraty, 2003).

Evidence indicates that MSW programs in schools or departments of social work place more emphasis on psychosocial dimensions of knowledge than biological or spiritual dimensions of knowledge as they apply to practice (Farmer, 1999). This emphasis seems to extend to advanced social work practitioners who primarily select psychosocial, family systems, or cognitively based clinical models in their practice (Timberlake, Sabatino, & Martin, 1997). Cognitive theory suggests that if thoughts can be changed, then emotions will subsequently change. According to this theoretical approach, emotions are really secondary to thoughts and thus directly reactionary to thoughts. Yet, the last 10 years of neuroscience research indicates that emotional information is actually processed faster than cognitive information. Further, emotional informational processing can often completely bypass cognitive linear thinking (LeDoux, 1996). Based on this information, an individual's ability to regulate affect (often called emotional competence) is of equal, if not more, importance at times than an individual's cognitive processing abilities (often called mental competence) (Goleman, 1998). In fact, there

are more neural connections going from emotional processing centers of the brain to cognitive centers of the brain than vice versa (LeDoux, 1996), indicating that the influence emotion has on cognitive abilities is significant.

In light of these connections between emotion/cognition and physiology, feedback on an individual's biological state provides valuable information with regard to their emotional state, and thus their mental state. It was for this reason that Green pioneered biofeedback techniques to support enhancing awareness of the biological responses to and from emotion (Green & Green, 1989). When Green's findings are combined with Miller's research (1969) indicating individuals' ability to change their biological state when made aware of it, the importance of a more informed understanding of the brain and body in creating social work interventions relevant to emotions (such as exist with stress and trauma based symptoms) is illuminated. Further, one can begin to consider the argument that, at times, designing interventions which directly target biological states may prove more effective than initially targeting more cognitive forms of intervention, typical of more strict psychosocial models.

Based on the biological lens or perspective presented in the above mentioned studies, the social work profession should begin to question whether the emotions and biological changes generated from stress and trauma impact an individual's ability to utilize the cognitive based skills required for many psychosocial intervention approaches to succeed. Furthering this line of thinking, there is a question as to whether or not youth who characteristically have heightened trauma in their backgrounds can be asked to access cognitively based skills when they are often actively engaged in a fight, flight or freeze state. As stated previously, asking youth to engage in strict cognitively based treatment approaches may present a neurological hurdle that is impossible for them to jump. Additionally, questions surface regarding the utility of biofeedback

and other more biologically targeted intervention approaches. In fact, these very dilemmas and this type of questioning led to the study of attachment theory and neurobiology, which eventually shaped the present study's interest in designing an effective intervention model (curriculum) for clinicians working with youth with significant trauma histories.

Application of Enhanced Biological Lens to Specific Populations with Trauma Histories

Cognitive behavioral theory (CBT) is a popular clinical model frequently taught and used in social work practice. The strengths in this CBT approach are found often in the literature in working with juvenile offenders (Cellini, 2002; Baer, 2003). This approach provides structure, as well as consistency, and reinforces personal responsibility in youth, which often is the common goal for all professionals working with these youth. In general, CBT and behavioral modification models of treatment assume that by changing one's thoughts, one's feelings and behaviors will subsequently change. This assumption, while often valid for many client populations, is less so in traumatized populations who are concurrently demonstrating symptoms of posttraumatic stress syndrome (PTSD) (Saigh, Green, & Korol, 1996; Aisenberg & Mennen, 2000). For this reason, it is very important to understand the clinical population one is serving and then select a theoretical and clinical approach appropriate for that population.

A significant history of trauma seems to be a crucial factor in multiple clinical youth populations, including youth with Conduct Disorder, Reactive Attachment Disorder, and/or youth who cause sexual harm. Studies indicate that youth with Conduct Disorder self report high levels of trauma exposure and have a significant dual diagnosis of PTSD (Greenwald, 2002). Based on the DSM-IV TR criteria, youth with Reactive Attachment Disorder have experienced trauma via the pathogenic type of care they experienced prior to age 5 (American Psychiatric Association, 2000). And finally, youth who cause sexual harm have evidenced high levels of

trauma in their backgrounds including domestic violence, physical and/or sexual abuse, and loss of a parental figure (Ryan, Miyoshi, Metzner, Krugman, & Fryer, 1996). Therefore, while youth in these three clinical populations often are characterized by their aggressive nature, many may conclude that this aggression is thought-out or even pre-meditated. Such a conclusion results in the belief that CBT techniques alone are sufficient in treating the different symptoms present in these clinical populations. Yet, if a **biopsychosocial-spiritual** lens is applied to the development and persistence of these youths' conduct related symptoms (acts of aggression), their behavior may make more sense. Greenwald (2000) argues that many of the key behaviors demonstrated by youth with conduct related problems can be explained more clearly when taking into consideration trauma's contribution to symptomatology, both biologically and interpersonally.

In considering the relevance and impact of trauma to youth who often demonstrate conduct related problems, social work practitioners need to take into account the possibility that these youth have experienced many un-integrated traumatic experiences via their relationships with others (physical abuse, domestic violence, and community violence). Further, social workers need access to theories, assessment tools, and intervention strategies that holistically take into account the biopsychosocial-spiritual impact of this trauma on these youths' functioning. The present study will examine the ability of this intervention model to provide human service practitioners with this knowledge, while developing their biological lens for holistic assessment and intervention planning. As a part of developing social workers and human service professionals' intervention skills with youth and families who have experienced significant levels of trauma, the study's intervention course curriculum presents some biologically based interventions that can be utilized in therapeutic work with this population.

Many of these interventions are based on principles of biofeedback and will be fully discussed in Chapter Two.

Overview of the Current Study

An intervention model designed by the researcher is the focus of the current study. The creation of this model for intervention grew out of the belief that an enhanced understanding of attachment theory and neuroscience will be beneficial to human service professionals working with youth with conduct related disorders who have experienced significant levels of trauma. Such knowledge would then positively shape assessment and intervention planning for youth with characteristic backgrounds of trauma, including youth with problems of conduct, youth with diagnoses of Reactive Attachment Disorder (RAD) and youth who cause sexual harm. This continuing education course was designed to give social workers and other human service professionals information they may be missing but need in order to effectively intervene with clients with these types of clinical diagnoses. The specific curriculum used as an intervention model is based on the literature provided in Chapter Two and outlined specifically in Chapter Three.

Once developed, the course was offered to all clinical practitioners of Providence Service Corporation, Inc. Providence Service Corporation, through its owned and managed entities, provides home and community based social services to government-sponsored clients under programs such as juvenile justice, Medicaid and corrections. Providence operates no beds, treatment facilities, hospitals, or group homes, preferring to provide services in the client's own home or other community setting. Through its owned and managed entities, as of May of 2007, Providence maintained 905 government contracts in 37 states and the District of Columbia (Providence Service Corporation, 2007).

Providence Service Corporation, Inc. utilizes its Corporate University to provide some continuing education courses to employees. Via an intranet website, this intervention course was posted as an educational opportunity for professionals across the different states in which Providence provides mental health services. Interested participants and/or regions could then contact the Corporate University of Providence or the instructor of the course (this author) to obtain more information about participating in the course and potentially participating in the study evaluating the course. Those practitioners expressing interest in the study and providing consent to participate were then divided into two groups. One group was placed on a waiting list to attend the workshop or teleclass and the other group was placed on a list to attend the workshop or teleclass as soon as possible. Using an experimental design, the impact of the course on participants' knowledge, attitudes, and assessment and intervention behaviors were evaluated as compared to participants who were not currently in the course and working with similar client populations. This evaluation provides information as to the utility of the course to professionals working with youth with conduct related disorders.

Research Questions

Three specific research questions are evaluated through quantitative multivariate analysis and are presented below. Additionally, four research questions are explored through qualitative content analysis. These specific research questions are presented below:

1. Do participants who take the intervention course “Attachment, Trauma, and the Brain” increase their knowledge on the subject when compared with persons who are placed on a Waitlist for this course?

H_0 : There is no significant difference between participants in the intervention course's post knowledge test score and Waitlist control participants' knowledge test scores

H_a: Participants in the intervention courses post knowledge test scores will be higher than Waitlist control participants' knowledge test scores

2. Do participants who take the intervention course score significantly different on their attitude posttest when compared to Waitlist control participants?

H₀: There is no significant difference between participants in the intervention course's posttest attitude scale scores and Waitlist control participants' attitude scale scores

H_a: Participants in the intervention courses posttest attitude scores will be higher than Waitlist control participants' attitude scale scores

3. Do participants in the intervention course's attitude scores change significantly between pretest and posttest?

H₀: There is no significant difference between participants in the intervention course's pre and posttest attitude scale scores

H_a: Participant's in the intervention course's posttest attitude scale scores will be significantly higher than their pretest attitude scale scores

4. Do participants in the course intervention groups show differences in three areas of the assessment of the course case study between pretest and posttest?

Three areas assessment skills evaluated:

- Further evaluation needs of the client
- DSM-IV diagnosis of the client
- Assessment summary conclusions based on information presented about the client

5. Do participants in the course intervention groups show differences in three areas of the assessment of the course case study when compared to waitlist control participants?

Three areas of assessment skills evaluated:

- Further evaluation needs of the client
- DSM-IV diagnosis of the client
- Assessment summary conclusions based on information presented about the client

6. Do participants in the course intervention show difference in their intervention strategies (including treatment goals and intervention methods selected) based on responses provided to the course case study at pretest and posttest ?
7. Do participants in the course intervention show difference in their intervention strategies (including treatment goals and intervention methods selected) based on responses provided to the course case study at pretest and posttest when compared to the Waitlist control participants?

Relevance to Social Work Profession

The Social Work profession has dedicated itself to improving social conditions for society's most vulnerable populations. Youth who act aggressively or cause harm to others (as is the case with youth who cause sexual harm, youth with CD, or youth with RAD) represent such a vulnerable population because of the trauma they have characteristically experienced. Additionally, these youth have often perpetrated abusive sexual and/or physical acts on other members of society. These acts then result in the victimization of others which in turn increases these victims' risk factors for developing significant mental health disorders or other problems in living. For these reasons, enhancing the efficacy of current treatment options for youth who have experienced significant levels of trauma in their background seems to be in keeping with the values and interests of the social work profession, for at least two reasons. First, this study intends to enhance the competence of mental health practitioners working with youth who have experienced significant trauma and who engage in multiple behavioral acting out behaviors. It is expected that this enhanced competence will in turn increase their utilization of more informed treatment interventions, which, in turn, will be more likely to aid in alleviating these clients' symptoms (e.g. PTSD symptoms, externalizing behaviors, oppositional behaviors displayed towards authority figures, violations of the rights of others, etc.). Secondly, alleviation of these clients' symptoms will prevent the future victimization of other children, youth, and adults.

Current reviews of the literature indicate that individuals who have experienced significant trauma in their backgrounds may have biological responses to this chronic stress that cause an incongruence between emotional and cognitive functioning. Consequently, accessing certain cognitive abilities that are the focus of strict cognitive interventions may not be optimal. Further, when approaching holistic work with these clients from a **biopsychosocial** perspective, it is possible that incorporating targeted biological interventions (such as biofeedback, neurofeedback, and EMDR) can enhance the ability of these clients to engage in cognitive strategies by lowering their arousal, improving their emotional regulation, and decreasing the distress experienced from the intrusion of past memories. Therefore, supporting these youth in developing healthy psychosocial skills seems to be intricately connected to addressing biological alterations prior to initiating strict psychosocial approaches to treatment. This more holistic approach to the treatment of youth who have caused sexual harm is consistent with the value that social work places on a biopsychosocial-spiritual approach to treatment intervention. Furthermore, ignoring treatment approaches that address this population's trauma history and neurobiological alterations is shortsighted and does not constitute a biopsychosocial-spiritual approach to treatment. This study will begin to explore the effectiveness of a specific intervention model designed to enhance human service professionals' (including clinical social work professionals) understanding of attachment theory and neuroscience as they relate to clinical assessment and intervention planning with youth who have experienced significant trauma in their lives.

Chapter Two

Summary of the Relevant Literature

The current study is based on a clinical model developed from the author's clinical practice and a literature search of trauma, neuroscience, and attachment theory with youth with problems of conduct. This clinical model is the foundation of the core curriculum used with social workers and human service professionals in the study. Therefore, a review of literature supporting the creation of this clinical model will be provided. This review will include literature on attachment theory, neurobiology, and specifically how trauma is understood in relation to attachment theory and current neuroscience research. The relevance of trauma to the specific clinical populations targeted by the clinical model will be reviewed as well. Finally, clinical interventions suggested by the clinical model and taught in the core curriculum will be presented.

In addition to providing literature and evidence supporting the clinical model taught in the core curriculum, a brief review of literature supporting the delivery methodology of the core curriculum will be provided. This review will include literature pertaining to the current state of continuing education and social work, present knowledge on the adult learning experience, and an examination of specific models of delivering knowledge to include traditional classroom techniques as well as distant learning approaches to education. This literature not only examines educational techniques selected in delivering the core curriculum to participants, but also underlies the general aim of the study, which is to evaluate the curriculum's impact on human service professionals' knowledge, attitudes and behaviors in working with the identified clinical population. A conceptual model for this expected change in knowledge, attitudes, and behaviors is presented.

A Balanced Transactional Model of Practice

Social work has historically taught the use of theoretical frameworks to support social work practitioners' assessments and interventions with client systems (Reid, 2002). Reid's (2002) analysis of trends in the social work profession indicates certain practice movements that have occurred. In the early 1900's, the profession primarily aligned itself with "process depth psychology," based primarily on the works of Freud and psychoanalysis (p. 20). In the 1950's, systems theories became prevalent; this shift supported the profession in engaging in the use of newer theories in practice that came about well after the 1950's, including feminist theory, empowerment theory, task centered practice, solution focused therapy, and even narrative therapy. Both Bachelor and Master Level Social Work programs dealt with this multitude of theoretical approaches by creating frameworks to help social workers integrate the various approaches. Reid argues that most social work programs (particularly recently) created these frameworks as a means of supporting students in synthesizing these theories, while at the same time, maintaining the ecological approach in social work. Yet, by the 1980's, the cognitive and behavioral theoretical frameworks had become dominant in social work, culminating in the cognitive-behavioral approach (CBT) to clinical social work practice. Specific psycho-educational approaches to clinical work came from the CBT approach, yet even constructivist approaches to clinical work focused heavily on the importance of cognitions.

While Reid (2002) noted that these theoretical frameworks have shifted over time, the theme of these approaches focusing on the psychosocial lenses of practice has been rather consistent. Evidence of this more dominant psychosocial focus can be seen in MSW programs inclusion (or exclusion) of the advanced Human Behavior in the Social Environment (HBSE) course. HBSE courses are designed to actualize undergraduate students' knowledge and ability

to observe challenges in clients' lives via the biopsychosocial-spiritual lens. Yet, arguments have been made that at the MSW level, a general knowledge of HBSE is not enough to provide competency in using a biopsychosocial-spiritual approach in analyzing problems of living (Farmer, 1999). At the MSW level of social work, students need more depth and breadth in applying a balance of the biopsychosocial-spiritual lens to the struggles of clients and family systems. Farmer suggests that social work educators integrate a transactional model of practice into advanced HBSE courses.

As defined by Farmer (1999), the transactional model of practice “provides a conceptual map for understanding the dynamic inter-relationships between biological, psychological, social and spiritual aspects of human behavior and the challenges that circumstances in life provide” (p.290). In essence, this model suggests that there are five components that need to be considered when examining challenges and solutions to problems in living: biological aspects, psychological aspects, social aspects, spiritual aspects, and the challenge in living itself as it is understood clinically and via the client's experience. These five components contextualize the challenge by providing a nonlinear perspective of the challenge, a more circular cause and effect perspective (Farmer, 1999). Therefore, in this circular perspective, solutions to challenges consider all five aspects of the transactional model and also interact simultaneously to create the challenge. The importance of this model lies in its suggestion that best practice for social workers requires integrating the latest research from biopsychosocial-spiritual dimensions of knowledge and applying these knowledge bases in the analysis of challenges in living. In order to do this effectively, social workers (as well as all human service professionals) must have the ability to integrate knowledge from the biological domain as well as the psychosocial and spiritual domains of any given challenge in living. The core curriculum presented in this study aims to

enhance the biological knowledge of human service professionals based on the need for a balanced transactional approach to the challenges in living which often exist in youth who have experienced significant trauma in their life.

Yet despite the intent to provide MSW social work graduates with this type of integration of a transactional model of practice, evidence suggests that MSW programs are lacking a balance of the biological and spiritual dimensions of knowledge with the more psychological and social realms of knowledge. One 1996-1997 survey indicated that only 53% of accredited MSW programs offer a discrete advanced HBSE course (Farmer, 1998). Results from this study further indicate that of those programs offering the advanced HBSE course, only 26% used a biopsychosocial-spiritual framework while 29% used a psychopathological framework and 12% used an ecological framework. Ninety-five percent of these schools reported addressing psychosocial issues within the context of the advanced HBSE course while 88% reported the inclusion of biological information and 55% reported the inclusion of spiritual information within the context of the course. Based solely on this study, it appears the incorporation of a balanced transactional model of practice at the MSW level is still in progress. Further, the inclusion of this type of balanced transactional approach on the part of active practitioners would likely be even less common than among those individuals currently in MSW programs.

One study of advanced social work practitioners examined current clinical theory bases utilized actively in practice (Timberlake, Sabatino, & Martin, 1997). Of the 2640 practitioners sampled, the top three theoretically framed models of clinical practice reported were: psychosocial theoretical perspective (84%), family systems perspective (70%) and cognitive perspective (65%). This type of survey provides support for the statement that the majority of

social work practitioners use more psychosocially based frameworks (often cognitive in nature) in their assessment and treatment interventions.

Yet, while the MSW programs and advanced social work practitioners are reporting predominance in the use of psychosocial knowledge bases and methods, the Council of Social Work Education (CSWE) clearly supports the balanced inclusion of all four dimensions of knowledge (biological, psychological, social, and spiritual). In its bylaws, the CSWE (2001) defines specific strategies for preparing competent and effective social work professionals. These strategies include “providing curricula and teaching practices at the forefront of the new and changing knowledge base of social work and related disciplines, ...developing and applying instructional and practice-relevant technology,... promote inter-professional and interdisciplinary collaboration,... and promote continual professional development of students, faculty, and practitioners” (p.5). These strategies are at the core of the course intervention presented in this study. The study’s intent is to provide social work professionals a continuing education opportunity which brings them up to date with the latest knowledge and research available and applicable in working with youth and caregivers who have experienced significant levels of trauma in their lives. Specifically, practitioners working with this population need to incorporate a trauma informed transactional approach to practice which fully incorporates the biological perspective. The relevance of that biological perspective to this population includes understanding trauma’s impact on implicit and explicit memory, the attachment and bonding process, and overall cognitive functioning. Most importantly, the inclusion of the biological perspective informs practitioners’ intervention selection, creating knowledge of biologically based interventions which create change and enhance the client’s abilities to later engage in other more psychosocially driven interventions.

The CSWE (2001) supports this type of cutting edge continuing education curriculum development for social work professionals and encourages social work educators to provide content which includes “theories and knowledge of biological, sociological, cultural, psychological, and spiritual development across the life span” (p.9). Therefore, the CSWE guides continuing education professionals to obtain a balance of these four dimensions of knowledge: biological, psychological, social and spiritual.

Yet, as just reviewed, social work has not been adept at balancing these dimensions of knowledge as they inform clinical practice. This imbalance in the application of the biopsychosocial-spiritual model concerns Farmer (1999) who presents a balanced transactional model to be used in contextualizing clients’ needs as discussed in advanced HBSE courses. Farmer further argues that by not creating expectancy for social workers to become and remain current with the explosion of knowledge in the field of neurobiology, we are constraining social work students and practitioners’ ability to actively empower clients and families to build protective factors and manage risk factors in their own mental health assessment and treatment process. Farmer’s (2009) argument for the importance of a balanced biological perspective within the transactional model can be demonstrated in the following quote:

[What is] required is a putting of the biological or any other data into the perspective of the transactional model ... The social worker should not understand biological data passively in a supermarket fashion, as if the data were a display of products among which I can search, and select or reject at will. The biological should not be approached on a "show me" basis. the social worker [should not] engage in biological triumphalism, thinking that biology has the only arms. Instead, the biological should be engaged - interrogated, examined - in terms of the range of other perspectives - the psychological, social and spiritual. (Farmer, 2009, p. 2)

It is on this foundation that a transactional based clinical model of practice was developed as a focus of this dissertation. This clinical model was designed to punctuate the importance of

the biological perspective as it relates to attachment theory, neuroscience, and work with children and families who have experienced trauma in their lives. The clinical model utilized in this study is fully discussed in Chapter 3.

Attachment Theory and the Balanced Transactional Model

The importance of relationship in social work is firmly established at this point (Hepworth, Rooney, Rooney, Strom-Gottfried, & Larsen, 2006). Even at the bachelor's level of social work practice, a social worker knows the importance of practicing the skills of genuineness, warmth, and empathy. Providing a client a safe place via relationship to allow for vulnerability, risk taking and honesty on both the part of the worker and the client is core to the values of social work and the NASW ethical code that we follow. Yet, while these skills are core to the working relationship, social work students are not specifically taught about the theoretical nature and importance of human bonding outside the generalist HBSE courses which survey multiple life span developmental theories, including attachment theory. Attachment theory not only provides a lens for understanding lifespan development but provides a contextual understanding for human bonding as an instinctual and biological part of being human as well as a psychosocial and spiritual component of the human experience. Attachment theory can be taught as a clinical practice framework for understanding "normal" human bonding as well as the disruptions that occur when this bonding process is not completed or damaged in some way. Additionally, through attachment theory, social work can explore the application of a biopsychosocial-spiritual theoretical frame. Through this frame the experience of children and families who have experienced significant trauma in their lives can be assessed more effectively and engaged in the therapeutic process.

Attachment Theory

The development of attachment theory is primarily attributed to the work of John Bowlby. Bowlby (1969) defines attachment as “the propensity of human beings to make strong affectional bonds to particular others”(p. 226). In reviewing Bowlby’s work, nine key points were identified that have particular relevance to clinical work conducted with youth and caregivers who have experienced trauma (loss and separation). These nine key points are the focus of the first third of the educational intervention model and include:

- Biological instinctiveness of attachment behavior(s)
- Defining attachment behavior and exploratory behavior
- Emotions as signals
- Focus on normal attachment behaviors
- Grief and loss and attachment behavior
- Normalization of distress
- Phases of grief
- Development of Internal Working Models
- Attachment patterns/styles

Bowlby contributed a multitude of books and pages (thousands) to these nine tenets of attachment theory and to discuss them all is well beyond the scope of this literature review. However, to give a sense of the relevance to clinical work and how they are included in the educational intervention model, they will be reviewed briefly.

Drive Theory: Biological Instinctiveness of Behavior

Bowlby was a trained psychoanalyst and clinical practitioner. Through the course of his work and practice, Bowlby (1969) reviewed theories regarding the mother-child tie. He noted that at the time of his writing, psychoanalytic theory in general and drive theories in particular, were the traditionally accepted explanations of the mother-child tie. Bowlby took particular interest in Freud and Klein’s drive theory and its connection to the mother child tie. Bowlby argued that these theories explained the tie between mother and child as solely relating to the

child's physiologic needs for food. Therefore, attachment was only existent based on the mother's role in meeting this need. Freud's theories of primary and secondary drives focused on food and sex as being the primary motivators for behavior. All other behaviors were seen as being secondarily motivated by these primary drives. Bowlby presents logical arguments against this popular theory and in favor of his new theory of attachment. He argues against food (and sex) as the only primary motivators for the mother-child tie in part by presenting studies from multiple researchers working with mammals: Harlow's rhesus monkeys, Scott's puppies, Cairn's lambs and Lorenz's ducks (as cited in Bowlby, 1969). In all cases, the animals showed preferences for figures that did not feed them, rather gave them time, attention and/or comfort. From this animal research and his own practice observations, Bowlby (1969) argued that attachment (the bond) and what he called attachment behaviors were indeed primary drives, not secondary. Further, he argued that the need for attachment was indeed biologically programmed into all living systems. He asserted that without successful attachment and bonding to a secure figure during infancy, most systems (animal and human) could not successfully adapt to their environment.

Attachment and Exploratory Behaviors

As defined by Bowlby (1979), attachment behaviors are a set of behavioral responses utilized by an infant (or child) and are designed to increase his/her proximity to a secure figure (often a parent or caregiver). Attachment behavior is instinctual and "normal" and is designed to ensure the creation of an attachment bond (Bowlby). Attachment behaviors can include such behaviors as crying, crawling after a caregiver, grabbing hold of a caregiver tightly and refusing to let go, or acting in an aggressive manner to reunite with a caregiver or punish a caregiver for leaving. According to attachment theory, while an infant/child is engaged in attachment

behaviors, he/she cannot engage in exploratory behaviors. Exploratory behaviors are any behaviors in which an infant/child engages that provide skills in adaptation, and in essence are learning behaviors. The way in which an infant/child's attachment behaviors are terminated is through gaining proximity to a secure figure (usually a parent) at which point the secure figure is able to regulate (calm hyper-arousal) the infant/child. This process can be referred to as co-regulation (Siegel, 1999). The theory holds that when attachment behaviors are terminated, an infant/child can subsequently engage in exploratory behaviors including the ability to engage in problem solving and other cognitive strategies for stress reduction and prevention (Bowlby, 1979; Ainsworth, Bleher, Waters, & Wall, 1978).

Also within the context of this model, the behaviors and emotions experienced during times of separation and loss are signals, not pathological symptoms. In this sense, the emotions are feedback provided to individuals that they are not feeling safe or secure and that they need to seek security (Bowlby, 1969). This security is often (particularly in childhood) provided via a safe caregiver and later through self care techniques. Yet, even in adulthood when individuals experience a loss or separation, they often instinctually are drawn to gain proximity to a secure figure. The example used in the course curriculum involves having participants imagine where they were on September 11, 2001. Based on this memory, they are asked what was their first instinct or need when they became aware of the attack on the United States and the events occurring in New York and Washington D.C. Most, if not all participants, responded that they immediately had a need to contact their loved ones, which is an example of the lifelong instinctual need for proximity to a secure figure during times of trauma, stress, loss and separation.

Clinical Application of Attachment and Exploratory Behaviors

Bowlby (1969) contended that once an infant had enough experiences in which their attachment behaviors were responded to, these behaviors would be terminated and an attachment bond would exist. Through this bond, the child would come to regulate stress him/herself. Through the bond and self soothing, the child would be able to terminate feelings which arise during attachment behaviors without gaining proximity to a secure figure (Bowlby, 1969). Clinical experience and practice with youth who have experienced significant levels of trauma (particularly in their caregiver relationships) suggests attachment behaviors may continue when a secure bond has not been established. These attachment behaviors (crying, screaming, tantrums, etc.) become more and more problematic when youth are faced with engaging in interpersonal relationships with adults and particularly authority figures. This practice knowledge and experience is supported by research from Ainsworth which followed children with insecure attachment styles from 18 months through their entry into school. Upon entry into school, children with insecure attachment styles had more difficulty in many areas including: ability to follow the directions of adults in authority, frustration tolerance (typically low instead of high), eye contact (typically experienced more gaze aversion), and self soothing or accepting soothing (Ainsworth, Belhar, Waters, & Wall, 1978; Sroufe & Waters, 1977).

Based on this evidence, if these youth continue to actively engage in attachment behaviors then they cannot simultaneously engage in exploratory behaviors. This lack of engaging in exploratory behaviors is significant given that these behaviors promote cognitive problem solving skills and learning. This theoretical point is important when assessing and treating youth who have experienced significant trauma especially in respect to their caregiver relationships. It is important because it suggests that many of these youth may still be actively

engaged in attachment behaviors (often aggressive) and are not able to engage in psychosocial treatment models that involve cognitive skills until these attachment seeking behaviors are terminated. The theory would further suggest that engaging in regulation and coherence building activities would sooth and cease these attachment behaviors. These two types of activities would be necessary prior to expecting an individual to utilize more psychosocial and educational forms of intervention.

Thus, in this way, attachment theory and trauma related theories from neuroscience are aligned in their support of needing to address the physiological hyper-arousal symptoms of trauma experienced by youth prior to a youth's engagement in more cognitive based problem solving strategies of intervention. Researchers such as Alan Schore (1997, 2001, & 2002) and Bruce Perry (1995, 2001) have provided support for these parallels. As will be reviewed later, Schore (1997, 2001, & 2002) provides evidence of the neurobiological connections between attachment/bonding and brain development (or lack of development) even intergenerationally as a result of trauma. Perry (1995, 2001) provides evidence showing the significant impact of trauma on brain structure as well as models suggesting that as the threat response increases, a youth's ability to access higher levels of cognitive functioning decreases. This type of research supports the need for utilizing a more biologically informed perspective to be incorporated into psychosocial models of treatment for youth who have experienced trauma. Attachment theory is one theory which provides for the incorporation of this evidence within a biopsychosocial spiritual model of practice.

Emotions as Signals

Understanding the activation of attachment behaviors contextualized Bowlby's (1969) interpretation of emotions. In essence, he viewed emotions as the feedback provided by the body that a disruption in homeostasis has occurred and that attachment behaviors had been activated. For example, when screaming and clinging behaviors occur, these behaviors and emotions are seen as signals to a caregiver that the infant/child needs soothing and safety. This particular interpretation of emotion is highlighted in the core curriculum because shifting one's interpretation of emotion for youth with conduct related problems is significant in the way practitioners, authority figures, and even caregivers respond to externalizing behaviors. If one views the behaviors of a child with RAD as intentionally threatening and coercive one will respond differently than if those same behaviors are seen as a signal of the child feeling unsafe and in need of soothing.

Normalization of Attachment Behaviors and Distress: Phases of Grief and Loss

Based on these biologically based arguments viewing attachment as a primary drive, Bowlby (1980) wanted to understand the "normal" behavior experiences during periods of attachment in infancy before he determined what clinically "pathological" behaviors should be of concern after a loss or separation (trauma). In his clinical observations and work, Bowlby (1969, 1979, & 1980) identified four stages which occur during the loss or separation of a child (later to be seen in adults as well) which were normal. These four stages include: Urge to recover the lost figure (often very aggressive stage as anger brings energy); relinquish loss of secure figure (often characterized by depression and isolation); reorganizing; and engaging in attachment with others. Bowlby contended that aggression (externalizing behaviors) and depression (internalizing behaviors) expressed during this grief process were normal and not pathological as

psychoanalysis contended. Rather, mental health problems and attachment issues occur when individuals become arrested at one of these stages of grief. Further, until each stage is resolved, an individual cannot move on and reorganize and engage in an attachment bond with another.

Clinical Application of Grief Phases and Instinctiveness of Attachment Behavior

This lack of being able to reorganize and reengage in healthy bonding with a secure adult figure is a major issue in clinical work with youth who have experienced trauma and loss in childhood. Often this inability to reorganize and reengage results in attachment related issues which prevent individuals from engaging in future healthy interpersonal relationships. Further, this arrest in developing attachment with others is a major clinical issue for this study's population of interest (youth with CD, RAD, or youth who cause sexual harm). These target populations have characteristically experienced high levels of trauma. They also have difficulty in engaging in relationships with adults or other potential secure figures (American Psychological Association, 2000; Greenwald, 2000, Greenwald, 2002). Bowlby (1969) thus argues there are significant biological, psychological, and social reasons why this inability to engage in interpersonal relationships occurs. This theoretical perspective, joined with clinical experience, supports the premise that in order to promote healthy bonding, a transactional model of practice is needed. A practitioner cannot address the psychological and social challenges of bonding without also addressing the biological component of the bonding process. In the literature review of current research in the field of neurobiology as it applies to trauma, new evidence is now available through the technology of such tools as PET scans and fMRIs. Evidence from these highly sensitive scans provides support for biological alterations occurring in response to trauma. These biological changes need to be corrected if psychological symptoms

are to be improved and social bonding is to be promoted in traumatized populations such as those referenced here.

Internal Working Models and Attachment Patterns

Pulling from Object Relations Theory, Bowlby believed that an infant develops an internal working model for relationships with self and others from their attachment to their caregiver. He describes two different types of attachment style, secure and insecure. In secure attachment there is appropriate and sensitive parenting. The child develops healthy relationships with others because he/she feels safe and supported in exploring other relationships. Insecure attachment is subdivided into anxious/ambivalent and avoidant types of attachment style. Anxious/ambivalent types of attachment occur where there is inconsistency in parenting style. Anxious/ambivalent children are characteristically ambivalent towards their caregiver when he/she returns after a separation and are not easily comforted. Avoidant types of attachment in children occur when the caregiver is detached from the child. Typically, these children avoid proximity to the caregiver as well as reunion with the caregiver. Bowlby's (1969 & 1979) primary focus was the importance of attachment in infants.

Ainsworth and her colleagues (Ainsworth et al., 1978) went beyond the importance of attachment style in infancy. Their research asserts that attachment style is an ongoing security system that children maintain in order to establish relationships with others. Through their development of the Strange Situation Interview (SSI), Ainsworth and her colleagues wanted to observe how secure and insecure patterns of attachment impacted infants later in life. One of their focuses was on attachment styles that impact school age children. For example, children characterized with secure attachment styles tended to more readily socialize with others, were more cooperative with other unfamiliar adult figures, demonstrated greater competency in

exploring effectively, were more enthusiastic, affectively positive, and persistent in problem solving tasks and were less easily frustrated in problem solving tasks upon entrance into school. Yet, children with anxious/ambivalent attachment styles during infancy appeared to be more “clingy” to caregivers because of experiences in which the caregiver is intermittently unavailable. Additionally, during the SSI, these children demonstrated greater difficulty being soothed, and often did not return to exploratory behaviors after periods of separation from their caregivers (Byng-Hall, 1995). Children with avoidant types of attachment during infancy, tended to be chronically frustrated, rarely experienced soothing, and had a very low frustration tolerance particularly during problem solving types of activities.

Bartholomew and Horowitz (1991) further developed this attachment style model. They focused on Bowlby’s concept of self and other representations and developed a four-group model of attachment style. This model asserts two types of internal representations within each individual: an internal model (self) and an external model (others). These representations can either be positive or negative and therefore there exist four possible attachment styles: secure, preoccupied, fearful, and dismissing. The secure attachment style represents a positive feeling of self and others. The remaining attachment styles are insecure in nature. Preoccupied attachment (related to anxious/ambivalent models by Bowlby and Ainsworth) involves a negative model of self and a positive model of the other. Fearful attachment (related to avoidant model by Bowlby and Ainsworth) involves negative model of self and others. The fourth and additional attachment style is the dismissing type which was added as another type of the avoidant style of attachment. The dismissing attachment style involves a positive self model and a negative model of others.

From these attachment patterns, various clinical measurement tools have been developed to support clinicians in assessing a caregiver and/or child's attachment pattern. Practitioners can use this information to support engaging the caregiver and/or child in interventions which promote the development of a more secure attachment style. Examples of these measures (which are reviewed in the course) include the Adult Attachment Interview (AAI) by George, Kaplan, and Main (as cited in Cassidy & Shaver, 1999) and the Emotional Closeness in Relationships Scale Revised (ECR-R) by Fraley (2003).

The AAI was developed to assess attachment styles in adults and has been revised three times. During the AAI, the adult participant is asked to provide five adjectives that describe each parent and an example of an episode that illustrates each adjective. Interviewers inquire about the following: how caregivers responded to them when s/he was upset; whether caregiver threatened her/him; whether s/he felt rejected; explanation for caregivers behavior; and the effect of these childhood experiences on her/his adult personality. The responses are evaluated on two dimensions. The first dimension is coherence. Coherence refers to answers that (1) provide a clear and convincing description, (2) are truthful, succinct, and complete and (3) are presented in a clear and orderly manner. The second dimension is the ability to reflect on the motives of others. Four types of adult attachment have been identified: secure/autonomous, dismissing, preoccupied, uninvolved/disorganized (Werner-Wilson, R.J., 2006). The attachment of a participant's children can be predicted from these interviews (See Table 2.1)

Table 2.1
Types of Attachment Styles

<i>Child Attachment Style</i>	<i>Adult Attachment Style</i>
<u>Secure:</u> -limited distress -continued exploration after initial reunion	<u>Secure/Autonomous:</u> - developmentally appropriate interaction - recognizes significance of attachment
<u>Avoidant:</u> -child appears indifferent	<u>Dismissing:</u> -dismissive about attachment -withdrawn and rejecting
<u>Resistant or Ambivalent:</u> -child appears distressed -preoccupied with caregiver & “clingy”	<u>Preoccupied:</u> -recognizes significance of attachment, but preoccupied with past -appears angry -blurred boundaries
<u>Disorganized/Disoriented:</u> -difficult to categorize reunion experience -80% of maltreated youth	<u>Unresolved/Disorganized:</u> -frightened by memory of past trauma promotes momentary disassociation -scripts child into “past drama”

Note: From “Types of Attachment” (slide 17) by R.J. Werner-Wilson, 2006, Iowa State University. Reprinted with permission.

The ECR-R measure uses Bartholomew and Horwitz’s attachment style patterns and aids in assessing an adult’s attachment style (Fraley, 2003). The two subscales on which this measure is based include anxiety and avoidance, the two clinical concepts on which much of attachment theory is founded. Based on 36 questions, 18 for each subscale, the individual’s level of anxiety and avoidance in relationships is plotted on the ECR-R Graph. Dependent upon where these two points are mapped out on the graph, an attachment style is attributed to the individual taking the assessment self-report survey. Therefore, information provided by this assessment tool provides a clinician with a sense of the attachment style of the adult and how much anxiety and/or avoidance in relationships is a factor in treatment. This measure is taught to all participants in the core curriculum as a clinical measure they can use upon completion of the course.

Connections Between Attachment Theory, Trauma, and Neurobiology

Attachment theory is based on a belief in the biological and instinctual nature of the caregiver/child bonding process. Based on this need for attachment, it would follow that the attachment process would be connected to some biological processes. This connection would be evident not only when positive attachment experiences are occurring, but when attachment is disrupted as occurs during the loss or separation of a child from a caregiver (a trauma). Bowlby believed in this type of connection between the biological, psychological and social experience as it relates to attachment. He further asserted that disruptions in attachment created biological alterations just as engagement in the bonding process impacted biological processes. However, in his time, these processes could not be observed (Bowlby, 1979; Bowlby, 1980).

Yet, now with advances in technology through such devices as PET scans and fMRI's, biological processes can be observed as they occur. The ability to view the brain and its processes in response to social experiences has contributed to an explosion of knowledge on the brain and its experience based nature (neuroplasticity). In looking at the relationship between attachment and the experience based nature of the infant's brain, Siegel (1999) argues that experiences in the caregiving relationship actually serve in regulating the infant's affective self. The caregiver actually has the ability to stimulate positive emotions such as excitement, joy and pleasure as well as minimize feelings of stress and anxiety via the attachment based relationship (Creeden 2004, 2006). By serving as this secure figure then, the caregiver allows and even promotes neurological connections to occur which will eventually allow the child to regulate his/her own affective states (Siegel, 1999). Further, Lott (1998) poses that while caregivers are impacting the regulation of their infants' affective states, they are also affecting the way stress

hormones are released. The social experience of the caregiver-child relationship shapes biological processes.

Crittenden (1997) more formally makes the connection between attachment style and the impact on a child's neurobiology. Using Ainsworth's four category attachment style model, Crittenden addresses how this style of parenting impacts cognitive and affective development and Integration. She poses that securely attached individuals are able to integrate affective and cognitive experiences. However, persons with insecure attachment patterns are not able to integrate the affective and cognitive components of experiences. Specifically, persons with avoidant attachment styles are inhibited or misconstrue affective responses. Persons with anxious/ambivalent attachment styles are affectively responsive, but their affective responses are not organized well. Individuals with this attachment style often are unable to ascertain what triggered their affective responses or understand the impact and consequences of their affective driven behavior. Crittenden (1997) proposes that this model of attachment is helpful in that it begins to address the neurobiological difficulties experienced by persons with different attachment styles. This model of attachment further addresses the attachment relationship as a coping resource and a relationship process.

Given the connection between the attachment relationship and developing neurological functioning, how is the experience dependent brain shaped when the caregiver does **not** create an environment which promotes bonding, safety, nurturance, and regulation for the child (insecure attachment style of parenting)? The result of this type of social experience in the caregiving-child relationship can be an abnormal release of cortisol which can have a negative impact on brain development (DeBellis, 2001; Hart, Gunnar, and Cicchetti, 1996). This type of impact of attachment on brain development is further explored by Schore (1997, 2001 & 2002) who asserts

that persistent stress results in the over development of certain areas of the brain which process anxiety and fear and the under development of other areas of the brain, particularly the cortex. Of particular concern to Schore (2002) is the impact of the absence of nurturance on the orbital frontal cortex (OFC).

Noting research from McEwen (2000), Schore states that chronic levels of stress contribute to fewer neural connections between the prefrontal cortex and the amygdala. The reduction of the neural connections is significant when looking at the important functioning of these two parts of the brain. The prefrontal cortex (PFC) is responsible for many processes but is particularly active in such processes as concentration and judgment as well as the ability to observe and control internal subjective states. A portion of the PFC is known as the orbital frontal cortex (OFC). The OFC is generally considered central to supporting emotional regulation and empathy. The amygdala, part of the limbic system, is attributed with interpreting incoming stimuli and information and storing this information in an individual's implicit memory. Often the amygdala is associated with assessing threat and triggering immediate responses to threat (fight, flight or freeze behaviors). Based on these basic definitions of the PFC (particularly the OFC) and the amygdala, reduced neural connections between these two areas would result in the PFC not being able to regulate/control the processing of threat (fear) resulting in more exaggerated fear responses. In children, this could present as aggressive or dissociative behaviors occurring in response to what appears to be non-threatening or minimally threatening events. Thus the caregiving relationship (social experience) shapes an infant/child's neurobiological development which in turn shapes their psychological development and their responses to future social experiences. These connections between the biological, psychological, and social dimensions of experience support conceptual connections between attachment theory,

trauma, and neurobiology and their relevance to practice with this specific population. Therefore, in order to fully understand the experience of a youth or caregiver who has experienced trauma, one must have knowledge of “normal” neurological development as well as neurobiological changes that occur as a result of stress and trauma. The course curriculum (educational intervention model) presents material which teaches basic neuroscience concepts as well as specific research regarding the impact of social experience (e.g.: attachment and bonding, trauma) on biological processes (e.g.: heart rate variability, information processing, memory, etc.).

Neurobiology: What does Social Work Need to Know?

The field of neuroscience is vast and now comprises a wide array of disciplines all focused on understanding “human thought, emotion, and behavior [at] ... the molecular, cellular, the systemic, the behavioral, and the cognitive levels” (Farmer, 2009, p.9). While neuroscience is important to understand conceptually at all these levels, social workers have a particular interest in the field of social neuroscience. The term social neuroscience came about in 1992 and describes research which links social processes and neuroscience (Farmer). Social neuroscience supports practitioners in looking at any problem in living from the neural level all the way up to the social level and back again in order to holistically and effectively work with client systems in affecting change. Over the last 10 to 15 years an explosion of information in the field of neuroscience has occurred due to advances in technology, which makes it possible to observe the living brain. Given that this explosion of information impacts the way we can effectively assess and intervene with client systems, social workers need to become current on the implications of these new findings in the field of neuroscience.

So, does the combination of this neuroscience information explosion and social work's commitment to engaging in a true transactional process mean that social workers need to go back to school and get a minor in neurobiology? Most likely not. However, based on the NASW value of competency in social work professionalism, a social worker does have a responsibility to increase his/her knowledge of neurobiology as it relates to social and psychological functioning. And if a social worker's focus of expertise is in working with youth and families who have experienced significant levels of trauma, then her/his competency should also extend to understanding the attachment relationship and the impact of trauma on the socially dependent brain. So where do we start? The concept of neuroplasticity.

Farmer (2009) notes that the concept of neural plasticity really contains two elements: (1) the brain changes throughout life (though at a much slower rate as we age) and (2) the brain alters in response to what it experiences. In fact, the brain itself is shaped by our experiences (Restak as cited in Farmer, 2009). A large body of evidence now exists supporting these two principles (Sowell, Thompson & Toga , 2004; Taupin, 2005). The importance of brain plasticity to social work in general relates to its impact on understanding clients' abilities to learn and the critical nature of certain social experiences in early childhood to the learning process. Nancy Andreasen (2001) validates this connection between learning and biological development by noting two critical components of brain plasticity. The idea of critical periods "teaches us that for some aspects of brain development, timing of environmental input is crucial, and that important abilities will be lost or diminished if stimulation does not occur at the right time" (Andreasen, 2001, p. 49). The idea of "activity-dependent learning teaches us that exposure to either psychological or biological environmental influences causes changes in the brain" (Andreasen, 2001, p. 49). Farmer (2009) notes the most significant component of this discovery is that this

evidence supports the concept that individuals indeed have a social brain, not a static one predetermined at birth in terms of structure and function. Information processing and change then do not occur because of nature **or** nurture, rather there is a bi-directional relationship between experience and biology, meaning that they are constantly shaping each other.

Applying Attachment Theory and Neuroscience to Clinical Practice

Having highlighted the bi-directional relationship of neuroscience and psychosocial functioning in general, let us briefly review some examples of how individual biology is intricately connected to engagement in relationships particularly when stress and trauma occur in an individual's social experience. One of the more popular and simplistic ways to look at the impact of stress on brain functioning revolves around the limbic theory. This theory asserts that when a stressful event occurs, the brain responds primarily through the use of the limbic system, which includes regions of the brain thought to primarily focus on processing emotions. In this model, when the body senses a stressful event via what Siegel (1999) refers to as its anticipatory scanning system, the amygdala (a component of the limbic system) triggers a chain reaction of events. The amygdala's chief role in this chain of events is to alert the body to a potential threat, thus activating a neuronal pathway process, which results in what is commonly known as the fight/flight or freeze response (LeDoux, 1996; Forbes & Post, 2006; Siegel, 1999, Perry, 1995).

This response is the body's way of enhancing the speed of information processing by responding to potential danger quickly, thus enhancing its ability for self-protection. An exemplar of this information processing scenario includes the reaction of an infant/child who becomes aroused and distressed. As a result of this distress, attachment behaviors are triggered in the child signaling the caregiver that a perceived threat exists and that the child is in need of regulation (soothing or calming) to cope with the threat. At the same time this attachment

process is happening, two other internal and biological processes are happening. The limbic system of the brain and specifically the amygdala is releasing hormones and neurotransmitters which arouse the body, preparing the body for a fight/flight/freeze response to the threat (emotional response). At the same time information about the threat is being sent to the hippocampus, a part of the brain which is connected with memory (LeDoux, 1996). The hippocampus is actually a memory “comparator” meaning that it compares stored memories with current information. Using past experiences and responses (memory), the hippocampus helps the brain cognitively prepare to respond to the threat, while at the same time releasing hormones which lower the overall arousal of the body (specifically lowering the ACTH level in the body), resulting in lowering a person’s experienced stress and arousal (Forbes & Post, 2006).

This interchange between the amygdala and hippocampus is key in balancing the regulation of a person’s arousal during stress or threats. The heightened emotional and biological response (amygdala) allows the child to respond quickly to the threat. At the same time, the body accesses previous memory (hippocampus) as well as higher cognitive functions in the cerebral cortex functioning (e.g.: problem-solving skills) to resolve the situation triggering the stress (LeDoux, 1996). What is also significant in this process is that in order for explicit conscious memory to be engaged as well as the use of higher cognitive functions, the individual’s arousal level needs to be lowered. If the person’s arousal cannot be lowered via the hippocampus, a state of arousal and fear generated by the amygdala is maintained and the ability to lower arousal is significantly limited (Forbes & Post, 2006). Therefore, while the ability of the amygdala to initiate a quick biological response is essential to survival, when/if this heightened biological state of arousal cannot be terminated via the hippocampus, potential problems can occur. One example of such a problem is based on research evidence indicating

that biological reactions connected to emotion (e.g. amygdala continuing to release ACTH) can at times override cognitive functions. This override means that when this type of hyper-aroused state is prolonged, an individual's ability to access higher cortical processes is severely limited (McCraty, 2003). Further, acute and chronic stress not only has been shown to have an impact on temporarily preventing access to cognitive functioning, but evidence also exists demonstrating that two types of structural plasticity are negatively impacted by stress.

One type of structural and functional change which occurs in the brain relates to repeated stress which leads to atrophy of dendrites in certain regions of the hippocampus. A second type of change may also result from acute and chronic stress. This change involves the suppression of neurogenesis (creation of new neurons) (McEwen, 1999). Given the significant impact stress can have on brain structure and function, the ability to regulate heightened states of arousal is important to being successful in treatment and in using cognitively based techniques in treatment. In addition to negative changes in the hippocampus, some evidence suggests that afferent feedback (bioelectric feedback flowing from the heart to the brain) from the heart impacts the amygdala which in turn synchronizes with the cardiac rhythm (Aggleton, 1992). This finding supports the idea that by improving the health of the heart's rhythm, one improves the healthy functioning of the amygdala, which in turn improves one's responses to stress/threat. Therefore, regulating heightened arousal seems to be connected (in part) to 1) the optimal functioning of the hippocampus (use/creation of memory and reduction of ACTH production), 2) the healthy heart rhythm, and 3) a person's interpersonal past experiences in co-regulatory relationships (specifically having experiences where arousal occurred and the distress was soothed via a caregiver) (Siegel, 1999; Forbes & Post, 2006). Therefore, incorporating

interventions designed to improve these three areas of functioning would seem beneficial to the holistic treatment of individuals impacted by high levels of stress and/or trauma.

While the previously discussed limbic system theory represents a good model for understanding how stress can impact the brain and thus the ability or inability of an individual to engage in cognitive functions because of biological change, Butler and Hodas (1996) note that research in the area of comparative neurobiology contradicts the “evolutionary aspects” of this theory (as cited in McCraty, 2003, p.6). Further, there is evidence indicating that often changes in emotion can occur which do not stem from limbic areas of the brain (Marshall & Magoun, 1998). Thus, this model offers an important example of the connection between brain, stress, emotion, and mental functioning, yet does not represent the complete picture of the multiple processes involved when situations of stress or threat occur.

Another example of how the body, brain and mental health are interconnected involves the heart. As previously mentioned, healthy heart rhythms are relevant to the healthy functioning of the amygdala. Yet the heart plays a much larger role in the understanding of emotion and stress than this one connection to the amygdala. While a significant amount of attention focuses on the brain’s role in shaping emotion and physiology, it is important to note that other bodily organs influence emotion and physiology as well. Leek (1972) supports the relevance of bodily organs on brain functioning and emotion by presenting evidence demonstrating the existence of as many afferent connections between the body organs and the brain as there are efferent connections between the brain and the body (as cited in McCraty, 2003, p. 9). Simply stated, afferent connections are those connections that channel bioelectrical information away from an organ and efferent connections are connections which are receiving bioelectrical information from another organ in the body. The relevance of these afferent connections is that they indicate

that body organs send as much (and in some cases more) neuronal information influencing the cognitive, perceptual, and emotional processes as the brain (McCraty, 2003). Of interest to this study is evidence showing that the heart sends more neuronal information to the brain than the brain sends to the heart (McCraty, 2003). Further evidence of the strong connection between the heart and brain can be taken from Schandry and colleagues who demonstrated that an individual's heartbeat can be detected by an electroencephalogram (EEG.), a measurement of the electrical activity of the brain signal (Schandry & Montoya, 1994; Schandry, Sparrer, & Weitkandat, 1986; Montoya, Schandry, and Muller, 1993 as cited in McCraty, 2003, p.11). The heart's role and influence on emotion is significant to this study because it is based on this evidence that heart rate variability (HRV) targeted biofeedback interventions are incorporated into the study's core curriculum.

Lacey and Lacey (1978) further captured the importance of the brain-heart connection by showing that an increase in heart rate afferent messages to the brain inhibits cortical activity while a decrease in heart rate actually "promotes cortical facilitation and processing" thus suggesting that the heart's afferent input inhibits or facilitates brain activity (as cited in McCraty, 2003, p. 11). This evidence is of particular significance to this study because it supports two concepts already presented in this literature review: 1) That the heightened arousal generated from stress/trauma in an individual's background can impede their ability to access the functioning of higher cortical areas of the brain and 2) it is important to incorporate biologically based intervention to lower this type of biological arousal (e.g.: decrease heart rate) in treatment with youth who have experienced high levels of stress/trauma so that they can access higher cognitive functions and actually benefit fully from cognitive based treatment techniques.

These types of research studies highlight the reasons that targeted work with the heart is important in improving emotional coherence and overall health and well being. Studies of HRV indicate that when the rhythm is smooth and ordered, more positive emotions exist. Conversely, when HRV is jagged and erratic, negative emotions are more characteristic (Tiller, McCraty, & Atkinson, 1996). Based on this information and other studies from the HeartMath Institute, certain breathing techniques improve HRV which in turn has been demonstrated to generate feelings of security and overall positive affect in individuals (McCraty, 2003). These types of techniques have been utilized successfully with clinical populations to include (but not limited to) individuals with hypertension, chronic pain, anxiety disorders, clinical levels of depression, and of most interest to this study, individuals with PTSD (McCraty, Atkinson, & Tomasino, 2001).

Trauma and Neurobiology

In considering the impact these traumatic experiences have on youth, it is particularly important to understand trauma's impact on youths' neuro-biology as well as psychosocial abilities. Lipschitz, Morgan, & Southwick (2002) note that while there are few studies focused on the arousal-regulating mechanisms in traumatized children, a few themes of biological differences/alterations can be observed between healthy children and youth who have experienced trauma. Lipschitz, Morgan, & Southwick focus on studies which examine changes in cortisol levels, psychological indices of arousal, and measures of central and peripheral catecholamine activity (biological alterations). While a full discussion of these types of biological alternations resulting from trauma suffered in childhood goes beyond the purposes of this study, trauma's roles in creating neurobiological alterations is a major focus of the clinical

model incorporated into the educational intervention utilized in the study. Therefore, one exemplar of a biological alteration will now be summarized.

Lipschitz, Morgan, & Southwick (2002) note that one type of neurobiological alteration resulting from trauma relates to possible differences between healthy youth and traumatized youth's cortisol production when reacting to more minor external stressors. In essence, Lipschitz, Morgan, & Southwick suggest (based on their review of several research studies) that traumatized youth's "threshold for responding to stimuli appears low and their ability to turn off cortisol production following exposure to stimuli is likely to be impaired" (p.165). As a result, youth experiencing trauma can often fall into one of two subtypes: Youth who have high autonomic responsiveness (hyper-vigilance) and youth who experience reduced autonomic responsiveness (hypo-vigilance). Hyper-vigilant youth are very guarded, fearful, and often anxious; while hypo-vigilant youth are often withdrawn, numb and/or depressed. Lipschitz, Morgan, & Southwick go on to note that this type of research (coupled with other similar studies) is perhaps suggestive of the existence of a sub-type of youth engaging in conduct related behaviors. More specifically, they suggest the existence of a sub-type of youth who have extensive histories of abuse and engage in aggressive behaviors as a result of PTSD and biological alterations heightening their reactivity to stress. They further suggest that future research should explore this connection between biological alterations, PTSD responses and aggressiveness in youth.

Understanding how traumatic experiences undergone by youth result in biological alterations (e.g.: changes in their cortisol production) such as hyper-arousal to minor and major stressors is important when selecting intervention strategies to use with this population. Hyper-arousal may impact the brain's ability to utilize effective problem solving skills at the times of

stress. In addition, in populations where loss in relationships with caregivers is prevalent, attachment theory suggests that these youth may have limited abilities to engage in trusting relationships which typically act as a means to sooth feelings of anxiety and stress often known as co-regulation (Bowlby, 1979; Siegel, 1999). This understanding has particular significance to interventions designed for youth who are in a state of constant arousal and have yet to experience a co-regulatory relationship with a caregiver which provides soothing and self-regulation skills. Interventions which do not address the biological impact of trauma on the brain and interpersonal relationships may be asking these youth to access their higher cortical functioning without teaching them first how to calm their extremely aroused limbic system functioning. Such a demand could be viewed as a neurological hurdle that many healthy adults could not jump! Therefore, successful treatment interventions with youth who have experienced trauma should focus a significant portion of treatment on the interpersonal and self regulation needs characteristic of youth who have experienced high levels of trauma.

Bruce Perry (2001) presents significant evidence supporting this discussion of trauma's (and specifically violence and neglect) impact on neurological development. He further presents a model which demonstrates children's various responses to threat as they relate to the regulating brain region, cognition style and internal affective state. He terms this model a continuum of adaptive responses to threat (Table 2.2).

Table 2.2
Continuum of Adaptive Responses to Threat

Sense of Time	Extended Future	Days Hours	Hours Minutes	Minutes Seconds	No Sense of Time
Arousal Continuum	REST	VIGILANCE	RESISTANCE Crying	Defiance Tantrums	AGGRESSION
Dissociative Continuum	REST	AVOIDANCE	COMPLIANCE Robotic	DISSOCIATION	FAINTING
Regulating Brain Region	NEOCORTEX Cortex	CORTEX Limbic	LIMBIC Midbrain	MIDBRAIN Brainstem	BRAINSTEM Autonomic
Cognition Style	ABSTRACT	CONCRETE	EMOTIONAL	REACTIVE	REFLEXIVE
Internal State	CALM	AROUSAL	ALARM	FEAR	TERROR

Note. From *The neurodevelopmental impact of violence in childhood*. (p. 238), by B.D. Perry in Schetky D. & Benedek, E. (Eds.) (2001). *Textbook of child and adolescent forensic psychiatry*. Washington, D.C.: American Psychiatric Press, Inc. Reprinted with permission.

As can be seen in Table 2.2, Perry suggests that children respond in one of two ways to threat, either via a primarily arousal response or a primarily dissociative response, though many use some combination of the two responses (Perry, 2001, p.238). In general, for the youth of focus in this study, the responses of concern fall into Perry's arousal category. Perry notes that this response style is often interpreted by adults as intentionally willful and controlling (oppositional) and thus most adults respond to these children by becoming angry and/or placing more demands on them. The result, however, is that the child often feels more threatened and moves further and further down the continuum scale, resulting finally in very aggressive behaviors.

Of particular interest here is Perry's integration of the biopsychosocial perspectives. As a child moves down the continuum of adaptive responses to threat, their cognitive style changes.

When children are calm and feel unthreatened they are able to engage in abstract thought accessing more of the neocortical and cortical portions of their brain (associated with problem solving and empathy). Yet as children feel more threatened both their cognitive style and even sense of time changes as lower brain regions (limbic all the way to the brain stem and autonomic response system) become the primary region of regulation. At the point at which a child responds to a threat using behaviors such as resistance, defiance and then aggression, his/her cognitive style is emotionally based, reactive or reflexive. Clinically, this means that at the point at which a child (especially one with a history of trauma) engages in these behaviors, the use of CBT techniques would not be effective given that their sense of time and cognitive style would not be able to process the information provided via these intervention techniques. This continuum then supports this study's clinical model which suggests that due to the parts of the brain activated during trauma (or trauma echoes) and the changes in cognitive style, interventions need to be focused on reestablishing calm. As will be discussed next, often the interventions which support recreating a sense of calm for the client are biologically based in nature. And while it is beyond the focus of this study, it should be noted that spiritually based interventions could also be indicated during states of hyper-arousal and dissociation given that spiritually informed interventions also aid in creating feelings of transcendence and calm.

In considering this more biologically inclusive perspective to assessment and treatment, one hypothesis regarding effective treatment interventions with youth who have experienced significant levels of trauma might be that intervention models focusing on the biological impact of childhood trauma as well as psychosocial interventions will produce better outcomes for clients and caregivers. These outcomes include (but are not limited to): an increased ability to engage in interpersonal attachment relationships, a reduction in hyper-arousal PTSD symptoms

(such as insomnia, angry outbursts/irritability, poor concentration, excessive vigilance, and/or increased startle response); and an overall reduction in internalizing and externalizing behaviors which were existent at the time of referral to treatment. Holistic treatment, therefore, would include treating trauma symptoms utilizing a biopsychosocial-spiritual intervention model which attends to the biological impact of the trauma on the individual. Some suggested biologically based interventions provided in the curriculum are biofeedback (including neurofeedback) and/or Eye Movement Desensitization and Reprocessing (EMDR) techniques (Soberman, Greenwald, & Rule, 2002). Additionally, some social interventions which enhance biologically based trauma symptoms are demonstrated. These interventions are called “attunement exercises” and have been developed by different practitioners who work with clients who have experienced significant levels of trauma and disruptions in attachment relationships.

Implicit and Explicit Memory as it Relates to Trauma

One additional connection between social experience, trauma and biological functioning needs to be reviewed prior to an examination of the target population for these assessment and interventions and the actual presentation of the clinical model. This discussion revolves around the subject of memory and is another component of the educational curriculum. In his book *The Developing Mind*, Siegel (1999) provides an excellent description of implicit and explicit memory which is summarized here and in the educational curriculum. In talking about memory in general, the process of memory is not static; rather it involves the ongoing construction of new neural network profiles containing features of the old engram (initial impact of an experience), elements from other experiences, and one’s present state of mind.

There are actually several components to memory just as there are several senses through which we absorb information in the present. Siegel (1999) discusses the five components of

memory which are: Semantic (factual information), autobiographical (sense of self in time), somatic (sense of body in time), perception (five senses), and behavioral (what we do). These five components of memory are then attributed to either an individual's explicit or implicit memory system. Explicit memory includes both semantic and autobiographical forms of memory. This part of memory involves the conscious awareness of encoding and recollection. It requires focal attention on the part of the individual and through a process of cortical consolidation these selected memories are made part of permanent memory. Unlike explicit memory, implicit memory involves the parts of the brain that do not require conscious processing. It therefore includes the somatic, perception, and behavioral components of memory. Evidence suggests infants have ready access to these forms of memory. With repeated experiences, the brain learns from these memories and begins to create "mental models". These "mental models" allow for assessing situations rapidly and determine what may happen next. Without these models, we could not in essence learn from experience which would significantly reduce our ability to adapt to different environments. Siegel (1999) suggests these mental models and memory are all part of the brain being able to act as an anticipation machine which constantly scans the environment so that it can determine what comes next. At its most basic level, memory and this anticipatory ability of the brain is what allows humans (and other organisms) to survive.

Stress and memory have a significant relationship with one another in terms of what memories are encoded. Small stress has a very neutral effect on memory; however, moderate stress facilitates memory. This difference in effect makes sense given the way the brain learns to attach meaning to certain memories. If moderate stress is attached to an event then the brain codes it as important to remember and prepares to anticipate when this memory will be needed

again (e.g. studying for a test). However, when high levels of stress are experienced, memory is impaired. Siegel (1999) presents evidence suggesting that high levels of stress block hippocampal (a part of the brain that stores memory) functioning and while this is initially reversible (as discussed previously), trauma and/or excessive exposure to stress can cause neuronal death in the hippocampus. Studies with persons diagnosed with PTSD have shown a shrinking of the hippocampus area of the brain (Schore, 2002). This means conceptually that traumatic events become encoded in the implicit memory, and not the explicit one. The result of trauma then can be dissociation which is a disconnection from one's autobiographical memory (sense of self in time). Trauma further impairs the cortical consolidation Integration process (characteristic of explicit memory) of the traumatic experience. Clinically, this evidence and explanation would explain why many individuals diagnosed with PTSD are not able to recall the traumatic event; however, when they smell certain smells present during the trauma or return to the place where the trauma occurred, their body exhibits a physical response. This physical response is often very similar to the response they experienced at the time the trauma occurred. In essence, the body remembers (implicit memory) what the cognitive mind cannot (explicit memory). Advances in technology and the example of the shrunken hippocampus seen in many trauma survivors now provide evidence confirming this clinical experience. These concepts of implicit and explicit memory as well as the biological impact of trauma on the process of memory are key components to the clinical model taught in the curriculum.

Trauma's Relevance to Specific Target Populations

Gaining insight into the impact of trauma on the biopsychosocial and spiritual functioning of an individual provides multiple dimensions of knowledge that can be helpful for youth who have experienced trauma. There are some specific target populations which have

typically experienced high levels of trauma and therefore when working with these populations, the knowledge base reviewed becomes a necessary competency for social work practitioners.

Three of these target populations include: youth with Conduct Disorder (CD), youth with Reactive Attachment Disorder (RAD), and youth who cause sexual harm. The relevance of trauma to these three populations will now be expanded upon.

Conduct Disorder in Youth

Studies with antisocial youth have found self reported trauma exposure ranging from 70% to 92% (Greenwald, 2002). Antisocial youth have high rates of Post Traumatic Stress Disorder (PTSD) ranging from 24% to 65% (Greenwald). Further research has indicated high levels of trauma in the experiences of conduct-disorder youth (Bowers, 1990; McMackin, Morissey, Newman, Erwin, & Daley, 1998; Rivera & Widom, 1990; and Steiner, Garcia, & Matthews, 1997). Greenwald's (2000) research suggests that anger and violent acting out often are symptoms of PTSD (Chemtob, Novaco, Hamada, Gross, & Smith, 1997). Frequently the key features of CD can be explained more clearly when incorporating the trauma's biological and interpersonal contribution to the symptomatology.

In general, youth exhibiting conduct related problems have experienced many un-integrated traumatic experiences via their relationships with others (physical abuse, domestic violence, and community violence) and express hyper-vigilance to any perceived threats to their safety. This hyper-vigilance may be the result of major biological alterations and severe psychosocial impairments, which can occur after experiencing traumatic events (Greenwald, 2002). These psychobiological abilities are required to regulate emotions and process social information. Further, these biological alterations may result in neurological pathways and arousal levels which override cognitive processes when perceived threats trigger the youth (Perry, 2001).

More biologically based interventions and their inclusion in treatment with youth with CD have proven beneficial to clinical treatment. Research on a technique called Eye Movement Desensitization and Reprocessing or EMDR (to be discussed in more detail later in this chapter) has indicated its utility in reducing memory related distress, PTSD symptoms, and significant reductions in problem behaviors among youth with CD (Soberman, Greenwald, and Rule, 2002).

Reactive Attachment Disorder

Unlike youth with CD, youth and children with Reactive Attachment Disorder are impacted significantly not only by trauma, but their actual diagnosis is based on a significant disruption in attachment and thus a traumatic experience. As defined by the DSM-IV TR (American Psychological Association, 2000), in order to diagnose a child with RAD, there must be evidence of pathogenic care in one or more of three categories. These categories include such problems as a child not having 1) their emotional needs met or 2) their physical needs met due to significant neglect on the part of a caregiver. The third category focuses on a child being unable to engage in stable attachments due to repeated changes in primary caregiving. These categories themselves demonstrate traumatic experiences and directly impact the attachment style of a child. Research has indicated that children suffering from significant neglect, as evidenced in youth diagnosed with RAD, have altered functional and structural brain functioning (Perry, 1995, 2001). This altered brain functioning indicates a need for an enhanced biological lens for treatment assessment and planning. Youth with RAD have benefited from attachment based and biologically based interventions (Thomas, 2002).

Youth who Cause Sexual Harm

Not only is a trauma characteristic in youth with Conduct Disorder and definitive of youth with Reactive Attachment Disorder, but the impact of trauma is also relevant significantly

among youth who cause sexual harm. Ryan, Miyoshi, Metzner, Krugman, & Fryer (1996) looked at characteristic trends in youth who cause sexual harm and found significant histories of trauma in their background including histories of physical abuse, sexual abuse, neglect, witnessing domestic violence and/or loss of a parental figure. Other professionals working with youth who cause sexual harm and research studies have supported the observation that trauma and abuse have been characteristic of youth who cause sexual harm (Creeden, 2004; Creeden, 2006; Burton, Ramussen, Bradshaw, Christopherson, & Huke, 1998; Ryan and Lane, 1997).

Alternative Biopsychosocial-Spiritual Clinical Practice Interventions

Given the impact of trauma on the individual's physiology as well as psychosocial functioning, a strong case is made for incorporating more biologically based interventions into treatment planning with youth and families who have experienced trauma such as youth with the diagnoses of Conduct Disorder, Reactive Attachment Disorder, or youth who cause sexual harm to others. Often more "alternative" based therapies are helpful in providing this stronger biologically informed approach to assessment and intervention planning.

Interventions such as biofeedback, neurofeedback and even EMDR are typically classified as "alternative" forms of health intervention. This term often suggests that such interventions go against the mainstream practice of healthcare professionals. Yet, the use of what is often termed "alternative therapies" has rapidly gained support in the health field. Some evidence indicating this increased support can be seen in a survey of physicians where more than 60 percent of them indicated recommending alternative therapies to their clients and another 23 percent indicated actually incorporating alternative therapies into their practice (Borkan, Nehler, Anson & Smoker, 1994). This shift in supporting alternative forms of therapy in the healthcare field is further demonstrated by the nursing profession. Evidence indicates that nurses support

the use of certain types of alternative forms of medicine and even more specifically the use of biofeedback and its ability to enhance individuals' health. For example, in a survey of 1000 nurses where 22 alternative and complementary therapies were listed on the questionnaire, 51 percent of the nurses listed biofeedback as having strong evidence relating to its effectiveness for improving an individual's health (Brolinson, Price & Ditmyer, 2001). In this same study, 51% of nurses also viewed meditation and relaxation exercises as having significant evidence based support for inclusion in enhancing health.

Further support for the use of alternative based therapies is indicated by the consumers in the United States investing significant dollars into alternative forms of health treatment. For example, in 1997, an estimated 42 percent of American adults visited alternative health care providers for a total of 629 million visits and out of pocket expenditures of approximately \$27 billion dollars for these types of services (Eisenberg et al., 1998). Of particular interest to social workers may be consumers' reasons for the utilization of alternative forms of health care. Research suggests that the increased use of alternative types of therapies is occurring not because individuals are unhappy with more "conventional" forms of medicine, but rather because the values of these alternative forms of therapy are more congruent with their own values in relation to health and life (Astin, 1998). This shift is in keeping with social work's belief in empowering individuals to engage in treatment options which are in keeping with their own belief systems. Therefore, for these reasons, along with a commitment to a **biopsychosocial-spiritual** approach to treatment, social work needs to explore the use of more biologically based interventions as a means of improving individuals' health including the use of such specific practices as biofeedback, neurofeedback, and EMDR.

More specific to the focus of this study, alternative therapies may offer support in addressing issues raised by stress and the effects of trauma for youth who cause sexual harm and their families. The course curriculum used in this study focuses on three alternative health practices which have been used by the author and other mental health practitioners in the treatment of youth and their caregivers who have experienced significant levels of trauma and engage in problems of behavior and conduct.

Biofeedback

As indicated by Schwartz and Olson (2003), the application of biofeedback began in the late 1950's across multiple fields, including psychology, physiology, biomedical engineering, and sociology. Neal Miller, a neuroscientist from Yale University, is generally considered the "father" of biofeedback. His discovery of biofeedback was made while working on conditioning the behaviors of rats. He discovered, while conducting these studies, that when he stimulated a pleasure center in the rats' brains with electricity, he was able to teach them to control biological responses, such as heart rate and even brainwaves. Miller's discovery revealed that biological processes (like heart rate) can be controlled consciously. Up until that point, it was widely believed that these processes were controlled solely by the autonomic nervous system and could not be altered consciously (Miller, 1969).

Since 1987 the field of biofeedback has significantly broadened its knowledge base, thanks in part to advancements in the use of technology in biofeedback and the insight it provides into human behavior (Wright, 2002).

Simply defined, biofeedback is an alternative form of healthcare that involves measuring certain biological responses (such as heart rate, blood pressure, skin temperature, muscle tension, and/or sweating) and relating this information (often through the use of technology) in a way

that, in the moment, a person can become aware of these physiologic responses (Schwartz & Schwartz, 2003). In essence, biofeedback serves as a tool to make an individual aware of certain physical functions. With that awareness, they then are more apt to be able to change those functions. Biofeedback instruments are designed to: “monitor (in some way) a biological process of interest; measure (objectify) what is monitored; and present what is monitored or measured as meaningful information” (Peek, 2003, p. 45). Types of biofeedback monitoring include electromyogram (EMG), peripheral skin temperature, Galvanic skin response training (GSR), and electroencephalography (EEG) biofeedback, also known as neurofeedback (Budynski, 1999; Monastra, 2003). Additional forms of biofeedback can include monitoring heart rate and, specifically, heart rate variability (HRV).

Neurofeedback

The technique of neurofeedback is also presented in the course intervention model. Neurofeedback is a form of biofeedback for the brain. Using computerized feedback of direct EEG frequencies, the brain learns to increase certain brain wave frequencies that are helpful in improving the overall functioning and regulation of the brain. Brain frequencies are broken down into 5 dominant bands of interest including alpha, beta, gamma, theta, and delta (Neumann, Strehl, & Birbaumer, 2003). Based on the identified clinical area of interest and desired change in functioning established during assessment, the practitioner uses the electroencephalographic instrumentation to reward a client for increasing the frequency of brainwaves produced in certain bands (related to certain emotional and cognitive states), while inhibiting certain frequencies that are increased in other bands.

Research has indicated neurofeedback as having efficacy with individuals experiencing trauma related symptoms. Monastra (2003) reviews several studies in which neurofeedback was

utilized in the treatment of persons with anxiety related diagnoses, including one study with clients diagnosed with PTSD. Participants engaged in neurofeedback in this study were able to reduce their medication dosages, and at 30 month follow up demonstrated significantly less recidivism (those receiving EE.G. biofeedback had a 20% recidivism rate compared to 100% recidivism rate for the control group). Based on this type of evidence, neurofeedback has demonstrated efficacy in supporting adults who have experienced significant levels of trauma (participants in this study were all Vietnam Veterans).

EMDR

Finally, the more widely known technique of Eye Movement Desensitization and Reprocessing (EMDR) is a biologically based intervention that has shown efficacy with individuals who have experienced varying levels of trauma. EMDR is an accelerated form of processing healthy integration of traumatic memories using an 8 phase approach developed by Dr. Francine Shapiro (2001). EMDR is thought to use bilateral stimulation (i.e. eye movements, taps, or auditory cues) to activate the right and left hemispheres of the brain to promote neural Integration of memory, emotions, physical sensations and perception (Siegel, 1999). According to Siegel, the promotion of neural integration would result in the alleviation of symptoms, which in turn would support an individual in developing an enhanced sense of well being internally as well as more rewarding experiences interpersonally. Shapiro reports that after EMDR processing, clients in general report “that the emotional distress related to the memory has been eliminated, or greatly decreased, and that they have gained important cognitive insights” (A Brief Description, 2004, ¶ 9)

More specific to the focus of this study, research on EMDR has indicated its utility in working with youth who have conduct related problems of behavior as well as PTSD symptoms.

In a study conducted by Soberman, Greenwald, and Rule (2002), twenty-nine boys with conduct problems were randomized into two groups, one which represented the standard of care and one representing the standard of care plus 3 trauma-focused EMDR sessions. Results from this study demonstrated that members of the EMDR group experienced significant reductions in memory-related distress as well as some trends towards reductions in their post-traumatic symptoms. Additionally, the treatment EMDR group was seen to have significant reductions in problem behaviors at the two-month follow-up compared to the control group of youth in the study who only showed slight improvement at the same follow-up. Soberman, Greenwald, and Rule argue that “these findings provide support for EMDR's use as a trauma treatment for boys ages 10-16, as well as support for the hypothesis that effective trauma treatment can lead to reduced conduct problems in this population” (p.217).

Continuing Education and Social Work

One key question which arises when creating a curriculum for continuing education learners is whether continuing education results in a transfer of learning to clinical practice and an increase in professional competency? This question is key because in fact this is the purpose and aim of continuing education, and therefore if skills and abilities learned in continuing education curriculum do not transfer into professional practice, in essence the learning is lost. Since the transfer of learning is a broad concept to measure, a conceptual frame for the continuing education experience in social work and factors which contribute to the transfer of learning would be useful.

Cividin and Otonson (1997) created the application process framework (APF) model which shows the complex process through which continuing education in social work and the actual transfer of learning to work related settings must navigate. This model is consistent with

theories of adult learning and the manner in which learning is transferred (Cividin & Ottoson, 1997; Ottoson, 1997; Salas & Cannon-Bowers, 2001). The model identifies multiple factors which are relevant to the transfer of learning including predisposing factors, enabling factors, and reinforcing factors.

Predisposing factors relate to the characteristics a continuing education participant has at the time they engage in the continuing education activity. The most important predisposing factor of a participant is motivation (Ottoson, 1997). Evidence suggests that participants who are motivated to engage in curriculum material can overcome many environmental barriers which may arise in the application of the curriculum material provided (Fox & Bennett, 1998; Ottoson, 1997).

While predisposing factors are primarily internally driven, enabling and reinforcing factors in the transfer of learning process are more externally and environmentally driven. Enabling factors relate to factors which have to do with the circumstances or context under which a participant engages in a course (e.g.: time to take the course, opportunities to engage in courses for which participants are motivated, personal authority to actually take the course, etc.) (Ottoson, 1997). Evidence suggests that factors such as finance, lack of time, and limitations on future opportunities to apply the information learned are significant barriers perceived by participants (Furze & Pearsey, 1999; Parochka & Paprockas, 2001).

Finally, reinforcing factors are those factors which relate to post-course experiences and opportunity for application. These factors include both positive and negative forces which support or create barriers to the application of learned material (Smith et al., 2006). Factors such as resistance from organizations to employ curriculum material and a lack of peer support in applying new material have been evidenced as negative reinforcing factors which provide

significant barriers to the transfer of learning (Furze & Pearsey, 1999; Parochka & Paprockas, 2001).

Smith, et al., (2006) conducted a study in which they sought to better understand the factors related to “perceived change in knowledge, attitude, and behaviors (KAB)” (p.467) in licensed clinical social workers who were participating in continuing education programs. Using the Education Participation Scale –Modified (EPS-M) measure developed from the APF model, this study examined internal and external factors significant to the transfer of learning. Results indicated that when looking at the participants’ perceived change from formal continuing education experiences (e.g.: workshops), “greater age, increasing expectation to apply learning, and higher motivational orientations toward professional advancement were all related to greater perceived change in KAB” (p.473). Of interest in the study was the lower perceived value that participants attributed to in-service trainings. The researchers attribute these results with evidence from prior studies indicating that many social workers see in-service trainings as meeting the needs of the organization and not the personal learning of the social worker. A recommendation of the study was “given the high participation rate for in-service trainings and the cost to agencies, it would be beneficial for future studies to examine methods by which in-service trainings can be shaped to better address the needs of practitioners” (Smith, et al. 2006, p. 474).

The findings and recommendation of this study support the manner in which this study’s course curriculum was developed, the manner in which it is being offered, and the importance of the KAB’s of participants being evaluated. This study’s course was not developed by the organization’s mandate but rather based on clinical necessity and struggle in creating competency in working with clients who display problems of conduct, have significant histories

of trauma, and do not respond to traditional CBT approaches. The course was offered and not mandated to regions serving the targeted clinical populations and therefore, most participants will likely be predisposed to have positive motivational orientations about the material.

Additionally, the course was offered for no charge and only requires a time commitment of one 8 hour day or one hour a week for 8 weeks; therefore, potential enabling barriers are lessened.

Finally, the course is being evaluated to assess the impact on the KAB's of practitioners so results will provide the organization with specific information on the utility of this kind of course being offered to professionals. Based on this information, the organization can make research based decisions on not only the offering of this course, but the types of course that are needed by practitioners in the field and a method for the ongoing evaluation of these courses.

Delivery of Continuing Education: Distance Learning vs. Traditional Classroom

The next question which relates to the specific educational curriculum intervention being evaluated in this study relates more specifically to the manner in which the course material is being delivered. This course is being offered in both a distance learning (teleclass/webinar) format as well as a more traditional workshop format. Through the use of classical experimental design (pretest-posttest control group design), the implication of the delivery method of the course will be evaluated in relation to any changes occurring in the KAB's of participants. However, prior to the assessment of differences between these two delivery methods, an understanding of some of the literature regarding the needs of the adult learner in social work practice as well as the comparability of traditional face to face learning versus distance learning was reviewed.

Integration of Adult Learning Style in Course Curriculum

Coulshed (1993) examines the current needs of social work students and methods that enhance student learning specifically as it applies to their practice skills. This examination seems relevant as it pertains to the most effective adult learning teaching methods in the presentation of practice related material, which is consistent with the development of this study's course curriculum. Coulshed notes that past teaching methods which presented the teacher as the expert and were strongly didactic in nature (often know as "chalk and talk") were oppressive and slowly leaked learning to the students. In reviewing Friere (1970), she presents this type of teaching method as "rob[bing] the learner of self-respect, making critical response and awareness impossible" (p. 4). Based on a review of teaching evidence suggesting that active learning is preferable to passive listening, she argues that more student centered approaches to teaching need to be utilized including active teaching styles which engage in experiential teaching methods. Citing Kolb's (1984) experiential model as an exemplar, she presents the four kinds of abilities characteristic of an effective scholar, including the provision of concrete experience, reflective observation, abstract conceptualization, and active experimentation. She suggests that when developing a curriculum designed to enhance practice, an educator ideally will balance the curriculum to include organized experiences which enhance learner's use of intuition, feeling and utilization of the five senses. She further suggests the inclusion of learning review tools which emphasize the engagement in learning as being as important as the material being reviewed. An example of a learning review tool she presents is concluding course sessions by having participants complete unfinished sentences such as "I have learned ... I have decided I can develop by ... " (p. 10). These types of learning review tools remind participants of the importance (personally and professionally) of learning and development, which reinforces the

previous literature on the significance of motivation orientation as a significant predisposing factor for participants in continuing education.

In considering Coulshed's review of adult learning as it applies to social work practice, many of the pedagogical techniques incorporated in the current course curriculum are validated. While the initial three hours of the workshop and distance learning course is more didactic in nature providing a foundation for attachment theory and current application of neuroscience, the course opens with the instructor reading a poem and engaging participants in an experiential exercise in which they shift into the role of the client looking out at the practitioner. This perspective is intended to reflect the intent of the course which is to gain an understanding of attachment and the attachment experience for individuals who have experienced trauma from the inside out. After providing the didactic content on attachment theory and neuroscience, the middle of the course engages participants in activities involving music and pictures designed to implicitly teach the concepts of implicit and explicit memory. The last three hours of the course focus on assessment and intervention techniques. Intervention techniques are presented through video of live sessions or replications of sessions and all participants engage in practicing these interventions during the course regardless of the delivery method in which they are involved. At the conclusion of the workshop and at the end of each teleconference session, participants are asked to engage in a learning review activity called "Head, Heart and Hand". During this activity participants are asked to think through the information and experiences of the course material and report out one thing they think differently about (head), one thing they feel differently about (heart) and one thing they plan on doing differently based on what they have learned (hand). This activity is in keeping with Coulshed's learning review exemplars and based

on preliminary feedback has been a powerful component of the training as practitioners begin to think about how the material is going to change their practice.

Comparability of Distance Learning and Traditional Classroom Learning

Freddolino and Sutherland (2000) note that while there are a considerable number of studies exploring the comparability of knowledge provided through distance learning and traditionally taught classrooms, few studies compare the two different teaching delivery methods in terms of the quality of the learning environment. They note this as significant given that social environmental theory and research on the importance of the quality of the learning environment has demonstrated that student behavior (defined by academic achievement) is strongly influenced by individuals' satisfaction with the social climate of the classroom (Chavez, 1984; Moos, 1980). Given the interest of this study in exploring if the course curriculum produces change in the KAB's of participants, an understanding of factors significant to the creation of a positive educational social climate via both distance learning and traditional classroom approach was sought.

Using the early work of Moos (1980), Freddolino and Sutherland (2000) qualify the dimensions of learning environments using three domains: the relationship domain, the personal growth or goal orientation domain, and the system maintenance and change domain. The relationship domain relates to the degree to which individuals engage and provide support to one another in the learning process. The personal growth and development domain involves the degree to which "the goals of the setting foster personal growth and development" (p. 118). Finally, the system maintenance and change domain examines the degree to which the learning environment clearly defines the expectations and is organized. These domains are significant as they relate to student interaction as well as student to teacher interaction.

Of interest to the development of this curriculum as well as to the study conducted by Freddolino and Sutherland (2000), is the ability of the distance learning courses to enhance these three domains in a comparable way to the traditional classroom experience. Using the Adult Classroom Environment Scale (ACES), the study examined students' perceptions of the classroom environment including such factors as: their affiliation and involvement with other students, influence they had on the course content, extent to which personal goals are met, extent to which course material is organized and presented clearly, and the extent to which the instructor is supportive (Darkenwald, 1987). The participants were students taking a series of 13 MSW courses (n=158). Results indicated that the same kind of quality learning environment can be provided via the classroom or distance learning course curriculum when the distance learning environment incorporates local faculty (co-educators) present with the distance learners and adequate technical assistance is available. The study notes, however, the potential for bias on the part of the students evaluating the distance learning course as the option to take a distance learning course saved them considerable driving time (3 to 10 hours). Therefore, the researchers acknowledge that these students' expectations may have been lower because of their valuing of the convenience of the course. Suggestions for future research included connecting learning environments to outcome variables, replication of the study in comparing the quality of learning environments between traditional classroom and distance learning presentations of course material, and examining course specific issues as to what types of technology should be used to ensure a quality learning environment for different types of social work content. The study also presents some questions for future research including: "What is the right mix of human and technology supports ...?" and "What can social work education discover about some of the strengths and positive aspects of [distance learning]?" (p.124)

Based on the dimensions of quality learning environments reviewed by Freddolino and Sutherland (2000) as well as the results, recommendations, and questions stemming from their study, the current study seems to be in keeping with current literature and the building of social work knowledge as it applies to the impact varying educational delivery methods have on the learning environment for social work professionals. The current study will provide the opportunity to compare the KAB's gained from two different types of educational delivery methods (workshop seminar vs. distance learning). It will further explore if the teleconference and web-based seminar provide an effective balance of technology and human support to comparably impact the KAB's as it relates to the specific application of course content. And finally, the study can engage in an exploration (via course evaluation measures) in the positive and strength based aspects of distance learning.

Course Intervention: A Model for Teaching the Bio Inclusive Clinical Practice

Based on the development and literature support of the clinical model, the development of a course curriculum designed to impact the KAB's of mental health participants, and a review of current literature in the fields of continuing education, adult learning, and comparability of traditional and distance learning environments, a conceptual intervention model for the course curriculum intervention was developed and will be described in Chapter Three.

Chapter Three

Methodology

This chapter will provide details of the study's design, including a description of the research study and the clinical model taught in the course intervention, as well as the study's research design conceptual model that defines the independent and dependent variables. A description of the independent variables (course curriculum and demographics) and dependent variables (knowledge, attitudes, and behaviors of human service professionals) are presented. Measures for all dependent variables were developed by the researcher and are described briefly in this chapter. A full discussion of the measures is provided in Chapter 4. A summary of the targeted sampling frame and planned procedures for sampling is provided. Finally, the plan for data collection and analysis is reviewed. Copies of all measures are provided in the appendices.

Description of Research Study

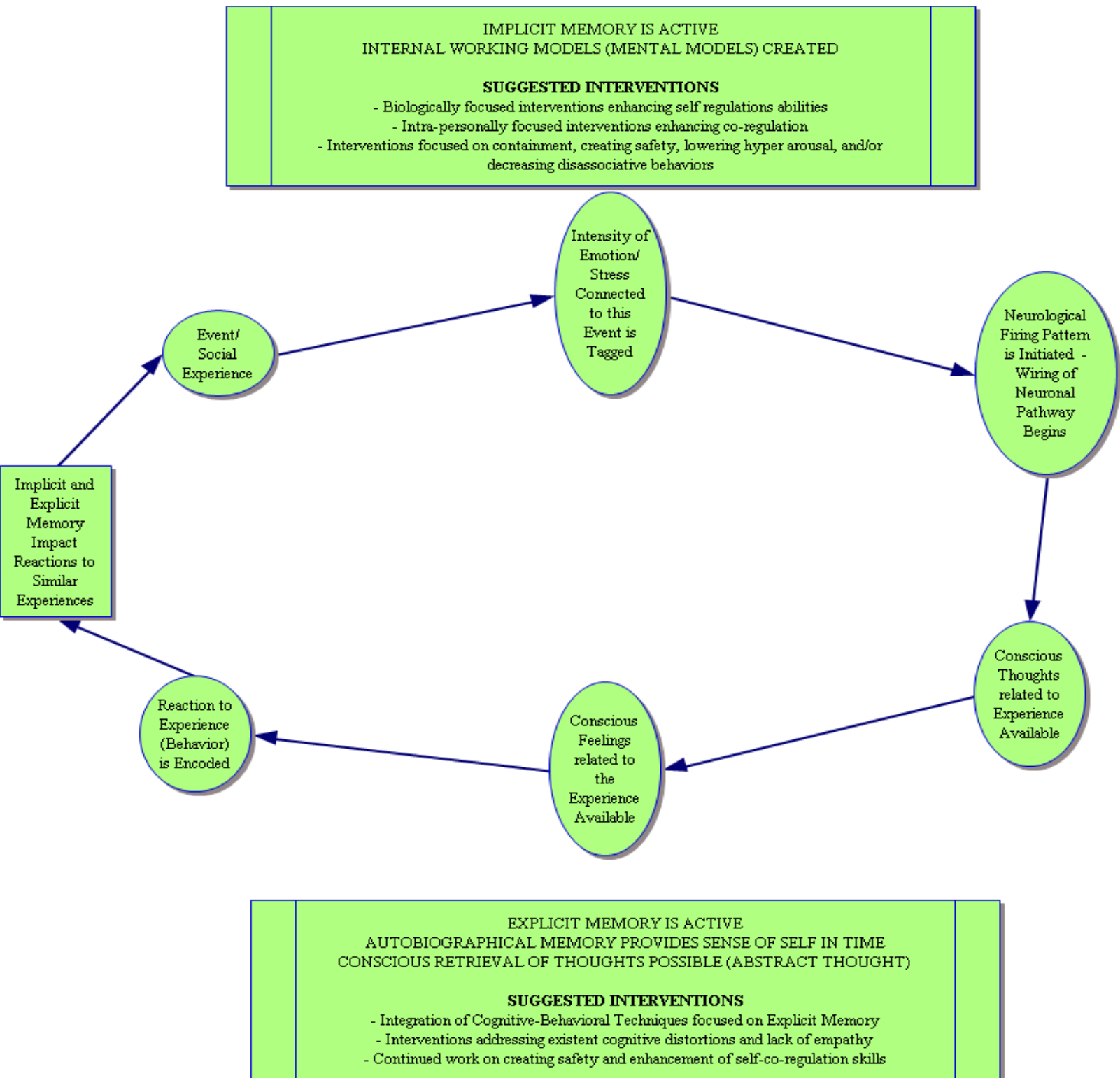
This study measured the effects of a course curriculum intervention provided to human service professionals primarily working with youth who have conduct-related mental health disorders. Specifically, the study explores how the course created by the researcher (intervention) affected participants' knowledge, attitudes, and assessment and treatment planning behaviors when compared to individuals in the waitlist control group. An analysis of group difference on the knowledge and attitude variables was conducted utilizing two pretest-posttest control group designs with random assignment. Half of the participants participated in the course intervention model and half of the participants were placed on the waiting list for the course intervention model. Two types of intervention delivery methods were utilized for the course intervention: a distance learning version of the course (via teleclass) and a face to face

workshop version of the course. The researcher provided both interventions and was the primary data collector. Given the interest in comparing two groups as defined by a single independent variable (the course) across multiple quantitative dependent variables (knowledge and attitude), a multivariate group comparison analysis was conducted (One-Way Multivariate Analysis of Variance or MANOVA). Additionally, a constant comparison word analysis within and between groups was conducted to evaluate differences in the qualitative dependent variable (assessment and treatment planning behaviors). Pre and posttest qualitative data was utilized in this cross case analysis.

Creation of the Course Intervention Model: A Bio Inclusive Clinical Practice Model

Based on all of the literature reviewed on attachment theory, neurobiology, and trauma as they relate to youth and caregivers, a clinical model was created to provide guidance for best practices with youth who have experienced trauma (Figure 3.1, below). This clinical model will be presented here to provide context to the study's conceptual model.

Figure1
Conceptual Model



The clinical model is used in the core curriculum to support participants in integrating didactic knowledge with suggested assessment tools and interventions for youth who have experienced trauma. This model demonstrates the “normal” manner in which individuals process social and cultural experiences and the impact of these experiences on memory, implicit emotional tagging, neuronal firing patterns, thoughts, feelings and behaviors. The model suggests where the focus of clinical interventions should be if the client is (a) having significant reactivity to attachment relationships; (b) experiencing active trauma symptoms (including body memories attached to more implicit forms of memory); (c) appears to be being regulated from more limbic, or lower brain regions; or (c) falls anywhere on Perry’s (2001) continuum of adaptive responses to threat outside of a resting state when the client is calm. Once a client (a) is able to access use of more cortical portions of the brain (neocortex or cortex); (b) is able to engage and practice skills in attachment relationships; (c) has had a significant reduction in active trauma symptoms; and (d) falls into more of the “resting” state of response to threat (according to Perry’s model), then this clinical model suggests the inclusion of more psychosocially based interventions including CBT techniques.

The model starts with an individual having a social experience that is moderately stressful. This experience is tagged with the level of emotion experienced at the time and encoded in the individual’s implicit memory (un/subconscious). This encoding will later serve to help the individual anticipate rapidly what may occur next if presented with a similar experience. Next (and almost simultaneously), the experience triggers a specific neuronal firing pattern which over time (and with similar repeated experiences) will become bioelectrically wired through pathways in the brain (the old expression of “what fires together, wires together.” These repeated experiences are then cortically consolidated into the explicit memory which allows the

individual to access the memory, the thought triggered by the experience (event), the feelings triggered by the event, and the behavior which occurred as a choice or result of the event. Based on this encoding into the explicit memory, an individual who *has not* experienced significant levels of trauma will be able to learn from this experience and consciously access explicit memory.

So, therefore, if an individual *has* experienced secure attachment and is able to engage in a state of calm, then clinical work can focus on accessing explicit memories and using techniques which enhance an individual's problem solving abilities as well as interventions which practice social skills (CBT). A primary reason that this individual will be able to engage in this work is that when stress or frustration arises in the therapeutic process, this individual has the ability to access self soothing techniques gained through experiences in relationships with secure figures (in childhood). In essence, this individual experienced a (or many) social relationship(s) which resulted in implicit memories and the firing of neurological pathways that promoted brain structure and functioning development of the neocortex and cortex (particularly the orbital frontal cortex). In essence, thinking of the brain as a muscle, individuals who experience secure attachment in relationships are able to exercise those higher cortical parts of the brain and make them strong. Therefore, during times of crisis, they are able to access those implicit and explicit memories and activate neuronal pathways which provide for self soothing, calmness, abstract thought, and problem solving. Therefore, interventions will focus on the bottom half of the conceptual diagram. Interventions on the bottom half of the diagram target conscious thoughts, feelings and behaviors that have been encoded in the client via experiences s/he has had. Again, if the child has a secure attachment pattern, then conscious thoughts and feelings are accessible in therapy and Cognitive-Behavioral Therapy techniques (CBT) focused on explicit memory are

appropriate. Examples of appropriate CBT techniques include challenging thinking distortions and enhancing problem solving skills. While interventions on the bottom half of the diagram include CBT techniques, it is imperative that children still practice co-regulation and self-regulation activities so that they can stay calm enough to be able to access higher level brain functioning and benefit from more cognitive types of therapies.

While interventions targeted at explicit memory can be utilized with children with secure attachments, individuals with insecure attachment pattern and/or have experienced significant trauma in their life (which has not been resolved), are more challenged in their ability to engage in the interventions presented in the lower half of the diagram. In essence, individuals who experienced insecure attachment style patterns in childhood did not have experiences which strengthened the higher cortical areas of their brain (particularly the OFC). Rather, their experiences increased development in the lower levels of the brain connected to survival (limbic brain). In essence, rather than these youth's OFC doing pushups and getting strong in childhood, their amygdala has been doing pushups and is highly developed. Therefore, the threat response of these youth is highly developed and often (most likely due to some atrophy in the hippocampus) the parts of their brain that would lower the chemicals (adrenocorticotrophic hormone or ACTH) that arouse them during times of stress are no longer regulated by the hippocampus. The result is a highly exaggerated fight/flight or freeze response which often follows Perry's (2001) hyper-arousal continuum of adaptive responses to threat. In this case, their mental models and experiences are primarily stored in more subconscious components of their implicit memory. Some cognitive-behaviorally based interventions which target more conscious forms of memory and hold to more consequential/reward systems of behavior modification will not be effective. Therefore, individuals who have experienced trauma

(unresolved) and/or have insecure attachment styles would benefit more from interventions suggested at the top half of the clinical model (i.e. biologically based interventions focused on developing skills in self-regulation and co-regulation). As these youth develop new neuronal pathways which support self regulation and internal states of calm, interventions focused at the bottom half of the clinical model diagram can be integrated.

Course Intervention: Teaching the Bio Inclusive Clinical Practice Model

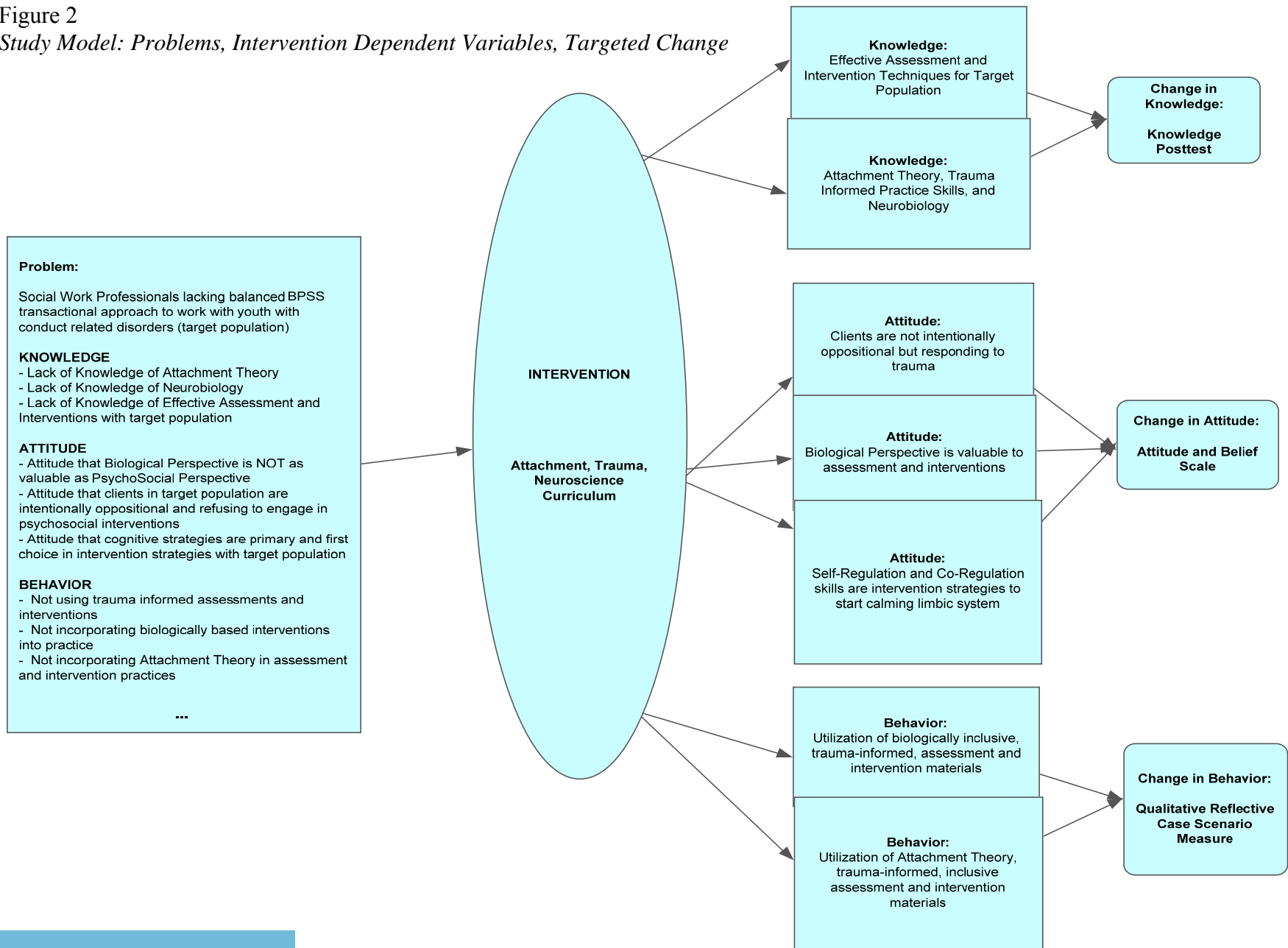
Having discussed the creation of the clinical model, the targeted population of the clinical model, the clinical experience that guided the model, and the literature base of the clinical model, we now turn to how the clinical model was incorporated into the creation of the course curriculum. Throughout this researcher's educational experience (Bachelors, Masters and Continuing Education), there was an absence of biologically based trauma informed perspectives and/or knowledge integrated into the social work curriculum. Given the benefit of this perspective, which the researcher experienced via clinical practice and as evidenced in the literature reviewed, a determination was made that the integration of this material at the continuing education level of learning was needed. The researcher focused on gaining this knowledge through doctoral studies and during an independent study course. The researcher designed a three-hour workshop that would provide participants with a general knowledge of attachment theory, basic neurobiology, and the relevance of this material to individuals who experience trauma and demonstrate conduct related disorders. This workshop was presented at the National Adolescent Perpetrators Network Conference in Portland, Oregon in 2005. Based on the feedback and reactions of participants in this conference, the researcher continued with the development of this curriculum culminating in an 8 hour workshop that provided all the

information included in the 3 hours workshop, as well as assessment and intervention techniques designed to provide a strong biologically based focus within a transactional model of practice.

Over the course of the next two years, the researcher began integrating this material into BSW and MSW practice courses and was encouraged to provide components of the workshop within these programs as well as to local departments of social service, juvenile court service units, and community service board staff serving youth and families. In 2007, the researcher was asked to teach this course as a distance learning course so that it could be offered to different clinicians in different states of a private mental health agency focused on work with at risk youth and families. The distance learning version of this course was taught twice and then submitted along with the workshop seminar version of the course for review by the Association of Social Work Board. During the review process, the researcher was asked to create evaluative measures to begin looking at the impact of the course on the knowledge, attitudes, and behaviors (KAB's) of the mental health professionals taking the course. In order to meet this request, specific learning objectives of the course were identified, a course evaluation was created, and a posttest of knowledge provided by the course was designed. The course was approved by the Association of Social Work Board in May of 2007 as a continuing education course for licensed social workers. Concurrently, multiple regions and states of the private mental health agency began expressing interest in taking the course as it applied to the populations with which they are working. From this interest came the final decision to evaluate this course's impact on mental health professionals' KAB's, using an experimental design where clinicians interested in taking either version of the course could be randomly assigned to either the next offering of the course or placed on a waiting list to receive the course. In addition to the course evaluation and the posttest measures, a qualitative measure was added to evaluate whether transfer of learning was a

result of the course as it applied to a change in the behavior of mental health professionals' assessment and intervention skills with youth who have experienced significant trauma in their lives.

Figure 2
Study Model: Problems, Intervention Dependent Variables, Targeted Change



Description of Independent Variable

Overview of Course

The independent variable for this study is the attachment, trauma, neuroscience curriculum referenced in Figure 2 (above). As discussed previously, the course is designed for social work practitioners and human service professionals. It aims to enhance their understanding of attachment theory and neurobiology as they apply specifically to clinical assessment and intervention planning with youth who have experienced significant trauma in their lives and who exhibit externalizing behaviors that are often aggressive and destructive. The curriculum design is based on goals and strategies suggested by the Council on Social Work Education (CSWE), the social work profession's commitment to improving the quality of life of vulnerable groups of clients and their families, and a need to balance the biological lens of the biopsychosocial-spiritual perspective with the psychosocial lens. The intervention model can be provided as either an 8 hour workshop seminar or an 8 hour teleconference class.

Course Format and Curricula Included

The format of the course provides participants with both didactic theory and research material, experiential engagement with the use of the material, and practical assessment and intervention application of material to clinical populations. The initial three hours of the workshop and distance learning course is didactic in nature, providing a foundation for attachment theory and the current application of neuroscience. The course opens with the instructor reading a poem and engaging participants in an experiential exercise in which they shift into the role of the client looking out at the practitioner. This perspective is intended to reflect the intent of the course, which is to gain an understanding of attachment and the attachment experience for individuals who have experienced trauma from the inside out. After

providing the didactic content (left brain) on attachment theory and neuroscience, the middle of the course engages participants in activities involving music and pictures designed to experientially (right brain) teach the concepts of implicit and explicit memory. The last three hours of the course focus on assessment and intervention techniques. Intervention techniques are presented through video of live sessions or replications of sessions, and all participants engage in practicing these interventions during the course, regardless of the delivery method in which they are involved. At the conclusion of the workshop, and at the end of each teleconference session, participants are asked to engage in a learning review activity called “Head, Heart and Hand.” During this activity, participants are asked to think through the information and experiences of the course material and report out one thing they think differently about (head), one thing they feel differently about (heart), and one thing they plan on doing differently based on what they have learned (hand). Table 3.1 provides the complete curriculum and agenda presented to all course participants.

Table 3.1
Course Curriculum Agenda

Session Focus	Information Covered	Slides Reviewed
Module One Overview of Course Understanding Attachment	<ul style="list-style-type: none"> ○ Overview of topics presented in course ○ Presentation of Characteristic Symptoms of Youth with Sexual Behavior Problems and Other Conduct Problems ○ Introduction and Explanation of 2 Trauma Models 	Slides 1-12
Module Two Introduction of Attachment Theory	<ul style="list-style-type: none"> ○ History of Attachment Theory ○ Development of Attachment Patterns ○ Presentation of Solomon's Refinement of Ainsworth's Attachment Patterns 	Slides 13- 54
Module Three Attachment Styles for Children and Adults	<ul style="list-style-type: none"> ○ Presentation of Bartholomew and Horowitz's Adult Attachment Patterns ○ Explanation of AAI 	Slides 55-74
Module Four Attachment Style and Introduction to the Experience Based Brain	<ul style="list-style-type: none"> ○ Siegel's Experience Based Brain Model ○ Introduction of ECR-R measure of Attachment Patterns ○ IPPA measures 	Slides 75-100
Module Five Neuroscience and Trauma	<ul style="list-style-type: none"> ○ General Anatomy of the Brain as it relates to memory and emotion ○ Understand the role of the Amygdala and Hippocampus in Trauma ○ "Happy Child" and "Terrified Child" model ○ Memory, Stress, and Trauma 	Slides 101-138
Module Six Internal Working Models	<ul style="list-style-type: none"> ○ Experiential Exercise Implicit vs. Explicit Memory ○ Understanding the Experience of a Child with RAD ○ Characteristics of children with RAD and other conduct problems resulting from trauma 	Slides 139-171
Module Seven Assessment	<ul style="list-style-type: none"> ○ Tools providing support in conducting a more "trauma aware" assessment ○ Separation of Motivational issues from Processing Issues in Assessment 	Slides 172-180
Module Eight Intervention	<ul style="list-style-type: none"> ○ Exploring Biofeedback as a Means of supporting clinical work with this population ○ Neurofeedback Options ○ Techniques for Increasing Attunement in Youth with Problems related to Conduct 	Slides 181-232

Descriptive Independent Variables

In addition to evaluating differences in knowledge, attitudes, and behaviors between groups, other descriptive independent variables (were?) used to evaluate differences between groups as well. These descriptive variables include: participant demographic variables (e.g.: gender, ethnicity, age, etc.); background in attachment theory, trauma, and neurobiology (clinical and academic); and degree history (level of education and/or licensure). These variables (were?) collected during the pretesting phase of the research study.

Description of Dependent Variables

The current study evaluated the effectiveness of the course curriculum's (independent variable) impact on the knowledge, skills, and abilities of human service professionals in the areas of: attachment theory, neuroscience, impact of trauma on neurobiology, and assessment and intervention planning with youth who have experienced significant levels of trauma. The study initially intended to additionally explore group differences in knowledge, attitudes, and behaviors between participants completing the course using distance learning (webinar and teleconference) versus those participants completing the course via a more traditional workshop seminar. However, due to difficulty recruiting participation in the distant learning course intervention model, a multivariate analysis of difference between these two groups was not possible. A descriptive analysis of differences between these two groups and the waitlist control group is provided in Chapter 4 as well as a full discussion of the recruitment challenges experienced for this intervention group. Additionally, Chapter 5 discusses limitations of the preliminary descriptive results provided for the distant learning course (teleclass intervention group).

Figure 2 highlighted the three targeted dependent variables: 1) Change in Knowledge, 2) Change in Attitude, and 3) Change in Behavior. These dependent variables were operationalized so that changes in participants' knowledge, attitude, and behavior could be measured. The operationalized definitions of these variables as well as descriptive dependent variables are presented here.

Change in Knowledge

In this study, knowledge is defined in terms of specific information provided in the course curriculum. The course curriculum provided participants with information on attachment theory, neurobiology, and trauma. Additionally, the course curriculum provided participants with specific assessment and intervention techniques for youth who have experienced trauma and who have conduct-related clinical challenges in living. The study measured the participants' ability to learn this information (knowledge). For operational purposes, the study defined knowledge using the ten learning objectives of the course. These learning objectives are specifically related to a change in knowledge that is predicted to occur as a result of this course intervention model. The learning objectives were measured using a 28 item knowledge test developed for the study. Achievement or lack of achievement of these learning objectives was evaluated utilizing this knowledge post test measure. The specific learning objectives are provided below and the knowledge post test is provided in Appendix G:

Upon completion of the course, the participant should be able to:

1. Verbalize the two trauma informed cycles of understanding “offending” behaviors
2. Gain a basic understanding regarding the history and basic tenets of attachment theory and be able to verbalize this understanding.
3. Verbalize the four types of attachment style patterns and utilize one measure of attachment style
4. Verbalize the experience based nature of the brain

5. Describe the four lobes of the brain and the primary functions of each lobe
6. Describe the term “internal working models” and explain how these models affect children who have witnessed abuse
7. Report out 3-4 primary symptoms displayed by youth with RAD
8. Verbalize at least two new tools to use in the assessment process with youth and families who have experienced trauma
9. Describe the term “biofeedback” and give two examples of this type of intervention
10. Describe at least 2 new interventions to use with youth and families who have experienced trauma

Changes in Attitude

In this study, attitude is defined in terms of personal and professional belief systems held by participants regarding factors which impact the assessment and treatment of youth with conduct related disorders. More specifically, attitude in this study was operationally defined using a 15 item attitude scale developed to assess participants’ attitudes about trauma, closeness in relationships, the importance of the biological perspective, and where the focus of interventions should be for youth with problems of conduct. This scale was developed by the researcher. Three (3) items focused on importance of trauma, two (2) items focused on the importance of consequences, two (2) items focused on the importance of the biological perspective, and six (6) items made statements about where the focus of intervention should be for youth with problems of conduct (i.e. focus on problems, consequences, trauma, attachment and/or the biological impact of trauma on youth with problems of conduct). Three (3) of the intervention questions focused on treatment that included biologically based interventions (teaching self soothing, stress management, reduction of anxiety). One (1) of the intervention questions focused treatment primarily on limit setting. One (1) of the intervention questions focused treatment primarily on enhancing closeness in authority relationships. One (1) of the intervention questions focused primarily on managing problematic behaviors.

Utilizing these 15 items, a total attitude scale score and five (5) subscale scores were created. The total score sums all 15 item responses and ranges from 5 to 75. The higher the attitude total score the more agreement participants had with attitude statements that were supportive of a trauma-attachment-biologically-informed approach to working with youth with problems of conduct. The five subscales focus on attitudes related to: trauma, consequences, the biological perspective, trauma-informed interventions, and problem focused interventions. Seven (7) items on the attitude scale were negative items and were reverse coded given that the goal of the course curriculum intervention was to increase the participants' disagreement with these statements.

The course curriculum provided participants with information as well as experiential activities that specifically challenged two main attitudinal belief systems: 1) the belief that clients from this target population are intentionally oppositional and therefore often refuse to engage in psychosocial based interventions, and 2) the belief that the biological perspective is not as valuable in understanding and treating clients as the psychosocial perspectives. Evidence that the curriculum impacted these beliefs was gathered using the attitude scale described. The attitude scale was administered to both intervention groups before and after their participation in the course curriculum. Additionally, the attitude scale was administered to the waitlist control group two times.

Change in Behavior

In this study, behavior is defined in terms of participants' planning for assessment and intervention with clients from the targeted clinical population. The course curriculum presented specific assessment and intervention tools that were suggested as best practices with youth who had experienced trauma and who exhibited conduct related behavior problems. For operational

purposes, the study measured the changing or maintaining of two professional behaviors: 1) participants' utilization of biologically inclusive assessment and intervention materials and/or 2) utilization of attachment theory inclusive assessment and intervention materials. The study measured the existence, changes and/or maintenance of these two behaviors before and after participation in the course curriculum.

Research Design

Human Subject Protections

Protection of participants who were invited to participate in the study was of principal concern. Prior to recruitment being initiated, the study was submitted to and approved by the Institutional Review Boards at Virginia Commonwealth University. Given the low risk of harm for participants, a signed informed consent form was not required. However, to ensure that participants fully understood the ramifications of the study, full disclosure about the intent, design, and study of the procedures was provided via intranet on the Survey Monkey© website. Upon entering into the survey, this informed consent document was the first document shown to potential participants. At the end of the document, the following language was included:

“This document is intended to answer many of your questions about your participation in this study. If at this time you feel you wish to participate in this study and complete the pre course measures, simply proceed to the next page of the survey and begin responding to the questions. If at this time you do not wish to participate in this study, simply log off of this survey site and no other further action is required of you ... If you wish to participate in this study, please type your name in the box below so that we can keep your responses together during the three different times we collect them.” (Appendix C)

If a participant entered his or her name in the box, this entry and completion of the survey served as consent to participate in the study. Participant names were used to track pre and posttest completion of measures. Only the researcher viewed participants' names and other identifying information during data analysis. No participants reported any type of distress based on their participation in the study to either the researcher or the Internal Review Board.

Design

The current study used a pretest-posttest control group design, as explicated by Campbell and Stanley (1963). This design was utilized for both intervention groups (the workshop intervention group and the teleclass intervention group). This design aimed to isolate the effect of the intervention by removing other influences via creating equivalent groups using randomization (Campbell & Stanley, 1963; de Vaus, 2001). This research design controls for maturation, history (except for intra-session history, meaning differences occurring within different course sessions), testing, instrumentation, regression, and selection. Mortality (attrition) is an issue given that the distant learning version of the course is 8 weeks and that there will be three months between posttests. This risk of mortality will be addressed in the data analysis by employing statistical controls and/or weighting samples dependent upon the level of drop-out which may occur during the course of this study (de Vaus, 2001).

While this type of experimental design offers substantial control of the threats to internal validity, there are other threats to external validity that exist. First, due to the use of a pretest, there is a risk of a reactive effect from the pretest (de Vaus, 2001). While the risk of this pretest effect on generalizability is significant, Campbell and Stanley (1963) note that in "educational research frequent testing is characteristic of the universe to which one wants to generalize" (p.26),

and therefore utilization of the pretest is often preferable to using a posttest only experimental design. The design is diagramed as follows:

$$\begin{array}{c}
 R O_1 X_1 O_2 \\
 \hline
 R O_3 O_4 \\
 R O_1 X_2 O_2 \\
 R O_3 O_4
 \end{array}$$

Sampling

Characteristics of participants. The course was offered to all clinical practitioners of Providence Service Corporation, Inc. Providence Service Corporation employs approximately 4000 direct service practitioners across 37 states, the District of Columbia, and Canada. The majority of their employees are involved in some level of direct mental health community-based care and typically work with clients involved in government programs such as public assistance, probation or parole, Medicaid, or Medicare. All clinical staff (as well as non-clinical staff) are afforded the opportunity to participate in continuing education courses offered by Providence's Corporate University.

The Corporate University of Providence provides employees and future leaders with opportunities to build the skills and knowledge they need for job satisfaction and to meet and surpass performance expectations. Through various learning opportunities, the Corporate University of Providence enhances staff's skills and knowledge base, while providing the continuing education needed to increase professionalism and maintain licensing credentials. (Providence Service Corporation, Fall 2007, ¶ 1).

The core curriculum of this study has been offered to three regional offices in the company and as of December 19, 2007, was offered to all Providence staff. Via an intranet website, this course is posted as a continuing education opportunity for professionals across the different states in which Providence provides mental health services. Interested participants and/or regions could contact the Corporate University of Providence or the instructor of the course (this author) to obtain more information about participating in the course and potentially participating in the study that evaluated the course. The only requirements for participation in the course included serving as an employee of Providence Service Corporation and requesting to take the course; therefore, participants' age, ethnicity, level of education, clinical experience, and specific experience in working with the clinical models targeted population are variable. There were no fees associated with taking this course.

Sampling Procedures. Participants were recruited for participation in this study in two ways. First, participants requesting to register for the course were provided with a letter from the researcher announcing the study, providing an overview of the study, stating that the knowledge gained from the findings would contribute to our understanding of the effectiveness of this course as well as other continuing education courses offered, and requesting their participation (See Appendix A). Secondly, all state directors were notified via email about the study and provided with the same letter forwarded to registrants. The email to state directors requested that they post information about the study and course and make all staff aware of this research opportunity (See Appendix B).

All individuals expressing an interest in participating in the study were provided with a consent form that provided an overview of the study and outlined what they would need to do as participants in the study. The consent form explained that participants were being asked to

complete measures designed to evaluate changes in knowledge, attitudes and behaviors in assessment and treatment planning practices. Additionally, the consent form explained that the study would look at participants' experiences with different educational delivery methods. All Providence direct practitioners had the option of taking the course whether they participated in the study or not. The differences in the experience of the course for participants and non-participants included: 1) being randomly assigned to a course time, 2) completing a demographics survey, 3) completing background knowledge and degree history survey, 4) completing an attitude and beliefs survey and 5) completing the reflective case scenario measure. Additionally, any licensed clinician completing the course could receive continuing education credits for their participation if they completed a course evaluation. Licensed clinicians were eligible for continuing education credits regardless of their participation in the study.

In addition to explaining the types of measures participants were to complete and possible continuing education credits offered via course completion, the consent form also discussed incentives provided to participants for completing pre and posttest measures. Options to access the measures via the company Essential Learning© system or directly through the Survey Monkey© online system was explained as well. Finally, the consent form included a discussion of the potential risks to participants if they participated. Participation in this study involved no known physical risks to participants' health; however, it was anticipated that some participants might have concerns about the questions they would be asked and how their responses might impact their job performance. Examples of these concerns included fear that their individual responses would be shared with their supervisor or other leadership officials within Providence. Additionally, participants might have been concerned that their choice to participate would affect their job or their performance evaluation. These concerns were addressed in the consent form

provided to all participants. These concerns were addressed by assuring that the information gathered in this study was collected and kept safe so as to minimize or eliminate these risks. Assurances were given to participants that their involvement was voluntary and that in no way would their choice to not participate impact their job or ability to take the course. A full copy of the consent form is provided in Appendix C.

Employees consenting to participate in the study were included in the sample. Participants were asked if they preferred to take the distant learning or workshop version of the course. The researcher used random assignment procedures to define the treatment and control group participants. Participants interested in the workshop seminar course were randomly assigned either to the workshop seminar group (treatment group 1) or a waiting list for the workshop seminar (control group 1). Participants interested in the distance learning version of the course were randomly assigned to the distance learning course group (treatment group 2) or a waiting list for the distance learning course (control group 2).

When determining sample size, it is important to consider risks of Type II error. Type II error is when the researcher fails to reject a false null hypothesis (Rubin & Babbie, 2001). This rejection issue can occur, for example, if we reject a null hypothesis based on a significance level greater than .05; however, if a larger sample size had been utilized, the significance level could have fallen below .05 and therefore been significant. In other words, Type II error brings about the concern that we reject a false hypothesis because, while decreasing our risk of a Type I error (rejecting a true null hypothesis), we increased our risk for a Type II error (failing to reject a false null hypothesis) (Rubin & Babbie, 2001). Power analysis assesses the risk of Type II error. Calculating the risk of Type II error can be accomplished using a table constructed by Cohen (1988). The table can be used to plan the sample size needed to avoid Type II error. If the

researcher knows the significance level to be utilized in the study (.05 in this case), the effect size estimated ($r^2 = .10$, as recommended by Rubin and Conway (1985), for clinical social work outcome research), and the acceptable probability of committing Type II error (.20 as suggested by Cohen (1988)), then a recommended sample size can be ascertained. Using Cohen's table, a sample of 90 would meet the above stated criteria (at the .05 level of significance, where $r^2 = .10$, and there is a .14 probability of committing a Type II error). Based on this power analysis, the aim of the recruitment process was to obtain a minimum sample size of 200 participants, 50 per group. This would more than double the needed sample size, allowing for the risk of attrition which is significant in intervention studies where participants complete measure over an extended period of time. Recruitment began in September of 2008 and was going to continue for six months or until a sample of 200 was recruited.

Data Collection Procedures

Data in this design was initially planned to be collected at three stages: pretest, posttest, and 90 day follow up posttest. First, participants in all three groups (2 intervention groups and waitlist control group) were asked to complete a demographics survey, background knowledge survey, an attitude and beliefs survey and the reflective case scenario questionnaire upon their consent to participate in the study (See Appendices D,E,F, & H). These measures were completed by participants online unless a special request was made for a paper copy. Given that the measures were given online, individual completions of the pretest measures did not occur at the same time but rather within the time frame of recruitment. For example, if a region was assigned to the workshop intervention group, they were given the pretest measures several weeks prior to the offering of the course. Participants could complete these measures at any time prior to the

workshop intervention and be included in the study. Waitlist control participants were recruited continuously until 90 days prior to recruitment for the study ending.

Next, all participants completing pretest measures were asked to complete posttest measures to include the attitude and beliefs survey (Appendix H), a 28 item knowledge posttest (Appendix G) and the reflective case scenario questionnaire (Appendix F). Intervention participants were asked to complete these posttest measures subsequent to their completion of the course. Waitlist control participants were asked to complete these posttest measures 90 days after they completed the pretest measures. Requests for completing the posttest measures were made via Survey Monkey© system and reminders were provided at regular intervals via email to encourage posttest measure completion.

Finally, since intervention effects might not show up immediately, a second posttest was planned to be given to all participants completing the pre and posttest measures. The second posttest was planned to have been provided to all participants 90 days subsequent to their completion of their first posttest. Given challenges experienced with recruitment and posttest response rates, this second follow-up posttest was not distributed or collected. Discussions of this change in the methodological plan are provided at the end of this chapter as well as in Chapter four and five.

Table 3.2 (below) provides a time table of how pre and posttest measures were scheduled to be administered to all groups. The pretest measure was administered per the table guidelines. The first posttest measures were administered per these table guidelines. As previously discussed, the second posttest measure was not administered. A fuller discussion of the reasons behind the elimination of this measure is included at the end of this chapter. Because of the controls this

design provides to issues of internal validity, changes existing between groups post intervention may be correlated with the intervention introduced to the experimental group.

Table 3.2
Time Table for Measure Distribution among Three Groups

MEASURE	TYPES OF QUESTIONS	TIME TO COMPLETE	Group to Complete Measures	Time Period for Measure Completion
<i>Pre-Course Measure</i>	<ul style="list-style-type: none"> • Demographic Questions • Background Knowledge • Attitudes and Beliefs Assessment • Reflective Case Scenario Exercise 	Approximately 1 hour	All Groups	Intervention Groups - Prior to taking intervention course Waitlist Control Group - Ongoing across recruitment process
<i>Post-Course Measure</i>	<ul style="list-style-type: none"> • Attitude and Beliefs Assessment • Knowledge Assessment • Reflective Case Scenario Assessment 	Approximately 1 hour	All Groups	Intervention Groups - Subsequent to completing course Waitlist Control Group - 90 days after completion of pre-course measure
<i>3 Month Post Course Measure</i>	<ul style="list-style-type: none"> • Attitude and Beliefs Assessment • Reflective Case Scenario Assessment 	Approximately 35 minutes	All Groups	Intervention Groups - 90 days after completion of post course measure Waitlist Control Group - 90 days after completion of post course measure

Intervention Delivery Methods

This study employed two methods of delivery for the course curriculum. The research design discussed was utilized in the evaluation of participants engaging in both delivery methods.

At the time of registering for the course, participants were given the option to participate in the

distance learning version of the course or the workshop seminar version of the course. Participants interested in the workshop seminar course were randomly assigned either to the workshop seminar group (treatment group 1) or a waiting list for the workshop seminar (control group 1). Participants interested in the distance learning version of the course were randomly assigned to the distance learning course group (treatment group 2) or a waiting list for the distance learning course (control group 2). Both groups placed on the waiting lists received the course upon instructor's completion of the treatment groups' participation in the courses. Differences between experimental and control groups within each course curriculum delivery method were evaluated as well as differences existing between participants in the Distance Learning version of the course and the Workshop Seminar version of the course.

Measurement

Demographics Surveys

Two types of demographic information were collected from participants. These include: 1) a survey gathering descriptive demographic information and 2) a survey gathering information about participants' background knowledge in attachment theory, neurobiology, and trauma informed approaches to clinical practice. These independent categorical variables were collected and used in the data analysis to determine if any significant relationships exist between changes in knowledge, attitude, and behaviors and specified demographic variables of interest or pre-existing knowledge of material being provided in the training.

The demographic survey contains eight (8) items focused on capturing participants' identifying information including: gender, age category, ethnicity, type of work, level of education, academic discipline, licensure status, and location of agency practice. Items on this survey are all categorical. The background survey contains five (5) items focused on capturing

participants' previous experience with material presented in the course. Items ask participants to self report their level of expertise in the following subject areas: attachment theory, basic human anatomy, neuroscience and the brain, trauma informed approaches to clinical work, and biofeedback. Items are all categorical in nature as well.

Attitude and Beliefs Scale

In this study, attitude is defined in terms of personal and professional belief systems held by participants regarding youth who externalize behaviors in aggressive ways (e.g.: youth with Conduct Disorder, Reactive Attachment Disorder, and/or youth who cause sexual harm). Belief systems about the nature of problems impacts belief systems about the nature of change. In this study, the course intervention model was not only designed to increase knowledge to create more informed interventions, but also to change professional attitudes about youth with conduct related disorders. One premise of the course curriculum intervention is that by shifting from a belief that focuses on problems and consequences to a belief that focuses on understanding trauma, attachment, and their impact on biological responses to stress, professionals' assessments and interventions with this population would be enhanced.

A 15-item attitude scale was developed to assess participants' attitudes about trauma, closeness in relationships, the importance of the biological perspective, and where the focus of interventions should be for youth with problems of conduct. This scale was developed by the researcher. Three (3) items focused on importance of trauma, two (2) items focused on the importance of consequences, three (3) items focused on the importance of the biological perspective, and seven (7) items made statements about where the focus of intervention should be for youth with problems of conduct (i.e. focus on problems, limit setting, trauma, closeness

with caregivers and/or the biological impact of trauma on youth with problems of conduct). The interpretation of total attitude scale scores and subscale scores is provided in Table 3.3 (below).

Table 3.3
Attitude Scale and Subscale Evaluation Criteria
Scale and Items

Total Attitude Scale Score

- Includes all subscales and items below

Trauma Attitudes

1. Youth with conduct related mental health disorders rarely have experienced trauma.(R)
2. Assessing if a youth has experienced trauma is important to clinical practice.
3. If a youth has experienced major and/or minor traumas in their life, considering how this trauma impacts their decision-making is important in my treatment planning.

Consequence Attitudes

1. These youth need to experience significant consequences in order to change their decision making.(R)
2. Strict behavior reward and consequence systems work best with these youth.(R)

Biological Perspective Attitudes

1. In clinical work with youth, biological perspectives of treatment are secondary to psychosocial perspectives of treatment. (R)
2. In practice with youth, a good counselor would teach youth about the physiological impact of experiences they have had and how that impacts their ability to use problem-solving skills.
3. Things like sleep, diet, exercise, and stress management are less important clinically than a good behavior plan for a youth. (R)

Integrated Course Intervention Focused Attitudes

1. Clinical practice with youth should include teaching youth and caregivers skills to manage their anxiety and stress.
2. Clinical practice with youth should make teaching self-soothing and relaxation a major goal of treatment.
3. The focus of clinical practice with youth should include increasing their closeness in relationships with authority figures.

Problem & Limit Setting Intervention Focused Attitudes

1. The primary focus of clinical practice with youth should be on managing their problematic behaviors. (R)
2. Clinical practice with youth should primarily focus on teaching caregivers how to enforce strict limits on behavior. (R)

Interpretation

- High score indicates strong agreement with attitudes supporting material presented in the course curriculum intervention
- Includes 3 items related to attitudes towards the importance of trauma with youth with conduct related disorders
- High score indicates strong agreement that trauma is an important consideration in working with youth with conduct related disorders
- Includes 2 items related to attitudes that emphasize consequence and reward systems for youth with conduct related disorders
- High score indicates *strong disagreement* with consequence models being the first or primary focus in working with youth with conduct related disorders
- Includes 3 items related to attitudes that emphasize importance of the biological perspective in working with youth who have conduct related disorders
- High score indicates strong agreement in the importance of the biological perspective
- Includes 3 items related to importance of integrating attachment, trauma, and biological perspectives into a holistic treatment plan
- High score indicates strong agreement in the importance of integrating3 perspectives into interventions
- Includes 2 items related to focusing PRIMARILY on problem behaviors and enforcement of limits in treating youth with conduct related disorders
- High score indicates *strong disagreement* with focusing PRIMARILY on problem behaviors and enforcing limit setting

Knowledge Posttest

The knowledge posttest is one of the measures created by the investigator to measure change in the dependent variable “knowledge.” This measure includes 28 items. Each item involves a question or case scenario relating to material learned in the course. Upon completion of the posttest, a total score was calculated with one point being given for every correct answer provided. A score of 28 indicates a perfect score.

Changes in Behavior: Reflective Case Scenario Exercise

The case scenario change in behavior measure was provided to all participants’ pre and post intervention. This measure consists of a case assessment that provides the participant with a full psychosocial history of a client who falls within the range of clients for whom the training material could apply. Subsequent to reading this psychosocial information, the participant is asked to respond in writing to the following items: 1) Suggest up to five evaluative measures you would like to have conducted for this client; 2) Complete a DSM-IV TR diagnosis for this client based on the information you have been presented; 3) Write a two paragraph assessment summary based on the information presented; and 4) Present up to five treatment goals and intervention strategies you would present based on the assessment you have made of this client. Responses to this measure will be coded using constant comparison methods of data analysis. Themes emerging from these codes will be analyzed and presented.

Changes to Methodological Procedures

This chapter discusses the methodological plan for the current study. Upon implementation of the study, two components of this plan were changed. First, the researcher planned to have the study measures accessible to participants through both the company’s

Essential Learning© system and an outside online survey collection system called Survey Monkey©. In effect, the plan was to connect the measures housed on the Survey Monkey© system to the company's Essential Learning© system where all the continuing education courses for Providence are maintained. However, upon initiation of the study, the researcher and Essential Learning© staff determined that it would be more feasible for participants to complete measures via direct access to the Survey Monkey© system. Therefore, upon consent to participate in the study, participants were sent an email via the Survey Monkey© online system. This email provided them with the link to all the measures and followed all guidelines outlined in the research design chapter provided here. Participants did not have to access the Essential Learning© system to complete the measures.

The second component of the change in research design involved the exclusion of a second posttest measure. As was discussed earlier in this chapter, the initial research design plan for this study included a pretest and two follow-up posttests. The expectation at the time was that a good follow up response rate could be achieved for both posttests. As will be discussed in Chapter 4, recruitment challenges and response rate challenges were experienced over the course of data collection. The response rate for the first posttest was less than 50%. Given the challenges of gathering measures from participants on the first posttest, the researcher determined that response rate to the second posttest might be lower than the first posttest. If the second posttest had a lower response rate than the first, the value of analyzing that data would be diminishing. Therefore, during data collection, the research design was changed and only one follow up posttest was collected. Notification of these methodological changes was provided to Virginia Commonwealth University's Internal Review Board.

Data Analysis Plan

Data analysis of study results was a three-stage approach involving a combination of appropriate statistical techniques. The first stage of data analysis involved univariate analyses conducted on participants taking the workshop version of the course and the distant learning version of the course to determine overall values on various measures, scales, and general characteristics of participants (demographics and background knowledge). Means and standard deviations of the four scales were examined to assess the samples. This same process was then utilized to assess the total sample of participants. Estimates of internal consistency were obtained for the knowledge test and attitude and beliefs scale using Cronbach's alpha. Frequency distributions for all measures were conducted.

The second stage of data analysis involved bivariate analysis techniques. Bivariate analyses were conducted relevant to demographic and background variables in order to determine any differences existing in experimental and control groups. Subsequent to bivariate analysis being conducted, differences among the control and treatment groups were analyzed using a One Way Multivariate Analysis of Variance (MANOVA) statistical technique. This technique was used to look at differences within each course type (Workshop or Distance Learning) as well as between the four groups (Workshop participants, Workshop Waitlist Participants, Distance Learning Participants, and Distance Learning Waitlist Control Group) across the dependent variables: knowledge and attitude. Chapter 4 will provide information on results from these analyses.

In addition to the analysis of the quantitative measures used in this study, a qualitative approach to research analysis was utilized to analyze participants' responses to the case scenario measure. a qualitative word analysis of the open ended responses to the case scenario questions

is presented. Qualitative methods of word counting and word analysis (via constant comparison) were utilized to discover patterns of ideas and important constructs that arose in the assessment and treatment planning of a particular case. Themes arising from intervention participants and Waitlist control participants are compared and presented in chapter four.

Chapter 4: Results

This chapter presents study findings in six sections. The description and rationalization of the data analysis strategy are presented first. The second section presents univariate statistics of the background knowledge and demographic characteristics of the sample. The third section reviews the three measures created by the researcher to collect the data; the Knowledge Posttest, the Attitude scale, and the Case Scenario Exercise. The fourth section explains data entry, cleaning, and pre-screening and transformation. The fifth section presents the multivariate analyses testing hypotheses 1, 2, 3, and 4. Lastly, a qualitative word analysis of the open ended responses to the case scenario questions is presented. Qualitative methods of word counting and word analysis (via constant comparison) are utilized to discover patterns of ideas and important constructs which arose in the assessment and treatment planning of a particular case. Themes arising from intervention participants and waitlist control participants are compared and presented.

Data Analysis Strategy

This study measured the effects of a course curriculum intervention provided to human service professionals primarily working with youth who have conduct-related mental health disorders. Specifically, the study explores how the course created by the researcher (intervention) affected participants' knowledge, attitudes, and assessment and treatment planning behaviors when compared to individuals in the Waitlist control group. Descriptive statistics were used to consider socio-demographic characteristics and prior knowledge of the course content by participants in the intervention and control groups. Given the interest in comparing two groups as defined by a single independent variable (the course) across multiple dependent variables

(knowledge and attitude), the multivariate test selected was One-Way Multivariate Analysis of Variance (MANOVA).

MANOVA tests for differences among two or more groups when multiple DVs are of interest and controls for the correlations among these DVs (Mertler & Vannatta, 2005). MANOVA also allows for management of the Type I error rate while integrating the intercorrelation of the outcome measures into the analysis and is robust to moderate violations of normality (Mertler & Vannatta). Mertler and Vannatta suggest that with “equal or unequal sample sizes and only a few DVs, a sample size of about 20 in the smallest cell should be sufficient to ensure robustness to violations of univariate and multivariate normality” (p.124). Additionally, MANOVA will be able to explain the amount of variance in the dependent variables that will be attributed to the independent variable. Using Wilk’s lambda (Λ), an indication about the change in the dependent variables not explained by the independent variable can be provided. Wilk’s Λ values range from 0-1. A low Λ indicates significant group differences, while a value closer to 1 represents no significant difference existing between groups (Mertler & Vannatta). Effect size or strength of the association between the course and the outcomes from the Knowledge test and Attitude scale will be measured by eta squared (η^2), or $1-\Lambda$, which is the proportion of variance that can be explained by the effect of the independent variable (Weinfurt, 2000).

Finally, qualitative analysis procedures including word counting and word analysis are utilized to interpret responses to assessment and treatment planning practices of participants’ pre and post participation in the course intervention. Word counts are utilized in qualitative research to discover patterns of ideas in different bodies of text including open-ended responses to questions (Ryan & Bernard, 2003). Word analysis, specifically the method of constant

comparison, helps researchers discover themes in texts. Both methods of analysis focus on identifying important constructs and comparison of these constructs across groups (Ryan & Bernard). Research hypotheses 5, 6, 7 and 8 focus on analyzing participant responses to the case scenario. Using SPSS's Text Analytics Program, word counts and word analyses of participants' responses to the assessment and treatment-planning questions (ex: need for further evaluative tests for the client, DSM-IV diagnosis, treatment goals and interventions) were compared. First, intervention participants' responses prior to the course and after the course are compared. Secondly, intervention participants' responses are compared to Waitlist control participants. Changes in thematic content are noted between groups as well as within the intervention participants' group.

Finalizing a Sample for Analysis

Recruitment and Response Rate Considerations

Using recruitment strategies defined in Chapter 3, approximately 6800 mental health workers were targeted for the study. These 6800 direct care practitioners have access to the Corporate University of Providence (CUP) website where the study was advertised over the course of several months. As discussed previously in Chapter 3, CUP provides various learning opportunities to all direct and non-direct care practitioners employed by Providence Service Corporation. Additionally, all of the Providence State Directors were sent an email message asking them to let their Regional Directors know about the study opportunity (Appendix B). The 6,800 mental health workers live across 37 states, the District of Columbia and Canada. Calculating response rate from this 6,800 figure is challenging given that it cannot be estimated how many of the 6800 actually heard about this opportunity. Based on CUP records, between 2007 and 2009, approximately 1,298 direct care practitioners took a course (workshop or

teleclass) from the continuing education program at CUP. Approximately 1,007 of those staff took clinical courses from CUP. Staff taking classes from CUP must view the website and therefore would have seen the advertisement for this study. If the figure for clinical staff is utilized, then the sampling frame would consist of 1,007 mental health workers.

Of these 1,007 workers, 205 consented to take part in the study and completed the pretest. This translates into a response rate of 20%. Assuming a confidence level of 95%, the 205 participants who responded would represent a Margin of Error or Confidence Interval of +/- 6.1% ("Answer Research," 2009). Some argue that the lower the response rates in a research study, the greater the chance that there is bias in the results (Babbie, 1990). In mail-in surveys, response rates of 20 to 30% are not uncommon and often mean that the participants being studied do not accurately represent the sample from which they were drawn (Fowler, 1984). Fowler notes that often this is because those who choose to respond are more interested in the topic than those who choose not to respond. Others contend that often a lower response rate (like 20%) can produce more accurate results than surveys where a higher response rate is achieved (like near 60-70%) (Visser, Krosnick, Marquette, & Curtin, 1996). Sheehan (2001) suggests that based on 31 studies in which email was used to collect data; the average response rate is 36.83% (with a range of 21.6 and 72%). While there is still debate regarding the percentage needed for a "good" response rate, this study's response rate of 20% does present concerns of sampling bias. However, less than 50% of studies meet their recruitment targets (Treweek, Mitchell, Pitkethly, Cook, Kjeldstrom & et al., 2010). An additional challenge in this study was the inability to accurately calculate the number of participants in the sampling frame given the inability to track the number of practitioners made aware of the study through management or the CUP website.

Follow Up Response Rate

Of the 205 participants who completed the pretest, 88 participants did not complete the posttest. An additional two participants completed the posttest only. Of the 115 participants who completed the posttest, 62 completed the intervention while 53 were in the waitlist control group. This represents a posttest response rate of approximately 56% for the attitude scale Posttest. Another eight participants did not complete the knowledge posttest, representing a posttest response rate of 52%. Given that requests for completion of posttest were conducted via email, Sheehan's 36.83% could be used to evaluate the posttest response rate. Using 36.83% (2001) as the average response rate via email data collection, response rates for both follow up tests were well above the average. Yet these response rates are based on one-time surveys that do not take into account attrition issues that are common in intervention and longitudinal research where a participant must stay involved with the study and responding to questions over time. "A key challenge of online health interventions is that of retaining subjects, especially for follow-up surveys to measures outcomes (Couper, Paytchev, Strecher, Rothert, & Anderson, 2007, p. e16)." Some intervention studies report retention rates of 1% and .5% (Farvolden, Denisoff, Sleby, Bagby, & Rudy, 2005; Christensen, Griffiths, Korten, Brittliffe, & Groves, 2004). These retention rates represent attrition rates of 99% and 99.5% respectively. The retention rate for this study was 56%, which represents a significantly higher retention rate and attrition rate than reported by other intervention studies.

Definition of Final Sample Analyzed

Participants were randomly assigned to either an intervention group or a waitlist control group. Two versions of the intervention were offered as options to all participants. Intervention participants could choose to participate in the course via an in-person workshop or a teleclass

(audio-conference version of the course). Workshop intervention participants were randomly assigned by region or state, while individuals interested in the teleclass course were randomly assigned individually. All waitlist control participants were offered the opportunity to take the course upon the completion of the study. Waitlist participants were scheduled to have a minimum of three months between taking the first and second set of measures. Waitlist control participants were recruited from September of 2008 through April of 2009. Follow up requests began in December of 2008, and responses to the second set of surveys were available in January of 2009 (3 months after the first set of Waitlist control participants were recruited). Therefore, the first set of measures and second set of measures were accessible to all members of the Waitlist control group between January of 2009 and April of 2009. Unexpectedly, some Waitlist control participants answered the first and second set of surveys in less than 90 days, going back in the last 3 months of the study and completing both measures. The mean number of days between survey administrations for a participant in the Waitlist control group was 66.85 days with a standard error of 36.84 days. The median number of days between administrations of the surveys was 81.50 days. This technology error was not predicted by the researcher. Approximately 14 participants completed the two surveys within 30 days of each other, 4 participants completed the two surveys within 30 to 60 days of each other, and 18 participants completed the two surveys within 60 to 90 days of each other.

Final Sample for Analysis

Of the 205 participants completing the pretest, 123 were assigned to the intervention group and 82 were assigned to the waitlist control group. Of the 123 assigned to the intervention group, 20 elected to take the teleclass version of the course and 103 elected to take the workshop version of the course. Of the 205 participants completing the pretest, 115 completed the attitude

scale posttest. Additionally, due to a technological error in administration of the survey, two people completed the attitude scale posttest that did not complete the pretest measures. Of the 115 participants who completed the pre and posttest, 53 participants were in the waitlist control group and 62 were in the intervention group (12 in the teleclass version of the course, 50 in the workshop version of the course).

Table 4.1
Participant Completion of Pre and Posttests (N=205)

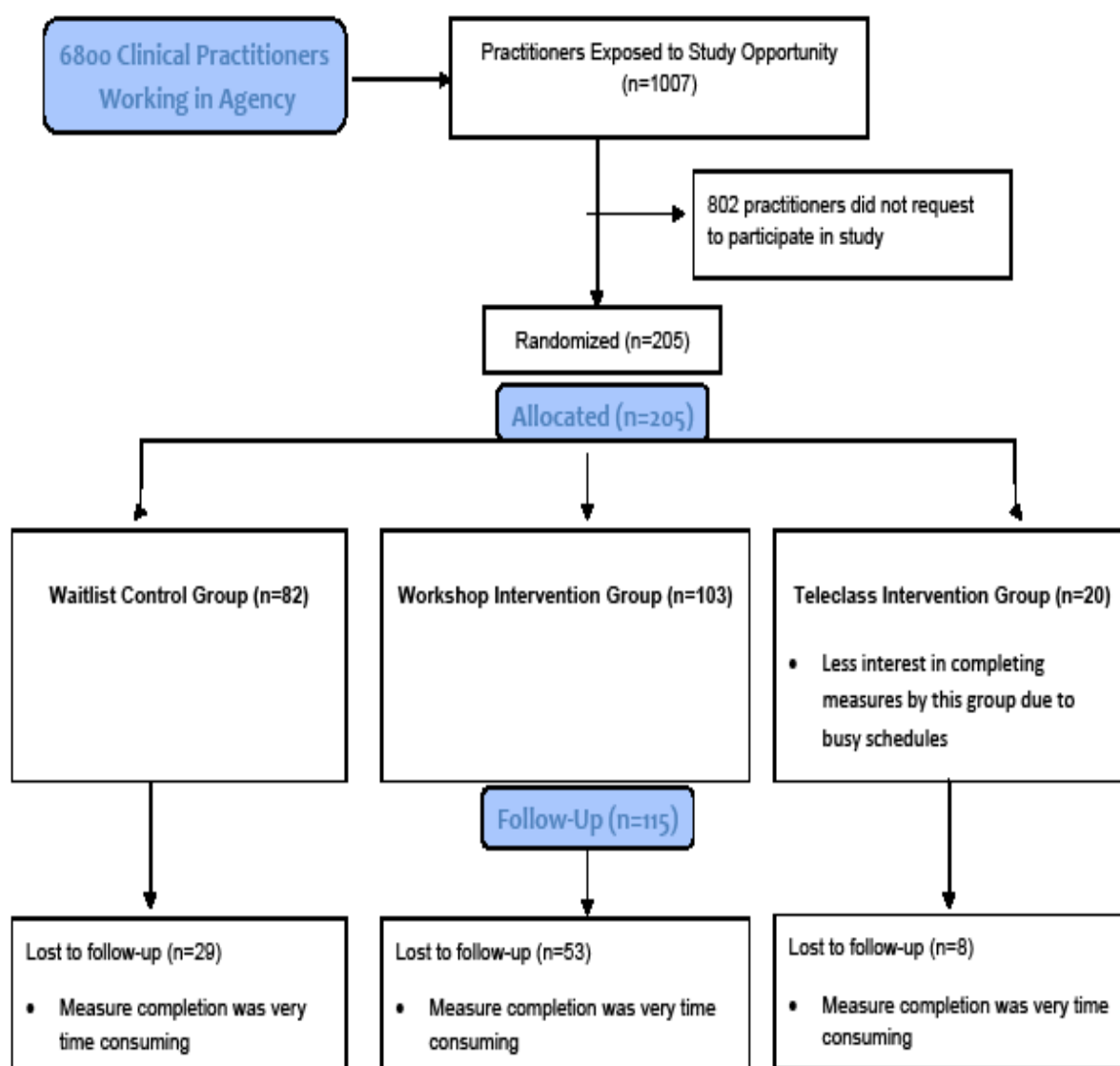
Group Membership	Measures Completed	Participants
Waitlist Control Group	Pretest Only	29
	Pre and Posttest	53
	Total	82
Intervention Group (Teleclass)	Pretest Only	8
	Pre and Posttest	12
	Total	20
Intervention Group (Workshop)	Pretest Only	51
	Pre and Posttest	50
	Posttest Only	2
	Total	103

Due to the difficulty in recruiting participants interested in the teleclass intervention of this course (n=12), the primary focus of this data analysis will be in comparing the waitlist control group with participants in the workshop intervention group. Some analysis of differences between the workshop intervention group and the teleclass intervention group in relation to the waitlist control group will be discussed later in the chapter. However, given that only twelve (12) participants in the teleclass intervention group completed pre and posttest measures, this analysis has no ability to be generalized to the sample. Results from the teleclass participants is presented

to consider future endeavors in studying differences in learning this material via teleclass versus through a face to face workshop.

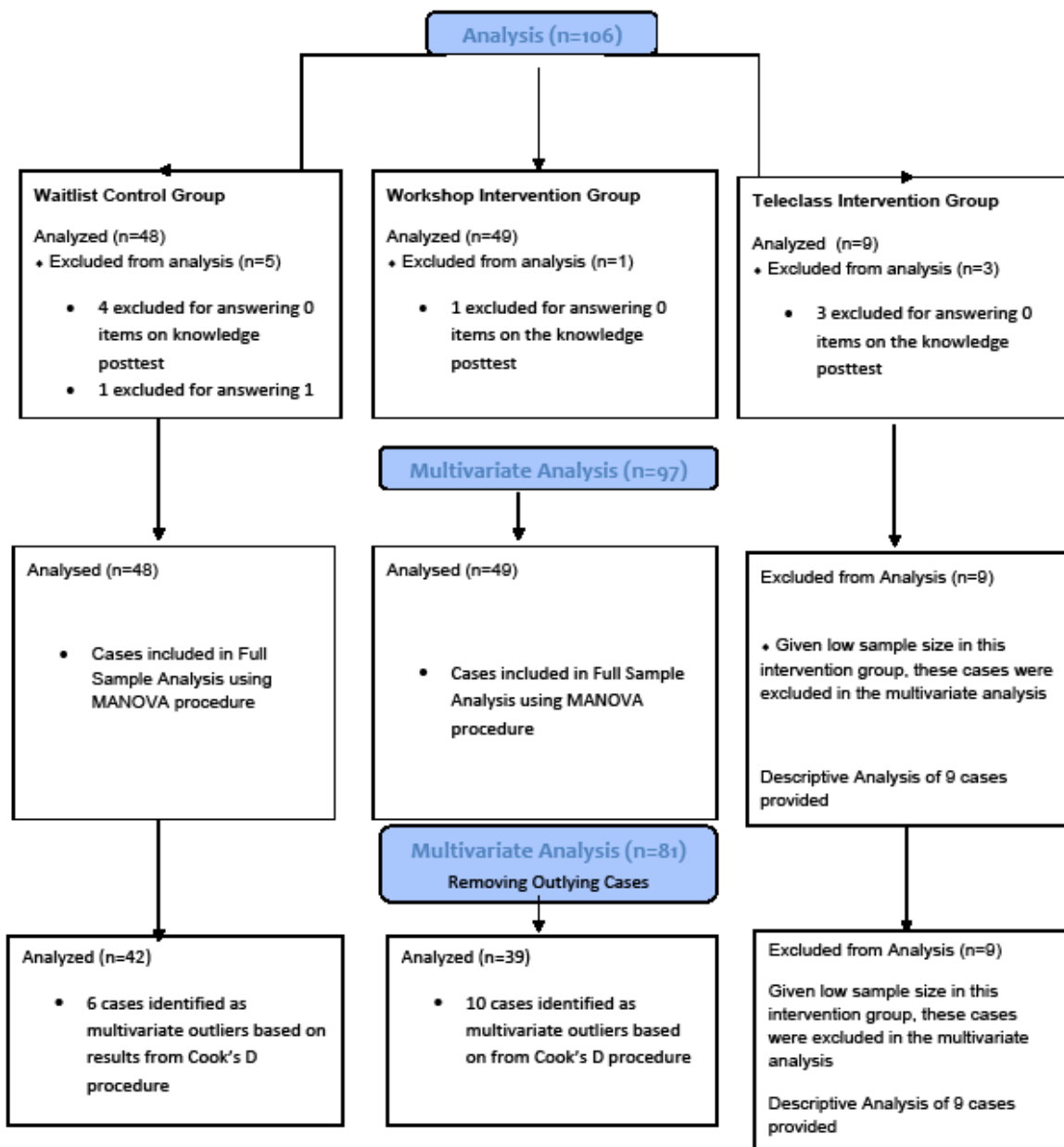
During data screening some cases were dropped from the original sample of 205. First, 88 cases were dropped from the sample because they did not complete the post attitude measure. Additionally, the two cases where the participants only completed a posttest were dropped from the sample. Eight (8) more cases were dropped because these participants did not complete any items on the knowledge posttest. Another case (1) was dropped because the participant only answered one question on the knowledge posttest. Decisions to drop these cases are more fully discussed in the section of this chapter focusing on the missing data analysis. These case deletions resulted in a final data set of 106 cases. Figure 3 below provides a diagram of this sampling process and the elimination of cases.

Figure 3

Sample Decision Making Process

After reducing the sample due to lack of response on the knowledge posttest, a multivariate outlier test was conducted using Cook's Distance to assess cases that had significant and/or possible outlier problems (Dattalo, in press). No cases were identified with Cook's Distance values greater than 1 (strong indication of outlier problem). However, several cases were identified as having Cook's Distance values where D was greater than $4/(n-k-1)$. These cases represent possible outlying problems (Dattalo, in press). Given that MANOVA is sensitive to outliers, two analyses were conducted. One in which all 106 cases were utilized in the analysis, and one in which outlying cases were deleted from the data set (reduced sample). The second analysis in which outlying cases were deleted included 90 cases. Results from both the full sample and reduced sample analyses are presented in section five of this chapter. Figure 4 below provides a diagram of the data analysis decision process for the sample with and without outlying cases.

Figure 4

Data Analysis Decision Making Process

Differences between Final Sample and Full Sample

The original sample consisted of 205 participants; however, the sample was initially reduced to 106 participants when 99 cases were eliminated because of a lack of pre or post testing completion on either the attitude or knowledge measures. A second reduced sample was also created in which outlying cases were deleted (90 cases). A final reduction in both the full and reduced sample was made when participants from the teleclass intervention group were deleted from the sample. Given the low sample size of participants in the teleclass intervention group, these nine (9) cases were removed from the sample during multivariate analysis. This decision was based on the nine (9) case sample being so small that analysis would violate multivariate procedure assumptions. The final multivariate analysis included 97 cases in the full sample and 81 cases in the reduced sample where outlying cases were removed.

Differences between Pretest Completers and Pre and Posttest Completers

Whenever difference exists between pre and posttest completion, it is important to explore whether the difference between the two groups is random or non-random. If significant non-random differences exist between these two groups, limitations to generalizability may exist. An independent samples t-test was run to determine if there were random or non-random differences between individuals who completed both the pre and post measures versus those who only completed the pretest measures. Areas of interest in differences among the two groups included:

- Differences in demographic characteristics
- Differences in responses to items on the attitude scale
- Difference in responses to the items on the knowledge test

Demographic differences. First, the 115 pre/posttest completion cases were compared with the 88 pretest only completion cases deleted from the data set. An independent samples t-

test was conducted to see if differences existed across demographic areas of interest between the two groups including: gender, age, ethnicity, type of work, level of education, academic discipline and type of mental health license (if any). Results indicated no significant differences between participants completing the posttest and those who did complete the posttest when taking into consideration gender, age, ethnicity, education level and/or academic discipline. However, significant differences did exist between the two groups across type of job ($p=.013$) and type of license held in mental health ($p=.018$). In table 4.2 and 4.3, differences in participants' job status and mental health licensure status can be seen when comparing the two groups. Results indicate a greater number of participants who completed pre and post measures worked in in-home therapy and other types of mental health work. Additionally, a higher number of licensed clinical social workers completed both the pre and post measures. Note that one participant did not indicate their job type or if they held a mental health license and what kind.

Table 4.2
Differences in Pretest Only and Pre/Posttest Participants on Job Title

Job Title	Pretest Only	Pre and Posttest	Total
Mentoring/Behavior Intervention	6	2	8
Outpatient Therapy	20	16	36
In Home Therapy	32	42	74
Case Management	11	14	25
School Based Services	6	14	20
Virtual Residential Services	0	1	1
Other	13	26	39
Total	88	115	203

Table 4.3
Difference in the Pretest Only and Pre/Posttest Participants on License Type

Job Title	Pretest Only	Pre and Posttest	Total
Clinical Social Work	8	27	35
Clinical Psychology	9	6	15
Counseling (Licensed Professional Counselor)	4	11	15
Other	8	11	19
Does not hold a mental health license	59	60	119
Total	88	115	203

Attitude scale. As stated previously, 106 participants completed pre and posttest knowledge and attitude measures. The 106 cases were compared with the 88 cases where the participant only pretest measures. An independent samples t-test was also conducted to compare participants completing the pretest and the pre and posttest measures across the 15 item attitude scale. For thirteen of these items, insignificant differences between groups existed when considering responses to items on the pretest. These results indicate that across these items no significant differences exist between responses by the individuals who only completed the pre-attitude scale and those who completed both the pre and post attitude scales. However, two (2) pretest items did have significant values suggesting that non-random patterns exist between the two groups for these items. These two items were dropped from the analysis. Further discussion of reasons underlying the elimination of these items can be found in the instrumentation section of this chapter. A missing data analysis was conducted for the attitude scale and less than 5% of the data was missing. The series mean was substituted for missing data items. Missing data analysis as well as other data screening that impacted the attitude scale will be discussed in the instrumentation and data screening sections of this chapter.

Knowledge test. These same 106 cases were also compared with the 88 pretest only cases in examining the knowledge test. Results of an independent samples t-test, focusing on items on the knowledge test, indicated that 27 of the 28 items demonstrated insignificant differences between participants who completed only the pretest measures and those who completed both the pre and posttest measures. One item, however, did have a significant test statistic ($p=.009$). This item was dropped from the analysis. A missing data analysis was conducted for the knowledge test and between 1.9 and 15.1% of the data was missing for items on the test. Given that, for some items, more than 5% of the data was missing, a second independent samples t-test was conducted, comparing cases where the knowledge test was completed in full and cases in which at least one or more items contained missing data. As will be discussed in the instrumentation section and missing data analysis section of this chapter, results from this test indicated that 8 items showed significant differences between these two groups. These significant differences indicate non-random patterns of missing data among these items which are of concern. These eight items were dropped from the analysis, leaving 19 items on the knowledge test for analysis.

Sample Characteristics

The purpose of this section is to present the analysis of the pretest and posttest quantitative data gathered using a background survey developed for this study. Statistics describing demographic data variables (gender, age, ethnicity, job, level of education, discipline, licensure status, and city and/or state where they reside) are presented for the 97 workshop intervention and waitlist control group cases analyzed in the study. Tables 4.4 and 4.5 (below) present descriptive data and information related to these 97 cases.

Gender and Age

Table 4.4 presents statistics for the age and gender of all participants included in the analysis. Additionally, statistics are presented for each group analyzed: workshop intervention participants and participants in the waitlist control. Eighty-four percent (82%) of the sample was female. While the number of females was larger across both groups, there were a proportionally larger number of females in the waitlist control group (94% compared to 75.5% in the workshop intervention group). Data on the age of participants was collected via seven age categories: less than 20; between 20 and 29; between 30 and 39; between 40 and 49; between 50 and 59; between 60 and 69; and over 70 years of age. The majority of participants were between the ages of 40 and 49 (29.9%); however 24.7% of the sample were between the ages of 30 and 39 and 29.9% of the sample were between the ages of 20 and 29. Percentage of participants in these three age ranges was relatively consistent with the full sample across the workshop intervention and waitlist control groups. A slightly higher percentage of participants fell in the 20-29 age range for the workshop intervention group (30.6% compared to 29.2% in the waitlist control group).

Race/Ethnicity

Eighty one point one percent (81.4%) of the participants identified themselves as being from European-Origin or White. The number of participants in the workshop intervention group identifying as White was lower (71.4%), while the participants in the waitlist control group identifying themselves as White was higher (91.7%). Self-identified African-Americans comprised a small percentage of the sample. Four (3) African Americans were in the full sample, with two (2) being in the workshop intervention group and one (1) being in the waitlist control group. African Americans represented 3.1 % of the total sample, 4.1 % of the workshop

intervention group, and 2.1% of the waitlist control group. Eight (8) participants identified themselves as being from Latino-a or Hispanic origin. All eight (8) of these participants were members of the workshop control group. Participants of Latino-a/Hispanic origin represented 7.6% of the full sample and 16.3% of the workshop intervention group.

One (1) participant identified herself as American Indian/Alaskan Native/ and/or Aboriginal Canadian. She was a participant in the waitlist control group. She represented 1% of the total sample and 2.1% of the waitlist control group. Two (2) participants identified themselves as being multiracial or biracial. One (1) participant was a member of the workshop intervention group and one (1) participant was a member of the waitlist control group. These two participants represented 2.1% of the total sample, 2.05% of the workshop intervention group, and 1% of the waitlist control group. Two (2) participants identified themselves as “other” on the question inquiring about racial/ethnic heritage. These participants represented 2.1% of the total sample. One (1) participant in this “other” category existed in each of the two groups (workshop intervention and waitlist control group). Respectively, these participants represented 2.05% and 2.1% of their group’s demographics on ethnicity.

Type of Job in Mental Health

Participation in the study was open to all clinical staff within Providence Service Corporation. Providence provides mental health services via eighteen (18) different kinds of community based programs. Seven (7) types of mental health jobs were offered as options for this category: mentoring, outpatient therapy, in-home therapy, case management, school based services, Virtual Residential Services© or other. No participants in the sample identified themselves as working within the Virtual Residential Services© program. The majority of participants in the full sample work as in-home counselors (38.2%). However, in the workshop

intervention group only 16.3% of the participants identified as being an in-home worker. Twenty-two and a half percent (22.5%) of the workshop intervention participants were case managers and 20.4% worked in outpatient therapy. The waitlist control group has a higher percentage of in-home workers compared to the sample and workshop intervention group (60.4%).

Differences in the job type between the workshop intervention group and the waitlist control group may be explained by California having been assigned to the workshop intervention group and Maine having been assigned to the waitlist control group. California and Maine had the second and third highest level of participation in the study (21.8% of the full sample and 19.8% of the full sample respectively). California program services mainly revolve around outpatient therapy and case management services, while Maine focuses primarily on in-home counseling services. Virginia had the highest percentage of participants in the study (38.7%); however, their participants were assigned to groups by region, which divided them equally between the workshop intervention group and the waitlist control group (20 participants in the workshop intervention group and 19 in the waitlist control group). Virginia's primary service is inhome therapy; however, as stated, these participants' in-home job status was split evenly across the two main groups of interest (workshop intervention and waitlist control).

The workshop intervention group's job types were relatively evenly split across outpatient therapy (20.4%), in-home therapy (16.3%), case management (22.5%), school based services (16.3%) and jobs falling in the "other" category (20.4%). For waitlist control participants (as stated previously), most job types fell in the in-home therapy category (60.4%) with 12.5% having school based services jobs and 20.8% having jobs in the "other" category.

Level of Education

Given the varying types of mental health jobs and programs in which Providence clinical staff work, levels of education for these workers varies as well. Level of education for this sample ranged from having an Associate's Degree to having a PhD or PsyD. The majority of participants in the full sample had a Masters Degrees (57.7%) with the second highest percentage of participants in the full sample holding a Bachelor's Degree (30.9%). In the workshop intervention group, 46.9% of participants had Masters Degrees and 38.8% had Bachelor's Degrees; while in the waitlist control group 68.7% had Masters Degrees and 22.9% had Bachelor's Degrees. Again, this difference could be attributed to the waitlist control having 21 participants from Maine where in-home therapists are required to hold a Masters Degree. The workshop intervention group had a more even distribution of job types, many participants had jobs in case management and mentoring. These positions are more often held by persons with a Bachelor's Degree. Two (2) participants in the sample held a PsyD and one held a PhD (1). All three (3) of these participants were in the workshop intervention group.

Type of Academic Discipline

Social work professionals made up the majority of the full sample (34.1%) with participants in the counseling and psychology profession comprising 25.8% and 21.6% of the sample respectively. In the workshop intervention group, the majority of the participants were from the psychology discipline (32.7%), with 26.5% of the participants being from the discipline of social work and 22.4% of the participants being from the discipline of counseling. However, in the waitlist control group, 41.7% of the participants were from the social work discipline, with 29.2% being from the counseling discipline, 14.5% being from the education discipline, and only 10.4% being from the discipline of psychology. Again, this difference may be explained by

Maine participants being assigned to the waitlist control group. Of the 21 participants from Maine, 16 were from the discipline of social work. In California, of the 23 participants assigned to the workshop intervention group, 10 were from the discipline of psychology, 5 were from the discipline of social work and 6 were from the discipline of counseling. Virginia participants were evenly split across social work, counseling, and education with 11, 11, and 10 participants being represented in these disciplines respectively. Therefore, differences in Maine and California academic disciplines may have contributed to differences between the full sample and the waitlist control and workshop intervention samples. Teleclass intervention participants were evenly divided with four (4) participants in the social work discipline and four (4) participants in the counseling discipline. One (1) participant was from the discipline of psychology.

Licensure Status

Across multiple mental health related disciplines, licensure in the mental health field is encouraged and required in order to provide certain types of mental health services. Initially, given the content of the course and focus of the study, the researcher expected for the majority of participants to hold some type of mental health license. However, interest by many non-licensed mental health staff was expressed and actually the majority of mental health professionals that work for Providence Service Corporation do not hold a mental health license. Fifty-four point seven percent (54.7%) of the participants in the full sample did not hold a license. However, while not the majority, 20.6% of the participants reported having a clinical social work license, 11.3% held a license in counseling, 5.2% held a license in clinical psychology, and 8.2% listed themselves as having a license other than clinical social work, psychology, or counseling. Differences in licensure status existed between the workshop intervention group and the waitlist control group. In the workshop intervention group, 73.5% of the participants did not hold a

license, while 10.2% held a license in clinical social work or clinical psychology and 6.1 percent held a license in counseling. In contrast, participants in the waitlist control group demonstrated a higher percentage of clinical social work licenses (41.7%) and a lower percentage of participants did not hold a license in mental health (35.4%). Again, the Maine group being assigned to the waitlist control group may significantly contribute to these differences between the licensure status in the waitlist control group and the workshop intervention group. Of the 21 participants from Maine, only 2 did not hold a mental health license. Fourteen (14) of the participants from Maine held a clinical social work license. In California, 15 of their 23 participants did not hold a mental health license. Of the remaining eight (8) participants from California, four (4) participants held licenses in clinical psychology.

State Representation

Participants in this study came from eight (8) different states including: Arizona, California, Florida, Maine, North Carolina, Nevada, Tennessee, and Virginia. The majority of participants in the sample were from Virginia (40.2%), with 21.6% being from California, and 21.6% being from Maine. As noted previously, difference in state representation across the workshop intervention group and waitlist control group existed. In the workshop intervention group, 42.9% of the participants were from California, 40.8% were from Virginia, and 16.3% were from North Carolina. However, in the waitlist control group, 43.7% of the participants were from Maine, 39.6% were from Virginia, and 8.3 % were from Tennessee.

Potential differences in groups. Random assignment was utilized in determining to which group (intervention or waitlist control) a participant, region or state was assigned. If a state expressed interest in participating in the study, that state was randomly assigned to one of the groups. The researcher then coordinated with the state to assure that any person signing up

for the study was assigned to the same group (intervention or control), given that they would be taking the course together (pre or post course intervention depending on group assignment). In Virginia, interest in the study and workshop course was expressed in two regions, which were located some distance from each other. One of these regions was assigned to the waitlist control group, and one was assigned to the workshop intervention group. In Maine, all participants in the study were in the same group (control), and they all attended the workshop together, not as separate regions. If an individual expressed interest in the study and was not part of a state already assigned to a group, he/she was asked if he/she wished to participate in the teleclass or the workshop version of the course. If he/she expressed interest in the teleclass version of the course, he/she was randomly assigned to the waitlist control group or the teleclass intervention group. However, if he/she expressed interest in the workshop version of the course, he/she was assigned according to his/her state group assignment as previously discussed. A few participants in California participated in the teleclass intervention group, given that they requested participation prior to the state of California requesting to participate in the study. Of interest, one of the California teleclass participants recommended to the state that a larger group take the course and be part of the study based on her positive experience in the teleclass version of the course.

The majority of participants for this study came from three states: Virginia (39), California (21) and Maine (21). Collectively, these three states represent 83.4% of the full sample. As mentioned previously, Virginia operates programs in regions that are distant from each other geographically and often do not have team members who work together. Therefore, two workshops were offered to Virginia for two different regions of Virginia. One region of Virginia was assigned to the waitlist control group and one region was assigned to the workshop

intervention group. The result of this division was that 20 Virginia participants are represented in the workshop intervention group for this sample, and 19 Virginia participants are represented in the waitlist control group for this sample. Given this equal distribution, differences in Virginia participants are therefore somewhat controlled for. However, participants in Maine and California have regions that are closer together, and they chose to have one workshop for which all staff could come. All Maine participants are therefore in the waitlist control group (21), and the majority of California participants are in the workshop intervention group (21). While this random assignment of states was designed to create equality in the number of waitlist control participants and workshop intervention participants, differences in the types of services and staff who work for the State of Maine and California may impact the results of this study.

Table 4.4
Demographic Variables (N=97)

Variable	Full Sample		Workshop Intervention		Control Group	
	N (97)	100%	N (49)	50.5 %	N (48)	49.5 %
Gender:						
Male	15	15	12	24.5	3	6
Female	82	85	37	75.5	45	94
Age:						
Less than 20	0	0				
Between 20-29	29	29.9	0	0	0	0
Between 30-39	24	24.7	15	30.6	14	29.2
Between 40-49	26	26.8	12	24.5	12	25
Between 50-59	14	14.5	14	28.6	12	25
Between 60-69	4	4.1	7	14.3	7	14.6
Over 70	0	0	1	2.0	3	6.2
			0	0	0	0
Ethnicity:						
Af. American	3	3.1	2	4.1	1	2.1
Asian American	2	2.1	2	4.1	0	0
Latino-a/Hispanic	8	8.2	8	16.3	0	0
American Indian	1	1	0	0	1	2.1
European/White	79	81.4	35	71.4	44	91.7
Bi-racial/Multi	2	2.1	1	2.05	1	2.1
Other	2	2.1	1	2.05	1	2.1
Job						
Mentoring	2	2.1	2	4.1	0	0
Outpt Therapy	13	13.4	10	20.4	3	6.3
In Home Therapy	37	38.2	8	16.3	29	60.4
Case Manage	11	11.3	11	22.5	0	0
School Based	14	14.4	8	16.3	6	12.5
Other	20	20.6	10	20.4	10	20.8

Variable	Full Sample		Workshop Intervention		Control Group	
	N (97)	100 %	N (49)	50.5 %	N (48)	49.5 %
Level Education:						
HS Diploma/GED	1	1	1	2.1	0	0
Associates	5	5.2	3	6.1	2	4.2
Bachelors Degree	30	30.9	19	38.8	11	22.9
Masters Degree	56	57.7	23	46.9	33	68.7
PhD	1	1	1	2.0	0	0
PsyD	2	2.1	2	4.1	0	0
Other	2	2.1	0	0	2	4.2
Acad. Discipline:						
		34.1				
SocialWork	33	21.6	13	26.5	20	41.7
Psychology	21	25.8	16	32.7	5	10.4
Counseling	25	11.3	11	22.4	14	29.2
Education	11	7.2	4	8.2	7	14.5
Other	7		5	10.2	2	4.2
LicensureStatus:						
Clin. Social Work						
Clin Psychology	20	20.6	5	10.2	15	31.2
Counseling (LPC)	5	5.2	5	10.2	0	0
Other	11	11.3	3	6.1	8	16.7
No license	8	8.2	0	0	8	16.7
	53	54.7	36	73.5	17	35.4
State:						
Arizona	1	1	0	0	1	2.1
California	21	21.6	21	42.9	0	0
Florida	1	1	0	0	1	2.1
Maine	21	21.6	0	0	21	43.7
North Carolina	9	9.2	8	16.3	1	2.1
Nevada	1	1	0	0	1	2.1
Tennessee	4	4.1	0	0	4	8.3
Virginia	39	40.2	20	40.8	19	39.6

Knowledge of Content

In addition to gathering data on participants' gender, age, race/ethnicity, level of education, academic discipline, type of licensure in mental health, and location of practice, information was gathered on participants' prior knowledge of content that was a component of the course curriculum. Prior knowledge areas of interest included knowledge of: attachment theory, basic anatomy, neuroscience and the brain, trauma informed approaches to clinical practice, and biofeedback techniques. Participants were asked to self-assess their knowledge in these areas on a six-point Likert Scale ranging from having no knowledge in this area to considering themselves an expert in this area of knowledge. The following rating scale was used on these prior knowledge items:

Participant has/is:

1. No knowledge of this content area
2. Little knowledge of this content area
3. Some knowledge of this content area
4. Good working knowledge of this content area
5. Is very knowledgeable in this content area
6. Is an expert in this content area

An independent samples t-test was used to compare the workshop intervention group and waitlist control group. Participants in the waitlist control group and the workshop intervention group showed no differences in pre-knowledge in the areas of attachment theory ($p=.630$), basic human anatomy ($p=.173$), neuroscience ($p=.807$), and biofeedback ($p=.707$). Differences in one area of knowledge, trauma informed practices, was demonstrated between the two groups

($p=.026$). A description of participants' responses to these items by group are presented in Table 4.5 (below).

Attachment theory. The majority of participants reported having some knowledge of Attachment Theory prior to taking the course or being placed on the waitlist control group (76.2%). Participants in the workshop intervention group and waitlist control group reported similar levels of knowledge of attachment theory with 73.5% and 79.1% reporting some knowledge in this area (respectively). Fifteen and a half percent (15.5%) of the full sample reported little knowledge of attachment theory, while 18.3% and 12.5% of the workshop intervention and waitlist control groups reported little knowledge of attachment theory (respectively).

Basic anatomy. Participants in the full sample reported having either some (44.4%) or good (40.2%) knowledge of basic anatomy prior to participating in the study. These percentages seemed to be equivalent across groups with 46.9% of workshop intervention participants reporting some knowledge of basic anatomy and 41.7% of waitlist control participants reporting some knowledge as well. Thirty-eight point eight percent (38.8%) of waitlist control participants reported good knowledge of basic anatomy while 41.7% reported good knowledge of basic anatomy in the waitlist control group.

Neuroscience and the brain. In the full sample, 37.1% of participants reported having little knowledge of neuroscience, while 48.4% reported having some knowledge of neuroscience. A slightly higher proportion of workshop intervention participants reported having some knowledge of neuroscience (55.1%) while a slightly lower proportion of waitlist control participants reported having some knowledge of neuroscience (41.6%). Similar proportions of participants having little knowledge of neuroscience were found across both groups, with 34.7%

of the workshop intervention participants reporting “little” knowledge and 39.6% of the waitlist control group reporting “little” knowledge.

Trauma informed clinical practices. The majority of participants in the sample reported having some knowledge of trauma informed clinical practices prior to participating in the study (42.3%). Another 21.6% of the participants reported having little knowledge of trauma informed clinical practices prior to participating in the study, while 18.6% of the full sample reported having a good knowledge of this content area. A slightly higher percentage of participants reported little knowledge of trauma informed clinical practice in the workshop intervention group (24.4%), while a slightly lower percentage of participants reported little knowledge in this area within the waitlist control group (18.8%). Conversely, a slightly lower percentage of workshop intervention participants reported some knowledge in this area (40.8%), while a slightly higher percentage of waitlist control participants reported some knowledge in this area (43.7%).

Biofeedback techniques. Based on some of the interventions demonstrated and discussed in the intervention course, prior knowledge of biofeedback techniques was also of interest. The majority of participants in the sample had little knowledge of biofeedback techniques (43.3%) with 29.9% reporting some knowledge of these techniques. Across the workshop intervention and waitlist control participants, the majority had little knowledge of biofeedback techniques as well (38.8% and 47.9% respectively). The workshop intervention group demonstrated a slightly lower percentage of participants with little knowledge of biofeedback techniques than the full sample, while waitlist control participants showed a slightly higher percentage of participants with little knowledge of these techniques. Workshop intervention participants showed a slightly higher percentage of participants with some

knowledge of these techniques (32.6%), while waitlist control participants showed a slightly lower percentage of participants with some knowledge of these techniques (27.1%).

Table 4.5
Sample's Knowledge of Content Prior to Study (n=97)

Prior Knowledge	Sample		Workshop Intervention		Control Group	
	N (97)	100 %	N (49)	50.5 %	N (48)	49.5 %
Attach Theory						
None	2	2.1	0	0	2	4.2
Little	15	15.5	9	18.3	6	12.5
Some	74	76.2	36	73.5	38	79.1
Good	2	2.1	2	4.1	0	0
Very Strong	4	4.1	2	4.1	2	4.2
Expert	0	0	0	0	0	0
Anatomy						
None	0	0	0	0	0	0
Little	8	8.2	5	10.2	3	6.2
Some	43	44.4	23	46.9	20	41.7
Good	39	40.2	19	38.8	20	41.7
Very Strong	6	6.2	2	4.1	4	8.3
Expert	1	1	0	0	1	2.1
Neuroscience						
None	2	2.1	1	2.0	1	2.1
Little	36	37.1	17	34.7	19	39.6
Some	47	48.4	27	55.1	20	41.6
Good	12	12.4	4	8.2	8	16.7
Very Strong	0	0	0	0	0	0
Expert	0	0	0	0	0	0

Trauma Work

None	7	7.2	6	12.4	1	2.1
Little	21	21.6	12	24.4	9	18.8
Some	41	42.3	20	40.8	21	43.7
Good	18	18.6	8	16.3	10	20.8
Very Strong	10	10.3	3	6.1	7	14.6
Expert	0	0	0	0	0	0

Biofeedback

None	15	15.5	9	18.4	6	12.5
Little	42	43.3	19	38.8	23	47.9
Some	29	29.9	16	32.6	13	27.1
Good	10	10.3	5	10.2	5	10.4
Very Strong	1	1	0	0	1	2.1
Expert	0	0	0	0	0	0

Analysis of Dependent Variable Instrument Measures**Attitude scale**

A 15item attitude scale was developed to assess participants' attitudes about trauma, closeness in relationships, the importance of the biological perspective, and where the focus of interventions should be for youth with problems of conduct. The researcher developed this scale. Three (3) items focused on importance of trauma, two (2) items focused on the importance of consequences, two (2) items focused on the importance of the biological perspective, and six (6) items made statements about where the focus of intervention should be for youth with problems of conduct (i.e. focus on problems, consequences, trauma, attachment and/or the biological impact of trauma on youth with problems of conduct). Three (3) of the intervention questions were focused on treatment that included biologically based interventions (teaching self soothing,

stress management, and reduction of anxiety). One (1) of the intervention questions focused treatment primarily on limit setting. One (1) of the intervention questions focused treatment primarily on enhancing closeness in authority relationships. One (1) of the intervention questions focused primarily on managing problematic behaviors.

Having defined distinct attitudes on which the scale focused, a total attitude scale score and five (5) subscale scores were created. This total score and the subscale scores are utilized in the MANOVA analysis to evaluate whether differences in attitude occurred in the intervention group when compared with the waitlist control group. The total score sums all 13 item responses and ranges from 5 to 65. The higher the attitude total score, the more agreement participants had with attitude statements that were supportive of a trauma-attachment-biologically-informed approach to working with youth with problems of conduct. The five subscales focus on attitudes related to: trauma, consequences, the biological perspective, trauma-informed interventions, and problem focused interventions. Subscale ranges are as follows: trauma subscale (0-15); consequence subscale (0-10); biological perspective subscale (0-15); trauma-informed interventions subscale (0-15); and problem focused interventions subscale (0-10). Seven (7) items on the attitude scale were negative items and were reverse coded, given that the goal of the intervention would be to increase the participants' disagreement with these statements (items 1,2,3,6,8,12 and 14 are the items that required reverse scoring).

Reliability Testing. The ability of an instrument to measure a variable consistently is important in reducing measurement error. Specifically, reliability has to do with the quality of a measurement method and its ability to collect data “each time in repeated observations of the same phenomenon” (Rubin & Babbie, 2001, p.G-7). “The more reliable a measure, the less random error in it.” (Rubin & Babbie, p.190). Typically, a researcher would want to create a

measure and pretest it on multiple occasions to assure both the reliability of the measure and the validity of the measure. One method of assessing the reliability of a measure is through reliability testing like the Cronbach's Alpha, a form of measuring internal consistency reliability by assessing correlations of the score on each item with the scores on the rest of the items (Rubin & Babbie).

A Cronbach's Alpha reliability test was conducted on the attitude scale using all 205 cases in which pre attitude tests were completed. Results from this reliability test indicated that when all 15 items were included, a reliability statistic of .714 existed. Typically, a Cronbach Alpha statistic of .7 or above is desirable for any scale (Nunnally, 1978). A reliability item analysis was conducted. Results suggested that by dropping the first item on the attitude scale, a higher reliability test statistic could be achieved (.731). Given that .714 falls within the acceptable range of reliability, the researcher determined to keep the first item given that the difference in the two reliability statistics was negligible. However, as will be discussed below, two (2) items from the attitude scale were dropped, based on results from an independent samples t-test comparing participants who completed only the pretest measures and participants who completed both the pre and posttest measures. A second reliability test was conducted, based on the new 13 item scale. Results indicated that this revised scale had a Cronbach's Alpha of .708. Again, dropping the first item from the measure could increase the reliability test statistic to .723; however, the researcher decided not to drop any further items given the negligible difference in the two scores.

Missing Data Analysis. Effectively addressing concerns of missing data is important when examining a measure and pre-screening data for analysis. If too much data is missing for any item of a measure, then those items cannot effectively be analyzed. However, less than 5

percent of the data was missing for the attitude scale. McDermeit, Funk, & Dennis (1999) suggest that when there is less than 5 percent of missing data across the variables, data can be replaced with the mean. If a researcher has no other information to assist in replacing missing values, the mean is the best estimate of a given variable (Mertler & Vannatta, 2005). As will be discussed in the missing data analysis of this chapter, the series mean was substituted for missing values on the attitude scale. Further, no items on the attitude scale were dropped due to issues of missing data. Finally, given the limited nature of the missing values for this measure, an independent samples t-test was not utilized to explore random and non-random patterns of the missing data.

Differences in Patterns of Response for Completers and Non-Completers. Assessing if differences exist on items of a scale between participants who complete pretests and those who completed pre and posttests is a key issue in the ability to generalize results. To assess if significant differences exist, an independent samples t-test was conducted in which responses to items on the attitude scale were compared across participants who completed the pretest measures and those who completed the pre and posttest attitude measures. Results indicated that for 13 of the 15 items, no significant differences between groups existed. However, for two (2) items, significant differences between groups were found (items 13 and 15). Item 13 on the Attitude scale asks participants to indicate their agreement with the statement, “Clinical practice should focus on supporting the caregiver in providing safety and relaxation to the youth.” ($p=.039$). Item 15 on the Attitude scale asks participants to indicate their agreement with the statement, “Holistic assessment and treatment balances the use of biological, psychological, social and spiritual perspectives. None is more important than the other.” ($p=.010$). Given the significant test statistics for these two items, a non-random pattern of responses may exist

between responders and non-responders. For this reason, these two items were dropped from the analysis. The attitude scale was condensed to a 13 item scale.

Knowledge Posttest

As reviewed in Chapter Three, the knowledge posttest was one of the tools created by the investigator to measure change in the dependent variable “knowledge”. This measure includes 28 items that relate to material presented in the course. Each item involves a question or case scenario relating to material learned in the course. Six (6) of the items focus on knowledge relating to trauma informed practice, four (4) of the items relate to knowledge of neuroplasticity and how the brain impacts mental health and trauma responses, eight (8) of the questions relate to knowledge of attachment theory and relevance to trauma informed practice, and one (1) of the questions relates to intervention considerations that combine the three areas of knowledge (trauma, neuroscience, and attachment theory). Up to seven multiple-choice responses can be selected in response to each question. Upon completion of the posttest, a total score is calculated with one point being given for every correct answer provided. A score of 28 indicates a perfect score. Additionally, subscales were created for this measure based on content areas that were previously discussed. Four subscales were created in the following areas: Trauma (score ranges from 0-6); Attachment (score ranges from 0-8); neuroplasticity (ranges 0-4) and holistic interventions (ranges 0-1).

One of the strengths of the knowledge test is its contextualization of the material offered in the course curriculum. In searching for a reliable and valid test of knowledge on the three content areas, no measure could be found that was specific to the course curriculum’s content. However, one limitation of the knowledge posttest was that this self-developed measure was not pretested prior to administration in this study. If a pretesting of this measure had been

conducted, items which were poorly worded or unclear might have been identified prior to the measure being provided to the entire sample. Given this lack of pretesting, it is to be expected that during the analysis of reliability, missing data, and extreme values, some items on the knowledge test were dropped.

Reliability Testing. As with the attitude scale, a reliability item analysis was conducted for the knowledge test. As will be discussed later in the missing data analysis, upon initial review, 115 cases in the sample showed completion of demographics survey and pre and post attitude measures. However, of these 115 cases, another 8 cases did not complete any items on the knowledge test. These cases were eliminated from the sample along with another case where the participant only completed 1 of the 28 items on the knowledge test. Therefore, the reliability testing analysis for the knowledge test used the 106 cases remaining in the sample.

Initially, the reliability test was conducted with all 28 items of the measure. The Cronbach's alpha test statistic for this test was .845. This is an excellent reliability test statistic, given that generally it is recommended for a Cronbach's Alpha to be above .7 (Nunnally, 1978). However, as will be discussed below, based on independent samples, t-tests conducted to assess differences between participants who had missing values versus participants who responded to all items on the knowledge test, eight (8) items were dropped from the measure. Another item was dropped from the measure based on an independent samples t-test comparing participants who completed the pretest only, and for those who responded to the pre and posttest measures one item was dropped from the measure. This reduced the measure to 19 items. Another reliability test was conducted on the 19 item measure, and the Cronbach's Alpha for this reduced measure was .566 which falls below the recommended reliability test statistic of .7. The reduced Cronbach's Alpha cautions the reliability of the attitude scale and its generalizability. However,

keeping the 9 items dropped from the measure would also cause concern to the generalizability of the measure. Therefore, the reduced item measure was kept for the analysis focusing on the need to address concerns with the non-random patterns of missing data between participants answering all the items and participants leaving at least one item unanswered.

Missing Data Analysis. A missing data analysis was conducted with the knowledge test to determine the percentage of data missing. With these 106 cases, missing data for items ranged from 1.9% to 15.1%. Given that more than 5% of the data is missing in this knowledge test, it is important to assess if the missing data are “missing at random,” or “missing not at random.” Results from an independent samples t test indicated that non-random patterns of missing data existed across 8 items. This analysis and details about the items are discussed in the data screening section of this chapter. Based on analysis of these results, these 8 items were dropped from the measure, leaving 20 items to be analyzed for the knowledge test.

Differences in Patterns of Response for Completers and Non-Completers. Another independent samples t-test was run to determine if there were random or non-random differences in responses of participants completing the pretest measures and participants who completed posttest measures, including the knowledge test. Results indicated that 19 of the 20 items demonstrated insignificant differences between participants who completed only the pretest measures and those who completed both the pre and posttest measures. For one item, item 27, the test statistic ($p=.009$) indicated that a significant difference existed between the groups for this item. For this reason, this item was dropped from the analysis. Nineteen items were used in the final analysis of the knowledge test.

Multivariate Analysis Data Screening

Data entry and cleaning

Data were collected using a research data collection program online called Survey Monkey©. All participants in the study were asked to complete pre and posttest measures online using the Survey Monkey© program. Some participants requested to complete measures using paper and pen. These requests were granted and these participants were given the measures from Survey Monkey© in paper form. These paper measures were then entered by the researcher into the Survey Monkey© data entry system. When the data collection process was complete, all data from the Survey Monkey© program was converted into an Excel File and then imported into the Statistical Package of the Social Sciences (SPSS) 18.0 by the researcher. After cutting and pasting all the data (205 cases) into SPSS, the researcher verified that each case's data had been entered correctly.

Pre-screening and transformation

Prior to analysis, important assumptions of MANOVA were explored. According to Mertler and Vannatta (2005), important assumptions of MANOVA include:

1. Observations within each sample need to be random and independent of each other.
2. Observations of all dependent variables need to follow a normal distribution within each group (particular sensitivity to outliers, especially when there is a small sample size).
3. Assumptions of homoskedasticity need to be met.
4. Relationships among paired dependent variables must be linear.

Additionally, Dattalo (in press) suggests that assessing low to moderate correlations among the dependent variables is important prior to conducting a MANOVA. These assumptions will be discussed next.

Assumption of independence

As noted by Mertler and Vannatta (2005), the assumption of independence is really a design issue. It focuses on assuring that during design and data collection, the researcher randomly samples and assigns subjects to control and treatment groups. In this case, the researcher randomly assigned interested participants into two groups: intervention group and waitlist control group. The intervention and waitlist control groups completed the demographic and prior knowledge surveys and then pre and posttest measures (attitude scale and Case Scenario Measure). The intervention group completed the attitude scale and Case Scenario Measure again post-intervention, along with the knowledge test. The waitlist control group was scheduled to complete the attitude scale, Case Scenario Measure, and knowledge test approximately 90 days after their completion of the initial measures. As discussed previously, waitlist control participants were recruited from September of 2008 through April of 2009. Follow up requests began in December of 2008, and responses to the second set of surveys began being available in January of 2009 (3 months after the first set of waitlist control participants were recruited). The mean number of days between survey administrations for a participant in the waitlist control group was 66.85 days with a standard error of 36.84 days. The median number of days between administrations of the surveys was 81.50 days.

While there was some error in the number of days between administrations in the waitlist control group, this potentially impacted the testing effect on those participants but not the random assignment of regions to the waitlist control and intervention groups. As data collection went on over the course of the year, the researcher determined what regions to place in what group, based on number of participants available in that region, so as to maximize the ability to

create equal numbers in the waitlist control and intervention groups. Given the way in which random assignment was completed in this study, the assumption of independence was met.

Continuous data

As with most techniques using inferential statistics, MANOVA assumes continuous data. Specifically, it requires interval or ratio level data. The data in this study are both ratio and ordinal. The Knowledge Posttest collects ratio level data providing a test score between 0 and 27 (27 representing answering all questions correctly). The Attitude scale collects ordinal level data utilizing a Likert Scale from 1 to 5, 5 indicating a higher agreement with statements and 1 representing higher disagreement with statements. Although the Attitude scale represents a violation of this assumption, it is common in the social sciences to use ordinal level data in MANOVA analyses (Healey, 2002).

Missing Data, Influential Cases, and Normality Assumptions

Missing data, influential cases, and assumptions of normality are all important factors to be evaluated prior to conducting a MANOVA. Data screening considerations for these three assumptions is provided below. This section will present first, a missing data analysis for the independent variable. Second, data from the attitude measure items will be screened and transformed when necessary. Third, data from the knowledge measure items will be screened and transformed when necessary. The full sample of 106 cases was utilized in this data screening process. The 106 case sample includes all cases that had posttest data for the attitude and knowledge measures. This 106 case sample included all cases which were later determined through the data screening process below to be potential outliers (16). Additionally, this 106 case sample includes all the teleclass intervention cases that were later deleted from the

multivariate analysis because of the small sample size of this group (n=9). The teleclass intervention cases are discussed in a separate section.

Examining missing data prior to conducting any multivariate analyses is important. Of particular importance is assessing if patterns exist in the missing data (Mertler & Vanatta, 2005). One way in which the existence of patterns in missing data can be assessed is by creating a dichotomous variable that assigns dummy codes to items that participants responded to, as well as missing data. In this study, frequency analyses were run on all dependent and independent variables (DVs: Knowledge test and Attitude scale; IVs: Gender, Age, Race, Job, Education, Profession, Licensure, Regional Location, and Prior Knowledge of Subject Matter).

Influential cases or “outliers” are cases that are of concern given that they fall three (3) standard deviations away from the mean (Sinrich, 1986). Outliers can distort the results of statistical tests and even cause results to appear significant when in fact, if the outlying values had been removed, the results would have been insignificant (Mertler & Vannatta, 2005). Additionally, outliers can have a significant effect on correlation coefficients. While MANOVA is robust to moderate violations of normality, to be discussed next, the robustness is dependent on the violations being created by skewness and not by outliers. Given the importance of outliers to the accuracy of the MANOVA results, data were screened for influential cases.

Outliers can exist in both univariate and multivariate situations. Techniques for identifying univariate outliers include visually inspecting the data via frequency distributions or by obtaining a histogram or using a box plot. A Box plot actually “boxes in” cases that are located near median values and extreme values are notated outside of the box. Specifically, values falling between the 25th and 75th percentile of the median value are included in a box, while values that exist outside this range are noted by a small circle and placed outside the box.

After screening data for missing values and outliers, univariate normality was initially assessed through evaluation of skewness and kurtosis. Ideally, a value of zero indicates normality. However, values ranging between -1 and +1 are within the range of acceptability (Hilebrand, 1986). Skewness and kurtosis were examined across the attitude scale and knowledge measure using the total scores for these measures as well as the subscales for each measure (five subscales for attitude scale and four subscales for knowledge test). Table 4.7 presents kurtosis and skewness data for the attitude scale and Table 4.8 presents kurtosis and skewness data for the knowledge test.

Demographic Independent Variable Missing Data

For the Demographic Independent Variables there were between 0 and 5 items missing in any of the given IV categories representing less than 3% of data missing. Given the low level of missing data in the IV variables, assumptions of generalizability were not violated. For dependent variables, there was a greater level of missing data given the response rate of participants to the follow up posttest.

Attitude Scale: Missing Data

Screening attitude scale (DV). When focusing on these original 115 cases, for the attitude scale, missing data was minimal. A missing data analysis was conducted for pre and posttest attitude scale items. The majority of items had no missing data. For those items that had missing data, less than 2.6% of the data was missing for any given item. In general, if a variable has less than 5% missing data, this does not represent a problematic situation during data analysis (Little & Rubin, 1987). No cases or items were deleted due to issues of missing data on the attitude scale.

Transformation for attitude scale (DV). When data are missing, researchers have options for handling these data. One is to delete the cases with missing data, while other options allow for estimation of missing values. If there is less than 5 percent of missing data across the variables, data can be replaced with the mean (McDermeit, Funk, & Dennis, 1999). If a researcher has no other information to assist in replacing missing values, the mean is the best estimate of a given variable (Mertler & Vannatta, 2005). Overall, this is a conservative procedure because the overall mean does not change by inserting mean values for cases. This form of substitution is recommended for group comparison analyses like the one being conducted in this study. In this study, missing data on the attitude scale was replaced with the series mean. Due to less than 5 percent of the data being missing for items on the attitude scale; an independent samples t-test was not utilized to explore random and non-random patterns of the missing data. As discussed previously, reliability tests indicated that the attitude scale has a Cronbach's Alpha test statistic of .709 for the 13 items kept on this scale.

Attitude Scale Influential Cases

Screening Attitude Scale. Influential cases exist in any MANOVA or data collection process. These influential cases were screened using box plots (univariate outliers) and the statistical procedure known as the Cook's D (multivariate outliers) (Mertler & Vannatta, 2005). Initially, SPSS was used to create box plots to determine outliers existing in the two dependent variables: attitude and knowledge. The attitude scale included 13 items. When exploring the full sample, only two of the thirteen items had no extreme values reported. Table 4.5 provides detailed information about the extreme values found in the attitude scale (106 cases analyzed, all cases that had posttest information for the attitude and knowledge test). Often outliers are due to data entry errors; therefore, the data was screened closely to determine if any errors were made

in the entry of the data. However, no errors were found. The other two common reasons for outliers are instrumentation error or because a particular subject is different from the rest of the sample.

Instrumentation error is possible given that this instrument has not been previously implemented or pretested and was created by the researcher for this study. As stated previously, the attitude scale was reduced to a 13-item scale based on results from an independent samples t-test, indicating possible non-random patterns in these item responses when comparing participants who completed the pretest only with participants who completed the pre and posttest measures. This 13-item scale demonstrated a Cronbach's Alpha reliability test statistic of .708. These changes to the attitude scale instrument were conducted to improve the instrument and lessen the likelihood for instrumentation error.

Finally, cases were examined for outliers at the univariate level using stem-and-leaf plots. Extreme cases found on pre and posttest items can be seen in Table 4.6. Of concern were 23 cases demonstrating extreme values for item 4 on the posttest response data. Item 4 looks at participants' agreement or disagreement with the statement, "Assessing if a youth has experienced trauma is important to clinical practice". Eighty-three participants responded "Strongly Agree" (5 on the Likert Scale) to this statement on the posttest, while 23 participants responded differently (1-4 on the Likert Scale). Additionally, 42 cases demonstrated extreme values for item 7 on the pretest response data. Item 7 looks at participants' agreement or disagreement with the statement, "In practice with youth, a good counselor would teach youth about the physiological impact of experiences they have had and how that impacts their ability to use problem solving skills." Sixty-four (64) participants responded that they agreed with this statement, 22 responded that they strongly agreed, and 20 responded that they either felt neutral,

disagreed, or strongly disagreed with this statement. On the posttest responses for this same question, only 4 extreme cases were found.

Next, a multivariate outlier procedure was utilized to determine if across all 13 items of the attitude scale, specific cases were outliers of concern. Cook's Distance is a statistical measure of multivariate leverage. Leverage is an important component of influence. Leverage measures how far away a case is from other cases while still being on the same line (Mertler & Vannatta, 2005). Using least squares regression, Cook's distance, D , estimates the influence of a data point by measuring the effect of deleting each given observation (Tabachnick & Fidell, 1996). Cook distance, D , provides then an overall measure of the impact of an observation (Dattalo, in press). The influence an observation has on the results of an analysis is important to consider prior to removing a case from a data set. Given MANOVA's sensitivity to outliers, Cook's distance, D , was used to analyze the attitude scale for any cases that may have significant influence on the results of the MANOVA analysis.

Dattalo (in press) notes that when analyzing results of Cook's distance, D , observations with values larger than D are values with unusual leverage. Dattalo suggests the following:

"... cut-offs for detecting influential cases include (1) values of D greater than $4/(n-k-1)$, where n is the number of cases and k is the number of independents, and (2) $D > 1$ as the criterion to constitute a strong indication of an outlier problem, with $D > 4/n$ the criterion to indicate a possible problem" (pp. 21-22).

Cook's Distance values were analyzed for all cases across all items of the attitude measure. No cases demonstrated Cook's D values greater than 1 indicating that there were no cases with strong indications of an outlier problem. However, ten (10) cases demonstrated

values greater than $.038$ ($4/n-k-1$) indicating a possible outlier problem. These cases were marked and two data sets were created. One data set maintained all 106 cases to be used in the MANOVA analysis. A second data set deleted the 10 cases that had Cook's D values greater than $.038$. When outliers of concern exist, it is recommended that two analyses be conducted, one with and one without the outliers of concern (Dattalo, in press; Mertler & Vannatta, 2005). The two data sets were utilized to conduct these two recommended analyses. Results of these two analyses will be presented in section 5 of this chapter.

Outliers and attitude scale scores. Total scores for the attitude scale were calculated. Total scores for that attitude scale range from 5 to 65; lower scores indicate more disagreement with attitude statements on the scale; higher scores indicate more agreement with the attitude statements on the scale. Five (5) items were reverse scored on this scale, given that strong agreement with these statements would indicate a strong disagreement with the importance of trauma, attachment, and or utility of the biological perspective in working with youth who have problems of conduct. The overall mean score for the sample ($n=106$) was 44.90 on the pretest administration and 47.09 on the posttest administration. Significant differences in attitude scores were noted between the workshop intervention group and the waitlist control group for both administrations of the scale (pretest $p=.004$; posttest $p=.000$). The mean attitude score for the workshop intervention group was 43.55 at the time of the pretest and 48.55 at the time of the posttest. The mean attitude score for the waitlist control group was 46.00 at the time of the pretest and 45.02 at the time of the posttest.

A second analysis was run excluding from the data set the 10 cases identified as outliers by the Cook's D procedure. Results from the analysis of these cases indicated similar results to

the previous analysis. Significant differences were noted between the workshop intervention group and waitlist control groups pre and posttest ($p=.002$, $p=.000$ respectively).

Transformation of Cases. As discussed above, no transformations were conducted on the data set. Issues of data entry errors and instrumentation errors were addressed, and no transformations were made based on concerns in either of these areas. Outlier concerns were addressed by creating two data sets, one with all waitlist control and workshop intervention cases from the sample and one in which the 10 outlying cases identified during the Cook's D procedure were deleted from the data set. Results from both analyses are presented in Section 5 of this chapter.

Table 4.6
Extreme Cases for Dependent Variable Attitude

Item	Pretest Extreme Cases	Posttest Extreme Cases
1- Likelihood they have experienced trauma	4 cases	4 cases
2- Need to experience significant consequences to change	4 cases	None
3- Strict reward and consequence systems work best	None	3 cases
4- Importance of assessing trauma	4 cases	23 cases
5- Trauma impacts treatment planning	5 cases	1 case
6- Importance of biological perspective	2 cases	3 cases
7- Importance of teaching physiology's impact on problem solving	42 cases	4 cases
8- Problem behavior focus	None	None
9- Teaching how to manage anxiety and stress	2 cases	4 cases
10-Teaching self-soothing and relaxation	2 cases	None
11- Increasing closeness in relationships with authority	None	None
12 – Treatment focus on teaching caregivers how to enforce limits	None	2 cases
14- Importance of sleep, diet, exercise	4 cases	7 cases

Attitude Scale Normality Assessment

Screening. Skewness and kurtosis values were examined for the attitude scale total score as well as the five (5) subscales. Values for the full 106 cases were examined as well as values for the 90 case sample where the 16 outliers identified during the screening of the attitude and knowledge measures were removed (10 outliers were identified during the screening of the attitudes measure items, 6 outliers were identified during the screening of the knowledge measure). This 90 case sample is listed as “reduced sample” in Table 4.7 and 4.8 below. The removal of the outlying cases appeared to assist in the reduction of skewness and kurtosis overall, while in some instances it did create problems with kurtosis and skewness with the subscales. Overall, there are concerns about the distribution of the total attitude scale. For both the full sample and reduced sample, the standard error across all three groups (full sample, workshop intervention, and waitlist control) was in excess of 3 standard deviations above the norm. This degree of SD (+3) is of concern (Sinrich, 1986). Additionally, in the waitlist control group, the kurtosis for the total attitude scale was leptokurtic (4.002) when using the full sample. However, with the removal of the outliers, this kurtosis value shifted within a normal distribution range (-.013). For the reduced sample, the kurtosis values for the total attitude scale score is close to a normal distribution (1.003).

When reviewing kurtosis values for the trauma attitude scale, there is again a positive kurtosis (leptokurtosis) across both groups. Of interest, removing the outliers actually increased the kurtosis of the full sample and workshop intervention groups significantly (full sample 3.404, reduced sample 21.714; workshop intervention group full sample, 2.260, reduced sample, 19.121). This kurtosis could be explained by participants’ responses representing a heavily tailed distribution. When examining participants’ responses on the trauma attitude scale, 92%

either strongly agreed or agreed that trauma was an important consideration for working with youth with conduct disorder. This percentage of participants falling on the right side of the distribution makes sense within the context of the model given that increasing knowledge of the importance of trauma to youth with conduct disorders was a major goal of the course curriculum. It is possible, then, that this increase in knowledge would in turn increase participants' attitudes that trauma is important to consider in working with youth with problems of conduct.

Transformation. While some of the kurtosis values fall outside the recommended range of +1 or -1, MANOVA is robust to issues of kurtosis and skewness when they are not a result of outliers (Mertler & Vannatta, 2005). Given that outlier issues have been addressed with the creation of a reduced sample (eliminating the 10 outliers identified by Cook's D procedure), no transformations were conducted on the data sets.

Table 4.7
Kurtosis and Skewness for Attitude Scale (total score and subscales)

Total Attitude Score (13 items)					
Group	Pretest Mean	SD	Range	Skewness	Kurtosis
Full Sample	49.68	4.694	32	.173	1.606
Reduced Sample	50.11	4.225	23	.700	1.003
Workshop Intervention	48.37	3.896	18	.407	.100
Reduced Sample	48.81	3.677	17	.626	.528
Teleclass Intervention	52.62	7.422	22	.459	-.980
Reduced Sample	52.62	7.422	22	.459	-.980
Waitlist Control	50.46	4.503	28	-.934	4.002
Reduced Sample	50.79	3.465	16	-.035	-.013
Group	Posttest Mean	SD	Range	Skewness	Kurtosis
Full Sample	51.26	5.509	26	.417	.012
Reduced Sample	52.82	5.373	22	.473	-.484
Workshop Intervention	52.78	5.580	26	-.263	.376
Reduced Sample	55.05	4.724	20	.053	-.438
Teleclass Intervention	55.56	6.405	17	.401	-1.628
Reduced Sample	55.56	6.405	17	.401	-1.628
Waitlist Control	48.92	4.182	19	.962	1.576
Reduced Sample	49.98	4.240	18	.902	.782
Trauma Attitude Score (3 items, Range 5-15)					
Group	Pretest Mean	SD	Range	Skewness	Kurtosis
Full Sample	13.24	1.870	9	-1.730	3.404
Reduced Sample	13.77	1.613	12	-3.692	21.714
Workshop Intervention	13.09	1.881	8	-1.568	2.260
Reduced Sample	13.76	2.083	12	-3.962	19.121
Teleclass Intervention	13.78	1.302	3	-.354	-1.806
Reduced Sample	13.78	1.302	3	-.354	-1.806
Waitlist Control	13.29	1.957	9	-1.940	4.644
Reduced Sample	13.81	1.153	4	-.812	-.049
Group	Posttest Mean	SD	Range	Skewness	Kurtosis
Full Sample	12.63	1.447	7	-.627	.667
Reduced Sample	13.92	1.421	6	-1.415	1.411
Workshop Intervention	12.73	1.271	7	-.935	2.575
Reduced Sample	14.36	1.063	4	-2.032	3.895
Teleclass Intervention	13.00	1.414	4	-.341	-1.089
Reduced Sample	13.00	1.411	4	-.341	-1.089
Waitlist Control	12.45	1.618	7	-.411	-.056
Reduced Sample	13.52	1.635	6	-1.059	.359

Consequence Attitude Score (2 items, Range 5 to 10)

Group	Pretest Mean	SD	Range	Skewness	Kurtosis
Full Sample	6.33	1.706	8	.044	-.425
Reduced Sample	6.29	1.657	8	.177	-.179
Workshop Intervention	5.96	1.719	8	.066	-.412
Reduced Sample	5.74	1.618	8	.243	.280
Waitlist Control	6.60	1.647	7	-.043	-.519
Reduced Sample	6.67	1.572	6	.072	-.494
Group	Posttest Mean	SD	Range	Skewness	Kurtosis
Full Sample	6.29	1.042	7	.261	1.573
Reduced Sample	6.26	1.055	7	.347	1.949
Workshop Intervention	6.20	1.060	6	1.213	3.082
Reduced Sample	6.21	1.080	6	1.416	3.938
Waitlist Control	6.46	.967	4	-.172	-.284
Reduced Sample	6.38	.987	4	-.051	-.332

Biological Perspective Attitude Score (3 items, Range 5-15)

Group	Pretest Mean	SD	Range	Skewness	Kurtosis
Full Sample	11.54	1.449	8	-.294	.701
Reduced Sample	7.43	1.050	6	-.354	.848
Workshop Intervention	11.39	1.366	7	-.799	1.554
Reduced Sample	7.36	.930	4	-.593	-.267
Waitlist Control	11.54	1.489	7	-.206	.097
Reduced Sample	7.40	1.108	6	-.543	1.594

Group	Posttest	SD	Range	Skewness	Kurtosis
Full Sample	11.85	1.851	10	-.473	1.024
Reduced Sample	7.79	1.250	6	-.013	.129
Workshop Intervention	11.86	2.245	10	-.712	.340
Reduced Sample	8.03	1.442	6	-.436	-.002
Waitlist Control	11.63	1.331	6	.171	.482
Reduced Sample	7.43	.941	5	-.060	.875

Integrated Course Intervention Attitude Score (3 items, Range 5-15)

Group	Pretest Mean	SD	Range	Skewness	Kurtosis
Full Sample	12.13	1.647	9	-.471	.805
Reduced Sample	12.31	1.457	6	-.114	-.280
Workshop Intervention	11.91	1.475	6	.030	-.591
Reduced Sample	12.21	1.341	5	.018	-.477
Waitlist Control	12.21	1.731	9	-1.050	2.502
Reduced Sample	12.29	1.443	6	-.362	.303
Group	Posttest	SD	Range	Skewness	Kurtosis
Full Sample	12.58	1.699	7	-.425	-.402
Reduced Sample	12.74	1.575	6	-.321	-.496
Workshop Intervention	13.12	1.603	6	-.778	.129

Reduced Sample	13.41	1.312	4	-.383	-.923
Waitlist Control	11.86	1.621	7	-.138	-.267
Reduced Sample	11.96	1.541	6	-.011	-.352

Problem Focused and Limit Setting Only Interventions Attitude Score (2 items, Range 5-10)

Group	Pretest Mean	SD	Range	Skewness	Kurtosis
Full Sample	6.44	1.795	7	-.118	-.828
Reduced Sample	6.38	1.815	7	-.087	-.856
Workshop Intervention	6.02	1.876	7	.245	-.922
Reduced Sample	5.87	1.908	7	.456	-.621
Waitlist Control	6.81	1.566	7	-.334	-.353
Reduced Sample	6.76	1.559	6	-.475	-.473
Group	Posttest	SD	Range	Skewness	Kurtosis
Full Sample	7.01	1.715	8	-.246	-.123
Reduced Sample	6.97	1.686	8	-.119	-.060
Workshop Intervention	7.31	1.817	7	-.282	-.516
Reduced Sample	7.26	1.712	6	.108	-.752
Waitlist Control	6.52	1.487	7	-.609	.712
Reduced Sample	6.48	1.534	7	-.570	.651

Knowledge Test: Missing Data

Screening knowledge test (DV). Two missing data analyses were utilized to evaluate the knowledge test item responses. The initial missing data analysis showed that certain items on the knowledge test were missing up to 20% of the data (range of 7.8% to 20% across all items of the measure). Upon further examination, the researcher determined that there were eight cases in the sample where no response to any of the items on the knowledge test was made. These eight cases were dropped from the sample. An additional case in which the participant only responded to one item on the test was dropped from the sample as well. Once these cases were dropped another missing data analysis was conducted. These deletions created the final sample of 106 cases. Missing data for items within this sample (n=106) ranged from 1.9% to 15.1%. While this percentage was less than percentages presented in the first missing data analysis, when more than 5% of the data is missing, it is important to assess if the missing data are “missing at random”, or “missing not at random.”

Tabachnick and Fidel (1996) suggest that the random or nonrandom patterns of missing data are more important than the amount of data missing. One way to examine the random nature of missing data is to create a dichotomous dummy variable that codes missing data with one code and non-missing data with another code. A simple independent samples t-test can then be conducted to determine if significant differences exist. If significant differences exist, this suggests that there is a non-random pattern in missing responses and this is of concern (Mertler & Vannatta, 2005).

In order to assess if patterns in the missing data existed, a dichotomous variable was created for cases missing data in the 106 cases and cases not missing data. Once the dichotomous variables were created, an independent samples t-test was run to determine if the pattern of missing data was random or nonrandom. The knowledge test included 28 items. However, one (1) item was dropped due to a non-random pattern of responses existing between participants who completed the pretest only and those who completed the pre and posttest. The remaining 27 items were utilized to conduct independent samples t-test comparing participants' responses who were missing data and those whose responses were not missing data. For 19 of the items, no significant differences between groups were found by the t-test. A significant difference in groups is marked by a probability value of .05 or less. For these 19 items, the pattern of the missing data appears to be random and therefore of no concern. However, eight (8) items on the measure indicated a significant difference between participants who responded to all items on the test and those who had at least one or more missing responses on the test. These eight (8) items were dropped from the measure for analysis given the non-random pattern of missing data responses. These items focused on questions relating to: concerns about the grief process; types of attachment styles; the importance of neuroplasticity; knowledge of implicit

mental models; impact of trauma on the brain; definition of visual and auditory processing issues as they relate to trauma; and important considerations for selecting interventions. Dropping items indicated by the independent samples t-test addressed concerns about the percentage of missing data and differences between cases missing data and those missing no data.

Transformation of knowledge test (IV). As discussed previously, several options exist for handling missing data. The series mean approach for replacing missing values is recommended when replacing 15% or less of the missing data because it has little effect on the results of analyses (Merlter & Vannatta, 2005). However, unlike the attitude scale, the knowledge measure is a test and therefore missing data was interpreted as a wrong answer and coded as incorrect. A series mean approach was not utilized. Missing data was replaced by coding the missing data as an incorrect answer. No transformations were needed.

Knowledge Test Influential Cases

Screening knowledge test items. Influential cases for the knowledge test were examined in a similar manner as with the attitude scale. SPSS was used to create stem-and-leaf plots to determine extreme values present on any of the items on the knowledge test. The knowledge test originally included 28 items. As discussed previously, nine (9) items on this measure were eliminated based on results from independent samples t-tests which identified concerns of non-random patterns of responses and missing values for these nine items.

When examining the 19-item knowledge test for outliers, extreme values were found on 12 of 19 items. Table 4.8 provides detailed information about the extreme values found on the knowledge test. Often outliers are due to data entry errors; therefore, the data was screened closely to determine if errors were made in the entry of the data. However, no errors were found. The other two common reasons for outliers are instrumentation error or because a particular

subject is different from the rest of the sample. Instrumentation error is possible given that this instrument has not been previously implemented or pretested and was created by the researcher for this study. As discussed previously, a Cronbach's Alpha reliability test was conducted to examine the reliability of the knowledge test measure. A test statistic of .7 or higher is preferable when examining the reliability of a scale (Nunnally, 1978). As previously discussed, the original knowledge test (28 items) had a reliability test statistic of .845. However, due to concerns with non-random patterns of missing data, nine (9) items were dropped from the measure. Reliability testing with the reduced item measure produced a Cronbach's Alpha of .566. A lower reliability test statistic can indicate concerns with the internal consistency of the measure. However, given the concerns with generalizability to the sample, the reduced item measure was utilized in the MANOVA analysis.

Finally, a multivariate outlier procedure was utilized to determine if specific cases in the knowledge test represented unique cases (outliers) that potentially could distort statistical inferences to be made based on the MANOVA analysis. The same multivariate outlier procedure that was utilized in evaluating the attitude scale was utilized in the evaluation of outliers on the knowledge test: Cook's Distance. As suggested by Dattalo (in press), Cook's Distance, D , is a useful tool to measure influence and identify outliers of significant or possible concern. Cook's D values greater than 0 are a strong indication of an outlier problem, while Cook's D values greater than $4/(n-k-1)$ indicate a possible outlier is present (Dattalo, in press). In examining the Cook's D values present for all 106 cases on the knowledge test item responses, six (6) cases had more than four (4) Cook's D values greater than .038 ($4/(n-k-1)$). While deleting outliers from a data set is a last resort, MANOVA is highly sensitive to outliers and these outlying cases could distort statistical results of the analysis. Therefore, two MANOVA analyses were conducted in

this study: one analysis with all valid cases and one analysis with the outlying cases removed from the data set (10 identified from attitude scale and 6 cases identified from the knowledge test). Both analyses will be reported in Section 5 of this chapter. For the purposes of multivariate analysis, a valid case is defined as a case where the participant completed both the pre and post attitude and knowledge measure AND was not a member of the teleclass intervention group. Teleclass cases were removed from each data set due to the low sample size ($n=9$); however, a discussion of those nine (9) cases will be presented as well.

Outliers and participant knowledge scores. The total score for the knowledge test was also evaluated for outliers. This variable was computed by adding all correct answers together for a total score. Each correct answer was worth 1 point; a total of 19 points was possible for a total score on the knowledge test. Of the 106 cases in the sample, 7 cases (scores less than 12) were noted as having extreme values when examining total scores for the knowledge test. When including all 106 cases, the mean score on the knowledge test was 13.08 overall, 13.41 for participants in the workshop intervention course, and 12.48 for participants on the waiting list for the course. When an independent samples t-test was conducted, no significant differences were noted between groups ($p=.06$). However, when the 16 cases identified as outliers by Cook's D procedures (conducted in the attitude and knowledge screenings) were removed from the data set ($n=90$), the sample's mean score for the knowledge test was 13.36, 13.97 for workshop intervention participants, and 12.53 for waitlist control participants. These results indicated a significant difference between groups ($p=.002$). As can be seen in results from the independent samples t-test conducted on the knowledge scores between groups, extreme values can distort statistical procedures. Again, the MANOVA is particularly sensitive to outliers while being robust to moderate violations of normality based on skewness (Tabachnick & Fidell, 1996). At

the same time, deleting outliers from a sample for analysis is typically a last resort for resolving extreme value concerns (Dattalo, in press). To determine if the outlying values on the knowledge test create significant differences in the final results, the MANOVA analysis was conducted two times: once with all valid cases and once with the 16 outlying cases being deleted from the data set (10 cases identified in Cook's D analysis of the attitude scale, 6 cases identified in the Cook's D analysis of the knowledge test). Again, all valid cases are cases in which the pre and posttest attitude and knowledge measures were completed AND cases that were not part of the teleclass intervention group given the small sample size ($n=9$). Results from the teleclass intervention group will be discussed separately.

Transformations. Issues of data entry errors and instrumentation errors were addressed and no transformations were made based on concerns in either of these areas. There were concerns about specific outlying cases, and outliers can be dropped from a sample when cases appear uniquely different from the majority of cases. The two main approaches to working with outliers are data transformation and deletion of outliers. Transformations are suggested as a way of "softening the impact of outliers ... transformations may not fit into the theory of the model or they may affect its interpretation" (Dattalo, in press, pp. 20-21). Deletion involves deleting outlying cases from a data set. Care must be taken when deleting cases from a data set. Often it is suggested that analyses be conducted with and without the extreme cases. Given the concerns with transformations, running the model with and without identified outlier cases was selected as the best option in addressing extreme value concerns for this study. First the MANOVA was run with all valid cases and then the MANOVA was run deleting the 16 outlying cases as well as the teleclass intervention cases given the small sample size ($n=9$).

Table 4.8
Extreme Cases for Dependent Variable Knowledge

Item	Extreme Cases
Q17- Trauma Offense Cycle	12 cases Outlier cases were incorrect answers
Q18- Quick Relief Behaviors	4 cases Outlier cases were incorrect answers
Q19- Impact of Negative Consequences	5 cases Outlier cases were incorrect answers
Q-20 – Trauma Echo Model	11 cases Outlier cases were incorrect answers
Q-21 – Trauma Outcome Process	6 cases Outlier cases were incorrect answers
Q-22- Trauma's Impact on Thoughts, Feelings, Behavior	5 cases Outlier cases were incorrect answers
Q- 23 – Identify the 9 Tenets of Attachment	11 cases Outlier cases were incorrect answers
Q- 24- Define Exploratory Behaviors	7 cases Outlier cases were incorrect answers
Q-25- Engage in Attach/Exploratory Behaviors at the Same Time	14 cases Outlier cases were correct answers
Q-26 Define Attachment Behaviors	No outlying cases (51 cases responded incorrectly, 55 responded correctly)
Q-28 Normalcy of Grief Process	10 cases Outlier cases were incorrect answers
Q-29 Steps of Grief Process	No outlying cases (62 cases responded incorrectly, 44 responded correctly)
Q-31 Internal Working Models	No outlying cases (79 cases responded correctly, 27 responded incorrectly)
Q-33 ECR-R Utility	No outlying cases (47 cases responded incorrectly, 59 responded correctly)
Q-34 Experience Dependent Mind	21 cases Outlier cases responded incorrectly
Q-35 Happy and Terrified Child Model	No outlying cases (50 cases responded incorrectly, 56 responded correctly)
Q-37 Explicit and Implicit Memory	No outlying cases (46 cases responded incorrectly, 60 responded correctly)
Q-43 Benefits of Biofeedback	No outlying cases (27 cases responded incorrectly, 79 responded correctly)
Q – 44 Attunement Exercises	No outlying cases (32 cases responded incorrectly, 74 responded correctly)
Total Knowledge Score	7 cases Outlying cases represent scores less than 12 out of 19

Knowledge Test Normality Assessment

Screening. Skewness and kurtosis were also examined for the total knowledge score and 3 subscales on the knowledge test. Values were examined for the full sample (106 cases) as well as for the reduced sample where outlying cases were removed (n=90). Values for both samples can be seen in Table 4.9. Overall, results for skewness and kurtosis were similar for both samples. No concerns with skewness or kurtosis were noted for the total knowledge score, the attachment knowledge score, or the biological perspective score, with all values falling between the suggested -1 and +1 range. On the holistic intervention knowledge scores (item=1), a slight level of platykurtosis existed when the reduced sample was examined (-1.738 for workshop intervention group, -1.073 for sample). Platykurtosis was also demonstrated for the waitlist control group (-1.675 for the full sample, -1.701 for the reduced sample).

While slight concerns of platykurtosis existed across the total test and the two subscales mentioned above, the most significant concerns for skewness and kurtosis were observed on the trauma knowledge subscale (items=6). Skewness values ranged across groups and across samples from -1.582 to -2.719. Kurtosis values were also outside the normal range for the workshop intervention group (6.994). Overall, the reduced sample demonstrated lower levels of skewness and kurtosis across groups.

Transformation. While some of the kurtosis values fall outside the recommended range of +1 or -1, particularly on the trauma knowledge subscale, no transformations were conducted on either data set. MANOVA is robust to issues of kurtosis and skewness when they are not a result of outliers (Mertler & Vannatta, 2005). Given that outlier issues have been addressed with the creation of a reduced sample (eliminating the 16 outliers identified by Cook's D procedure,

10 via attitude scale outlier screening and 6 via knowledge test outlier screening), the full sample and reduced sample were not transformed.

Table 4.9
Kurtosis and Skewness for Knowledge (total score and subscales)

Total Knowledge Test Score					
Group	Mean	SD	Range	Skewness	Kurtosis
Full Sample	13.08	2.415	12	-.660	.240
Reduced Sample	13.36	2.169	9	-.505	-.304
Workshop Intervention	13.41	2.605	12	-1.007	1.212
Reduced Sample	13.97	1.871	7	-.291	-.490
Waitlist Control	12.48	2.183	8	-.329	-.860
Reduced Sample	12.52	2.255	8	-.401	-.889
Trauma Knowledge Score					
Group	Mean	SD	Range	Skewness	Kurtosis
Full Sample	5.59	.778	3	-2.114	3.984
Reduced Sample	5.69	.612	3	-2.121	4.567
Workshop Intervention	5.67	.774	3	-2.719	6.994
Reduced Sample	5.85	.366	1	-1.996	2.090
Waitlist Control	5.48	.825	3	-1.592	1.893
Reduced Sample	5.52	.773	3	-1.582	1.858
Attachment Knowledge Score					
Group	Mean	SD	Range	Skewness	Kurtosis
Full Sample	5.10	1.301	6	-.381	.031
Reduced Sample	5.22	1.305	6	-.548	.333
Workshop Intervention	5.27	1.335	5	-.237	-.728
Reduced Sample	5.49	1.275	5	-.452	-.326
Waitlist Control	4.81	1.232	6	-.696	1.104
Reduced Sample	4.86	1.280	6	-.747	1.072
Biological Perspective Knowledge Score					
Group	Mean	SD	Range	Skewness	Kurtosis
Full Sample	2.64	1.289	4	-.742	-.553
Reduced Sample	2.68	1.188	4	-.702	-.453
Workshop Intervention	2.69	1.388	4	-.835	-.580
Reduced Sample	2.82	1.211	4	-.855	-.232
Holistic Interventions Knowledge Score					
Group	Pretest Mean	SD	Range	Skewness	Kurtosis
Full Sample	.70	.461	1	-.876	-1.258
Reduced Sample	.73	.445	1	-1.073	-.868
Workshop Intervention	.73	.446	1	-1.097	-.832
Reduced Sample	.82	.389	1	-1.738	1.073
Waitlist Control	.65	.483	1	-.630	-1.675
Reduced Sample	.64	.485	1	-.619	-1.701

Other Multivariate Assumptions for Consideration

Linearity

Linearity was assessed between the independent variable (group membership) and the dependent variables: pretest attitude (total pretest attitude score), posttest attitude (total posttest attitude score), and knowledge (total knowledge score). Scatter plots were used in this assessment. Examinations of the scatter plots indicated that the relationships were nonlinear. The absence of linearity is of concern given that most multivariate statistics are not robust to violations of this assumption. Extreme values in the data were addressed and are discussed in this chapter.

Multicollinearity

Multicollinearity exists when two or more predictor variables are highly correlated (Mertler & Vannatta, 2005). The dependent variables (attitude and knowledge) were assessed through bivariate correlations. No significant correlations were found between the knowledge test (total score) and the attitude scale (total score) pretest ($r=.141$, $p=.150$). No significant correlations were found between the knowledge test (total score) and the attitude scale (total score) posttest ($r=.159$, $p=.104$). Significant correlations were found between the attitude pretest and posttest total scores ($r=.221$, $p=.023$); however, given that these are results from the same scale given at different times, they represent the same predictor variable and are expected to be highly correlated. No transformations were needed based on the fact that no multicollinearity between predictor variables was observed.

Homoskedasticity

Homoskedasticity is the “assumption that the variability in scores for one continuous variable is roughly the same as all values of another continuous variable” (Mertler & Vannatta,

2005, p.34). Homoskedasticity is analogous with the concept of homogeneity of variance in univariate analysis. Homoskedasticity is related to normality in that if the assumptions of normality are met, then by definition the two variables must be homoscedastic (Tabachnick & Fidell, 1996). Tests of homoscedasticity were conducted at the univariate level using Levene's Test and at the multivariate level using Box's M.

First, the total attitude pretest score and five (5) pretest subscales were examined for equal variance. The workshop intervention group and the waitlist control were compared, given that they are the two main groups of interest. The teleclass intervention group only had nine (9) participants in the data set and so the utility of comparing this group in the data analysis was limited. Neither the total attitude scale score nor the five (5) subscale scores demonstrated Levene's test statistics greater than .05. This lack of significant differences in variance existed across the full sample and reduced sample. Next, the total attitude posttest score and five (5) posttest subscales were examined for equal variance. The total attitude posttest score and the biological perspective posttest score demonstrated significant differences in variance among the workshop intervention and waitlist control groups in the full sample ($p=.022$ and $p=.003$ respectively). When the same analysis was conducted using the reduced sample ($n=90$), only the biological perspective subscale indicated a significant difference in variance among groups ($p=.013$). Finally, the total knowledge test score and the four (4) subscale scores were examined for equivalence in variance using Levene's test. In the full sample, no significant differences were observed in variance among the workshop intervention group and the waitlist control group. However, when Levene's test was conducted on the reduced sample, the knowledge of trauma score and the knowledge of intervention techniques score demonstrated significant difference among groups ($p=.000$ for both).

When differences in equal variance were examined between the workshop intervention group and the teleclass intervention group, the only significant difference existed between groups on the total attitude pretest score ($p=.034$). This difference was also found when analyzing the reduced sample data ($n=90$, $p=.042$). No significant differences were demonstrated between groups on the total attitude posttest score, nor on the subscale scores for either sample (full or reduced). Differences in equal variance were also examined between the waitlist control group and the teleclass intervention group for the pre and post attitude scales. The only significant difference existed between groups on the total attitude pretest score ($p=.046$). This difference remained when analyzing the reduced sample ($n=90$, $p=.001$). No significant differences were demonstrated between groups on the total attitude posttest score, nor on the subscale scores. This lack of significant differences existed when analyzing the reduced sample data as well.

Multivariate analysis of homoskedasticity. The multivariate analysis of homoskedasticity was evaluated using Box's M. "Box's M tests for equality of variance-covariance matrices. This test allows the researcher to evaluate the hypothesis that covariance matrices are equal." (Mertler & Vanndatta, 2005, p.34) This test is strict and utilizes a critical value of less than .05. In the analysis of the full sample, Box's M was reported as .106. In the analysis of the reduced sample (outliers removed, $n=90$), Box's M was reported as .175. For both analyses, Box's M was above the level of significance, leading to the conclusion that equality of covariance or homogeneity of variance of the dependent variables was assured.

Transformation. While screening for homoskedasticity is important, given that it is an assumption of MANOVA, Dattalo notes that the MANOVA is robust to violations of the assumption of homoskedasticity when no group is greater than 1.5 times the other groups (Dattalo, in press). Using this standard, the heteroskedasticity noted between the waitlist control

group and the workshop intervention groups are not of great concern (sample sizes are 48 and 49 respectively). However, heteroskedasticity is of concern between the waitlist control group and the teleclass intervention group, as well as between the workshop intervention group and the teleclass intervention group (sample size of the teleclass intervention group is nine). While a MANOVA was conducted to examine the differences between waitlist control/workshop intervention groups and the teleclass intervention groups, it was understood that the utility of this analysis was very limited. Results for this part of the study were more focused on benefiting future studies which may attempt to look at the differences between teleclass course curriculums and workshop course curriculums on the same material. No transformations were made on the data sets based on the analysis of homoskedasticity.

Data Analyses: Hypotheses Testing

After screening all the data, a final analysis was conducted to respond to the three hypotheses identified below. Hypotheses one (1) and two (2) focused on determining differences between the workshop intervention and waitlist control groups on the dependent variables: knowledge and attitude. Hypothesis three focused on determining if significant differences in attitude occurred within the workshop intervention group. While the original study was designed to look at differences between a second intervention group (teleclass intervention) and the other groups, the small sample size of this second intervention group made a statistical analysis of differences between these groups impossible ($n=9$). Descriptive differences of the teleclass intervention group, the workshop intervention group, the waitlist control group, and the full sample is presented following the primary analysis of the workshop intervention group and waitlist control group.

Group Analysis

Multivariate Analysis of Variance (MANOVA) is a technique used to “simultaneously study two or more related DVs while controlling for the correlations among DVs (Mertler & Vannatta, 2005, p.15).” One-way MANOVA is often recommended when there is one independent variable (IV) with two plus categories and there are two plus dependent variables that are quantitative in nature. Given the interest in this study in comparing group membership (IV: workshop intervention and waitlist control group) across the two dependent variables (attitude and knowledge), MANOVA was an appropriate statistical procedure to select for this analysis. A one-way MANOVA was conducted in the analysis of hypothesis one (1) given the interest in comparing two groups across two dependent variables (knowledge and attitude). Results of this analysis will be presented in the discussion of hypothesis one (1) below.

Hypothesis three (3) focuses on looking within the workshop intervention group for significant differences between pre and post attitude scale scores. When looking to assess significance of changes observed within a sample, a t-test is a common parametric test utilized to “ascertain the probability that the observed relationship was the result of sampling error (Rubin & Babbie, 2001, p.544). The t-test is appropriate for use when the IV is nominal and only two categories and the DV is interval or ratio level data. A paired samples t-test is used when the samples are dependent, for example when one sample has been tested twice, as in a repeated measures design (McDonald, 2009). Given the interest of evaluating differences between pre and post attitude screening within the workshop intervention group, a paired sample t-test was selected as the most appropriate statistical tool for this analysis.

Research Question One (1):

Do participants who take the intervention course “Attachment, Trauma, and the Brain” increase their knowledge on the subject when compared with persons who are placed on a waitlist for this course?

H₀: There is no significant difference between participants in the intervention course’s post knowledge test score and waitlist control participants’ knowledge test scores

H_a: Participants in the intervention courses post knowledge test scores will be higher than waitlist control participants’ knowledge test scores

Pre-knowledge background of groups. While the knowledge test was not administered at the time of pretesting, as discussed previously in this chapter, information was gathered from participants on their prior knowledge of course content. At pretesting, all participants rated their level of knowledge in five areas of content (attachment theory, basic anatomy, neuroscience, trauma-informed approaches, and biofeedback techniques). An independent samples t-test was used to compare the workshop intervention group and waitlist control group. Participants in the waitlist control group and the workshop intervention group showed no differences in pre-knowledge in the areas of attachment theory ($p=.630$), basic human anatomy ($p=.173$), neuroscience ($p=.807$), and biofeedback ($p=.707$). Differences in one area of knowledge, trauma informed practices, was demonstrated between the two groups ($p=.026$). Participants in the workshop intervention group had a mean score on this item of 2.80 (between little knowledge and some knowledge), while the waitlist control group’s mean score was 3.27 (between some knowledge and good working knowledge). While this was a self assessed identification of knowledge, it provides some information that across the three groups there was

some equivalence in claims with regard to knowledge of areas they would be tested on during the study.

Differences in knowledge between groups (Waitlist Control and Workshop Intervention). The first focus of the study was to determine if intervention participants demonstrated an increase in knowledge when compared to waitlist control participants. Given that there was no pre-knowledge test given to either group in order to control for testing effects, no analysis was conducted within groups on the knowledge data. For descriptive purposes, Table 4.10 (below) presents the mean scores, significance levels, and standard deviations for workshop intervention and waitlist control participants on the knowledge test. Total knowledge scores, as well as scores for the four subscales, are included.

Table 4.10
Comparison of Posttest Knowledge Test Scores for Workshop Intervention Group and Waitlist Control Group

	Measure	Group	Mean	SD	Significance of Difference
Full Sample (97)	Total Test Score	Workshop Intervention	13.41	2.61	.060
		Waitlist Control	12.48	2.18	
		Full Sample	12.95	2.44	
	Trauma Knowledge	Workshop Intervention	5.67	.774	.235
		Waitlist Control	5.48	.825	
		Full Sample	5.58	.801	
	Attachment Knowledge	Workshop Intervention	5.27	1.34	.086
		Waitlist Control	4.81	1.23	
		Full Sample	5.04	1.30	
	Biological Knowledge	Workshop Intervention	2.69	1.39	.426
		Waitlist Control	2.48	1.26	
		Full Sample	2.59	1.32	
	Intervention Integration	Workshop Intervention	.73	.446	.349
		Waitlist Control	.65	.483	
		Full Sample	.69	.465	
Reduced Sample (81)	Total Test Score	Workshop Intervention	13.97	1.87	.002
		Waitlist Control	12.52	2.26	
		Full Sample	13.22	2.19	
	Trauma Knowledge	Workshop Intervention	5.85	.366	.020
		Waitlist Control	5.52	.773	
		Full Sample	5.68	.629	
	Attachment Knowledge	Workshop Intervention	5.49	1.28	.029
		Waitlist Control	4.86	1.28	
		Full Sample	5.16	1.31	
	Biological Knowledge	Workshop Intervention	2.82	1.21	.150
		Waitlist Control	2.43	1.21	
		Full Sample	2.62	1.22	
	Intervention Integration	Workshop Intervention	.82	.389	.074
		Waitlist Control	.64	.485	
		Full Sample	.73	.448	

Note. ^a Higher mean scores indicate greater knowledge of content. ^b Significance of difference values indicate statistical significance of differences between the workshop intervention group scores and waitlist control group scores on the knowledge test and subtests.

A MANOVA analysis was conducted to evaluate group differences in knowledge between the workshop intervention and waitlist control groups. The knowledge test and subtests were the first DV included in the MANOVA along with the pre and posttest attitude scale measures. As discussed previously, a benefit of the MANOVA procedure is that it controls for the correlations among the DVs and manages Type I error, while integrating the intercorrelation of the outcome measures into the analysis (Mertler & Vannatta, 2005). Wilk's Lamda is the most commonly reported MANOVA statistic and indicates the change in the dependent variable not explained by the independent variable (Mertler & Vannatta). Wilk's Λ values range from 0-1 with lower values indicating significant group differences and values closer to 1 indicating no significant differences existing between groups (Mertler & Vannatta).

In the full sample analysis (n=97), MANOVA results revealed statistically significant differences between the workshop intervention and waitlist control groups (Wilk's $\Lambda = .435$, $p = .000$). Levene's test for equality of error variance indicated no concerns of equal variance and Box's M was not significant ($p = .083$). Once group differences were established by the Wilk's Λ values, significance values were explored for both dependent variables to determine where differences exist. When outliers were included in the full sample (n=97), no statistically significant differences existed for the dependent variable *knowledge*. The total knowledge test score did approach significance ($p = .060$).

As discussed previously, MANOVA is robust to violations of normality caused by skewness, but extreme values can distort the accuracy of results produced from this procedure (Mertler & Vannatta). Given the importance of eliminating outliers within the data set utilized in the MANOVA procedure, a reduced data set was created which eliminated the 16 outlying cases identified in data screening. In the reduced sample analysis (n=81), MANOVA results again

indicated significant differences between the workshop intervention and waitlist control groups (Wilk's $\Lambda = .399$, $p = .000$). Levene's test of equality of error variance indicated unequal variance for the knowledge of trauma score and the knowledge of intervention integration score ($p = .000$ for both subtests). Again, once group differences were established by the Wilk's Λ value, significance values were explored for both dependent variables to determine where these differences existed. In this reduced sample, a statistically significant difference was noted between the waitlist control group and the workshop intervention group on the total knowledge test score ($p = .002$). Significant differences between groups was also noted on the trauma knowledge subtest ($p = .020$) and the attachment knowledge subtest ($p = .029$). These results indicate that when controlling for extreme values, the workshop intervention group scored significantly higher overall on the knowledge test when compared to the waitlist control group. Additionally, the workshop intervention group scored significantly higher in the areas of trauma and attachment knowledge. The null hypothesis for hypothesis one (1), therefore, is rejected.

Research Question Two (2):

Do participants who take the intervention course differ significantly in their scores when compared to waitlist control participants?

H₀: There is no significant difference between participants in the intervention course's posttest attitude scale scores and waitlist control participants' posttest attitude scores

H_a: Participants in the intervention courses posttest attitude scores will be higher than waitlist control participants' attitude scale scores

The attitude scale was developed to measure participants' attitudes in five different areas of treatment and intervention planning including: trauma, consequences, biological perspective, integrated intervention approaches, and problem and limit setting intervention approaches. The participants rated their attitude responses by ranking the importance of each topic area when working with youth with problems of conduct. Participants responded to attitude statements on a five point Likert Scale. A ranking of five indicated strong agreement four, agreement; three, neutrality; two, disagreement; and one, strong disagreement. The original 15 item scale was reduced to 13 items. Seven items on the scale were reverse coded, given that they were negative items (i.e. strong agreement with these items would indicate a strong disagreement with principles focused on in the course curriculum intervention). In Chapter 3, Table 3.3 provides guidance on interpreting the total attitude scale and subscale scores, as well as the actual attitude statements included in the subscales.

A MANOVA analysis was conducted to determine if significant differences existed between the workshop intervention group and the waitlist control group for the dependent variable *attitude*. Group membership (workshop intervention or waitlist control group) was utilized as the independent variable while *knowledge* and *attitude* were the two dependent

variables. The knowledge test and subtests were the first DV included in the MANOVA along with the pre and posttest attitude scale measures. As previously discussed, Wilk's Lambda is the most commonly reported MANOVA statistic (I'm not sure what this sentence means. Do you mean that that the Wilk's Lambda is the most commonly reported tool used to explain changes the DVs that are not explained by the IV?) and changes in the dependent variables not explained by the independent variable (Mertler & Vannatta, 2005). A low Wilk's Λ indicates significant group differences, while a value closer to 1 represents no significant differences existing between groups. In the full sample analysis where outlying cases were included in the analysis ($n=97$), MANOVA results revealed that significant differences existed between the workshop intervention and waitlist control groups (Wilk's $\Lambda = .584$, $p = .000$). Overall, there were no concerns of homogeneity of variance and covariance, given that Box's M was not significant. However, Levene's test of equality of error variance indicated two attitude subscales which at posttest violated this assumption: posttest trauma attitude subscale ($p = .032$) and posttest biological perspective subscale ($p = .002$). Once significance between groups was determined, significance levels of the total attitude scale score and subscale scores were examined. Results of this evaluation are presented in Table 4.11 and discussed below.

Table 4.11

Comparison of Pre and Posttest Attitude Scale Scores for Workshop Intervention & Waitlist Control Groups

	Measure	Group	Pretest Mean	Pretest SD	Significance of Difference	Posttest Mean	Posttest SD	Significance of Difference
Full Sample (97)	Total Attitude Score	Workshop Intervention	48.37	3.896	.016	54.18	5.302	.000
		Waitlist Control	50.46	4.503		49.81	4.051	
		Full Sample	49.40	4.315		52.02	5.188	
	Trauma Attitudes	Workshop Intervention	13.09	1.881	.608	14.14	1.384	.012
		Waitlist Control	13.29	1.957		13.35	1.676	
		Full Sample	13.19	1.911		13.75	1.579	
	Consequence Attitudes	Workshop Intervention	5.96	1.719	.062	6.20	1.060	.220
		Waitlist Control	6.60	1.647		6.46	.967	
		Full Sample	6.28	1.706		6.33	1.018	
			8.10	.848		.395	8.39	
	Biological Perspective Attitudes	Workshop Intervention	8.27	1.087	.360	8.12	.981	.000
		Waitlist Control	8.18	.972		8.26	1.325	
		Full Sample	11.91	1.475		13.12	1.603	
	Integrated Course Intervention Focus	Workshop Intervention	12.21	1.731	.026	11.86	1.621	.022
		Waitlist Control	12.06	1.605		12.50	1.724	
		Full Sample	6.02	1.876		7.31	1.817	
	Problem and Limit Setting Intervention Focus Attitudes	Workshop Intervention	6.81	1.566	.026	6.52	1.487	.022
		Waitlist Control	6.41	1.766		6.92	1.700	
		Full Sample						

	Measure	Group	Pretest Mean	Pretest SD	Significance of Difference	Posttest Mean	Posttest SD	Significance of Difference
Reduced Sample (81)	Total Attitude Score	Workshop Intervention	48.81	3.677	.015	55.05	4.724	.000
		Waitlist Control	50.79	3.465		49.98	4.240	
		Full Sample	49.83	3.684		52.42	5.131	
	Trauma Attitudes	Workshop Intervention	13.40	1.647	.553	14.36	1.063	.008
		Waitlist Control	13.60	1.345		13.52	1.635	
		Full Sample	13.50	1.492		13.92	1.445	
	Consequence Attitudes	Workshop Intervention	5.74	1.618	.011	6.21	1.080	.446
		Waitlist Control	6.67	1.572		6.38	.987	
		Full Sample	6.22	1.651		6.30	1.030	
	Biological Perspective Attitudes	Workshop Intervention	8.18	.757	.950	8.62	1.369	.066
		Waitlist Control	8.16	1.034		8.14	.872	
		Full Sample	8.17	.906		8.37	1.156	
	Integrated Course Intervention Focus	Workshop Intervention	12.21	1.341	.788	13.41	1.312	.000
		Waitlist Control	12.29	1.443		11.96	1.541	
		Full Sample	12.25	1.387		12.66	1.602	
	Problem and Limit Setting Intervention Focus Attitudes	Workshop Intervention	5.87	1.908	.024	7.26	1.712	.034
		Waitlist Control	6.76	1.559		6.48	1.534	
		Full Sample	6.33	1.782		6.85	1.659	

Note. ^a Higher mean scores indicate greater agreement with the attitude. ^b Significance of difference values indicate statistical significance of differences between the workshop intervention group scores and waitlist control group scores on the attitude scale and subscales. ^c Agreement with “consequence attitudes” means participants agreed that consequences should NOT be the primary focus of treatment. ^d Agreement with “problem and limit setting intervention focus attitudes” means participants agree that focusing on problems and using limit setting interventions should NOT be the primary focus of treatment.

Results of the full sample MANOVA indicated significant differences between the workshop intervention and waitlist control groups on the following items: total pretest attitude scale score ($p=.016$) and total posttest attitude scale score ($p=.000$), trauma attitude posttest subscale score ($p=.012$), integrated intervention posttest subscale score ($p=.000$), the limit-setting intervention focus subscale pretest subscale score ($p=.026$), and the limit-setting intervention focus subscale posttest (subscale score $p=.022$). Interpretation of these results indicated that, at pretest, certain statistically significant differences in attitudes existed between groups. The first pretest difference found between groups existed on the total pretest attitude scale score ($p=.016$). In experimental design where pre and posttest group comparison was of interest, the lack of significant differences at pretest suggested that significant differences at posttest were related to effects of the independent variable. The presence of pretest differences limited the explanation of posttest group differences being related to the course intervention's effects. While considering this limitation, differences on the total attitude scale scores were more statistically significant at posttest ($p=.000$). While the intervention's effect on the total attitude scale score could not be determined because of pretesting differences, an increase in the significant level at post testing showed potential change that had occurred in the workshop intervention group. This change was supported when examining the difference in mean scores on the total attitude scale. At pretest, the waitlist control group's total attitude scale mean score was higher than the workshop intervention group's total attitude scale mean score. However, at posttest, the workshop intervention group's total attitude scale mean score was higher than the waitlist control group's total attitude scale score (see Table 4.11). Future research should examine differences in total attitude mean scores when pretesting differences do not exist.

After examining total attitude scores pre and posttest, subscale scores were evaluated pre and posttest. Two of the five attitude subscales showed no differences existing between groups at pretest. However, statistically significant differences existed at posttest. These two subscales included the trauma attitude subscale ($p=.012$) and the integrated intervention posttest ($p=.000$). While on both subscales waitlist control participants scored higher at pretest; at posttest, workshop intervention participants scored higher on both subscales. Based on this evaluation of mean differences, results suggest that in relation to *attitudes that support the importance of trauma-informed practice* and *attitudes that supported integrating attachment, trauma, and biologically informed perspectives into interventions*, group differences were statistically significant at post testing while they were not significant at pretesting. Again, these differences provide evidence that the course curriculum may be correlated with changing the attitudes held by direct practitioners in this sample regarding treatment considerations for these youth.

One of the five attitude subscales showed differences at pre and post testing. This was the problem and limit setting intervention focus attitude subscale score. At pretest, the waitlist control group scored higher on this subscale, while at posttest the workshop intervention group scored higher on this subscale. While significance levels are similar at pre and posttest (.026 at pretest and .022 at posttest), it is of interest that at posttest the workshop intervention group scored higher, representing a reversal of pretesting results. The significance of these posttest scores is limited given that there was a preexisting significant difference between groups at posttest.

In the reduced sample analysis ($n=81$), where outlying cases were eliminated from the sample, results from the MANOVA procedure also indicated significant differences between the workshop intervention and waitlist control groups (Wilk's $\Lambda = .399$, $p=.000$). Levene's test of

equality of error variance indicated unequal variance for the trauma attitudes posttest ($p=.003$) and the biological perspective posttest ($p=.014$). Again, significance levels were examined for specific attitude scale and subscale group differences. Significant results can be found in Table 4.11 and include: total attitude pretest scale score ($p=.015$), total attitude posttest scores ($p=.000$), trauma attitude posttest subscale score ($p=.008$), consequence attitude pretest subscale scores ($p=.011$), integrated course intervention attitude posttest subscale scores ($p=.000$), problem and limit setting intervention focused attitude pretest subscale scores ($p=.024$), and problem and limit setting intervention focused attitude posttest subscale scores ($p=.034$), all of which (Did I understand this sentence correctly? It is long!) were significant to group membership. These results suggest similar significant differences between groups that appeared in the analysis of the full sample. The one difference found in this analysis involved the consequence attitude subscale. Pretest scores for the consequence attitude subscale were significant at pretest in the reduced sample, but not at posttest. These results suggest that at the time of pretesting, the waitlist control group was in greater disagreement with the attitude that consequences should be the primary focus of work with youth who have problems of conduct. However, at the time of the posttest, there was no significant difference between groups in this attitude. Based on differences found across the full and reduced sample in integrated course intervention attitudes and in trauma attitudes, differences did exist at posttest between the workshop intervention group and the waitlist control group. The null hypothesis for hypothesis two (2) is rejected.

Research Question Three (3):

Do participants in the intervention courses attitude scores change significantly between pretest and posttest?

H₀: There is no significant difference between participants in the intervention course's pre and posttest attitude scale scores

H_a: Posttest attitude scale scores of participants in the intervention course will be significantly higher than their pretest attitude scale scores

A paired-samples t-test was conducted to compare the means of the pre and posttest attitude scale scores within groups. The first analysis utilized the full sample (n=97, outlying cases included). For the workshop intervention group, paired sample correlations were significant for the total attitude scale (p=.001), the trauma attitude sub-scale (p=.002), and the problem and limit-setting focused interventions sub-scale (p=.000). Paired sample correlations were not significant for the consequence attitudes sub-scale (p=.063), the biological perspective sub-scale (p=.133) or the integrated course intervention sub-scale (p=.070). Results of the paired samples t-test indicated that within the workshop intervention group, statistically significant differences existed between the pre and post testing on the following scales: total attitude scale (p=.000); trauma attitude sub-scale (p=.000); integrated course intervention sub-scale (p=.000); and the problem and limit-setting sub-scale (p=.000). For the waitlist control group, results from the paired samples t-test indicated no statically significant differences between any of the pre and post test attitude scales or subscales. Table 4.12 presents the results of the paired samples t-test for the full and reduced samples. Results from the reduced samples paired samples t-test were similar to results from the full sample. The null hypothesis was rejected, given that significant

differences do exist between pre and post testing attitude scale scores for the workshop intervention group.

Table 4.12

Within Group Comparison of Pre and Posttest Attitude Scale Scores for Workshop Intervention & Waitlist Control Groups

	Measure	Group	Pretest Mean	Pretest SD	Posttest Mean	Posttest SD	Significance of Difference
Full Sample (97)	Total Attitude Score	Workshop Intervention	48.37	3.896	54.18	5.302	.000
		Waitlist Control	50.46	4.503	49.81	4.051	.328
	Trauma Attitudes	Workshop Intervention	13.09	1.881	14.14	1.384	.000
		Waitlist Control	13.29	1.957	13.35	1.676	.869
	Consequence Attitudes	Workshop Intervention	5.96	1.719	6.20	1.060	.336
		Waitlist Control	6.60	1.647	6.46	.967	.600
	Biological Perspective Attitudes	Workshop Intervention	8.10	.848	8.39	1.592	.224
		Waitlist Control	8.27	1.087	8.12	.981	.410
	Integrated Course Intervention Focus	Workshop Intervention	11.91	1.475	13.12	1.603	.000
		Waitlist Control	12.21	1.731	11.86	1.621	.221
	Problem and Limit Setting Intervention Focus Attitudes	Workshop Intervention	6.02	1.876	7.31	1.817	.000
		Waitlist Control	6.81	1.566	6.52	1.487	.219

	Measure	Group	Pretest Mean	Pretest SD	Posttest Mean	Posttest SD	Significance of Difference
Reduced Sample (81)	Total Attitude Score	Workshop Intervention	48.81	3.677	55.05	4.724	.000
		Waitlist Control	50.79	3.465	49.98	4.240	.185
	Trauma Attitudes	Workshop Intervention	13.40	1.647	14.36	1.063	.001
		Waitlist Control	13.60	1.345	13.52	1.635	.805
	Consequence Attitudes	Workshop Intervention	5.74	1.618	6.21	1.080	.086
		Waitlist Control	6.67	1.572	6.38	.987	.309
	Biological Perspective Attitudes	Workshop Intervention	8.18	.757	8.62	1.369	.073
		Waitlist Control	8.16	1.034	8.14	.872	.884
	Integrated Course Intervention Focus	Workshop Intervention	12.21	1.341	13.41	1.312	.000
		Waitlist Control	12.29	1.443	11.96	1.541	.232
	Problem and Limit Setting Intervention Focus Attitudes	Workshop Intervention	5.87	1.908	7.26	1.712	.000
		Waitlist Control	6.76	1.559	6.48	1.534	.274

Note. ^a Higher mean scores indicate greater agreement with the attitude. ^b Significance of difference values indicate statistical significance of differences between pretesting and post testing of the attitude measures. ^c Agreement with “consequence attitudes” means participants agreed that consequences should NOT be the primary focus of treatment. ^d Agreement with “problem and limit setting intervention focus attitudes” means participants agree that focusing on problems and using limit setting interventions should NOT be the primary focus of treatment.

Teleclass Intervention Group Comparison and Evaluation

The original intent of this study was to compare 3 groups across the dependent variables of attitude and knowledge. These three groups included a waitlist control group, as well as two intervention groups. The first intervention group was the workshop intervention group, in which direct practitioners participated in the curriculum via a face to face workshop. The second intervention group was the teleclass intervention group, in which direct practitioners participated in the curriculum via an eight (8) week audio-conference course with a virtual classroom. Recruitment was directed at both groups. However, the teleclass intervention group was a greater challenge to recruit for the study. Between 2008 and 2009, 85 direct care and/or clinical supervisory practitioners took the teleclass version of this course. Yet, only 12 chose to participate in the study. This represents a 14% participation rate for the teleclass participants. Between 2008 and 2009, 276 direct care practitioners participated in the Attachment Workshop. One-hundred and ninety three (193) of these practitioners participated in the study, representing a participation rate of almost 70%.

Future research should explore whether this difference in participation rate is consistent across different sampling frames of clinical practitioners who work with youth who have problems of conduct. Additionally, reasons behind challenges in recruiting distance- learning professionals should be explored so that future studies could benefit from enhanced recruitment strategies that might increase teleclass practitioners' participation rate. Often when informally interviewed over the phone, teleclass practitioners would report that they have very little time to take classes and much less time to participate in a study. They reported that without the teleclass course option they would not be able to even access this information, since they could not attend

workshops, given the cost and loss of clinical contacts which result from attending an all day workshop. Their reason for taking the class was to access the information in a low cost manner so that they could improve their work with clients. This alone brings out an important concern of needing to find effective ways to train distant learning practitioners, because without this type of educational option, they may not have access to or learn current treatment methods which would benefit their clients.

Of further interest, several teleclass practitioners reported their surprise at learning a great deal through this venue of education. These same practitioners wanted to participate in post testing for the study because of this experienced benefit. However, their participation was not possible given the requirement for participation in the pretest in order to participate in the posttest. While there is no evidence-based reason for these conclusions other than a handful of informal post hoc conversations, future research would benefit from incorporating an assessment of change measures with all practitioners taking teleclasses, coupled with a consent form for utilization of these measures in the future for research and evaluation on the utility of this method of continuing education. Other recruitment strategies and retention strategies should be explored as well.

Nine (9) practitioners participated in the teleclass intervention group portion of the study. While the nine (9) participants in the teleclass intervention group represent too small a group with which to conduct any significant statistical analyses, the interest in this section is exploring what can be learned from these participants that may enhance future research endeavors. How were they alike or different across the independent variables as well as the dependent variables utilized in this study? Is there initial evidence that teleclass courses offer equal or even better options for learning clinical material, which in turn impacts clinical work with youth who have

conduct related problems? This section will provide descriptive comparisons of the teleclass intervention group within the context of the workshop intervention group and the waitlist control group.

Demographic Summary of Teleclass Intervention Group

Seventy-eight percent (78%) of the participants in the teleclass intervention group were female (n=7). Nearly 55.6% of teleclass intervention participants fell within the 40-49 year old age range (n=5). More than three quarters (77.8%) of the participants in the teleclass intervention group identified as White (n=7). One teleclass participant was African American (11.1 % of the teleclass intervention group) and one teleclass participant self-identified as “other” in terms of ethnicity and race (11.1% of the teleclass intervention group). Three (3) participants in the group had jobs in in-home therapy, three (3) had jobs in outpatient therapy, one (1) was a case manager, and two (2) had jobs listed in the “other category. In terms of level of education, one (1) participant held a Bachelor’s Degree, seven (7) people held a Masters Degree, and one (1) person held a degree in the “other” category. Thirty-three point four percent (33.4%) of the teleclass participants held a license in clinical social work or a license from the “other” category. Additionally, 22.2% of the participants did not hold a license and 11.1% held a license in clinical psychology. These participants came from five (5) different states including California, Florida, Indiana, Tennessee, and Virginia. Additionally, a participant came from Washington DC. Overall, the teleclass intervention group showed a more even distribution across states with 22.2 % of the participants being from California, Indiana, and Virginia, while 11.1% of the participants were from Washington D.C., Florida, or Tennessee (n=9). Table 4.13 provides sample demographics for all groups.

Table 4.13

Sample Demographics for Teleclass, Workshop, and Control Groups (I presume that when you take out my editing comments, the table itself will come up under this title, rather than being separated by a page)

Variables	Sample		Face to Face		Teleclass		Control Group	
	N(106)	100%	N(49)	46%	N(9)	9%	N(48)	45%
Gender								
Male	17	16	12	24.5	2	22	3	6
Female	89	84	37	75.5	7	78	45	94
Age								
Less than 20	0	0	0	0	0	0	0	0
Between 20-29	29	27.4	15	30.6	0	0	14	29.2
Between 30-39	25	23.6	12	24.5	1	11.1	12	25
Between 40-49	31	29.2	14	28.6	5	55.6	12	25
Between 50-59	15	14.2	7	14.3	1	11.1	7	14.6
Between 60-69	5	4.7	1	2.0	1	11.1	3	6.2
Over 70	1	.9	0	0	1	11.1	0	0
Ethnicity								
Af American	4	3.8	2	4.1	1	11.1	1	2.1
Asian American	2	1.9	2	4.1	0	0	0	0
Hispanic	8	7.6	8	16.3	0	0	0	0
Am Indian	1	.9	0	0	0	0	1	2.1

Europe/White	86	81.1	35	71.4	7	77.8	44	91.7
Bi-racial/Multi	2	1.9	1	2.05	0	11.1	1	2.1
Other	3	2.8	1	2.05	1	11.1	1	2.1
Job								
Mentoring	2	1.9	2	4.1	0	0	0	0
Outpt Therapy	16	15.1	10	20.4	3	33.3	3	6.3
Home Therapy	40	37.7	8	16.3	3	33.3	29	60.4
Case Mangt	12	11.3	11	22.5	1	11.1	0	0
School Based	14	13.2	8	16.3	0	0	6	12.5
Other	22	20.8	10	20.4	2	22.3	10	20.8
Education								
HS/GED	1	.9	1	2.1	0	0	0	0
Associates	5	4.8	3	6.1	0	0	2	4.2
Bachelors Deg.	31	29.3	19	38.8	1	11.1	11	22.9
Masters Deg.	63	59.4	23	46.9	7	77.8	33	68.7
PhD	1	.9	1	2.0	0	0	0	0
PsyD	2	1.9	2	4.1	0	0	0	0
Other	3	2.8	0	0	1	11.1	2	4.2
Academic Disc								
SocialWork	37	34.9	13	26.5	4	44.45	20	41.7
Psychology	22	20.8	16	32.7	1	11.1	5	10.4

Counseling	29	27.3	11	22.4	4	44.45	14	29.2
Education	11	10.4	4	8.2	0	0	7	14.5
Other	7	6.6	5	10.2	0	0	2	4.2
Licensure								
Social Work	23	21.7	5	10.2	3	33.35	15	31.2
Psychology	6	5.7	5	10.2	1	11.1	0	0
Counseling	11	10.4	3	6.1	0	0	8	16.7
Other	11	10.4	0	0	3	33.35	8	16.7
No license	55	51.8	36	73.5	2	22.2	17	35.4
State								
Arizona	1	.9	0	0	0	0	1	2.1
California	23	21.8	21	42.9	2	22.2	0	0
Wash DC	1	.9	0	0	1	11.1	0	0
Florida	2	1.9	0	0	1	11.1	1	2.1
Indiana	2	1.9	0	0	2	22.2	0	0
Maine	21	19.8	0	0	0	0	21	43.7
N Carolina	9	8.5	8	16.3	0	0	1	2.1
Nevada	1	.9	0	0	0	0	1	2.1
Tennessee	5	4.7	0	0	1	11.1	4	8.3
Virginia	41	38.7	20	40.8	2	22.2	19	39.6

Prior Knowledge Summary of Teleclass Intervention Group

Five (5) of the nine (9) teleclass intervention participants reported “some” level of knowledge of attachment theory (55.6%). Four (4) participants in the teleclass intervention group reported “some” knowledge of basic anatomy while three (3) participants reported a “good” knowledge of basic anatomy. Knowledge of neuroscience seemed more evenly distributed across the teleclass intervention participants with one (1) participant having “no” knowledge, two (2) participants reporting “little” knowledge, two (2) participants reporting “some” knowledge, three (3) participants reporting “good” knowledge, and one (1) participant reporting a “very strong” knowledge of neuroscience. The majority of teleclass intervention participants reported having “some” knowledge of trauma informed clinical practices (33.3%) while 22.2% reported having a “good” knowledge in this area (n=9). =The majority of teleclass intervention participants had “little” knowledge of biofeedback techniques (66.7% with n=9). Table 4.14 provides prior knowledge demographics for all groups.

Table 4.14
Prior Knowledge Demographics for All Groups

Knowledge	Sample		Workshop		Teleclass		Control Group	
	N (106)	100%	N(49)	46%	N(9)	1%	N(48)	45%
Attachment								
None	3	2.8	0	0	1	11.1	2	4.2
Little	16	15.1	9	18.3	1	11.1	6	12.5
Some	79	74.5	36	73.5	5	55.6	38	79.1
Good	2	1.9	2	4.1	0	0	0	0
Very Strong	6	5.7	2	4.1	2	22.2	2	4.2
Expert	0	0	0	0	0	0	0	0
Anatomy								
None	0	0	0	0	0	0	0	0
Little	9	8.5	5	10.2	1	11.1	3	6.2
Some	47	44.4	23	46.9	4	44.5	20	41.7
Good	42	39.6	19	38.8	3	33.3	20	41.7
Very Strong	7	6.6	2	4.1	1	11.1	4	8.3
Expert	1	.9	0	0	0	0	1	2.1
Neuroscience								
None	3	2.8	1	2.0	1	11.1	1	2.1
Little	38	35.9	17	34.7	2	22.2	19	39.6
Some	49	46.2	27	55.1	2	22.2	20	41.6
Good	15	14.2	4	8.2	3	33.3	8	16.7
Very Strong	1	.9	0	0	1	11.1	0	0
Expert	0	0	0	0	0	0	0	0

Trauma	8	7.5	6	12.4	1	11.1	1	2.1
None	22	20.8	12	24.4	1	11.1	9	18.8
Little	44	41.5	20	40.8	3	33.3	21	43.7
Some	20	18.9	8	16.3	2	22.2	10	20.8
Good	11	10.4	3	6.1	1	11.1	7	14.6
Very Strong	1	.9	0	0	1	11.1	0	0
Expert								
Biofeedback	16	15.1	9	18.4	1	11.1	6	12.5
None	48	45.3	19	38.8	6	66.7	23	47.9
Little	29	27.3	16	32.6	0	0	13	27.1
Some	11	10.4	5	10.2	1	11.1	5	10.4
Good	2	1.9	0	0	1	11.1	1	2.1
Very Strong	0	0	0	0	0	0	0	0
Expert								

Differences in Knowledge Test Scores

While the sample size for the teleclass intervention group was small ($n=9$), a comparison of means was conducted using an independent samples t-test. The teleclass intervention group was compared with the waitlist control group and the workshop intervention group. Results from the t-test comparing the two intervention groups revealed that no significant differences between the two groups existed across either the total knowledge score or any of the sub scores. This was true whether equal variance was assumed or not assumed. Significant differences did exist between the teleclass intervention group and the waitlist control group for the total knowledge test score ($p=.009$) and the attachment knowledge sub-score ($p=.035$). While the small sample size makes the interpretation of significant results limited, these results indicate that the teleclass intervention group scored significantly higher than the waitlist control group on the total knowledge test as well as in the specific area of attachment theory. Mean score differences across all the knowledge tests and subtests are presented in table 4.15 (below).

Table 4.15
Differences in Means for Knowledge Test across Groups

	Measure	Group	Mean
Full Sample (106)	Total Test Score	Workshop Intervention	13.41
		Teleclass Intervention	14.56
		Waitlist Control	12.48
		Full Sample	13.08
	Trauma Knowledge	Workshop Intervention	5.67
		Teleclass Intervention	5.78
		Waitlist Control	5.48
		Full Sample	5.59
	Attachment Knowledge	Workshop Intervention	5.27
		Teleclass Intervention	5.78
		Waitlist Control	4.81
		Full Sample	5.10
	Biological Knowledge	Workshop Intervention	2.69
		Teleclass Intervention	3.22
		Waitlist Control	2.48
		Full Sample	2.64
Intervention Integration	Workshop Intervention	.73	
	Teleclass Intervention	.78	
	Waitlist Control	.65	
	Full Sample	.70	
Reduced Sample (90)	Total Test Score	Workshop Intervention	13.97
		Teleclass Intervention	14.56
		Waitlist Control	12.52
		Full Sample	13.36
	Trauma Knowledge	Workshop Intervention	5.85
		Teleclass Intervention	5.78
		Waitlist Control	5.52
		Full Sample	5.69
	Attachment Knowledge	Workshop Intervention	5.49
		Teleclass Intervention	5.78
		Waitlist Control	4.86
		Full Sample	5.22
	Biological Knowledge	Workshop Intervention	2.82
		Teleclass Intervention	3.22
		Waitlist Control	2.43
		Full Sample	2.68
Intervention Integration	Workshop Intervention	.82	
	Teleclass Intervention	.78	
	Waitlist Control	.64	
			.73

Differences in Attitude Scale Scores

Similarly to the descriptive analysis conducted with the teleclass intervention group for the knowledge test, a comparison of means for the attitude scale was conducted using an independent samples t-test. The teleclass intervention group was compared with the waitlist control group and the workshop intervention group. No statistically significant differences existed between two groups for the total attitude scale score or any of the pretest subscale scores. However, when comparing the teleclass intervention group and the waitlist control group, no significant differences were observed at the time of the pretest (total attitude scale score, $p=.421$ equal variance is not assumed). Yet, at posttest administration of the total attitude scale, significant differences were observed ($p=.015$, equal variance not assumed). Mean score for the teleclass intervention group was 46.39 at the time of the pretest and 50.22 at the time of the posttest. Significant differences were also seen between the two groups on three of the attitude posttest subscales (biological perspective, integrated course intervention and problem and limit setting intervention focus). The probability test statistic for the biological perspective attitude subscale was .008. For the integrated course intervention attitude subscale the probability test statistic was .007. And finally, for the problem and limit setting intervention focus, the probability test statistic was .009. In the reduced sample analysis, no significant differences were found between the teleclass intervention and workshop intervention groups pretest ($p=.137$) and posttest ($p=.555$). And significant differences were found between the waitlist control group and the teleclass intervention group at posttest ($p=.000$), but not at the time the pretest was administered ($p=.966$).

Total attitude scale scores are presented in Table 4.16, as well as scores for the five subscales. Examination of mean scores on the attitude scale across groups revealed that the

waitlist control group scored below the full sample mean on the total attitude scale posttest, as well as 4 of the 5 posttest subscales (all but consequence attitudes subscale). For consequence attitudes, the teleclass intervention group showed greater agreement with consequences being a primary intervention focus, when compared with the waitlist control group (5.89 vs. 6.46, scale range 5-10, higher score indicates greater disagreement with attitude statement given item was reverse coded). When compared to the workshop intervention group and waitlist control group, participants in the teleclass intervention group (n=9) scored higher on the total attitude posttest and three of the four attitude posttest subscales. Workshop intervention participants scored higher on the total attitude scale posttest as well as four of the posttest subscales (trauma, biological perspective, integrated intervention focus, and problem and limit setting intervention focus). Overall, the intervention groups' posttest attitude scores were higher after the intervention, while the waitlist control posttest attitude scores reflected a decline over time. This was true for the total attitude mean posttest scores as well as three of the four subscale posttest scores. For the full sample, trauma subscale posttest scores decreased for all groups when compared with pretest trauma subscale scores.

A second analysis was conducted on the reduced sample (16 outlier cases excluded). Results of the second analysis were consistent with results from the full sample, except in the trauma attitudes score. For the reduced sample, trauma subscale posttest scores increased for all groups except the waitlist group. This increase indicates that the attitudes related to trauma of participants in the intervention groups (as well as the total score and other subscales) increased while the waitlist control groups' trauma attitude scores decreased.

While the small sample size for the teleclass intervention groups makes significance of results limited, these results would indicate that the teleclass intervention group had an overall

positive change in attitude when compared with the waitlist control group. Specifically, changes in their three attitudes were greater than the waitlist control. Those three attitude categories include: biological perspective, utilization of integrated intervention approaches, and disagreement with the primary utilization of problem focused intervention models with youth who have problems of conduct.

Table 4.16
Comparison of Means Pre and Posttest for Attitude Scale

	Measure	Group	Pretest Mean	Posttest Mean
Full Sample (106)	Total Attitude Score	Workshop Intervention	48.37	52.78
		Teleclass Intervention	52.62	55.56
		Waitlist Control	50.46	48.92
		Full Sample	49.68	51.26
	Trauma Attitudes	Workshop Intervention	13.09	12.73
		Teleclass Intervention	13.78	13.00
		Waitlist Control	13.29	12.45
		Full Sample	13.24	12.63
	Consequence Attitudes	Workshop Intervention	5.96	6.20
		Teleclass Intervention	6.89	5.89
		Waitlist Control	6.60	6.46
		Full Sample	6.33	6.29
	Biological Perspective Attitudes	Workshop Intervention	11.39	11.86
		Teleclass Intervention	12.32	13.00
		Waitlist Control	11.54	11.63
		Full Sample	11.54	11.85
	Integrated Course Intervention Focus	Workshop Intervention	11.91	13.12
		Teleclass Intervention	12.85	13.44
		Waitlist Control	12.21	11.86
		Full Sample	12.13	12.58
	Problem and Limit Setting Intervention Focus Attitudes	Workshop Intervention	6.02	7.31
		Teleclass Intervention	6.78	8.00
		Waitlist Control	6.81	6.52
		Full Sample	6.44	7.01

Reduced Sample (90)	Total Attitude Score	Workshop Intervention	48.81	55.05
		Teleclass Intervention	52.62	56.44
		Waitlist Control	50.79	49.98
		Full Sample	50.11	52.82
	Trauma Attitudes	Workshop Intervention	13.76	14.36
		Teleclass Intervention	13.67	13.89
		Waitlist Control	13.81	13.52
		Full Sample	13.77	13.92
	Consequence Attitudes	Workshop Intervention	5.74	6.21
		Teleclass Intervention	6.89	5.89
		Waitlist Control	6.67	6.38
		Full Sample	6.29	6.26
	Biological Perspective Attitudes	Workshop Intervention	7.36	8.03
		Teleclass Intervention	7.88	8.44
		Waitlist Control	7.40	7.43
		Full Sample	7.43	7.79
	Integrated Course Intervention Focus	Workshop Intervention	12.21	13.41
		Teleclass Intervention	12.85	13.44
		Waitlist Control	12.29	11.96
		Full Sample	12.31	12.74
Problem and Limit Setting Intervention Focus Attitudes	Workshop Intervention	5.87	7.26	
	Teleclass Intervention	6.78	8.00	
	Waitlist Control	6.76	6.48	
	Full Sample	6.38	6.97	

Qualitative Analyses

Measurement

Reflective Case Scenario Measure. The case scenario change in behavior measure was provided to all participants, both pre and post intervention, as well as being administered to the waitlist control group twice. This measure consists of a case assessment that provides the participant with a full psychosocial history of a client who is demonstrating problems of conduct. This exemplar of a client's behaviors and history falls within the range of clients to whom the training material could apply (See Appendix F). Subsequent to reading this psychosocial information, the participant is asked to respond in writing to the following items: 1) Suggest up to five evaluative measures you would like to have conducted for this client; 2) Complete a DSM-IV TR diagnosis for this client based on the information you have been presented; 3) Write a two paragraph assessment summary based on the information presented; and 4) Present up to five treatment goals and intervention strategies you would present based on the assessment you have made of this client. Responses to these measures were evaluated via a content analysis.

Content Analysis Process

Analyzing words is one qualitative analysis technique that allows researchers to find themes in participant responses and text (Ryan & Bernard, 2003). In this study, words in response to the reflective case scenario measure were analyzed using a process called content analysis. The content analysis began by quantifying the presence of words. As recommended by Patton (1990), these "data bits" found in the existing text were then coded in a meaningful way, given the context in which the text was collected. After coding all these "data bits," the themes and patterns were created through the use of categories. The categorization of these "data bits" is the basis through which the data is organized and then conceptualized (Dey, 1993). Through an

inductive data analysis process, themes from the data bits and categorization process emerge, as opposed to presetting categories prior to the collection of the data (Patton). The piling of these “data bits” into categories allows the researcher to compare themes that arise across cases. One way of presenting cross-case analyses is through meta-matrices, which are master charts that pull together descriptive data (Miles & Huberman, 1994). Categories and themes emerging from the content analysis can be partitioned in a meta-matrix, allowing themes arising from certain cases to be juxtaposed with themes arising from other cases. In qualitative research, data collection and the analysis of case content continues until saturation has been achieved (Patton). Saturation occurs at the point that information gathered from new observations and case analysis is redundant and no new themes or subthemes are arising (Patton). In qualitative research, typically, data collection and the analysis of case content continue until saturation has been achieved (Patton). Saturation occurs at the point that information gathered from new observations and case analysis is redundant and no new themes or subthemes are arising (Patton). However, in this study, limited cases were available to analyze based on recruitment and posttest response rate challenges previously discussed. Therefore, data in this study has the same constraints of availability and quality experienced when existing data is often used in qualitative analyses (Patton).

Data Analysis Plan.

Responses to the reflective case scenario were coded using IBM’s SPSS Text Analytics computer program. This program is a tool for word and content analysis, often used with open ended survey responses. The program analyzes the text and supports the researcher in coding the data and then building categories from the words analyzed. From the categories, themes can be identified which are used in a cross-case analysis. Given this study’s interest in a cross case

analysis, cases were coded within their study group assignment (workshop intervention group, teleclass intervention group, and waitlist control group). Categories were created inductively from the data. The first group analyzed was the workshop intervention group. Categories for each of the five areas of research interest were created from this data set. The five areas of research interest include: recommended evaluation tools, Axis I DSM-IV TR diagnosis, assessment summary, treatment goals, and intervention methods. These categories were then applied to the teleclass intervention group. When new categories arose from the teleclass data, they were added into the thematic frame and content analysis. Categories created from the workshop and teleclass intervention groups were then applied to the waitlist control group. Again, when new categories arose in this group, they were added to the thematic frame and content analysis. Results are presented in Tables 4.17 thru 4.35.

The 115 cases utilized in the quantitative analysis (those completing pre and posttest measures) were initially examined as part of the qualitative data analysis (sample is the same as for knowledge and attitude measures). A missing data analysis was conducted on the 115 cases. Of the 115 cases, 107 of these cases had some level of text response to at least one (1) of the questions asked in the case scenario measure. These 107 cases became the sample for the evaluation of changes in assessment and treatment planning behaviors. Of the 107 cases, 51 were in the waitlist control group, 45 were in the workshop intervention group, and 12 were in the teleclass intervention group. A separate content and word analysis was conducted for each group.

Results of these analyses were placed in a meta matrix (specifically, a clustered summary matrix) that compared themes across the 5 topic areas addressed in the measure. Once again, the five topic areas were based on recommendations participants had for the client, including: types

of evaluative measures needed, Axis I DSM-IV TR diagnosis, assessment summary, treatment goals, and intervention strategies. Results from the content analysis are presented across the five topic areas through meta-matrices that correspond to the research questions 4, 5, 6, and 7 below. A separate meta-matrix was created for each group. Within these meta-matrices, the larger theme, and then subthemes, are identified by the researcher, the number of times this theme was presented in the data is provided, and (when appropriate) exemplars of the subthemes are presented. A cross-case analysis discussion is provided for each research question utilizing the meta-matrices and cluster tables for reference.

Research Question Four (4)

Do participants in the course intervention groups show differences in three areas of the assessment of the course case study between pretest and posttest?

Three assessment skills were evaluated:

- Recommended evaluations
- DSM-IV TR Axis I diagnosis for this client
- Assessment summary conclusions for this client

Tables 4.17, 4.18, and 4.19 provide information about the evaluation, diagnostic, and assessment summary themes found in the workshop intervention group. Tables 4.20 and 4.21 provide information about the evaluation and diagnostic themes found in the teleclass intervention group. No participants in the teleclass intervention group completed the assessment summary pre or posttest.

Some thematic differences emerged in the evaluations recommended pre and posttest for the workshop intervention group. In Table 4.17, differences in the types of evaluations recommended can be seen pre and posttest. Posttest, participants were more specific about the

types of assessments they would recommend for the client. Additionally, the number of trauma assessments recommended went up from two (2) at pretest to nine (9) at posttest. No attachment assessments were recommended pretest, yet eight (8) participants recommended attachment assessments posttest. An increase in the number of medical evaluations can also be seen (6 pretest, 13 posttest). Finally, one (1) participant recommended gathering information about the client's diet pretest. However, posttest, seven (7) participants' recommended gathering information about diet, sleep, and even exercise patterns for the client and family. Differences in diagnoses (Table 4.18) were seen in this group as well. The number of disruptive behavior disorder diagnoses decreased (42 pretest, 26 posttest) while the number of Reactive Attachment Disorder (RAD) diagnoses increased (8 pretest, 14 posttest). Assessment summaries pre and posttest for the workshop intervention group were very similar (Table 4.19).

Table 4.20 provides information on the thematic differences and similarities observed pre and posttest for the teleclass intervention group. Evaluations recommended pre and posttest were very specific (8 pretest, 4 posttest). More specific assessments were recommended at the time of pretest. Pre and posttest recommended assessments also included trauma assessments (2 trauma assessment recommended pretest, 1 recommended posttest). More interest was expressed at the time of the pretest in "clarifying caregiving experiences" and in "assessing significant life changes." Axis I diagnoses were very similar for this group pre and posttest (Table 4.21). Of interest, at least three of the participants in this group were certified in EMDR and two participants utilize neurofeedback in practice. One-fourth of the participants, then, had had intensive training around trauma prior to the course intervention. Future studies would benefit from more participants in the teleclass intervention group, providing a broader array of responses

to these areas of assessment and a greater potential to reach a point of saturation during data analyses.

Research question and content analysis. Based on this text and content analysis, there is evidence of differences pre and posttest when considering evaluations recommended and type of Axis I diagnosis given to the client. There is no evidence of differences in pre and post assessment summaries for the workshop intervention group. For the teleclass intervention group, there is little evidence of thematic differences pre and posttest for evaluations recommended or Axis I diagnoses given. The only changes observed between pre and post testing include fewer evaluations being recommended posttest.

Table 4.17
Workshop Intervention Group Evaluation Recommendation Themes (pre and posttest)

Evaluation Recommendation Themes	Pretest (n=36)	Posttest (n=34)
Specific Formal Assessments	20 Trauma Symptom Checklist, Psychological Evaluations, Connors, Academic Testing, Intelligence Tests Note: 2 trauma assessments mentioned	22 Trauma (9), Attachment(8), Achievement(1), and Psychological Evaluations (4) Note: Auditory Processing Exams, Measuring Cortisol Levels, SPECT Scan, and EMDR assessments were also mentioned
Need for Trauma Assessment Exists	16	14
Need to Clarify Caregiving Experience of Client	17	9
Assessing Attachment History and Abilities	None	11
Assess Family Members and Family Dynamics	11	8
Assess Significant Life Events (particularly between ages 3-5)	8	8
Disabilities Present	1	None
Previous History of Counseling	1	None
Understanding of Death	1	None
Asking Client to Define Problem	1	
Medical Evaluations	6	13
Diet, Exercise, Sleep patterns	1 Diet	7

Table 4.18

Workshop Intervention Group Axis I Diagnoses

Axis I	Pretest	Posttest
Mood Disorder	4, 1 rule out	3
Disruptive Behavior	42	26
PTSD and Anxiety Disorders	10	12
Pervasive Development Disorder	2	0
RAD	8, 3 rule outs	14, 2 rule outs

Table 4.19

Workshop Intervention Group Assessment Summary Themes (pre and posttest)

Pretest Assessment Summary Themes	Posttest Assessment Summary Themes
<ul style="list-style-type: none"> • 10 participants responded • Some concerns with antisocial behavior (4/3 about animals) • Encouraged family counseling and increasing positive behaviors (2/2) • Noted difficulty with peer relationships (7) • Concerns with displays of aggressive behaviors (4) • Concerns with possible abuse history (2) and background in trauma (1) • Encouraged by family's willingness to participate in family counseling (2) • Some history of positive relationships with caregivers(3) • Concern with inappropriate reactions to sensory stimuli (1) • Some concern with history of negative attachment experiences (3) • Support client in learning to be calm (2) 	<ul style="list-style-type: none"> • 2 participants responded • Difficulty with peers (2) • Concern with aggressive behaviors (1) • Some Antisocial Behaviors (2) • Concern with possible abuse history (1) • Concern with background of trauma (1) • Need for predictable routines (1) • Client shows motivation for work (1)

Table 4.20
Teleclass Intervention Group Evaluation Recommendation Themes (pre and posttest)

Evaluation Themes	Pretest (n=12)	Posttest (n=8)
Specific Formal Assessments	8 2- trauma assessments Connors, Child Behavior Checklist, UCLA PTSD Index, psychiatric, psychological, NSLIHS, Substance Abuse Assessments, EMDR Assessments	4 1- Trauma symptom inventory Connors, Child Behavior Checklist, Bender Visual Motor, Neurofeedback Assessment, Sensory/OT assessments
Need for Trauma Assessment Exists	2 History of Physical or Sexual Abuse, complete history of trauma	3 2 were combined with specific assessment tools which are taught to be important with youth who have trauma (ex: auditory and visual processing, sensory assessments)
Need to Clarify Caregiving Experience of Client	5 Reasons behind client being removed from Mom, did Mom use substances when pregnant, Mom's Strengths	None
Assessing Attachment History and Abilities	0 No specific mention of Attachment History	1 Need for attachment assessment
Assess Family Members and Family Dynamics	5 Trauma experienced by Mom, Mothers mental health history	2 SA history in family, mental illness in family, assessing stability of home environment
Assess Significant Life Changes (particularly between ages 3-5)	4 Experiences during pregnancy, and significant events between 1-3	1 Significant events between 1-3, biological parent interaction
Previous History of Counseling	1	None
Medical Evaluations	1 Medication working for client	None

Table 4.21
Teleclass Intervention Group Axis I Diagnoses

Axis I	Pretest	Posttest
Mood Disorder	2	0
Disruptive Behavior	8 and 1 Rule Out	9
PTSD and Anxiety Disorders	2 and 2 Rule Outs	3 Rule Out (1)
Pervasive Development Disorder	0	0
RAD	Rule Out (1)	1 and Rule Out (1)

Research Question Five (5):

Do participants in the course intervention groups show differences in three areas of the assessment of the course case study when compared to waitlist control participants?

Three areas of assessment skills evaluated:

- Recommended evaluations
- DSM-IV TR Axis I diagnosis for this client
- Assessment summary conclusions for this client

Research question five (5) compares themes found in the intervention groups with themes found in the waitlist control group. Tables 4.17 through 4.24 were used to respond to research question five (5). Tables 4.22, 4.23, 4.24 below provide analysis of the recommended evaluations, Axis I diagnoses, and assessment summary themes present in waitlist control cases. Results from the analysis conducted in response to research question four (4) will be compared with the analysis of waitlist control cases.

When observing evaluation themes (Table 4.22), the waitlist control group showed a decrease in number of times subthemes were present in the data (pretest cases vs. posttest cases). This decrease in the number of times a theme was present in the data may be related to fewer participants completing the posttest in this group (pretest n=43, posttest n=9). Of interest, at

pretesting one (1) trauma assessment emerged, while at post testing no trauma assessments were mentioned in the text. When comparing workshop intervention group with waitlist control group cases, the theme of utilizing a trauma assessment is less present. Interest in “clarifying caregiving experiences,” specifically abuse experiences, was present across groups (workshop and waitlist groups). No themes of assessing diet, exercise, or sleep existed in waitlist control group cases.

Table 4.23 presents diagnostic responses found in waitlist control group cases. Similar diagnostic themes were present in all three groups. All three groups identified the client in the case scenario as having a mood disorder, a disruptive behavior disorder, PTSD or an anxiety disorder, and/or a Reactive Attachment Disorder. Quantitative differences in diagnosing the client pre and posttest may be related to fewer participants responding to the posttest. Fewer participants completing the posttest created uneven case numbers available for cross case data analysis and limited ability to reach a point of saturation in the emergence of posttest case themes and subthemes. Similar assessment summary themes were found across the waitlist control and workshop intervention participants. Table 4.24 presents assessment summary themes for the waitlist control group.

Results from the analyses conducted in response to research question four (4) indicated few thematic differences in teleclass intervention group cases (pre and posttest). The two main thematic differences demonstrated in this group related to the “need to clarify caregiving experiences of client” and “assessing significant life changes.” The presence of these two themes decreased from pretest to posttest. When comparing themes present in the teleclass intervention group with themes in the waitlist control group, some differences emerge. Teleclass intervention cases had more specific trauma assessment tools themes present in the data. A lack

of trauma assessment themes exists among waitlist control group cases (only one trauma assessment present pretest, no trauma assessment present posttest). Outside this trauma assessment theme, the presence of evaluation themes was similar across teleclass and waitlist control cases. As stated previously, all three groups had similar diagnostic themes present (Tables 4.18, 4.21 and 4.23).

Research question and content analysis. Based on this cross case content analysis, there appear to be some differences between intervention group cases and waitlist control group cases. The most evident thematic difference between these workshop intervention cases and waitlist control cases is the presence of specific trauma assessment tools for workshop intervention group cases (posttest) and, then, limited existence of this theme among waitlist control group cases. The most evident thematic difference between teleclass intervention group cases and waitlist control group cases also related to the theme of trauma assessments. Teleclass intervention cases presented more specific trauma assessment tools when compared with the waitlist control cases. In response to research question five (5), differences do appear in the cross case analysis of intervention and control group cases. These differences exist in the presence of trauma assessments for intervention cases and the relative absence of specific trauma assessment themes among control group cases.

Table 4.22

Waitlist Group Evaluation Recommendation Themes (pre and posttest)

Evaluation Themes	Pretest (n=43)	Posttest (n=9)
Specific Formal Assessments	33 Mental health history, psychological, Beck Depression, PTSD checklist, Child Behavior Checklist, neurological evaluation, CAFAS, educational testing	8 Psychological exam, mental health history, neuropsychological, life scale, psychiatric history
Need for Trauma Assessment Exists	31- Need for history on sexual abuse, physical abuse, neglect, trauma NOTE: Only 1 mention of PTSD checklist, no mention of specific trauma assessment tools	5 Need for trauma history (no specific tools for gathering this history provided)
Need to Clarify Caregiving Experience of Client	32 Looking for clarifications of experiences with babysitter, mother, father and grandparents	4 Early interactions with attachment figures in client's life, abuse history by multiple caregivers, types of contact with different caregivers
Assessing Attachment History and Abilities	1- Interest in mother's attachment experiences with her caregivers	1- Attachment history, interruptions in attachment with caregiver(s)
Assess Family Members and Family Dynamics	34- Mental health histories of all family members, substance abuse history of mother, circumstances around changes in caregivers	4- Family members mental health history
Assess Significant Life Events (particularly between ages 3-5)	29 – Birth, developmental milestones, particular interest in changes between 3-5 , responses to changes in living environments and caregivers	None
Medical Evaluations	9 Medical history, medication evaluation, injuries, history of birth experience	2 Head trauma history, medical history

Table 4.23

Waitlist Control Group Axis I Diagnoses

Axis I	Pretest	Posttest
Mood Disorder	17, 4 rule outs	5
Disruptive Behavior	54, 5 rule outs	11
PTSD and Anxiety Disorders	25, 4 rule outs	9, 2 rule outs
Pervasive Development Disorder	2, 1 rule out	0
RAD	14, 4 rule outs	1, 1 rule out
296.9 Other and unspecified affective psychoses	1	0

Table 4.24
Waitlist Control Group Assessment Summary Themes (pre and posttest)

Pretest Assessment Summary Themes	Posttest Assessment Summary Themes
<ul style="list-style-type: none"> • 4 responded • Noted difficulty with peers (2) • Concerns with displays of aggressive behaviors (3) • Concerns with possible background in trauma (4) • Noted impulse control issues and distractibility (3) • Presence of resiliency factors and/or strengths (3) including intelligence and good grades • Client shows motivation to work (2) • Ability of family to provide safety and/or support (3) • Medical concerns (1) 	<ul style="list-style-type: none"> • 12 responded • Medical concerns (3) • Concern with background in trauma (7) • Specific concerns about attachment disruptions (2) • Noted impulse control issues and distractibility (7) • Difficulty with peer relationships (7) • Concerns with aggressive behaviors (9) • Ability of family to provide safety and support (2) • Resiliency factors (including intelligence) (3)

Research Question Six (6)

Do participants in the course intervention groups show differences in their intervention strategies (including treatment goals and intervention methods selected) based on responses provided to the course case study at pretest and posttest?

Treatment goal themes. Treatment goal themes and subthemes were explored for both intervention groups, pre and posttest. Tables 4.25 and 4.26 present treatment goal themes present in pre and posttest for workshop intervention group cases. Tables 4.27 and 4.28 present treatment goal themes present in pre and posttest for teleclass intervention group cases. The main treatment goal themes which emerged from the data and were utilized for comparison are: relational goals (attachment), coping skill development goals, trauma focused goals, biological enhancement goals, modality of therapy, specific assessment tools recommended, and other goals identified. A summary of thematic differences observed is presented here in response to research question six (6).

Workshop intervention cases were compared across pretest and posttest administrations. Five (5) sub-thematic differences between pretest and posttest cases were observed. First, a subtheme of goals designed to “build relationships with caregiver(s)” emerged. Twenty-nine (29) pretest cases identified this subtheme as an important treatment goal for consideration. However, 51 posttest cases identified this subtheme as an important treatment goal for consideration.

Second, eight (8) pretest cases identified “peer relationship skills” as a goal for treatment. The presence of the “peer relationship skills” subtheme was higher in posttest cases (19).

Additionally, no mention of including attachment assessments was identified in pretest cases. However, this goal of including an attachment assessment in treatment was identified four (4)

times in posttest cases. “Anger management techniques” was a prevalent subtheme present in pretest cases (43); however, the presence of this subtheme decreased in posttest cases (18).

Finally, the subtheme categorized as “learning how the body works and controlling body” was found only three (3) times in pretest cases text. Posttest case content analysis revealed this theme present on 20 occasions.

Analysis of workshop intervention group cases indicates differences in treatment goal themes (pre and posttest) including: relational goals (building relationship with caregiver, peer relationship skills, and attachment assessment inclusion); coping skills development goals (anger management techniques); and biological enhancement goals (learning how body works and controlling body).

Teleclass intervention group cases were also compared across pretest and posttest administrations. As can be seen in Tables 4.27 and 4.28, many of the themes and subthemes present were consistent quantitatively across testing administrations. One theme was present posttest that was not present pretest: “build rapport and trust with professionals” (1). The presence of more subthemes existed in pretest cases than in posttest cases. Analysis of the teleclass intervention group pre and posttest cases indicates differences in the “building rapport and trust with professionals” treatment goal theme.

Research question and content analysis. Research question six asked if intervention group participants express different treatment goals when comparing their pre and posttest case responses. Based on the content analysis of the intervention group cases across pre and posttest administration, the response to research question six (6) is yes; differences do exist in some of the treatment goals selected when comparing pre and posttest cases.

Intervention method themes. Intervention method themes and subthemes were explored for both intervention groups' pre and posttest. Tables 4.29 and 4.30 present intervention method themes present in pre and posttest cases for workshop intervention group. Tables 4.31 and 4.32 present intervention method themes present in pre and posttest cases for teleclass intervention group. The main intervention method themes which emerged from the data and were utilized for comparison are: relational practice, inclusion of the biological perspective, behavioral planning strategies, experiential activities (right brain), trauma processing, coping skills development, professional support, evaluations, modalities, and assuring emotional and physical safety. A summary of thematic difference observed is presented here in response to research question six (6).

Workshop intervention cases were compared across pretest and posttest administrations. Ten (10) sub-thematic differences between pretest and posttest cases were observed. First, "family interaction practice" subthemes were present 15 times in pretest cases. This subtheme was present 40 times in posttest cases and included specific descriptive activities (e.g. using eye contact, touch and empathy building). Next, "social skills development" subthemes were present ten (10) times in pretest cases, but the presence of this theme was less in posttest cases (5). "Role playing and role modeling technique" subthemes also decreased at post testing (8 vs. 2). "Relaxation techniques and emotional regulation" subthemes were present in pretest cases 16 times. Posttest case analysis revealed this subtheme present 29 times. "Teaching the connection between feelings and the body" was a subtheme present five (5) times at pretesting, yet this subtheme was present ten (10) times at post testing. "Behavioral planning strategies" was a subtheme present 14 times in pretest cases. In posttest cases, this subtheme was present only seven (7) times. "Experiential activities" like art therapy, play therapy, and journaling were

present six (6), twelve (12), and three (3) times respectively in pretest cases. Yet, at post testing these subthemes were less present (1, 4, and 1 respectively). ‘Trauma processing’ was a subtheme not present in pretest cases, but five (5) ‘‘trauma processing’’ subthemes were found in posttest cases. ‘‘Professional support’’ included a possible four (4) subthemes. In pretest cases, three (3) of these possible subthemes were present (including interdisciplinary teamwork, classroom support, and consultation). In posttest cases only one (1) of these possible subthemes was present (case management). Finally, in pretesting, the specific therapy model ‘‘CBT’’ was present six (6) times; at post testing CBT was not present in the data.

Analysis of the cases from the workshop intervention group indicated differences in intervention method themes in the following areas: relational practice (family interaction practice, social skills development, and role playing/role modeling), inclusion of the biological perspective (relaxation techniques and emotional regulation, teaching connection between feeling and body), experiential activities (art therapy, play therapy, and journaling), trauma processing, professional support and specific therapy models (CBT).

Teleclass intervention group cases were also compared across pretest and posttest administrations. As can be seen in Tables 4.31 and 4.32, many of the themes and subthemes present were consistent quantitatively across testing administrations. The presence of the subtheme ‘‘family practice activities’’ was higher in pretest cases (6) than in posttest cases (2). The presence of the subtheme ‘‘relaxation techniques and emotional regulation’’ was higher (7) in pretest cases than in posttest cases (4). Finally, the subtheme of ‘‘coping skills development’’ was more present in pretest cases (9) than in posttest cases (4). Quantitative differences in the presence or absence of subtheme may be related to fewer participants responding to the posttest (pretest n=9, posttest=6). Fewer participants completing the posttest created uneven case

numbers available for cross case data analysis and limited ability to reach a point of saturation in the emergence of posttest case themes and subthemes. However, while the number of times a subtheme is present may be related to differences in the number of cases available for review pre and posttest, the emergence of subthemes in existing cases is informative. One subtheme that was present at pretest and not present at posttest was “professional builds rapport with clients.” Differences in the theme “professional support” also existed. This theme has three (3) possible subthemes that emerged from the teleclass data (“case management,” “classroom support,” and “consultation”). All three subthemes were present in posttest cases, but only the subtheme of “classroom support” was present in pretest cases.

Research question and content analysis. Research question six asked if intervention group participants express different intervention strategies when comparing their pre and posttest case responses. Based on the content analysis of the intervention group cases across pre and posttest administration, the response to research question six (6) is yes; differences do exist in some intervention methods selected when comparing pre and posttest cases.

Table 4.25
 Workshop Intervention Treatment Goal Pretest Themes and Subthemes (n=36)

Treatment Goal Themes	Treatment Goal Subthemes	Pretest Responses	Examples
<i>Relational Goals (Attachment)</i>	Build Rapport and Trust with Professionals	3	Building rapport between client, family and counselor
	Build Relationships with Sibling	2	Improve relationship with brother
	Build Relationships with Caregiver(s)	29	Build relationship with mother, increase attachment with mother, decrease disrespect towards authority figures, caregivers provide opportunities for client to improve peer relationships, improve communication skills
<i>Coping Skills Development Goals</i>	Peer Relationship Skills	8	Peer relationship skills
	Build Empathy Skills	2	Develop empathy of client
	Overall (examples)	22	Frustration tolerance skills, identify triggers, relaxation, as well as “general coping skill statement”
	Build Self Esteem	1	Build self esteem
	CBT approaches to clarifying thinking	4	Importance of thoughts in changing behavior, using CBT techniques
	Anger Management Techniques	43	Decrease aggression, angry outbursts, minimize anger escalation, reduce aggressive acts by client
	Learn to Focus	5	Increase focusing time, decrease distractibility, increase ability to focus
<i>Trauma Focused Goals</i>	Learn to Follow Rules	9	Increase compliance with rules in the home and community, show respect to authority figures, able to comply with structure
	Processing Past Trauma	4	Address trauma, process trauma, work from assumption that client has PTSD
	Reducing Anxiety	2	Reduce anxiety in client

Treatment Goal Themes	Treatment Goal Subthemes	Pretest Responses	Examples
<i>Biological Enhancement Goals</i>	Emotional Regulation	9	Regulate emotions, create calmness, gain internal locus of control
	Learning how body works and controlling body	3	Manage physical responses, calm body
	Medical Concerns and Medicine Evaluations	6	Rule out medical conditions, assess if medication adjustments are needed, medication management
<i>Modality of Therapy</i>	Family	4	Family Therapy
	Individual	2	Individual Counseling
<i>Specific Assessment Tools Recommended</i>	Psychological Assessment	3	Psychological Assessment
<i>Other Goals Identified</i>	Focus on School Behavioral Issues	2	Get client reintegrated into school system
	Assure Physical and Emotional Safety	3	Assure safety of self and others, create safety plan
	Provide Predictable Routines for Client	3	Increased monitoring of client when around other children and peers

Table 4.26
Workshop Intervention Treatment Goal Posttest Themes and Subthemes (n=33)

Treatment Goal Themes	Treatment Goal Subthemes	Posttest Responses	Examples
<i>Relational Goals (Attachment)</i>	Build Rapport and Trust with Professionals	2	Build rapport with counselor, and in one case teacher
	Build Relationships with Caregiver(s)	51	Practicing relaxation exercises with family; attunement exercises; eye contact; promoting physical contact and warmth in the relationship ... even included a co-construction activity; working on positive physical touch
	Peer Relationship Skills	19	Decrease inappropriate behaviors by peers, increase positive connection towards peers, enhance age appropriate social skills
	Attachment Assessments	4	Co-Construction Activity, IPPA (Inventory for Parent and Peer Attachment)
<i>Coping Skills Development Goals</i>	Engage in fun activities	1	Client will engage in a fun activity he/she chooses
	Overall (examples)	31	Id triggers, feelings , communication skills, anger management skills, self-soothing skills, relationship skills, calming techniques
	CBT approaches to clarifying thinking	7	Develop thinking skills, client will develop cause and effect thinking, one case linked CBT with teaching client about the brain and thinking skills

Treatment Goal Themes	Treatment Goal Subthemes	Posttest Responses	Examples
<i>Coping Skills Development Goals</i>	Anger Management Techniques	18	Resolve conflicts connected to anger, decrease aggression, assure client not exposed to violent materials (like TV shows), client will ask for soothing when he is feeling angry
	Learn to Focus	2	Increase ability to remained focus, increased attention at school
<i>Trauma Focused Goals</i>	Processing Past Trauma	4	Increase family's awareness of emotional response to past trauma, explore client's loss history, understand how trauma impacts behaviors, set up treatment for trauma
	Reducing Anxiety	3	Reduce anxiety
<i>Biological Enhancement Goals</i>	Learning how body works and controlling body	20	Muscle relaxation, diet, how brain works; sleep; calming techniques; understanding stimuli affect on body; biofeedback
<i>Modality of Therapy</i>	Family	1	Family Therapy
	Individual	1	Individual Therapy
<i>Specific Assessment Tools Recommended</i>	Psychological Assessment	3	Psychological assessment
	Other Assessments	4	CCA, visual screening assessment, auditory screening tools
<i>Other Goals Identified</i>	Trauma Assessment	2	Trauma assessments needed
	Focus on School Behavioral Issues	4	Decrease clients negative behaviors in school, grandmother can attend school with client 2 days per month
	Assure Physical and Emotional Safety	1	Increase safety for client by family, support family in providing client with safe corrective experience
	Deal with Power and Control Issues	1	Need to deal with power and control issues
	Provide Predictable Routines	4	Limit setting for client and structure

Table 4.27
Teleclass Intervention Treatment Goal Pretest Themes and Subthemes (n=9)

Treatment Goal Themes	Treatment Goal Subthemes	Pretest Response	Examples
<i>Relational Skills (Attachment)</i>	Build Relationships with Caregiver(s)	4	Build attachment relationships with caregivers, build social skills, promote bonding
	Peer Relationship Skills	3	Peer Relationships, build social skills
	Awareness of Boundaries in Relationships	1	Increase this awareness
	Build Empathy Skills		Decision-Making, positive coping skills
<i>Coping Skills Development Goals</i>	Overall (examples)	2	
	Anger Management Techniques	4	Decrease defiance, decrease anger
	Learn to Follow Rules	2	Follow Directions
<i>Trauma Focused Goals</i>	Processing Past Trauma	1	Develop autobiographical memory
	Reducing Anxiety	1	Reduce anxiety
	Emotional Regulation	3	Self-Regulation, Co-Regulation activities, Increase feelings of calm, Relaxation, Reduce triggers for emotional de-compensation
<i>Biological Enhancement Goals</i>	Learning how body works and controlling body	1	Identify physiological triggers
	Medical Concerns and Medicine Evaluations	2	Reduce emotional and behavior problems via medication management, assess medication
	Family	1	Family Therapy with Mom
<i>Modality of Therapy</i>	Individual		
	Trauma Assessment	1	NSLIJHS
<i>Specific Assessment Tools Recommended</i>	Other Assessments	1	Psychiatric

Treatment Goal Themes	Treatment Goal Subthemes	Pretest Response	Examples
<i>Other Goals Identified</i>	Focus on School Behavioral Issues	1	Normalize Educational Environment
	Provide Predictable Routines for Client	2	Caregivers use similar consequences and rules for client, provide predicable routines
	Incorporate Behavior Modification Plan	1	Use behavior modification plan

Table 4.28
Teleclass Intervention Treatment Goal Posttest Themes and Subthemes (n=9)

Treatment Goal Themes	Treatment Goal Subthemes	Posttest Response	Examples
<i>Relational Goals (Attachment)</i>	Build Rapport and Trust with Professionals	1	Build relationship with client
	Build Relationships with Caregiver(s)	6	Educate caregivers about attachment , social and communication skills, development of secure attachment with client
	Peer Relationship Skills	3	Build social and communication skills, function well in group setting
<i>Coping Skills Development Goals</i>	Overall (examples)	2	Problem Solving Skills, improve coping skills
	Anger Management Techniques	4	Decrease aggressive behaviors, attend anger management sessions, improve impulse control
<i>Trauma Focused Goals Biological Enhancement Goals</i>	Learn to Focus	1	Disregard external stimuli and focus
	Processing Past Trauma	1	Develop coherent narrative
	Emotional Regulation	3	Calming self when stressed, co-regulation and self-regulation training, self soothing
	Learning how body works and controlling body	1	Teach about mind body connection
<i>Modality of Therapy</i>	Medical Concerns and Medicine Evaluations	1	Monthly medicine management assessments
	Family	1	Family Therapy
	Individual	1	Individual Therapy
<i>Other Goals Identified</i>	Focus on School Behavioral Issues	1	Work with school to have client included not excluded

Table 4.29 (You have changed fonts here; is that intentional?)

Workshop Intervention Group Intervention Methods Pretest Themes and Subthemes (n=30)

Intervention Themes	Intervention Subthemes	Pretest Response	Examples
<i>Relational Practice</i>	Family Interaction Practice Activities	15	Parent Education, teaching Parent how to offer praise, co-relaxation techniques; SFT; Exploring family interests ; “Binding Family Techniques”
	Boundary and Family Structure Clarification	8	Establish routines and clarify expectations, utilize natural consequences, client has a consistent schedule
	Professionals Build Rapport with Clients	1	Build rapport with client and family
	Incorporation of Family Assessment Tools	4	Genogram, family interviews
	Social Skills Development	10	Social skills in general recommended, Sharing, Use of “I” statements in conversation, promoting pro-social behaviors
	Role Playing/Role Modeling	8	Role modeling positive behaviors, role plays with client and family, recommendations for mentorship (a role model)
<i>Inclusion Biological Perspective</i>	Relaxation Techniques and Emotional Regulation	16	Relaxation techniques recommended including one reference to use of mindfulness and one for sensory integration work
	Assurance of Medical Needs being met	4	Medication evaluations and physical
	Teach Connection between feelings and body	5	Relaxation and skills training, breathing and counting to 10, learn physiology and feeling connection
<i>Behavioral Planning Strategies</i>	Creation of behavior plans/charts/modifications	14	1 case included nurturance being taken into consideration with behavior plan

Intervention Themes	Intervention Subthemes	Pretest Response	Examples
<i>Experiential Activities (Right Brain)</i>	Art Therapy	6	
	Play Therapy	12	Play therapy recommended, in one case filial play therapy recommended
	Journaling	3	Get client to use a journal, write down negative thoughts, keep a feelings journal
<i>Coping Skills Development</i>		29	Anger Management techniques for reducing aggression Journal Writing, specific programs (Volcano in my Tummy),
<i>Professional Support</i>	Interdisciplinary Teamwork	1	Recommended work with a interdisciplinary team
	Classroom Support	1	Provide classroom support
	Consultation	1	Seek consultation
<i>Evaluations</i>	Psychiatric Evaluation	2	Psychiatric Evaluation
	Psychological Evaluation	2	Psychological Evaluation
<i>Modalities</i>	Family Therapy	3	Family Therapy
	Individual Therapy with Caregivers	1	Individual work needed with caregivers
<i>Specific Therapy Models</i>	CBT	6	
	Object Relations Therapy	1	Use object relations approach in therapy

Table 4.30

Workshop Intervention Group Intervention Methods Posttest Themes and Subthemes (n=30)

Intervention Themes	Intervention Subthemes	Posttest Response	Examples
<i>Relational Practice</i>	Family Interaction Practice Activities	40	Empathy building, eye contact, attachment and trauma training and activities, joint physical activities ; touch (practice): relationship building activities
	Boundary and Family Structure Clarification	11	Deal with power and control issues in family, respect of boundaries, caregivers provide consistency and structure
	Professionals Build Rapport with Clients	5	Build rapport with client and family
	Social Skills Development	5	Frustration tolerance training; Enhanced listening skills, creation of non-judgmental environment
<i>Inclusion Biological Perspective</i>	Role Playing/Role Modeling	2	Communication skills practice via role modeling
	Relaxation Techniques and Emotional Regulation	29	Biofeedback, Sensory Integration; Cognitive and Emotional Flexibility Training; modulation training, use of GSR techniques; sound and touch therapies; Neurofeedback
	Assurance of Medical Needs being met	2	Concerns about enuresis (bell and pad training for wetting of the bed)
<i>Behavioral Planning Strategies</i>	Teach Connection between feelings and body	10	Teach how brain works and connection to feelings, Engaging in Physical Exercise with Family; Mind body connection: narrative Story Stem
	Creation of behavior plans/charts/modifications	7	Plans for client to stop behaviors, one including positive feedback plan from caregivers

Intervention Themes	Intervention Subthemes	Posttest Response	Examples
<i>Experiential Activities (Right Brain)</i>	Art Therapy	1	Draw pictures of traumatic memories client can recall
	Play Therapy	4	Therapeutic play, play therapy
	Journaling	1	Caregiver and client journal each week
<i>Trauma Processing</i>		5	Connecting between attachment and trauma, explore abuse, EMDR assessment and treatment
<i>Coping Skills Development</i>		26	Soothing techniques, attention techniques, feeling labels, teaching via verbal and non-verbal activities, expansion of emotional expression, trigger identification, teaching caregivers effective ways to respond to anger, coping skills for anger
<i>Professional Support</i>	Case Management	2	Case management, one focused on coordinating with the school
<i>Evaluations</i>	Psychological Evaluation	2	Psychological evaluations
	Other Assessments	2	Schedule assessments, way to evaluate consumer and get feedback
<i>Modalities Assuring Physical and Emotional Safety</i>	Family Therapy	3	Family Therapy
		1	Keep client isolated from peers until he can be safe with others

Table 4.31

Teleclass Intervention Group Intervention Methods Pretest Themes and Subthemes (n=9)

Intervention Themes	Intervention Subthemes	Pretest Response	Examples
<i>Relational Practice</i>	Family Interaction Practice Activities	6	Practice having client call mother and she comes immediately, reflexive dialogue, cuddling time, practice activities together
	Professionals Build Rapport with Clients	1	Join using reflexive dialogue and using attunement behaviors
	Social Skill Development	1	Teach positive behaviors to use when interacting with peers
	Role Playing/Role Modeling	1	Model to teach physiology and external triggers connection
<i>Inclusion Biological Perspective</i>	Relaxation Techniques and Emotional Regulation	7	Create relaxing environment, engage in relaxation techniques, self-regulation, self soothing, neurofeedback, biofeedback
	Assurance of Medical Needs being met	1	Client sees the doctor every 30 days
	Teach Connection between feelings and body	4	Teach connection between triggers and physiology, teach about autobiographical memory, diet
<i>Behavioral Planning Strategies</i> <i>Trauma Processing</i> <i>Coping Skills Development</i>	Creation of behavior plans/charts/modifications	4	Implement consequence and reward systems for home
		2	Use EMDR and neurofeedback
		9	Parent training , coping skills, identify triggers to anger, identify caregiver and client stressors, teach alternatives methods of expressing anger
<i>Professional Support</i>	Classroom Support	1	Coordinate with teachers to support mainstreaming client

Intervention Themes	Intervention Subthemes	Pretest Response	Examples
<i>Evaluations</i>	Psychiatric Evaluation	1	Psychiatric Evaluation
	Psychological Evaluation	1	Psychiatric Evaluation
	Other Assessments	1	NSLIJHS assessment (trauma)
<i>Modalities</i>	Family Therapy	1	Family therapy to prevent removal from home
	Individual Therapy with Caregivers		
<i>Specific Therapy Models</i>	Strength Based Approach	1	Take a strengths based approach to assessment and intervention

Table 4.32

Teleclass Intervention Group Intervention Methods Posttest Themes and Subthemes (n=6)

Intervention Themes	Intervention Subthemes	Posttest Response	Examples
<i>Relational Practice</i>	Family Interaction Practice Activities	2	Co-regulation activities, attunement exercises
	Social Skills Development	3	Practice social skills , mirroring techniques
	Role Playing/Role Modeling	1	Model attunement communication
<i>Inclusion Biological Perspective</i>	Relaxation Techniques and Emotional Regulation	4	Teach self-soothing activities, engage in biofeedback , deep breathing exercises, neurofeedback
	Assurance of Medical Needs being met	1	Monitor medication with goal to get dosages lowered
	Teach Connection between feelings and body	1	Mind body connection
<i>Behavioral Planning Strategies</i>	Creation of behavior plans/charts/modifications	1	Expectation for client to follow directions first time asked
<i>Experiential Activities (Right Brain)</i>	Expressive Therapy	2	Expressive Therapy
	Art Therapy	2	Art therapy
	Journaling	1	Journaling exercises
<i>Coping Skills Development</i>		4	Client will be able to put himself in time out when he needs too, teach self-monitoring skills, teaching problem solving skills and focusing techniques
<i>Trauma Processing</i>		1	EMDR
<i>Professional Support</i>	Case Management	1	Scheduling Assessments
	Classroom Support	1	Engage in enrichment programs
	Consultation	1	Consultation
<i>Specific Therapy Models</i>	Attachment Theory	1	Teach attachment theory and about attachment behaviors to caregivers

Research Question Seven (7)

Do participants in the course intervention groups show differences in their intervention strategies (including treatment goals and intervention methods selected) based on responses provided to the course case study at pretest and posttest when compared to the waitlist control participants?

Research question seven (7) asked for a comparison of themes across groups (intervention and control) when observing themes that are present, absent, or similar at pretesting and post testing. Results from research question six (6) found differences between pre and posttest cases within both intervention groups. In order to respond to research question seven (7), the differences found in intervention groups' pre and posttest cases were compared with differences found in pre and posttest cases in the control group. First, treatment goal and intervention method thematic differences for the waitlist control groups will be discussed. At the conclusion of each discussion, differences in themes between the control and intervention groups' case will be discussed.

Treatment goal themes. Treatment goal themes and subthemes were explored for the waitlist control group pre and posttest. Tables 4.33 and 4.34 present treatment goal themes present at pre and posttest for waitlist control group cases. In review, the main treatment goal themes which emerged from the data and were utilized for comparison are: relational goals (attachment), coping skill development goals, trauma focused goals, biological enhancement goals, modality of therapy, specific assessment tools recommended, and other goals identified. A summary thematic difference observed is presented here in response to research question seven (7).

Thirty nine (39) waitlist control participants responded to the reflexive case scenario measure at pretest, 13 responded to the measure at posttest. This difference in cases may impact

the number of times a theme and/or subtheme is present in pre and posttest data. Given this limitation, the focus of this summary will be on significant quantitative thematic differences appearing in pre and posttest waitlist control cases. Two (2) subthemes presented themselves at a high rate in pretest cases: “overall coping skills” (44) and “anger management techniques” (50). At posttest, these subthemes were less present, “overall coping skills” (17) and “anger management techniques” (10). Of interest, the subtheme “emotional regulation” was present the same number of times in pre and posttest cases (8 times).

Comparison of subthemes between intervention and control groups. In the workshop intervention group, the subtheme of “anger management techniques” decreased (pretest n=43, posttest n=18). While these patterns in the presence of “anger management techniques” seem similar between workshop intervention cases and waitlist control cases, differences in participants responding to the posttest should be considered. This decreasing pattern of “anger management technique” subthemes was observed in the workshop intervention group where pretest and posttest response rates were similar (pretest n=36, posttest n=33). However, the response rate for the waitlist control group was lower (pretest n=43, posttest n=18). As discussed previously, differences in pre and posttest cases available for analyses can impact the number of times a theme or subtheme may be found in the data. In the teleclass intervention group, this subtheme stayed the same (pretest n=4, posttest n=4).

When considering the subtheme of “overall coping skills”, this subtheme was present 22 times in pretest cases and 31 times in posttest cases (workshop intervention group). Unlike the waitlist control group, the workshop intervention cases demonstrated the subtheme of “overall coping skills” at a slightly higher rate. Again, the number of times these subthemes are present could be impacted by the difference in posttest respondents for the waitlist control group.

However, the emergence of subthemes is informative. In teleclass intervention group cases, “overall coping skills” subthemes were present two (2) times in pre and posttest cases.

Next, subthemes that showed changes in their presence in the data between pre and post testing in the intervention groups were compared with those same subthemes’ presence in the waitlist control group. The five subthemes present in workshop intervention cases and identified in the analysis conducted for research question six (6) were: “building relationships with caregiver(s),” “peer relationship skills,” “anger management techniques,” “attachment assessments,” and “learning how body works and controlling body.” All of these subthemes were more present in the data posttest, excluding the subtheme “anger management techniques,” which was present less in the data at posttest. In the waitlist control group cases, four of these subthemes were present in the data. The subtheme “attachment assessment” was not present in any of the cases (pre or posttest). The remaining subthemes appeared in the data less at posttest than pretest. In the teleclass intervention group cases, the “building a relationship with a caregiver” subtheme was found at a higher rate at post testing. All other subthemes were found at an equal rate at post testing, except for the “attachment assessment” subtheme which was not found in any teleclass intervention cases.

Research question and content analysis. Based on the content analysis of the treatment goal themes, the response to research question seven (7) is yes. Differences do exist across some themes and subthemes when comparing intervention and waitlist control pre and posttest cases. Most of these differences appear to be between the workshop intervention group and the waitlist control group. These differences emerge within the relational goals category and the coping skills development category, while some differences exist in the biological enhancement goal category.

Intervention method themes. Intervention method themes and subthemes were explored for the waitlist control pre and posttest cases. Once these comparisons were completed, thematic differences between intervention and control group cases were analyzed. In review, the main intervention method themes which emerged from the data and were utilized for comparison are: relational practice, inclusion of the biological perspective, behavioral planning strategies, experiential activities (right brain), trauma processing, coping skills development, professional support, evaluations, modalities, and assuring emotional and physical safety. A summary of thematic differences observed is presented here in response to research question seven (7).

Thirty nine (39) waitlist control participants responded to the reflexive case scenario measure at pretest, 13 responded to the measure at posttest. Again, this significant difference in cases to explore may impact the number of times a theme and/or subtheme is present in pre and post test data. Given this limitation, the focus of this summary will be on significant quantitative thematic differences appearing in pre and posttest waitlist control cases as well as the absence or presence of subthemes pre and posttest. Two (2) subthemes were present at a high rate in pretest cases: “social skills development” (22) and “coping skills development” (32). At posttest, these subthemes were less present, “social skills development” (6) and “coping skills development” (12).

Comparison of subthemes between intervention and control groups. In the workshop intervention group, the subtheme of “social skills development” decreased (pretest n=10, posttest n=5). While these patterns in the presence of “social skills development” seem similar, it is important to consider differences in pre and posttest responses rates for each group. The workshop intervention group contained 36 cases at pretest and 33 cases at posttest. The waitlist control group contained 43 cases at pretest and 18 cases at posttest. Fewer cases available for

analysis at posttest may impact the number of times a theme or subtheme is present in the data. In the teleclass intervention group, this subtheme increased (pretest n=1, posttest n=3).

When considering the subtheme of “coping skills development,” this subtheme was present in 29 pretest cases and in 26 posttest cases (workshop intervention group). Unlike the waitlist control group, the workshop intervention cases demonstrated the subtheme of “coping skills development” at a slightly higher rate. Again, the presence of these subthemes could be impacted by the difference in posttest respondents for the waitlist control group. In teleclass intervention group cases, “coping skills development” subthemes were present nine (9) times in pretest cases and four (4) times in posttest cases. The decrease in the presence of this subtheme is similar to the trend found in the waitlist control group cases.

Next, subthemes of interest in the intervention groups were compared with those same subthemes’ presence in the waitlist control group. The five subthemes identified of interest in the analysis conducted for research question six (6) were: “family interaction practice,” “social skills development,” role play/role modeling,” “relaxation techniques and emotional regulation,” “teach connection between body and feelings,” “behavioral planning strategies,” “experiential activities,” “trauma processing,” “professional support,” and “specific therapy models (CBT).” The following subthemes were more present in the data posttest among workshop intervention cases: “family interaction practice,” “relaxation techniques and emotional regulation,” “teaching connection between feelings and body,” and “trauma processing.” In waitlist control cases, all of these subthemes were less present in posttest data except for “professional support” which was not present at all at posttest. The following subthemes were less present in the data posttest among workshop intervention cases: “social skills development,” “role play/role modeling,” “behavioral planning strategies,” “experiential activities,” and “specific therapy models (CBT).”

In waitlist control cases, all of these subthemes were less present in the data except for “specific therapy models (CBT)” which was present one (1) time in both the pretest and posttest cases.

In the teleclass intervention group cases, the subthemes “family interaction practice” and “coping skills development” were less present at posttest. The subtheme “professional support” was not present in the teleclass intervention group’s pre or posttest cases.

Research question and content analysis. Based on this content analysis of the intervention method themes, the response to research question seven (7) is yes. Differences do exist across some themes and subthemes when comparing intervention and waitlist control pre and posttest cases. Most of these differences appear to be between the workshop intervention group and the waitlist control group. These differences emerge within the relational practice categories, the coping skills development categories, and the inclusion of biological perspective categories. Some differences exist in the behavioral planning strategies category as well.

Table 4.33

Waitlist Control Group Treatment Goal Pretest Themes and Subthemes (n=39)

Treatment Goal Themes	Treatment Goal Subthemes	Pretest Responses	Examples
<i>Relational Goals (Attachment)</i>	Build Rapport and Trust with Professionals	3	Build relationships with counselor
	Build Relationships with Sibling	1	Be able to play with sibling without aggression
	Build Relationships with Caregiver(s)	13	Increase acts of kindness towards others, learn how to be closer with others, improve connectedness to family, Play Therapy
	Engagement in FUN activities	1	Client will engage in activities he enjoys
	Peer Relationship Skills	21	Learn age appropriate play with peers, increase ability to relate to peers, increase positive interactions with peers
	Awareness of Relational Boundaries	4	Clear boundaries with teachers and caregivers, client will experience consistent boundaries
<i>Coping Skills Development Goals</i>	Overall (examples)	44	Provide skills to identify and express feelings, improved verbal skills, communication skills, social skills, problem solving skills, parent education on effective strategies of parenting
	Build Self Esteem	1	Develop healthy self-esteem
	Anger Management Techniques	50	Refrain from aggressive behavior, reduce defiance to adults, learn to manage anger, increase ability to express frustration without aggression

Treatment Goal Themes	Treatment Goal Subthemes	Pretest Responses	Examples
<i>Coping Skills Development Goals</i>	Learn to Focus	4	Reduced ADHD behaviors, increase impulse control
	Learn to Follow Rules	14	Respond to authority figures redirection quickly, follow directions, increase compliance with rules
<i>Trauma Focused Goals</i>	Processing Past Trauma	6	Gather trauma hx, educate about trauma, process impact of trauma, share feelings about the loss of his mother
	Reducing Anxiety	2	Identify anxiety, reduce anxiety
<i>Biological Enhancement Goals</i>	Emotional Regulation	8	Learn calming techniques when have strong emotional reactions, self regulation, soothing strategies
	Learning how body works and controlling body	2	Recognize sensations in body when distressed, assure healthy diet and sleeping patterns
	Medical Concerns and Medicine Evaluations	5	Medication management, medication evaluation
	Family	2	Family therapy
<i>Modality of Therapy Specific Assessment Tools Recommended</i>	Psychological Assessment	1	
	Other Assessments	1	Psychosocial and sexual assessment
	Attachment Assessments	1	Attachment assessment
<i>Other Goals Identified</i>	Focus on School Behavioral Issues	6	Maintain safety in school, decrease outbursts in school setting
	Assure Physical and Emotional Safety	8	Client maintain safety in all environments, have a goal around safety, help client build “safety net”, family will have a crisis plan, safe boundaries will be set in home

Treatment Goal Themes	Treatment Goal Subthemes	Pretest Responses	Examples
<i>Other Goals Identified</i>	Deal with Power and Control Issues	6	Assure predictable rules with which client needs to comply
	Provide Predictable Routines for Client	6	Use a consequence system, daily schedule system
	Behavioral Management Planning	6	

Table 4.34
 Waitlist Control Group Treatment Goal Posttest Themes and Subthemes (n=13)

Treatment Goal Themes	Treatment Goal Subthemes	Posttest Responses	Examples
<i>Relational Goals (Attachment)</i>	Build Relationships with Sibling	1	Increase positive interactions with sibling
	Build Relationships with Caregiver(s)	5	Increase positive interactions with family, increase attachment with caregivers, increase insight of caregivers so they can understand client, increase attunement
	Engagement in FUN activities Peer Relationship Skills	3	Ability to engage with peers and not be aggressive, increase positive interactions with peers
<i>Coping Skills Development Goals</i>	Overall (examples)	17	Increase coping skills, social skills, ability to identify feelings, stressor, develop skills to reduce anger, frustration, and sadness, effective communication skills, effective parenting skills, develop cause and effect thinking
	Anger Management Techniques	10	Decrease frequency and intensity of anger outbursts, reduce aggressiveness with peers, learn strategies to reduce aggression, increase respect of animals (non-aggressive behaviors), identify positive ways to express anger
	Learn to Focus	2	Learn techniques to hold attention in classroom
	Learn to Follow Rules	3	Learn to follow mother's directives, client will learn to safely follow directions

Treatment Goal Themes	Treatment Goal Subthemes	Posttest Responses	Examples
<i>Trauma Focused Goals</i>	Trauma Assessment	1	Need trauma focused assessment
<i>Biological Enhancement Goals</i>	Emotional Regulation	8	Learn calming strategies when angry or “triggered”, increase frustration tolerance, increase ability to regulate emotions, identify relaxation techniques, self soothing
<i>Modality of Therapy</i>	Case Management	1	Provide Case Management
	Family	1	Family Therapy
<i>Other Goals Identified</i>	Focus on School Behavioral Issues	2	Learn techniques to hold attention in classroom
	Assure Physical and Emotional Safety	3	Assure client safety in the home and community, practice being safe in home and community
	Deal with Power and Control Issues		
	Provide Predictable Routines for Client	2	Develop consistent daily routine, consistent household rules
	Behavior Management Strategies	1	Daily routine established

Table 4.35

Waitlist Control Group Intervention Methods Pretest Themes and Subthemes (n=39) (Change in font intentional?)

Intervention Themes	Intervention Subthemes	Pretest Response	Examples
<i>Relational Practice</i>	Family Interaction Practice Activities	5	Practice appropriate responses with family , use of “time ins” by family , use Systems Family Therapy approach, find fun activity for family to engage
	Boundary and Family Structure Clarification	3	Increase family cohesion and structure, improve structure as a part of building trust , use structural family therapy
	Professionals Build Rapport with Clients	4	Clinician develop rapport with client and family
	Incorporation of Family Assessment Tools Social Skills Development	22	Social stories, identify problems with peers, role play social skills, engage in sports to practice, engage in relationship building activities with peers , identify causes of peer difficulties
	Role Playing/Role Modeling	13	Use role plays and modeling to demonstrate behaviors to clients, engage family in role modeling for client, model talking about feelings, role model how to play
<i>Inclusion Biological Perspective</i>	Relaxation Techniques and Emotional Regulation	12	Teach focused breathing, self-soothing, relaxation, client will use self regulation skills, engage in biofeedback , teach progressive muscle relaxation
	Assurance of Medical Needs being met	6	Assure client on the right medications , talk with physician about medications , recommend a physical exam

Intervention Themes	Intervention Subthemes	Pretest Response	Examples
<i>Inclusion Biological Perspective</i>	Teach Connection between feelings and body	2	Use body map to identify sensations when client is distressed , teach about nutrition and sleep
<i>Behavioral Planning Strategies</i>	Creation of behavior plans/charts/modifications	11	Establish reward and consequence systems, establish limits and expectations for client , use verbal prompts in redirection, develop incentives for rule compliance
<i>Experiential Activities (Right Brain)</i>	Art Therapy	2	Help client create a safe place through art , client will keep a picture journal
	Play Therapy	12	Engage in structured play, use play therapy to support anger and anxiety concerns, use play therapy with client to support expression of behaviors
<i>Trauma Processing</i>		4	Use Trauma Informed- CBT, use PTSD or Anxiety workbook with client, access PTSD resources , client will write a narrative story
<i>Coping Skills Development</i>		32	Parenting education, anger management training, feeling face charts, identification of triggers, practice alternative responses to anger, problem solving, identification of positive and negative behaviors
<i>Professional Support</i>	Classroom Support	4	Provide Day Treatment services to client, 1:1 staffing at school, get baselines for behaviors at school

Intervention Themes	Intervention Subthemes	Pretest Response	Examples
<i>Evaluations</i>	Psychological Evaluation	1	Psychological evaluation
	Other Assessments	2	Assess other stimuli that trigger client , ADHD assessment
<i>Modalities</i>	Individual Therapy with Client	6	Individual counseling
	Family Therapy	3	Attend family therapy or counseling
<i>Specific Therapy Models</i>	Trauma Informed CBT	1	TF-CBT
	CBT	1	Use CBT strategies to teach connections between thinking, feelings and behaviors
<i>Assuring Physical and Emotional Safety</i>		3	Safety Planning, Crisis Planning

Table 4.36

Waitlist Control Group Intervention Methods Posttest Themes and Subthemes (n=11)

Intervention Themes	Intervention Subthemes	Posttest Response	Examples
<i>Relational Practice</i>	Family Interaction Practice Activities	2	Family discussions weekly, attunement activities
	Boundary and Family Structure Clarification	2	Map out interactional patterns and boundaries, establish routines
	Professionals Build Rapport with Clients	1	Develop positive relationships with family
	Incorporation of Family Assessment Tools		
	Social Skills Development	6	Identify and use positive social skills, create game box to use to play with peers , engagement in an after school group and other recreation activities (practice), identify past consequences of unsocial behaviors
<i>Inclusion Biological Perspective</i>	Role Playing/Role Modeling	1	Role play positive interaction skills
	Relaxation Techniques and Emotional Regulation	8	Relaxation techniques, biofeedback, self soothing, mindfulness, self regulation skills
	Teach Connection between feelings and body	1	Help client identify where he holds stress in the body
<i>Behavioral Planning Strategies</i>	Creation of behavior plans/charts/modifications	1	Reward system
<i>Experiential Activities (Right Brain)</i>	Art Therapy	2	Utilize art therapy to express clients feelings safely, use of coloring mandalas
	Play Therapy	6	Engage client in play activities, use play therapy, creation of tool chest that client can use when he feels agitated
	Journaling	1	Journaling activities to express safety needs

Intervention Themes	Intervention Subthemes	Posttest Response	Examples
<i>Trauma Processing</i>		1	Psycho-education on impact of early trauma on relationships
<i>Coping Skills Development</i>		12	Identification of triggers, psycho-education with parents , strategies to control anger, communication skills, training in cause and effect thinking
<i>Modalities</i>	Family Therapy	1	Family Therapy
<i>Specific Therapy Models</i>	CBT Techniques	1	Use CBT to support positive behavioral changes

Chapter 5: Discussion

Dissertation Summary

Youth with conduct related disorders cause harm to others and often experience an array of internal challenges that bring them to multiple institutions in which social workers practice. Social workers partner with these youth in the juvenile justice system, departments of social service, community mental health clinics, and in-home mental health service agencies. Not only do social work practitioners work with the youth, and their families but also the individuals they have harmed and the policymakers designing rehabilitative and corrective programs for these youth. It is therefore logical that social work professionals have a vested interest in engaging best practices with youth with disruptive behaviors (e.g. Conduct Disorder, Oppositional Defiant Disorder and Reactive Attachment Disorder). But what is best practice with this population? What interventions are effective? And perhaps most importantly, are we, as a profession, approaching best practice with this population utilizing a balanced biopsychosocial spiritual perspective? Typically, the answer to this last question would be no.

Traditionally, social workers (as well as other human service professionals) have focused their practice with these youth utilizing a psychosocial lens. Treatment practices for youth with conduct related disorders typically focus on parental management training and teaching problem solving skills (Thomas, 2010). Cognitive theories are most frequently utilized to teach problem solving skills; therefore, the focus of treatment is targeted at improving higher level thought processes. What has not been traditionally considered is the relevance of trauma to youth with conduct related disorders and within that consideration, the neurobiological impact of trauma on these youth. A multitude of research evidence suggests that trauma is key in understanding the development and persistence of conduct related problems in youth, (Bowers, 1990; Greenwald,

2002; Krystal, 1978; McMackin, Morrissey, Newman, Erwin, & Daley, 1998; Rivera & Widom, 1990; Steiner, Garcia, & Matthews, 1997). Current research also suggests treatment focusing on skill development requiring higher cortex functioning may not be the most effective approach to treatment for youth who have experienced abuse, neglect or other forms of trauma (Perry, 2009). Conclusions from this research indicate that if trauma has impacted the development of lower brain functions, the “most effective intervention process would be to first address and improve self-regulation, anxiety, and impulsivity before cognitive problems become the focus of therapy” (Perry, 2009, p.252). In essence, current research indicates that the biologically informed perspective is significant to the effective treatment of youth with conduct related disorders. Based on this research and social work’s commitment to best practice with clinical populations the profession serves, incorporating more biologically informed interventions into practice with youth who have conduct related disorders is required by social work practitioners and program developers.

Accepting the importance of trauma informed and biologically informed practice with this population, where does the profession start in the education of social work professionals who work with youth who have conduct related disorders and have experienced trauma? Perry (2009) indicates that a first step involves increasing awareness.

Simply increasing awareness of the key principles of development and brain function would, over time, lead to innovations and improved outcomes; oddly enough, even though neurodevelopmental principles impact all child-related disciplines, we rarely teach the core concepts and facts of neurodevelopment to our trainees in education, social work, medicine, law, pediatrics, psychology, and psychiatry (Perry, 2009, p. 253).

In keeping with Perry's comments and suggestions, there are limited studies of and by social workers that describe the importance of attachment, neurobiology, and trauma informed practices with youth with conduct related disorder. Similarly, there is little existent research on the provision of social work courses teaching the implications of trauma informed practices with youth with conduct related disorders. The present study led to contributions in both of these areas. Additionally, this study was designed to explore the effectiveness of a course curriculum in impacting the knowledge, attitudes and assessment and intervention behaviors of practitioners working with youth who have conduct related disorders. This chapter begins with a review of the results of this study. Implications for social work practice are explored. Study limitations with respect to sampling, design, methodology, and the intervention are also addressed. Finally, implications for future research based upon the findings of this study will be discussed.

Discussion of Findings

The purpose of this study was to evaluate the effectiveness of an intervention model designed to enhance practitioners' biological lens when using a biopsychosocial-spiritual model of holistic assessment and planning. The specific intervention utilized was a course curriculum developed to broaden human service professionals' (including clinical social work professionals) understanding of attachment theory, neuroscience and trauma informed methods of practice. The course taught professionals at a large for-profit community based mental health agency, how to apply this knowledge to clinical assessment and intervention planning with youth who have experienced significant trauma in their lives and who exhibit problems of conduct. Using an experimental research design, the participants' knowledge, attitudes, and assessment and intervention planning behaviors were evaluated.

The original sample for this study included two hundred and five (205) participants who were randomly assigned to the workshop intervention group (n=103), teleclass intervention group (n=20), and waitlist control group (n=82). Of these 205 participants, 106 participants were found to have completed pre and posttest *attitude* and *knowledge* measures (49 workshop intervention group participants, 48 waitlist control participants and 9 teleclass participants). Given the small number of cases within the teleclass participant sample (n=9), these cases were dropped from the multivariate analysis and a descriptive analysis is provided for these cases. The remaining 97 cases (49 workshop intervention group participants and 48 waitlist control group participants) were utilized in a quantitative multivariate analysis of the dependent variables *knowledge* and *attitude* and these results are discussed. Given the multivariate analysis's sensitivity to outliers, a second analysis was also conducted. This second analysis eliminated 16 outlying cases found through data screening, and focused on the remaining 81 cases (39 workshop intervention cases, 42 waitlist control cases). Results from this second analysis were also presented and discussed in comparison with the first analysis of 97 cases. Figures 3 and 4 in Chapter 4 provide detailed information about the sampling decision making process used in this study. Finally, a qualitative analysis of the dependent variable "*change in assessment and intervention behaviors*" was conducted. One hundred and seven (107) participants were included in this content analysis: teleclass intervention group (n=12); workshop intervention group (n=51); and waitlist control group (n=45). Results from these analyses are summarized below.

Quantitative Analysis of Knowledge and Attitude

Two of the dependent variables in this study were evaluated using quantitative analysis methods of data analysis. The three main areas of research interest surrounding these two

variables were: 1) differences in knowledge between intervention and waitlist control group participants; 2) differences in attitude between intervention and waitlist control participants; and 3) attitude differences occurring within intervention group participants pre and posttest. Initially, the research design for this study included recruiting enough participants so that a multivariate analysis of group differences across all three groups in the study (teleclass intervention, workshop intervention, and waitlist control) could be conducted. However, given participation recruitment challenges resulting in a significantly lower number of participants existing in the teleclass intervention group, the final multivariate group difference analysis was conducted with only the waitlist control and workshop intervention groups.

A one way Multivariate Analysis of Variance (MANOVA) was conducted comparing the knowledge and attitudes of workshop intervention and waitlist control participants. Results from this MANOVA procedure indicated significant differences existed between the workshop intervention group and the waitlist control group (Wilk's $\Lambda = .584$, $p = .000$). Statistically significant differences between groups existed in the dependent variable *knowledge* when outlying cases were deleted from the sample. Statistically significant differences between groups existed for the dependent variable *attitude* when outlying cases were included or excluded from the sample. More specific results on these differences focusing on the three main research areas of interest are summarized below.

Knowledge differences between groups. Significance values were computed for the total knowledge test and the four subtests. When outliers are included in the sample ($n=97$), no statistically significant differences existed for the dependent variable *knowledge*. The total knowledge test score did approach significance ($p=.060$). However, given that MANOVA is highly sensitive to extreme values, a second MANOVA procedure was conducted in which the

16 outlying cases identified in data screening were removed. In the reduced sample analysis (n=81), MANOVA results again indicated significant differences between the workshop intervention and waitlist control groups (Wilk's $\Lambda = .399$, $p = .000$). Significance values were again explored for both dependent variables to determine where these differences existed. In this reduced sample, a statistically significant difference was noted between the waitlist control group and the workshop intervention group on the total knowledge test score ($p = .002$). Significant differences between groups was also noted on the trauma knowledge subtest ($p = .020$) and the attachment knowledge subtest ($p = .029$). These results indicate that when controlling for extreme values, the workshop intervention group scored significantly higher overall on the knowledge test when compared to the waitlist control group. Additionally, the workshop intervention group scored significantly higher in the areas of trauma and attachment knowledge.

Attitude differences between groups. Analysis of group attitude differences resulted in some statistically significant differences being found between groups. The first difference found between groups was related to differences found between groups on the total pretest attitude scale score ($p = .016$). In experimental design where pre and posttest group comparison is of interest, the lack of significant differences at pretest suggests that any statistically significant differences found at posttest are likely related to effects correlated to the intervention. The presence of pretest differences limits the explanation of posttest group differences being related to intervention effects. While considering this limitation, differences between the waitlist control group and the workshop intervention groups was also statistically significant ($p = .000$). In comparison, posttest total attitude scale group differences were more significant than pretest total attitude group differences. Of particular interest, on two of the five attitude subscales, no

differences existed between groups at pretest, however, statistically significant differences existed at posttest. These two subscales included the trauma attitude subscale ($p=.008$) and the integrated intervention posttest ($p=.000$). In these two areas of attitude, significant differences at posttest may be correlated with participation in the course intervention.

Interpretation of these results based on the evaluation of mean differences suggests that at the time of pretesting, waitlist control participants were in greater agreement overall with attitudes supporting trauma informed practice and the incorporation of biological perspective in the assessment and treatment of youth with conduct related disorder. However, at the time of post testing, workshop intervention participants were in greater agreement overall with the attitudes supporting trauma informed practice and the biological perspective in the assessment and treatment of youth with conduct related disorder. In the areas of *attitudes that support the importance of trauma-informed practice* and *attitudes that supported integrating attachment, trauma, and biologically informed perspectives into interventions*, group differences were statistically significant at post testing while being not significant at pretesting. Again, these differences provide evidence that the course curriculum may be correlated with changing the attitudes direct practitioners in this sample had regarding treatment considerations for these youth.

Results from this MANOVA procedure were relatively consistent whether outlying cases were included in the data analysis or not; however, one difference in results was found. In the full sample (including outliers), no significant difference was found between groups on the consequence attitude subscale at pre or post testing, while in the reduced sample (excluding outliers) a difference in consequence attitudes was found at pretest. Overall, these results indicate that the course curriculum intervention is correlated with changes in the specific attitudes

surrounding the incorporation of trauma, attachment, and the biological perspective in treatment planning and with the importance of trauma-informed practice with youth with conduct related behavior problems.

Attitude differences within the workshop intervention group. A paired samples t-test was utilized to evaluate if statistically significant differences existed within the workshop intervention group when comparing pre and posttest responses. Results of this analysis indicated some statistically significant attitude differences existed within the workshop intervention group. Specifically, statistically significant differences occurred between pre and post testing in the following areas: total attitude scale scores ($p=.000$); trauma attitude sub-scale scores ($p=.000$); integrated course intervention sub-scale scores ($p=.000$); and the problem and limit-setting sub-scale score ($p=.000$). While statistically significant differences were found between pre and post testing for the workshop intervention group, no statistically significant differences on any of the pre and post test attitude scales were found when comparing pre and posttest responses for the waitlist control group. These results indicate that the course intervention curriculum is correlated with significant changes in practitioners' overall attitude about the importance of trauma and the biological perspective with youth who have problems of conduct. Additionally, specific attitude changes were observed among workshop participants. Those attitudes included belief that: 1) trauma is important for consideration in working with this population; 2) integrating trauma, attachment, and biological perspectives into intervention planning with this population is important; and 3) problem focused and limit-setting focused interventions should not be the primary focus of work with this population.

Teleclass intervention group comparative descriptive analysis. A quantitative descriptive analysis using mean comparison (independent samples t-test) was conducted with the teleclass

intervention group, workshop intervention group, and waitlist control group. Results indicated no differences in knowledge and few differences in attitudes when comparing the teleclass intervention group with the workshop intervention group. However, some knowledge and attitude differences between the teleclass intervention group and the waitlist control groups were observed. Specifically, significant differences between these two groups existed when comparing total knowledge scores ($p=.035$). Additionally, while no statistically significant attitude differences were found between the teleclass intervention group and waitlist control group at pretesting (.421, equal variance not assumed); significant attitude differences did exist at post testing (.015, equal variance not assumed). Significant differences between groups also existed on three of the four subscales: importance of the biological perspective ($p=.008$); importance of integrating attachment, trauma, and biological perspectives in intervention planning ($p=.007$); and belief that problem focused and limit setting intervention should not be the primary focus of treatment planning ($p=.009$). While the generalizability of these results is limited given the low number of participants in the sample ($n=9$), these preliminary results indicate need for further research in the effectiveness of teleclass courses and their impact on the knowledge and attitudes of participants. Of interest, participants in the teleclass intervention group scored higher on three of the four attitude subscales when compared with workshop intervention participants and waitlist control participants.

Qualitative Analysis of Changes in Assessment and Intervention Behaviors

In addition to evaluating the dependent variables *attitude* and *knowledge*, the final aim of the study was to assess changes in assessment and intervention behaviors among participants in all three groups (workshop intervention, teleclass intervention and waitlist control). Five areas of change were the focus of interest in this cross case analysis: differences in evaluation themes

recommended by participants, differences in Axis I diagnoses, differences in themes present in clinical assessment summaries, differences in treatment goal themes, and differences in intervention method themes. Research questions four, five, six and seven focused on exploring the emerging themes and subthemes in these five areas. Once the content analysis for each group was completed, a cross case analysis was conducted to explore thematic differences in these five areas across the three groups. Results of these analyses are provided below.

Evaluation recommendations, diagnoses, and assessment summaries. The qualitative analysis of this dependent variable indicated some thematic differences between evaluations recommended and Axis I diagnoses when comparing themes emerging in pretest cases versus posttest cases for the workshop intervention group. Types of evaluations recommended posttest included more specific assessment tools and more often included trauma and attachment assessments. Medical evaluations were also recommended more often in posttest cases. Another theme that emerged more often in posttest cases involved gathering information about the client's diet, sleep and exercise patterns. The number of disruptive behavior disorders diagnosed decreased at post testing and the number of times Reactive Attachment Disorder was selected increased. Assessment summaries in pre and posttest cases looked very similar. The number of cases utilized in this part of the qualitative evaluation was very similar. Thirty-six (36) pretest cases were cross analyzed with 34 posttest cases. While some thematic differences emerged within the workshop intervention group, no thematic differences in these areas emerged when comparing pre and posttest cases in the teleclass intervention group. These results indicate some differences in themes exist for participants when comparing case responses before and after the course intervention model was taught to the workshop intervention participants.

Results from intervention and waitlist control cross case analyses indicated some thematic differences also existed between waitlist control group cases and intervention cases (workshop and teleclass). When exploring the theme of evaluations recommended, trauma assessment tools were more often recommended by intervention group participants than waitlist control participants. Waitlist control group cases demonstrated a decrease in evaluation recommendations and diagnostic assessment subthemes present in the responses. This decrease in subthemes present in waitlist control posttest cases, however, may be related to fewer posttest cases being available in this cross case analysis (43 pretest cases available, 9 posttest cases available). Participants across all groups expressed interest in “clarifying caregiving experiences.” However, teleclass participants expressed this subtheme less at posttest. Additionally, the subtheme “assessing significant life changes” was less present in teleclass intervention group posttest cases. Finally, while no subthemes of assessing diet, exercise or sleep patterns existed in the waitlist control group cases, these themes were present in workshop intervention cases. These results indicate some differences in themes exist for participants when comparing case responses across intervention and waitlist control groups, particularly when comparing posttest response cases.

Treatment goals. Treatment goal themes and subthemes were analyzed within teleclass and workshop intervention group cases. Analysis of workshop intervention group cases indicated differences in treatment goal themes (pre and posttest) including: relational goals (building relationship with caregiver, peer relationship skills, and attachment assessment inclusion); coping skills development goals (anger management techniques); and biological enhancement goals (learning how body works and controlling body). The analysis of teleclass intervention pre

and posttest cases revealed one subtheme present at posttest that was not present at pretest, “building rapport and trust with professionals.” These results indicate some differences in themes exist for participants when comparing case responses before and after the course intervention model was taught.

Results from intervention and waitlist control cross case analyses indicated some thematic differences also existed between waitlist control group cases and intervention cases (workshop and teleclass). Most of these differences appear to be between the workshop intervention group and the waitlist control group. These differences emerge within the relational goals category and the coping skills development category, while some differences exist in the biological enhancement goal category.

Intervention methods. Intervention goal themes and subthemes were analyzed within teleclass and workshop intervention cases. Analysis of these cases indicated differences in some intervention method themes: relational practice (family interaction practice, social skills development, and role playing/role modeling), inclusion of the biological perspective (relaxation techniques and emotional regulation, teaching connection between feeling and body), experiential activities (art therapy, play therapy, and journaling), trauma processing, professional support and specific therapy models (CBT). Analysis of the cases from the teleclass intervention groups indicated an increase in “family practice activity,” “relaxation techniques and emotional regulation,” and “coping skills development” subthemes.

Results from intervention and waitlist control cross case analyses indicated some thematic differences also existed between waitlist control group cases and intervention cases (workshop and teleclass). Similar to the results of the treatment goal content analysis, most of

these differences in intervention method themes appear to be between the workshop intervention group and the waitlist control group. These differences emerge within the relational practice categories, the coping skills development categories, and the inclusion of biological perspective categories. Some differences exist in the behavioral planning strategies category as well.

Implications for Social Work Practice

Social work practice often involves work with youth who have conduct related disorders and their families. Effective practice with these youth enhances their quality of life as well as reduces the risk of their behaviors that may harm others. A major premise of this study is that effective practice with this population involves social work professionals being trauma-informed, attachment-informed, and neurodevelopmentally informed. It is further argued that social work has a responsibility to enhance social workers' knowledge, attitudes, and assessment and intervention behaviors as these factors apply to practice with this population. Developing a curriculum that could effectively transfer these skills to human service professionals working in the field with this population was therefore the key intention of the study.

Specifically, this study explored the effectiveness of a curriculum intervention model designed to enhance human service professionals' (including clinical social work professionals) understanding of trauma, attachment theory and neuroscience as they relate to the clinical assessment and intervention planning of youth who have conduct related disorders. The effectiveness of this intervention model was evaluated based on participants' abilities to apply the skills learned. Research in continuing education indicates that increasing the expectation that learning must be applied is related to perceived changes in knowledge, attitudes and behaviors (Smith, et. al., 2006). Based on this definition of applied knowledge, the study evaluated changes in these three areas, comparing changes found in the control group with those found in

the course intervention group. Results indicate that participants in the workshop intervention group demonstrated some significant changes in their knowledge and attitudes about the relevance of trauma and the biological perspective to practice with youth who have conduct related disorders. Further qualitative results indicate that participants actively applied this knowledge to the case provided via the reflective case scenario measure. Increases in the incorporation of formal trauma and attachment assessments in the evaluation of this case example, diagnostic shifts that considered more trauma and attachment based causes of the behavior, treatment goals and intervention methods that incorporated specific tools in self-regulation, co-regulation, and biologically informed interventions all suggest that the course curriculum is correlated with this active learning process. The primary implication of the study then is that this curriculum may be one way that social workers, their programs and agencies can increase the awareness and active application of effective trauma informed practice with youth having varied problems of conduct.

Through the process of designing the course curriculum, developing evaluative measures (e.g. measurements of knowledge, attitude, and assessment and intervention behavior), engaging participants in the study, and listening to participant feedback on their experience in the course, other specific implications of this study arose as well.

In the process of designing the course curriculum, the researcher included many experiential exercises including poetry, music, pictures, and hands on activities. The idea behind this course curriculum design was to engage participants fully (left and right brain) in the course material. In informal conversations with participants, these experiential activities were reported as having the greatest impact on learning. Participants reported that the activities provided them a window into the experience of the world through their clients' eyes as well as opportunities to

explore their own feelings about trauma and attachment. In future offerings of this course (post study), these experiential exercises were expanded and some of the more didactic information was paired down as a means of increasing the transfer of skills even further. Additionally, participants expressed the desire for the length of the course to be expanded (10-12 hours via teleclass, 12-14 hours workshop time). Participants expressed needing more time to process all of the information and a desire to practice these skills with clients and families and then return to the material and instructor with questions and an opportunity for ongoing learning. Teleclass participants reported the opportunity to practice with the material over an extended period of time being the most valuable part of taking the course over an 8 week period. The 8 weeks allowed them to process the material in smaller chunks and apply the material in practice. They were then able to bring back questions from the field to the class. The workshop participants did not have this same opportunity. The course curriculum will continue to be restructured in keeping with ongoing feedback from participants in the course.

Self-developed evaluative measures were utilized in this study. Given financial and time constraints of the study, these measures were not pre-tested. This lack of pre-testing is believed to have contributed in part to some of the response rate challenges faced in the study. Many participants reported having a desire to complete the measures, but their lengthiness impacted their willingness to participate. For teleclass participants, time to complete measurement tools appeared to be an even more significant factor. Several teleclass participants reported taking the class via this modality because their work schedules in the field were so intense that they could not afford to leave work to complete a measurement tool, much less a day long workshop. They reported being able to make time for the one hour class each week, but could not find any other time to participate in the study. These kinds of responses indicate that very short measures

(perhaps 10 minutes in length) would need to be available in order to increase participation by teleclass participants. Of interest however, after taking the course, several teleclass participants expressed a strong desire to complete post test measures or give testimonials about the benefits they experienced via the curriculum. Given that these participants did not complete pre-test measures, their participation in the study post course completion was not possible. Yet, based on these types of informal feedback, one implication of the study is that pre-testing and the reduction of measure items is a vital component for increasing response rates, especially when sampling includes busy working professionals. Based on the post hoc statistical analyses of these measures conducted during data analysis, these measures have been significantly reduced for the future evaluation of this curriculum.

Another factor seemed to also play a role in engaging participants in the study, reimbursement for time spent completing measures. Gift cards provided to participants via a random lottery system were utilized as an incentive for ongoing participation in the study. While not all participants received a gift card for their participation, these gift cards seemed to have had a direct impact on response rates. On several occasions when a gift card was issued to a participant, that participant would share with their region their excitement about receiving the gift card. Subsequently, an increase in completed measures would occur. Some participants receiving gift cards reported feeling that their time was of value and that this incentive honored their time in a way that was meaningful. Some of these participants reported that previously they have not felt that their time or responses were valued in other research projects. Based on these informal responses, incentives seem to be an important consideration in engaging participation in an intervention study especially when engaging participants over a long period of time and when those participants are very busy working professionals in the field.

A final implication specifically related to the experience of this study involves informal responses gathered when portions of this curriculum were utilized in teaching MSW and even BSW students at Virginia Commonwealth University. In preparing this course curriculum, the developer was provided the opportunity on several occasions to present a portion of the material to MSW and BSW students within the context of their human behavior classes and practice classes. Many students participating in these presentations responded very positively to the course material and requested more information and interest in attending the entire workshop. Additionally, during multiple classes, MSW students asked why an entire semester course on trauma and attachment was not offered given the high proportion of clients that they worked with who had experienced trauma. These informal reports seem to indicate interest by BSW and MSW students to learn more about trauma-informed and attachment-informed care with clients who have problems of conduct. Future implications of this study and curriculum include exploring the development of an elective course for BSW and MSW programs.

While not a direct implication of this study, this researcher would argue that social work educators have a responsibility to utilize evidence based curriculum development practices and teaching methods. The methods utilized in this study provide preliminary evidence that the core skill set presented in this curriculum was effectively transferred to participants. This method of evaluating a course curriculum then is one way to assure that the techniques and information social work educators provide their students are effective in changing not only the knowledge of the practitioner, but their assessment and intervention practices as well. This type of evaluation can be applied to traditional classrooms, workshop and distance learning courses.

Finally, while again not a direct implication of this study, an argument could be made that given the significance of trauma to youth with problems of conduct and the large proportion

of social workers who work with these youth, social work educators and mental health agency training directors should consider creating trauma certificate programs within their universities and agencies. Like other social work certifications, trauma certificate programs would assure that not only are social work practitioners provided with trauma electives or workshops on the relevance of trauma, attachment, and neurodevelopment, but that dedicated learning paths are created that social workers can follow to become recognized experts in this area of practice. The development of trauma certificate programs would enhance the social work professions' internal human capital resources in this arena, while at the same time defining the profession as a leader in this area of practice. Further, a trauma certificate program that provides an emphasis on the relevance of attachment and neurobiology signifies the profession's utilization of a transactional model which equally balances biopsychosocial and spiritual perspectives.

Limitations of the Study

Although this study has produced findings that contribute to increasing the social work professions' awareness of the significance of trauma-informed, attachment-informed, and neurodevelopmentally informed practice as well as providing a course intervention model that is effective in increasing this awareness, it also has significant limitations. A major limitation is the size of the sample. Ideally, development of a larger sample across all three groups would have increased the power of the experiment to detect an effect, reduced the Type II error even further, and improved the generalizability of the findings. In particular, increasing the sample size of the teleclass intervention group would have allowed this group to be incorporated into the MANOVA procedure. The incorporation of this teleclass intervention group into the multivariate analysis would have allowed for richer and more statistically significant evaluation

of this second intervention delivery method. However, as noted in the discussion findings section of this study, recruitment challenge and posttest response rate challenges that are common in intervention research impeded the researcher's ability to increase the sample size. Development of a larger sample would have required greater financial resources to increase incentives and potentially more travel on the part of the researcher to encourage participation and posttest measure completion. Given that the study utilized regions and states across the United States and the limited funding available for the study, neither of these options was feasible.

In addition to these sampling concerns, a major research design issue of concern is that all three measures utilized in the study were developed by the researcher, were not pre-tested prior to implementation in the study, and have no established reliability or validity. Prior to these three measures being developed, the researcher searched the literature for existent measures designed to evaluate the dependent variables of interest. Given the specific interest in measuring changes in knowledge, attitudes, and assessment and intervention behaviors as they related to the developed course curriculum, no existent measures were found that could have been utilized in the study. Additionally, given time and funding constraints, psychometric testing and pretesting of the measures developed for this study was not possible. While the lack of testing for these measures is of concern, the measures were specifically tailored towards the course intervention model. Additionally, reliability testing of the knowledge and attitude measures was conducted upon the completion of data collection. Independent sample t-tests between participants completing the pretest attitude measures and those completing both the pre and posttest measures were conducted. Additionally, cases missing data and cases not missing data were explored using independent samples t-tests. Results from these t-tests indicated some concerns with non-random patterns of missing data and non-random differences on certain

measure items when comparing pretest completion responses to pre and posttest completion responses. Based on these results, nine (9) items were dropped from the knowledge posttest and two (2) items were dropped from the attitude and beliefs scale. Therefore, statistical procedures were utilized to assess the reliability of these measures and eliminate items that were of concern based on non-random patterns discovered in the above outlined analyses.

Two methodological limitations also exist in this study. During data screening, extreme values arising in the data tested the MANOVA procedures assumption of normality. While the MANOVA procedure is robust to violations of normality created by skewness, this procedure is sensitive to violations of normality created by outliers. Sixteen (16) cases were determined during data screening to be outlying cases. To address this limitation, two MANOVA procedures were conducted. The first MANOVA procedure included all 97 cases in the full sample. The second MANOVA procedure deleted the 16 outlying cases and included the remaining 81 cases (reduced sample). Results of both procedures were reported and discussed in Chapter four (4).

Differences in these results are discussed in Chapter 4 and in the discussion of findings in this chapter. There are differences in the statistical significance of group differences in the area of knowledge. In the full sample differences in knowledge (total and subscale) were not significant, while in the reduced sample differences in total knowledge and specific knowledge in attachment and trauma were statistically significant. In the area of attitudes, similar differences in total attitude scale score exist across both samples, and differences in subscale attitude scores is discussed. Workshop intervention participant within-group differences on the total attitude scale and subscales were similar for the full and reduced sample. The primary benefit of deleting outlying cases is that the MANOVA procedure is not skewed by extreme

values. When the MANOVA procedure is not influenced by outliers, the procedure is a powerful tool for controlling correlations between dependent variables and within this control indicates statistically significant differences between groups (Dattalo, in press). The primary limitation of deleting outlying cases in order to enhance the functioning of the MANOVA procedure involves altering the sample. When a sample is altered through the deletion of cases, the representiveness and generalizability of the sample may be impacted.

The second methodological limitation present in this study relates to methodological procedures utilized in the qualitative analysis of changes in assessment and intervention behaviors. Strategies for assuring rigor in quantitative analysis include “random sampling, generalizability and valid and reliable measurement” (Patton, 1998, p. 91). These tests of rigor are not applicable in qualitative research but rather are replaced by the concept of “trustworthiness” (Guba & Lincoln, 1985). According to Steinmetz (1991), a trustworthy study is one in which findings represent (as closely as possible) the experiences of the participants. Patton suggests six strategies for improving qualitative rigor including prolonged engagement, triangulation, peer debriefing and support, member checking, negative case analysis, and auditing. In this study, prolonged engagement, triangulation, and auditing were utilized to enhance the rigor of the qualitative analysis. Prolonged engagement involves the researcher having ongoing involvement in the field with participants. In this study, the researcher was involved with participants from the time they consented to participate in the study, through teaching the course intervention models to both intervention and control group participants, to gathering follow-up posttest information from participants. This process involved recruitment over the course of nine (9) months and in most cases face to face time in the field.

Methodological triangulation was achieved given the study incorporated both quantitative and

qualitative data collection methods. Finally, the Survey Monkey© survey system was used to initially gather the open-ended responses for this part of the data analysis. IBM's SPSS Text Analysis Program© was additionally utilized to import the responses accurately (raw data) and to track journal noting during the course of data collection, coding and analysis. A coding frame that defines each theme and subtheme was developed and included in Appendix I.

While these methods of rigor were utilized in the study, others were not. Specifically, the methods of peer debriefing and support, member checking and negative case analysis were not utilized in this study. All these strategies of assuring rigor support researcher bias as not being a threat to trustworthiness. Therefore, there is a threat of researcher bias as in the qualitative analysis of responses to the reflective case scenario measure. Additionally, while sample size in and of itself is not a threat to the qualitative analysis process, data collection in qualitative research typically continues until saturation has been achieved. However, in this study, data collection ended based on recruitment challenges and lack of posttest response completion. A result of this sampling limitation was that a finite number of cases were available for coding in the qualitative analysis. This limitation was of particular concern in the cross case analysis of all cases from the teleclass intervention group and posttest cases from the waitlist control group. While saturation was not reached in the data collection of cases for these two groups, results from the analysis of available cases resulted in a rich coding frame that emerged from the data. This coding frame outlines many themes and subthemes which were able to be compared across groups in the cross case analysis of intervention and waitlist control groups as well as the cross case analysis of pre and posttest cases within the intervention groups.

Implications for Future Research

To address limitations created by small sample size, future research designs could include pre-post control group designs that might focus on providing incentives to all participants, given the time and ongoing participation required by this type of intervention study. This researcher informally observed two events that occurred and subsequently an increase in completed posttests was observed. First, an influx in posttest completions was observed directly after a set of gift cards was distributed to participants. Often participants would email their directors and tell other participants and staff that they had won the incentive raffle. This “word of mouth” sharing about incentives may have encouraged others to complete their posttest measures. While incentives may have been one factor that influenced ongoing participation in the study, care must be taken in future research not to increase the incentives to a level that would overly influence participation in the study.

The second factor that seemed to influence posttest completion was on-going contact with participants. When follow-up emails were sent or a reminder was sent giving deadlines for completion of measures in order to participate in the study, an influx of posttest completions was also observed. Follow up contact with participants may be important in increasing recruitment as well as increasing the posttest response rate for future studies. Particular attention to recruitment of distance learning participants is recommended. Often individuals take distance learning courses because of time constraints they experience in their own work and personal schedules. If busy practitioners already are dedicating time to a teleclass course, researchers should consider that this particular group may have even less time to complete measures. When recruitment materials were distributed to practitioners, some taking the teleclass reported that they would enjoy participating in the study but did not have the time.

Given the reliability and validity concerns related to the attitude and knowledge measures, future studies would benefit from conducting psychometric testing on these measures prior to their use in future research. This type of testing would likely increase the reliability and validity of these measures as well as reduce extreme values that may be a result of instrumentation error. If future studies create knowledge and attitude measures targeted at their course curricula, at the minimum pretesting of these measures is recommended if not full psychometric testing on the measures they develop for their studies. Another contribution of this study is that it provides pretesting of these measures to future studies interested in utilizing this course curriculum and these measures of knowledge and attitude changes. Further refinement of these measures, including the exploration of ways to shorten the length of these measures, may also enhance pre and posttest completion of these measures. Shorter measures are more likely to be completed than longer measures.

Finally, future research studies that incorporate this study's reflective case scenario measure or utilize this kind of tool to gather data for a qualitative evaluation of changes in assessment and intervention behaviors would benefit from the inclusion of member checking and peer support groups in the data analysis and coding processes. As discussed previously, both of these strategies decrease researcher bias and increase the trustworthiness of results. In particular member checking is recommended so that participants can verify that the codes and interpretations created by the researcher are in keeping with the intent of their respondents (Patton, 1998).

Conclusion

Social work's commitment to effective practices necessitates the profession keeping abreast of the latest findings in research. Yet, this responsibility is not only of concern to the social work practitioner; it is of concern to the educators of that practitioner. Schools of Social Work and Social Work Continuing Education programs alike must review current research findings and develop curricula that assure active learning and translation of the knowledge by practitioners to the fields of practice.

This study focuses on one challenge in living that is prevalent in the youth with whom social workers practice, youth with conduct related disorders. The study incorporates findings from across multiple disciplines to understand the scope of the problem and place the problem within the context of the transactional model. Despite social work's embracing of the biopsychosocial spiritual perspective, traditionally the profession (along with many other human service professions) has approached the effective treatment of these youth from a limited psychosocial perspective. The explosion of research in neurobiology, neurodevelopment, attachment theory, and trauma informed models of practice as they apply to youth with conduct related disorders necessitates that social work professionals be aware of the impact this information has on these youth and their families. Perry (2009) argues that raising our awareness of the key principles in child development and brain organization and function will overtime "lead to innovations and improved outcomes" (p. 253). Developing courses and creating trauma certificate programs will significantly enhance social work educators' ability to gather relevant knowledge for the busy practitioner. Stepping beyond the creation of these curricula, social work educators can create reliable, valid, and trustworthy methodological practices through which the active learning and transfer of this knowledge can be assessed. Through curriculum

development and translation evaluation processes, social work professionals can continue to make a difference in their interventions with youth with conduct related disorders and their families.

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APPENDIX A Participant Letter

Dear Participant,

My name is Allison Sampson and I have been involved in providing clinical treatment services to youth who have experienced trauma and who have diagnoses of Conduct Disorder, Reactive Attachment Disorder, and/or youth who cause sexual harm for approximately 15 years. Additionally, over the last 4- 5 years I have worked to develop training which provides human service professionals working with youth these types of diagnoses. The training is designed to provide current knowledge, research, and best practices to continuing professionals working with these youth. I am also a student in a doctoral program at Virginia Commonwealth University's School of Social Work. I have chosen to do my dissertation study on evaluating the impact of this training on human service professionals' knowledge, attitudes and behaviors in practice with youth who have experienced trauma and exhibit conduct related behavior problems, which is why I am writing to you.

I am very interested in having you participate in this study. All participants will be able to participate in the course and provide valuable feedback about this continuing education course as well as its impact on their clinical work. The study will provide the Corporate University of Providence with valuable information regarding the effectiveness of this course as well as the best methods for evaluating and developing future continuing education courses. Additionally, the course is an approved continuing education course for clinical social workers (ASWB) and can often be approved by other professional clinical licensing boards as well.

Your participation in the study would require you to do complete the following surveys, pretests and posttests via the e-learning system:

- 1) Survey gathering descriptive demographic information (ex: age, ethnicity, gender, academic Degrees, and licensure, etc.)
- 2) Survey gathering information about your background knowledge in attachment theory, neurobiology, and trauma informed approaches to clinical practice.
- 3) Twenty-eight question knowledge posttest (takes about 30-45 minutes to complete)
- 4) Survey gathering information about participants' attitudes towards youth with clinical problems related to conduct and attitudes regarding the importance of including biological perspective in assessment and intervention planning
- 5) Reflective assessment and intervention planning exercise (takes about 30 minutes to complete)

Information you provide will be kept confidential and will be used solely for the purpose of the study and by the Corporate University of Providence in improving the continuing education course. Your choice to participate in the study is completely voluntary and has no effect on your employment, performance evaluation, or ability to take this course or other courses offered by the Corporate University of Providence

(though the posttest and course evaluation are required for continuing education credit to be received).

Attached to this letter you will find information about the course. If you are interested in registering for this course and/or participating in this study, please contact me via phone or email. My phone number is 757-286-4219 and my email address is asampson@provcorp.com. I can answer any questions that you may have about the study. Thank you for taking the time to read this letter and consider my request!

Sincerely,

Allison Sampson, LCSW, PhD Candidate
Virginia Commonwealth University
(757)286-4219

Rosemary Farmer, PhD
Associate Professor
School of Social Work
Virginia Commonwealth University

What: Use of Attachment Theory, Trauma Models and Neuroscience in Clinical Practice with Youth with Problems with Conduct (Workshop Seminar)

When:

Where:

Who: Direct care staff and staff in leadership positions, including supervisory and administrative roles.

Targeted Social Work Practice Category: Entry Level to Intermediate

Instructor: Allison Sampson, LCSW, Ph.D. Candidate (Social Work Philosophy)

Please Note: Providence reserves the right to substitute a qualified instructor due to unforeseen circumstances.

Contact Person: Allison Sampson, LCSW, Ph.D. Candidate (Social Work Philosophy)
asampson@provcorp.com or 757-286-4219

Purpose:

Most social work and other clinically concentrated educational programs focus on interventions emphasizing psychosocial interventions and often cognitive behavioral theory (CBT). The strengths in this CBT approach are often found in the literature in working with juvenile offenders (Cellini, 2002; Baer, 2003). This approach provides structure, consistency, and reinforces personal responsibility in youth, which are often the common goals for all professionals working with these youth. In general, CBT and behavioral modification models of treatment assume that by changing ones thoughts (schemata), feelings and behaviors will subsequently change. This assumption, while often valid for many client populations, is less so in traumatized populations who are concurrently demonstrating symptoms of posttraumatic stress syndrome (PTSD) (Saigh, Green, & Korol, 1996, Aisenberg, 2000). Other research studies indicate that behaviorist approaches to residential treatment can result in combative behaviors by youth (Moore, Moretti, & Holland, 1998) who do not have strong internal controls (Ollendick, 1986) to manage the feelings that arise when authority figures are trying to control their behaviors. Therefore, the impact of these control systems could be contraindicated prior to examining a youth's trauma history and current PTSD symptomology. Evaluating the impact of trauma on a youth's biological and social ability to engage in a cognitive behavioral approach to treatment and learning is a critical component in the development of individual and programmatic treatment planning. It is through this evaluation and application of trauma-informed treatment principles that CBT techniques can be used more effectively when indicated.

For this reason, it is very important to understand the clinical population one is serving and then select a theoretical and clinical approach which supports that population. Some research evidence suggests that trauma is a key in understanding the development and persistence of conduct disorder in youth. Studies with antisocial youth have found self reported trauma exposure ranging from 70% to 92%. Antisocial youth have high rates of Post Traumatic Stress Disorder (PTSD) ranging from 24% to 65% (Greenwald, 2002). Further research has indicated high levels of trauma in the experiences of conduct-disorder youth (Bowers, 1990; McMackin, Morissey, Newman, Erwin, & Daley, 1998; Rivera & Widom, 1990; and Steiner, Garcia, & Matthews, 1997). Greenwald's (2000) research suggests that often anger and violent acting out are often symptoms of PTSD (Chemtob, Novaco, Hamada, Gross, & Smith, 1997) and that often the key features of this disorder can be more clearly explained when taking into consideration trauma's contribution to the symptomology biologically and interpersonally.

In general, youth having conduct related problems have experienced many un-Integrated traumatic experiences via their relationships with others (physical abuse, domestic violence, and community violence) and express hyper-vigilance to any perceived threats to their safety. This hyper-vigilance many be the result of major biological alterations and severe psychosocial impairments, which can occur after experiencing traumatic events

(Greenwald, 2002). These psychobiological capacities are required to regulate emotions and process social information. Further, these biological alterations may result in neurological pathways and arousal levels which override cognitive processes when perceived threats trigger the youth. Given the strong evidence based support regarding these youths traumatic experiences, it seems logical for professionals working with these youth to differentiate between aggressive behaviors manifesting solely from “faulty thinking” from aggressive behaviors resulting from physiologically based responses related to traumatic interpersonal experiences in the youths family, community, society and culture so as to make appropriate and informed treatment decisions.

The purpose of this training stems from these important issues. The training is designed to support clinicians in approaching conduct related problems in clients (including sexual behavior problems and RAD symptoms) using trauma models, attachment theory, neuroscience, and some more biologically based biofeedback interventions. The trainer argues that supporting these youth in decreasing their offending and aggressive behaviors is intricately connected to addressing these biological alterations and interpersonal relational experiences. Targeting the impact of trauma on these youth’s ability to express empathy, impulsivity, anger, acting out, and resistance to treatment is discussed.

Learning Objectives

Participants will be able to:

1. Verbalize the two trauma informed cycles of understanding “offending” behaviors
2. Gain a basic understanding regarding the history and basic tenets of attachment theory and be able to verbalize this understanding.
3. Verbalize the four types of attachment style patterns and utilize one measure of attachment style
4. Verbalize the experienced based nature of the brain
5. Describe the four lobes of the brain and the primary functions of each lobe
6. Describe the term “internal working models” and explain how these models affect children who have witnessed abuse
7. Report out 3-4 primary symptoms displayed by youth with RAD
8. Verbalize at least two new tools to use in the assessment process with youth and families who have experienced trauma
9. Describe the term “biofeedback” and give two examples of this type of intervention
10. Describe at least 2 new interventions to use with youth and families who have experienced trauma

Course Agenda

Curriculum Foci	Information Covered	Slides Reviewed
Overview of Course	Overview of topics presented in course	Slides 1-12
Understanding Attachment	Presentation of Characteristic Symptoms of Youth with Sexual Behavior Problems and Other Conduct Problems	
Introduction to Attachment Theory	Introduction and Explanation of 2 Trauma Models	
Attachment Styles:	History of Attachment Theory	Slides 13- 54
Children and Adults	Development of Attachment Patterns	
Attachment Patterns and the Experienced Based Brain	Presentation of Solomon's Refinement of Ainsworth's Attachment Patterns	
Neuroscience and Trauma	Presentation of Bartholomew and Horwitz's Adult Attachment Patterns	Slides 55-74
Internal Working Models	Explanation of AAI	
Assessment	Siegel's Experienced Based Brain Model	Slides 75-100
Intervention	Introduction of ECR-R measure of Attachment Patterns	
	IPPA measures	
	General Anatomy of the Brain as it relates to memory and emotion	Slides 101-138
	Understand the role of the Amygdala and Hippocampus in Trauma	
	"Happy Child" and "Terrified Child" model	
	Memory, Stress, and Trauma	
	Experiential Exercise Implicit vs. Explicit Memory	Slides 139-171
	Understanding the Experience of a Child with RAD	
	Characteristics of children with RAD and other conduct problems resulting from trauma	
	Tools providing support in conducting a more "trauma aware" assessment	Slides 172-180
	Separation of Motivational issues from Processing Issues in Assessment	
	Exploring Biofeedback as a Means of supporting clinical work with this population	Slides 181-232
	Neurofeedback Options	
	Techniques for Increasing Attunement in Youth with Problems related to Conduct	

OTHER INFORMATION RE.G.ARDING THIS WORKSHOP

CEU CREDITS OFFERED: A total of 6.5 CEU credits offered for this course This course is approved for Social Work CEU credits by the ASWB for all states accepting ASWB approved credits.

Course Fees and Registration:

Course is free to all employees of Providence Service Corporation, Inc. under the Eastern Division of Clinical Services

Please complete registration form provided with this material and fax your registration to Allison Sampson, Continuing Education Director for Providence Service, Corp. at 757-299-8406

ADA ACCOMODATIONS

If you require ADA accommodations, please contact Allison Sampson, Continuing Education Director for Providence Service Corporation, Inc. at 757-286-4219 or asampson@provcorp.com at least 2 weeks prior to workshop date so that arrangements can be made.

COURSE COMPLETION REQUIREMENTS

Due to the volume and content of course information, participants will be required to attend all 6.5 hours of the course in order to receive CEU credits for this workshop course. Full CEU credit cannot be provided without each participant signing in and out of the course each day and completing the required evaluation. Certificates will be mailed upon verification of attendance and receipt of evaluation. If you do not attend the full training, amended certificates with the actual number of credit hours earned may be provided by special request.

CONTACT US

If you have any questions or if you attend this workshop and do not receive the professional benefits described, or have some other professional complaint, please let us know in writing within seven (7) days of the workshops conclusion.

asampson@provcorp.com or twalsh@provcorp.com

What: Use of Attachment Theory, Trauma Models and Neuroscience in Clinical Practice with Youth with Problems with Conduct (A Distant Learning Course)

When:

Where:

Who: Direct care staff and staff in leadership positions, including supervisory and administrative roles.
Targeted Social Work Practice Category: Entry Level to Intermediate

Instructors: Allison Sampson, LCSW, Ph.D. Candidate (Social Work Philosophy)

Please Note: Providence reserves the right to substitute a qualified instructor due to unforeseen circumstances.

Contact Person: Allison Sampson, LCSW, Ph.D. Candidate (Social Work Philosophy)
asampson@provcorp.com or 757-286-4219

Purpose:

Most social work and other clinically concentrated educational programs focus on interventions based in primarily psychosocial perspectives including cognitive behavioral theory (CBT). The strengths in this CBT approach are often found in the literature in working with juvenile offenders (Cellini, 2002; Baer, 2003). This approach provides structure, consistency, and reinforces personal responsibility in youth, which are often the common goals for all professionals working with these youth. In general, CBT and behavioral modification models of treatment assume that by changing ones thoughts (schemata), feelings and behaviors will subsequently change. This assumption, while often valid for many client populations, is less so in traumatized populations who are concurrently demonstrating symptoms of posttraumatic stress syndrome (PTSD) (Saigh, Green, & Korol, 1996, Aisenberg, 2000). Other research studies indicate that behaviorist approaches to residential treatment can result in combative behaviors by youth (Moore, Moretti, & Holland, 1998) who do not have strong internal controls (Ollendick, 1986) to manage the feelings that arise when authority figures are trying to control their behaviors. Therefore, the impact of these control systems could be contraindicated prior to examining a youth's trauma history and current PTSD symptomology. Evaluating the impact of trauma on a youth's biological and social ability to engage in a cognitive behavioral approach to treatment and learning is a critical component in the development of individual and programmatic treatment planning. It is through this evaluation and application of trauma-informed treatment principles that CBT techniques can be used more effectively when indicated.

For this reason, it is very important to understand the clinical population one is serving and then select a theoretical and clinical approach which supports that population. Some research evidence suggests that trauma is a key in understanding the development and persistence of conduct disorder in youth. Studies with antisocial youth have found self reported trauma exposure ranging from 70% to 92%. Antisocial youth have high rates of Post Traumatic Stress Disorder (PTSD) ranging from 24% to 65% (Greenwald, 2002). Further research has indicated high levels of trauma in the experiences of conduct-disorder youth (Bowers, 1990; McMackin, Morissey, Newman, Erwin, & Daley, 1998; Rivera & Widom, 1990; and Steiner, Garcia, & Matthews, 1997). Greenwald's (2000) research suggests that often anger and violent acting out are often symptoms of PTSD (Chemtob, Novaco, Hamada, Gross, & Smith, 1997) and that often the key features of this disorder can be more clearly explained when taking into consideration trauma's contribution to the symptomology biologically and interpersonally.

In general, youth having conduct related problems have experienced many un-Integrated traumatic experiences via their relationships with others (physical abuse, domestic violence, and community violence) and express hyper-vigilance to any perceived threats to their safety. This hyper-vigilance many be the result of major biological alterations and severe psychosocial impairments, which can occur after experiencing traumatic events (Greenwald, 2002). These psychobiological capacities are required to regulate emotions and process social information. Further, these biological alterations may result in neurological pathways and arousal levels which

override cognitive processes when perceived threats trigger the youth. Given the strong evidence based support regarding these youths traumatic experiences, it seems logical for professionals working with these youth to differentiate between aggressive behaviors manifesting solely from “faulty thinking” from aggressive behaviors resulting from physiologically based responses related to traumatic interpersonal experiences in the youths family, community, society and culture so as to make appropriate and informed treatment decisions.

The purpose of this training stems from these important issues. The training is designed to support clinicians in approaching conduct related problems in clients (including sexual behavior problems and RAD symptoms) using trauma models, attachment theory, neuroscience, and some more biologically based biofeedback interventions. The trainer argues that supporting these youth in decreasing their offending and aggressive behaviors is intricately connected to addressing these biological alterations and interpersonal relational experiences. Targeting the impact of trauma on these youth’s ability to express empathy, impulsivity, anger, acting out, and resistance to treatment is discussed.

Learning Objectives

Participants will be able to:

- 1) Participant will be able to verbalize the two trauma informed cycles of understanding “offending” behaviors
- 2) Participant will gain a basic understanding regarding the history and basic tenets of attachment theory and be able to verbalize this understanding.
- 3) Participant will be able to verbalize the four types of attachment style patterns and utilize one measure of attachment style
- 4) Participant will be able verbalize the experienced based nature of the brain
- 5) Participant will be able to describe the four lobes of the brain and the primary functions of each lobe
- 6) Participant will be able to describe the term “internal working models” and explain how these models affect children who have witnessed abuse
- 7) Participant will be able to report out 3-4 primary symptoms displayed by youth with RAD
- 8) Participant will be able to verbalize at least two new tools to use in the assessment process with youth and families who have experienced trauma
- 9) Participants will be able to describe the term “biofeedback” and give two examples of this type of intervention
- 10) Participant will be able to describe at least 2 new interventions to use with youth and families who have experienced trauma

Course Agenda

Curriculum Foci	Information Covered	Slides Reviewed
Overview of Course	Overview of topics presented in course	Slides 1-12
Understanding Attachment	Presentation of Characteristic Symptoms of Youth with Sexual Behavior Problems and Other Conduct Problems	
Introduction to Attachment Theory	Introduction and Explanation of 2 Trauma Models History of Attachment Theory Development of Attachment Patterns	Slides 13- 54
Attachment Styles: Children and Adults	Presentation of Solomon's Refinement of Ainsworth's Attachment Patterns Presentation of Bartholomew and Horwitz's Adult Attachment Patterns Explanation of AAI	Slides 55-74
Attachment Patterns and the Experienced Based Brain	Siegel's Experienced Based Brain Model Introduction of ECR-R measure of Attachment Patterns IPPA measures	Slides 75-100
Neuroscience and Trauma	General Anatomy of the Brain as it relates to memory and emotion Understand the role of the Amygdala and Hippocampus in Trauma "Happy Child" and "Terrified Child" model Memory, Stress, and Trauma	Slides 101-138
Internal Working Models	Experiential Exercise Implicit vs. Explicit Memory Understanding the Experience of a Child with RAD Characteristics of children with RAD and other conduct problems resulting from trauma	Slides 139-171
Assessment	Tools providing support in conducting a more "trauma aware" assessment Separation of Motivational issues from Processing Issues in Assessment	Slides 172-180
Intervention	Exploring Biofeedback as a Means of supporting clinical work with this population Neurofeedback Options Techniques for Increasing Attunement in Youth with Problems related to Conduct	Slides 181-232

OTHER INFORMATION REGARDING THIS WORKSHOP

CEU CREDITS OFFERED: A total of 8 CEU credits offered for this course This course is approved for Social Work CEU credits by the ASWB for all states accepting ASWB approved credits.

Course Fees and Registration:

Course is free to all employees of Providence Service Corporation, Inc. under the Eastern Division of Clinical Services
Please complete registration form provided with this material and fax your registration to Allison Sampson, Continuing Education Director for Providence Service, Corp. at 757-299-8406

ADA ACCOMODATIONS

If you require ADA accommodations, please contact Allison Sampson, Continuing Education Director for Providence Service Corporation, Inc. at 757-286-4219 or asampson@provcorp.com at least 2 weeks prior to workshop date so that arrangements can be made.

COURSE COMPLETION REQUIREMENTS

Due to the volume and content of course information, participants will be required to attend all 6.5 hours of the course in order to receive CEU credits for this workshop course. Full CEU credit cannot be provided without each participant signing in and out of the course each day and completing the required evaluation. Certificates will be mailed upon verification of attendance and receipt of evaluation. If you do not attend the full training, amended certificates with the actual number of credit hours earned may be provided by special request.

CONTACT US

If you have any questions or if you attend this workshop and do not receive the professional benefits described, or have some other professional complaint, please let us know in writing within seven (7) days of the workshops conclusion.
asampson@provcorp.com or twalsh@provcorp.com

APPENDIX B
Letter to State Directors

Dear (State Director),

My name is Allison Sampson and I have been involved in providing clinical treatment services to youth who have experienced trauma and who have diagnoses of Conduct Disorder, Reactive Attachment Disorder, and/or youth who cause sexual harm for approximately 15 years. Additionally, over the last 4- 5 years I have worked to develop training which provides human service professionals working with youth these types of diagnoses. The training is designed to provide current knowledge, research, and best practices to continuing professionals working with these youth. I am also a student in a doctoral program at Virginia Commonwealth University's School of Social Work. I have chosen to do my dissertation study on evaluating the impact of this training on human service professionals' knowledge; attitudes and behaviors in practice with youth who have experienced trauma and exhibit conduct related behavior problems, which is why I am writing to you.

I am very interested in having the clinical staffs in your state participate in this study. All participants will be able to participate in the course and provide valuable feedback about this continuing education course as well as its impact on their clinical work. The study will provide the Corporate University of Providence with valuable information regarding the effectiveness of this course as well as the best methods for evaluating and developing future continuing education courses. Additionally, the course is an approved continuing education course for clinical social workers (ASWB) and can often be approved by other professional clinical licensing boards as well.

Participation in the study would require your staff to complete the following surveys via the E-learning system:

- 1) Survey gathering descriptive demographic information (ex: age, ethnicity, gender, academic Degrees, and licensure, etc.)
- 2) Survey gathering information about participants' background knowledge in attachment theory, neurobiology, and trauma informed approaches to clinical practice.
- 3) Survey gathering information about participants' attitudes towards youth with clinical problems related to conduct and attitudes regarding the importance of including biological perspective in assessment and intervention planning
- 4) Twenty-eight question knowledge posttest (takes about 30 minutes to complete)
- 5) Reflective assessment and intervention planning exercise (takes about 30 minutes to complete)

Information your staffs provide is not confidential in that it is maintained on the e-learning system under their learning profiles and therefore can be accessed by E-Learning Supervisors.

This information is used for the purpose of the study and by the Corporate University of Providence in improving the continuing education course. Your staffs' choice to participate in the study is completely voluntary and has no effect on their employment, performance evaluation, or ability to take this course or other courses offered by the Corporate University of Providence.

Attached to this letter you will find a letter about the study and information about the course. If you would be willing to share this information with your regional directors and other local leadership, I would be greatly appreciative. If you have any questions regarding this study, please contact me via phone or email. My phone number is 757-286-4219 and my email address is asampson@provcorp.com. Thank you for taking the time to read this letter and consider my request!

Sincerely,

Allison Sampson, LCSW, PhD Candidate
Virginia Commonwealth University
(757)286-4219

Rosemary Farmer, PhD
Associate Professor
School of Social Work
Virginia Commonwealth University

APPENDIX C

(Loaded into Survey Monkey© online system for completion)

The following information will let you know what is being asked of you throughout the course of this study. After reading this information, if you wish to participate in the study and complete the pre course measures associated with this study, simply click onto the next page and continue.

Thank you for considering this research opportunity!!

TITLE:

Informing social work practice through the enhancement of the biological perspective: A course intervention model for human service professionals working with youth and problems of conduct.

INVESTIGATOR(S):

Rosemary Farmer, PhD, LCSW

PhD in Social Work

Associate Professor

VCU School of Social Work

Allison Sampson, LCSW, CSOTP, PhD Candidate

LCSW, Trainer for Clinical Work with Youth with Conduct Related Disorders,

PhD Candidate in VCU School of Social Work

VCU IRB NO.:

This information document may contain words that you do not understand. Please ask the study staff to explain any words that you do not clearly understand.

PURPOSE OF THE STUDY

The purpose of this research study is to evaluate a course on attachment theory, trauma and neuroscience and the clinical application of this material to the treatment of youth with conduct related disorders. The study will evaluate changes in knowledge, attitudes and behaviors in assessment and treatment planning practices. Additionally, the study will look at participants' experiences with different educational delivery methods. This course will be offered as an in person workshop and as distant learning course. Participants' experiences in each type of course offering will be evaluated and compared. You are being asked to participate in this study because you conduct clinical work with youth who have conduct related behavior problems and may be interested/benefit from this course offering.

DESCRIPTION OF THE STUDY AND YOUR INVOLVEMENT

In this study you will be asked to complete questionnaires up to three different times. The first questionnaire will be completed at enrollment, and should take you about one hour to complete, using an online survey form. You will also be asked to provide your contact information (address, email address and telephone number) so that you can be contacted regarding future questionnaires.

Below is information describing the three questionnaires you may participate in, types of information included on these questionnaires, and the amount of time you should expect to spend completing each one.

Pre-Course Measure

- Descriptive Questions
- Background Knowledge
- Attitudes and Beliefs Assessment
- Knowledge Assessment
- Case Scenario Exercise

Time to Complete these measures: Approximately 1 hour

Post-Course Measure

- Attitude and Beliefs Assessment
- Knowledge Assessment
- Case Scenario Assessment
- Course Evaluation

Time to complete these measures: Approximately 1 hour

3 Month Post Course Measure

- Attitude and Beliefs Assessment
- Case Scenario Assessment

Time to Complete these Measures: Approximately 35 minutes

Your schedule for completing the three different sets of measures will depend on when you sign up for the study, which type of course you choose to participate in, and which group you are assigned to take the course with. You will be notified through the email address you provide when it is time for you to complete the next set of surveys.

Because you are an employee of Providence Service Corporation, you can choose to complete these questionnaires in one of two ways:

1. You can choose to have this course entered into your Learning Profile on your agency's E-Learning System. If you choose to do this, you will access the questionnaires by entering into the E-Learning System and clicking on the course in your learning profile (which will be provided to you). You will then be taken to a confidential website off of the E-Learning system to complete the answering of all questions. Upon completion, you will be directed back to the E-Learning site and the system and you can sign out. Choosing this method will allow you and your supervisor to know that you have chosen to take this course and participate in this study as well as show your completion of the course on your learning profile.

2. You can choose to complete the questionnaires online without entering your agency's E-Learning System. You will complete the same surveys and questions; however, you and your supervisor will not be able to see through the agency's E-Learning System that you have chosen to participate in or completed this course nor that have you chosen to participate in this study.

If you choose to participate in this study, you will decide whether you would like to receive this

course through the use of your telephone in weekly course sessions OR if you would like to attend a day long workshop. Both courses provide the same information and it is completely your decision which offering of this course you would like to take!!

The nature of this study requires that you be randomly assigned to participate in the course within the next 3 months OR be placed on a waiting list to take the course after 6 months. No matter what group you are assigned to, you will have the opportunity to take this course; only the time at which you will receive the course will vary.

If you are assigned to the group who will receive the course during the next 3 months you will be contacted and provided with different times and dates for the course and will begin participating in the course soon after you agree to participate in the study.

If you are assigned to the group who will receive the course after 6 months, you will be notified of your placement on the waiting list for the course. Towards the end of the six month waiting period, participants on the waiting list will be contacted and provided with different times and dates for the course and select which course time works best for you. All participants will complete the pre course measures at the time they choose to participate in the study. Participants assigned to the two different groups (course group and waiting list group) will be notified by email when it is time for them to complete the next set of measures.

RISKS AND DISCOMFORTS

Participation in this study involves no known physical risks to your health; however,

You may have some concerns about the questions that you will be asked. For instance:

1. You may be concerned that your individual responses will be shared with your supervisor or other leadership officials within Providence.
2. You may be concerned that your choice to participate will affect your job or your performance evaluation.

The information gathered in this study will be collected and kept safe so as to minimize or eliminate these risks. Depending on how you choose to enter the information into the survey, your agency and supervisor will either have limited information about your participation and/or completion of this course or no information about your participation and/or of this course.

If you choose to complete this course and the study questions through the E-Learning System, your supervisor will be able to know that you are participating in the study, you are taking the course, and you have or have not completed the course. If you are uncomfortable with your supervisor having this information, then you can select to complete the course and study questions through another online system through which your supervisor will not have access to, and your agency will have no knowledge of your individual items or responses to survey questions.

While all of your responses to the questionnaires and your participation in this study can be kept confidential, your participation in the course cannot be kept confidential. When you take this course in a workshop or distant learning setting, you will be participating with other individuals also interested in taking the course and who work with Providence Service Corporation, Inc. or

an agency connected to Providence Service Corporation, Inc. Individuals can take this course without participating in this study, so there will be no way for anyone in the course to know you are participating in the study without you sharing that information with them. But your participation in the course will be known by the individuals with whom you take the course.

To further address any concerns you have about who will be able to access/view your responses to questions asked in this study, please carefully review the section in this document entitled “Confidentiality”. Please ask the study staff to discuss any questions you may have about these risks and any concerns you have about confidentiality.

BENEFITS TO YOU AND OTHERS

The knowledge from this study will increase our understanding of the effectiveness of this specific continuing education course and its ability to impact human service professionals’ knowledge, attitudes, and behaviors. This information will aid the Corporate University of Providence in developing, evaluating and enhancing this specific course as well as supporting a similar process with other continuing education courses. Additionally, improving your knowledge of attachment theory, trauma, and neuroscience may improve your clinical assessment and intervention skills.

Additionally, if you are a licensed clinical professional, you may be able to receive up to 9 continuing education credits for your participation in this course. Information about your ability to receive continuing education credits for this course will be provided to you at the time you register for the course and/or choose to participate in the study.

COSTS

There is no cost for you to participate in the course other than your time in attending the course (8 hours) and the time it takes to complete the pre and post test measures.

PAYMENT FOR PARTICIPATION

Participants in the study will have opportunities to receive a gift card to Wal-Mart each time they complete a set of questionnaires.

Gift Certificates for Completing Pre-Course Measures:

Participants in each offering of the distant learning course will have a chance to earn 1 of 5- \$25 gift certificates. Participants in each offering of the workshop seminar course will have a chance to earn 1 of 5-\$25 gift certificates. Raffles will be conducted for each group taking the course as well as for participants placed on the waiting list for the course in 6 months.

Gift Certificates for Completing Post-Course Measures:

Participants who complete the post survey measures will be given the opportunity to win a \$50.00 gift certificate to Wal-Mart. Participants in each offering of the distant learning course will have a chance to earn 1 of 5- \$50 gift certificates. Participants in each offering of the workshop seminar course will have a chance to earn 1 of 5-\$50 gift certificates. Raffles will be

conducted for each group taking the course as well as for participants placed on the waiting list for the course in 6 months.

Gift Certificates for Completing 3 month Post-Course Measures:

Participants who complete the 3 month post test measure will be given the opportunity to win a \$25 gift certificate to Wal-Mart. Participants who took the distant learning course will have a chance to earn 1 of 5-\$25 gift certificates. Participants who took the workshop seminar course will have a chance to earn 1 of 5-\$25 gift certificates. Raffles will be conducted for each group who took the course as well as for participants placed on the waiting list for the course in 6 months.

ALTERNATIVES

An alternative to participating in this study is to not participate in the study but enroll in the course via the Corporate University of Providence. If you are interested in taking this course, but not in participating in the study please contact CUP@provcorp.com requesting information on when the next offering of the Attachment, Trauma and the Brain Course will be and someone will get back in touch with you to assist you in signing up for the course.

CONFIDENTIALITY

Potentially identifiable information about you will consist of your name, agency in which you are employed, descriptive information and your background with attachment theory, trauma, and

neuroscience as well as other individual responses on the surveys you will be completing. Data is being collected only for research purposes. Your responses to surveys conducted through this study will be stored through the use of an online research program known as “Survey Monkey”. This online survey and research program allows individuals to respond to questions of interest to this study by simply clicking on a provided response or typing in a response to a given question. These responses are stored through an encryption process which allows only the researchers to access participants’ individual responses. The student researcher will have access to individuals’ names and responses, but no other persons will have access to this information. All personal identifying information will be kept in password protected files and these files will be deleted upon completion of the study which is estimated to be in May of 2009. Responses to different items on the surveys will be entered into a computer research file and coded so as to be unidentifiable by individuals’ names. This research file will be kept indefinitely so as to assure the accuracy of data analysis if the student researcher needs to refer back to assure the proper statistical calculations were made. Again, access to all data will be limited to study personnel. A data and safety monitoring plan is established.

There are two situations in which your agency will have access to some information connected to this study; you need to be aware of these two situations:

1) If you choose to participate in this study and access the study questionnaires via the agency’s E-Learning System, your supervisor will have access to the following information about your participation in the study:

- That you have chosen to participate in the study
- That you have completed the course OR not completed the course
- If you complete the course, this course will appear in your list of completed trainings

If you do not wish for your supervisor to have access to this information, you should select to complete these questions via Survey Monkey System directly when asked at the end of this informed consent form

2) If you are a licensed clinical professional and would like to receive continuing education credits for your participation in this course, the following information will be kept on file by the Corporate University of Providence (CUP) in accordance with the continuing education licensing boards

- A copy of your knowledge post test measure showing that you responded to 80% of the questions correctly
- A copy of your course evaluation

If you do not want this information to be kept on file by CUP, you will not be able to receive continuing education credits for this course. Only CUP staffs have access to these continuing education records.

What we find from this study may be presented at meetings or published in papers, but your name will not ever be used in these presentations or papers.

If you choose to participate in the distant learning version of this course, course sessions are recorded. These sessions are recorded so that individuals who may miss a course session can listen to the course and stay current with the information. These recordings are not a part of this research study and will not be transcribed or used in any way for the purposes of this study and/or evaluation.

IF AN INJURY HAPPENS

Virginia Commonwealth University and the VCU Health System (also known as MCV Hospital) do not have a plan to give long-term care or money if you are injured because you are in the study.

If you are injured because of being in this study, tell the study staff right away. The study staff will arrange for short-term emergency care or referral if it is needed.

Bills for treatment may be sent to you or your insurance. Your insurance may or may not pay for taking care of injuries that happen because of being in this study.

VOLUNTARY PARTICIPATION AND WITHDRAWAL

You do not have to participate in this study. If you choose to participate, you may stop at any time without any penalty. You may also choose not to answer particular questions that are asked

in the study. If you choose to stop participating in the study, you may continue to take the course.

There is no penalty for withdrawing from this study at any time.

Your participation in this study may be stopped at any time by the study staff without your consent. The reasons might include:

- the study staff thinks it necessary for your health or safety;
- you have not followed study instructions;
- administrative reasons require your withdrawal.

QUESTIONS

In the future, you may have questions about your participation in this study. If you have any questions, complaints, or concerns about the research, contact:

Rosemary Farmer, Associate Professor in the School of Social Work

Phone: (804) 828-0402 or Email: rfarmer@vcu.edu

If you have any questions about your rights as a participant in this study, you may contact:

Office for Research

Virginia Commonwealth University

800 East Leigh Street, Suite 113

P.O. Box 980568

Richmond, VA 23298

Telephone: 804-827-2157

You may also contact this number for general questions, concerns or complaints about the research. Please call this number if you cannot reach the research team or wish to talk to someone else. Additional information about participation in research studies can be found at <http://www.research.vcu.edu/irb/volunteers.htm>.

This document is intended to answer many of your questions about your participation in this study. If at this time you feel you wish to participate in this study and complete the pre course measures, simply proceed to the next page of the survey and begin responding to the questions. If at this time you do not wish to participate in this study, simply log off of this survey site and no other further action is required of you.

Thank you for considering being in this study !!

1. If you wish to participate in this study, please type in your name in the box below so that we can keep your responses together during the three different times we collect them.

APPENDIX D

DEMOGRAPHIC BACKGROUND QUESTIONNAIRE

(Loaded into Survey Monkey© online system for completion)

1. My gender is:
 - Male
 - Female
 - Transgender

2. I am:
 - less than 20 years old
 - between the ages of 20 and 29
 - between the ages of 30 and 39
 - between the ages of 40 and 49
 - between the ages of 50 and 59
 - between the ages of 60 and 69
 - over 70 years old

3. Race/Ethnicity (please check one):
 - African-American / Black / African Origin
 - Asian-American / Asian Origin / Pacific Islander
 - Latino-a / Hispanic
 - American Indian / Alaska Native / Aboriginal Canadian
 - European Origin / White
 - Bi-racial / Multi-racial
 - Other

4. I primarily do the following type of work for the company:
 - Mentoring/Behavior Intervention
 - Outpatient Therapy
 - In Home Therapy
 - Case Management
 - School Based Services
 - Virtual Residential Services
 - Other

5. My highest level of education is:
- High School Diploma/GED
 - Associates Degree
 - Bachelors Degree
 - Masters Degree
 - PhD
 - PsyD
 - MD
 - Other
6. My professional/academic discipline is:
- Social Work
 - Psychology
 - Counseling
 - Psychiatry
 - Education
 - Other
7. I hold a license in:
- Clinical Social Work
 - Clinical Psychology
 - Counseling (LPC)
 - Psychiatry
 - Other
 - I do not hold a clinical license
8. Please type in the Region and State in which your agency is located.
-

APPENDIX E

Background Knowledge for Course

(Loaded into Survey Monkey© online system)

1. Please select the response that most represents your knowledge of attachment theory:
 - I have no knowledge of attachment theory
 - I have a little knowledge of attachment theory
 - I have some knowledge of attachment theory
 - I have a good working knowledge of attachment theory
 - I am very knowledgeable about attachment theory
 - I feel I am an attachment theory expert

2. Please select the response that most represents your knowledge of basic human anatomy:
 - I have no knowledge about basic human anatomy
 - I have a little knowledge about basic human anatomy
 - I have some knowledge about basic human anatomy
 - I have a good working knowledge about basic human anatomy
 - I am very knowledgeable about basic human anatomy
 - I feel I am an expert in human anatomy

3. Please select the response that most represents your knowledge of neuroscience and the brain:
 - I have no knowledge about neuroscience and the brain
 - I have a little knowledge about neuroscience and the brain
 - I have some knowledge about neuroscience and the brain
 - I have a good working knowledge about neuroscience and the brain
 - I am very knowledgeable about neuroscience and the brain
 - I feel I am an expert in neuroscience and the brain

4. Please select the response that most represents your knowledge of trauma informed approaches to clinical work:
- I have no knowledge about trauma informed approaches to clinical work
 - I have a little knowledge about trauma informed approaches to clinical work
 - I have some knowledge about trauma informed approaches to clinical work
 - I have a good working knowledge trauma informed approaches to clinical work
 - I am very knowledgeable trauma informed approaches to clinical work
 - I feel I am an expert in trauma informed approaches to clinical work
5. Please select the response that most represents your knowledge of biofeedback techniques:
- I have no knowledge about biofeedback techniques
 - I have a little knowledge about biofeedback techniques
 - I have some knowledge about biofeedback techniques
 - I have a good working knowledge of biofeedback techniques
 - I am very knowledgeable about biofeedback techniques
 - I feel I am an expert in biofeedback techniques

Appendix F

Reflective Assessment and Intervention Planning Exercise

Changes in Behavior: A Case Scenario

(Loaded into Survey Monkey© online system)

Please review the following assessment. At the end of this material there are directions for you to complete the assessment. Please follow these directions and complete the assessment as if this was your client.

Assessment

Providence Services Corporation, Inc. State & Region: UN-NAMED
 Age: 7 Gender: Male Race/Ethnicity: Hispanic Primary Language: English
 Date of Referral: 0-00-00 Date of Assessment: 24-48 hours later
 Parent(s)/Guardian Name(s): John and Jane Doe Relationship: Parents
 Address: 123 Doe Lane USA Telephone: 555-555-5555

Presenting Issue(s)/Reason for Referral: (Chief Complaint, Current Symptoms, and Behaviors - Indicate onset, duration, frequency, severity of behavioral symptoms. Description of youth's/family's feelings related to issues)

Youth has major problems with aggression towards others. Examples of this behavior include: hitting, biting, kicking peers; "mooning" others, spitting on others. Youth has exhibited negative behavior toward the family dog as well including kicking the dog and throwing things at the dog. Youth has difficulty managing normal classroom distractions such as a pencil being dropped or feet shuffling, etc. When these events occur he tends to become agitated. Recently his school behavior problems have been escalating to the point his acting out occurs daily. He sent another student in the class to the hospital with an injury. Youth spends about 80% of his time at school removed from all peers and the classroom; however, he is tends to the youth who completes his school work first and is often performing at an above grade level of performance. At home, he takes a great deal of his aggression out on his younger brother, primarily in the form of hitting. When youth has an "explosion" he will often yell "You are going to hurt me!!". Additionally, he has a pattern of taking his clothes off in public. When picked up at school by his grandmother he will stop yelling or acting out as soon as he sees her. He will become calm, follow directions. Family is very concerned about his behavior and expresses beliefs that when in the care of his biological mother, she did not make good choices in the selection of babysitter for him. Negative behaviors be.g.an at the age of 3 and further be.g.an to escalate at the age of 5. He has been put out of his daycare setting for after school care and is being transitioned to an alternative classroom.

Current level of functioning: (consider developmentally appropriate role performance in life domain areas and primary areas of concern)

Since being removed from daycare in the last week, he has been in the care of his grandmother. Client has tried to continue his negative behavior patterns with her, however, she has been able to get client to follow her

directives most of the time (within the 6 or 7 days she has been with him). Parents have removed him from the school and placed him in a school environment where the classroom size is much smaller (7 kids to 4 adults). Additionally, his new teacher is the Special Education Director. Client continues to have difficulty in any setting involving peers. It appears that when he knows the children or once he gets to know the children, he becomes aggressive. He shows a desire to please adults, but not that same desire toward other children. He has presently stopped showing aggressive behaviors toward the dog. He continues to be aggressive with his younger brother. He appears to have a high IQ and is quick to pick up on new learning tasks. He reports wanting to be the "leader of the pack".

Mental Status Profile:

Appearance: Neat Disheveled Casual

Sociability: Average Engaging Aloof Negative (for about 30 minutes and then becomes very negative)

Eye Contact: Good Fair Poor Variable

Orientation: Time Place Person Situation

Motor Activity:

Normal Hyperactive Agitated Restless Hypoactive Tics Mannerisms Posturing (**Coordination problems**)

Speech: Coherent Incoherent

Affect: Appropriate Inappropriate Labile Blunted Flat Intense Constricted

Mood: Appropriate Relaxed Anxious Agitated Angry Depressed Euphoric Guarded
 Suspicious Manic Indifferent Demanding (**changed frequently during interview**)

Impulse Control: Adequate Inadequate

Self-concept: Adequate Poor Unrealistic

Memory: Intact Not Intact Selective

Thought:

Associations

Logical Loose Incomprehensible

Content

Obsessions Phobias Delusions Somatic Complaints Hallucinations Ideas Of Persecution/ Reference

Grandiosity Self-Depreciation Depreciation Of Others

Non-Psychotic

Perceptions

Normal Hallucinations (Auditory, Visual, Olfactory, Tactile, Other)

Concentration

Good Fair Poor

Judgment: Good Fair Poor-But-Intact Not Intact

Insight: Good Fair Poor None

Eating Pattern: Appropriate Appetite Loss Binge

Sleep Pattern: Appropriate Excessive Sleeplessness

Suicide Risk: Ideation Past Present

Current Intent? No Yes (Plan? No Yes: _____)

Prior Attempts No Yes (Circumstances: _____)

Harm To Others: Ideation Past Present

Current Intent? No Yes (Plan? No Yes: _____)

Prior Attempts No Yes (Circumstances: Has harmed kids and adults when he becomes agitated)

Medications:

Youth medication allergies: Penicillin

Psychotropic medication(s) youth currently taking (List medication, dosage & frequency)

Desmopression .2 mg tab (1 or 2 at bedtime); Risperdal 1 mg tab (2 times daily);

Strattera 18 mg cap. (3 caps by mouth in the am, 1 at 4 or 5 pm)

Other medications: None

Youth's medication history: Adderal, Metadate CD, Dextroamphetamine, and Depakote

Identified Strengths: (consider values, goals, resiliency, relationships, supports, age appropriate behavior, developmental assets, locus of control, feelings of self-worth, etc.)

Youth is able to have some concept of what he believes is "being good" and he associates this concept with being able to maintain his own personal space (and not violate others); he is able at times to ask for his needs directly and assertively (ex: I need some of your time Mom"; Family is very important to him and he has a strong desire to learn and do well and complete his school work. He has shown resiliency in surviving the separation between himself and his biological mother and coping with some very unsafe caregivers(babysitters) in early formative years; he "assumes that anyone in his life is there to help him, at least any adult". He is able to engage in age appropriate behaviors more often than not and expresses positive feelings of self worth. His locus of control seems to shift depending on his level of agitation and his proximity to peers. When feeling "safe" and with adults, he seems to have some internal locus of control, when agitated and surrounded with peers, this locus of control is completely externalized.

Identified Challenges/Risk Factors/Difficulties: (consider qualities/aspects that do not contribute to growth & development, any possible barriers to treatment, particular hotspots)

Youth has a great deal of difficulty functioning in normal peer group settings. He becomes negative and acts out, even aggressively, towards peers in these setting which has necessitated removal from traditional classroom setting as well as daycare setting. Youth particularly is negative and acts out towards peers and adults that are not assertive with him. He can be extremely defiant when pressured as opposed to many children that would be able to accept direction under same type of pressure.

Birth & Childhood Development: (pre-natal care; premature/normal birth; developmental milestones; identifiable behavioral issues/ temperamental nature/ significant emotional issues)

Caregivers report that client received no pre-natal care until after birth mother was 6 months pregnant. Birth mother not available for reports on normalcy of birth, caregivers did not report that client was born prematurely. Caregivers report that client was sitting up at 6 months of age, crawling at ages 7-8 months, and walking at one year. Caregivers report that client's negative behaviors be.g.an at 3 years old. At that age he be.g.an to become very hyper and moderately aggressive/mean with animals and mean to his brother. At 5 years old, client be.g.an to make statements such as " I wish I has Dead". Caregivers responded by telling him to practice being dead by lying very still for a long time. Caregivers report after doing so, client lost interest in "being dead" very quickly. In last 2 years, client's aggressiveness has moved to peers and has led to his being transferred to an alternative special education school as well as being kicked out of daycare setting after school.

PLEASE COMPLETE A 1-2 PARAGRAPH ASSESSMENT SUMMARY OF JOHNNY BASED ON THE INFORMATION YOU HAVE AVAILABLE YOU CAN INCLUDE SERVICES YOU THINK JOHNNY AND HIS FAMILY WOULD BENEFIT FROM

Assessment Summary:

PLEASE PROVIDE 5 INITIAL TREATMENT GOALS YOU WOULD DESIGNATE FOR JOHNNY AND/OR HIS FAMILY AS WELL AS THE INTERVENTION STRATEGY YOU WOULD RECOMMEND BEING USED TO TREAT THIS INITIAL GOAL

Recommended Initial Goals and Intervention Strategies:

	Recommended Treatment Goal	Intervention Strategy
1		
2		
3		
4		
5		

Appendix G

Knowledge Posttest

(Questions loaded into Survey Monkey© online system)

#	Question	Choices	Correct Choice
1.	Rick Greenwald (2002) offers the following model to explain the importance of an individual's trauma history in understanding "offending" behaviors (ex: assault or sexual abuse of another). According to this model, which of the following statements BEST represent the importance of an individual's trauma history in understanding his/her "offending" behaviors:	<p>A: A youth's trauma history is important to understand because it is the reason he/she hurts other people.</p> <p>B: A youth's trauma history is important to understand because it is only by taking into context a youth's past traumatic experience that we can understand his/her "offending" behaviors and therefore support changing the youth in changing those behaviors.</p> <p>C: This model reflects that trauma history is just an excuse used by youth to get out of negative consequences when they act out.</p> <p>D: A youth's trauma history is important to understand because trauma creates memories in the youth which can be triggered by everyday events.</p> <p>E: B and D</p>	E
2.	Rick Greenwald (2002) offers the following model to explain the importance of an individual's trauma history in understanding "offending" behaviors (ex: assault or sexual abuse of another). Greenwald's model indicates that an event triggers a thought and/or feeling. These thoughts and feelings are often uncomfortable for the youth. This model shows youth engaging in a quick relief behavior to cope with these uncomfortable thoughts and feelings. Using the following scenario and Greenwald's model, provide the best response to the question. Scenario: Roy is a 14 year old client who has grown up in a home where he has watched his mother be physically abused by multiple adult males. For most of his life he was too small to stop the abuse and when he attempted to stop these men, he was often hit as well. Today, Roy was walking down the school hall to class when a large adult male teacher bumped into him,	<p>A: Roy's thought: "This teacher is such a jerk, I cannot wait to get a chance to hit him today"; Roy's feeling: Anger; Roy's Quick Relief Behavior: Knocking teacher's hand away, cursing, and preparing to fight</p> <p>B: Roy's thought: "Everybody in this hall is looking at me, I better put on a good show"; Roy's feeling: Excited; Roy's Quick Relief Behavior: Knocking teacher's hand away, cursing, and preparing to fight</p> <p>C: Roy's thought: "No man is ever going to put their hands on me again"; Roy's feeling: Fear and Rage; Roy's Quick Relief Behavior: Knocking teacher's hand away, cursing, and preparing to fight</p> <p>D: None of these examples are useful in describing connections between thoughts/feelings and quick relief behaviors in Greenwald's model</p>	C

<p>knocking Roy and his books to the ground. While on the ground, the male teacher reached down and put his hand on Roy's shoulder. Roy responded by knocking the teacher's hand away, jumping up, and taking an aggressive physical stance while threatening to "kick the teacher's butt". Which of the following examples would BEST exemplify Greenwald's connection between uncomfortable thoughts/feelings and the resulting quick relief behavior in the given scenario?</p>		
<p>3. Greenwald's Model also makes connections between a youth's quick relief behavior and that youth's response to negative consequences. Greenwald suggests that some negative consequences actually reaffirm the belief system developed as a result of trauma instead of changing it. Using the following expansion of the "Roy" scenario, respond to the question. Scenario: Roy is a 14 year old client who has grown up in a home where he has watched his mother be physically abused by multiple adult males. For most of his life he was too small to stop the abuse and when he attempted to stop these men, he was often hit as well. Today, Roy was walking down the school hall to class when a large adult male teacher bumped into him, knocking Roy and his books to the ground. While on the ground, the male teacher reached down and put his hand on Roy's shoulder. Roy responded by knocking the teacher's hand away, jumping up, and taking an aggressive physical stance while threatening to "kick the teacher's butt". In response to Roy's actions towards the teacher, Roy was taken to the principal's office by the teacher and 2 male security officers at the school. The principle met with Roy and informed him that he was suspended for 3 days for acting aggressively towards the teacher. Roy argued that it was self defense and told all of them that they could "kiss his butt" because he hates the school anyway. When Roy returned to the school, he continued to be referred to the principal's office for being aggressive towards male authority figures in</p>	<p>A: Roy is an out of control teen that needed to be expelled the first time he acted out in school. Because the principle waited 2 weeks before expelling him, Roy's aggressive behavior worsened. B: Roy is a youth who had traumatic experiences with adult males. He learned not to trust adult males and to protect himself from them. To Roy, the negative consequence (suspension) for his aggressive behavior supported his thoughts about adult men. C: Greenwald would not apply his model to Roy's situation because he only view persons who have been physically or sexually abused as having experienced trauma, Roy only witnessed domestic violence. D: Roy is a youth who chooses to hate and defy authority. Youth like Roy need criminal charges and incarceration for their actions, not suspension or expulsion from school.</p>	<p>B</p>

	the school. Two weeks subsequent to Roy's suspension, the principle expelled Roy from the school reporting that he has not responded to any of the consequences utilized to correct his behavior. Which of the following statements would BEST describe Greenwald's explanation as to why the principle's negative consequences (suspension) did not work well for Roy?		
4.	Joanne Schladale (2002) offers the following model to explain the importance of an individual's trauma history in understanding the process of youth choosing different behaviors (ex: assault or self-victimizing behaviors). Please use this model to respond to questions 4, 5, and 6. Schaladale's model uses the concept of "trauma echo". Which of the following statements BEST describes what a "trauma echo" is?	A: A trauma echo involves re-experiencing thoughts/feelings/memories associated with a previous traumatic event. B: A trauma echo involves experiencing a new traumatic event during the course of a youth's everyday life events. C: A trauma echo involves a youth blaming his/her choices today on something that happened in the past so that he/she can get out of accepting responsibility.	A
5.	Using Schladale's model and the "Roy" scenario from question 2 and 3, decide if the following interpretation of Roy's response to the Adult Male Teacher in the hall is consistent with the Trauma Outcome Process Model. Roy has been through some major traumas in his life with adult men abusing himself and his mother. These experiences have created a trauma defense in Roy which was kicked off by the everyday trigger of the adult male teacher bumping into him in the hall. This event resulted in a "trauma echo" for Roy related to his past experiences with adult men in his home. Thinking errors developed in part from these traumatic experiences in the home supported Roy's thoughts that the teacher was intentionally harming him and that he was going to make sure no man ever hurt him again. This process of being triggered by the incident in the hall, experiencing a trauma echo from his past, and having thinking errors related to adult men resulted in Roy choosing to engage in an assault behavior.	A: Yes, this interpretation is consistent with how the Trauma Outcome Process model would explain Roy's response to the teacher B: No, this interpretation is NOT consistent with how the Trauma Outcome Process model would explain Roy's response to the teacher	A
6.	Schadale's (2002) Trauma Outcome Process is similar to Greenwald's (2002) Trauma Informed Offense Cycle because they both focus on how having experienced traumatic	A: True B: False	A

	events in your past can impact the way you respond to everyday events today. Additionally, both models argue that effective treatment cannot occur without understanding the impact of the trauma on the thoughts, feelings and actual behavior of a youth.		
7.	The Nine Basic Tenets of Attachment Theory According to Attachment Theory, which of the following definitions of attachment behavior is the BEST answer?	A: Attachment behavior is any behavior that causes a baby to cry B: Attachment behavior is any behavior that increases proximity of a child with a secure figure C: Attachment behavior is the bond that develops between a child and a secure figure D: Attachment behavior is any behavior that causes the secure figure and child to be quiet.	B
8.	Exploratory behavior is any behavior in which the child engages in learning or adaptation to their environment.	A: True B: False	A
9.	A child can engage in attachment behaviors and exploratory behaviors at the same time.	A: True B: False	B
10.	According to Attachment Theory, which of the following statements is TRUE?	A: Attachment Behavior is a learned behavior which develops between the ages of 1 and 3 B: Attachment Behavior is a learned behavior which develops over the course of a lifespan C: Attachment Behavior is instinctual and exists from time of birth D: Attachment Behavior is taught to children by their parents	C
11.	Attachment Theory asserts that the distress that occurs when a child is separated from a secure figure is normal.	A: True B: False	A
12.	According to Bowlby and his "Grief Process", is the following statement True or False: Grief is an abnormal response to losing a secure figure in one's life. A clinician should be concerned if a child expresses any grief after a separation or loss.	A: True B: False	B
13.	According to Bowlby, all of the following steps occur in the "Grief Process" EXCEPT:	A: Urge to Recover Lost Figure (often includes aggression/anger for search) B: Relinquishing Recovery Process C: Reorganizing D: Engaging in Attachment with Others E: Resolving the need to attach/bond to	E

		others and assuming independence	
14.	According to Bowlby, clinician's should be concerned about the "Grief Process" when:	A: A child is seeking to find their caregiver/secure figure B: A child stops trying to reunite with their caregiver/secure figure C: A child cannot move through the steps of the grief process D: A child engages in attachment with others	C
15.	According to Attachment Theory, all of the following statements about internal working models are correct EXCEPT:	A: Internal working models come from experiences which lead to a model in our mind of self, others, and the world B: Internal working models are biologically programmed into our minds at the time of birth C: Internal working models develop from patterns of relationships in which we are involved or observe D: Internal working models shape the way we view self, others, and the world E: Internal working models affect cognitive processes	B
16.	The importance of understanding attachment styles of the youth and caregivers with whom we (clinical persons) work is:	A: Supports our ability to understand the way in which our clients and caregivers may view relationships B: Can be used to support us helping clients and caregivers shift into more secure and healthier relationship patterns with one another C: Supports our ability to see how trauma has affected our client's and caregiver's relationships D: Supports our ability to understand the way in which our client's and caregivers engage in a relationship with us E: All of the Above	E
17.	The Experiences in Close Relationships-Revised (ECR-R) Questionnaire developed by Fraley, Waller, and Brennan (2000) was presented as a clinical measure which can be used to assess attachment style in adults and potentially adolescents. The two core clinical concepts that this measure uses to determine an individual's attachment style are the same two core concepts that the attachment styles are based upon theoretically. Those two core	A: Anxiety and Avoidance B: Calmness and Closeness C: Distance and Aggression D: Love and Fear	A

	concepts are:		
18.	Based on our discussions regarding Daniel Siegel's work and the importance of understanding the "experience dependent mind"; which of the following statements are accurate:	<p>A: Because of the integral connection between the brain and experience, it is essential that we (clinical persons) understand the brain and how it functions so we can help with affect regulation and the overall healthy Integration of the mind</p> <p>B: While there are few direct neurobiological studies confirming the impact of attachment on brain functioning, research from fields such as attachment, child development, cognitive neuroscience, and complex systems support this connection</p> <p>C: Many argue that early relationships (experiences) shape neuronal circuits which regulate emotional and social functioning</p> <p>D: While certain regions are identified with certain brain functions ... it is essential to remember that the brain is a complex system in which "distinct components cluster into a functional whole"</p> <p>E: The ability for distinct brain regions to work together as an Integrated system may be a core process essential to mental well-being within the individual, family, and within a healthily functioning nurturing community</p> <p>F: All of the above statements are accurate based on information presented in the course</p>	F
19.	Based on the discussion in class and the presentation of "The Happy Child" and "The Terrified Child" (adapted by Post from Ledoux 1996); which of the following statements is NOT accurate:	<p>A: Small stress has neutral effect on memory</p> <p>B: Moderate stress facilitate memory</p> <p>C: High stress impairs memory</p> <p>D: High Stress has no impact on memory functioning</p> <p>E: High levels of stress block hippocampus functioning</p> <p>F: Initially, this is reversible; however excessive exposure to stress can cause neuronal death</p>	D
20.	Based on the presented information about neuroplasticity, the brain, and the impact of stress on the brain; which of the following concepts would be very important to consider	<p>A: Activities which support youth and caregiver in regulating themselves (calming/soothing self)</p> <p>B: Activities which support youth and</p>	F

	in treatment planning and interventions for youth and caregivers who have experienced trauma in the past (or present):	caregiver in engaging in co-regulation (calming/soothing each other) C: Activities which teach caregiver show to be more controlling and punitive in their parenting style D: Activities which increase the use of consequences and behavioral point systems on the part of the caregiver E: Activities which increase the use of consequences and behavioral point systems on the part of the caregiver F: A and B only G: C, D, and E only	
21.	Understanding differences between implicit and explicit memory is crucial to understanding why trauma impacts memory and future information processing and behavior (ex: Roy's processing of why teacher bumped into him in the hall and Roy's response to the teacher bumping him). Because of the importance of these two concepts, you were asked to engage in an activity where you viewed pictures of children while you listened to music. Thinking about the impact this activity had on your body as well as your thoughts about yourself, others, and the world ("Mental Models"), respond to this question and the next question (28): Implicit Memory involves:	A: Involves parts of the brain that do not require conscious processing B: Memory that infants have access to C: Creation of "Mental Models" from repeated experiences D: Creation of "Mental Models" which allow for assessing situations rapidly and determining what may happen next E: All the above F: None of the Above	E
22.	Implicit mental models shape the organization of explicit autobiographical memory. Our autobiographical memory is what allows us to sequence our life and organize our sense of self and others across time. Therefore, damage to our ability to access autobiographical memory results in the loss of our self in our own story. When the implicit models become unstable it in turn intrudes on the way we relate to our self, others, and the world ... the way we experience life.	A: True B: False	A
23.	In the training we discussed the impact of trauma on the brain's structure and function including its impact on an individual's memory and emotional regulation. This becomes very important information to	A: The way a client's brain receives information and interprets that information is effected B: The client may appear to not be listening, but actually needs more time to process	F

<p>consider when conducting an assessment on the client. Three areas of particular focus in assessment were: Assessing impact of trauma, assessing auditory processing problems, and assessing visual processing problems. If a client has an auditory processing problem, which of the following statements are correct:</p>	<p>information C: The client may be engaging in “looping” which involves a person experiencing a gap between the time at which information is heard and the time at which this information is processed and then understood D: The client cannot hear E: The client intentionally ignores information he/she hears F: A, B, C only G: A and B only</p>	
<p>24. If a client has a visual processing problem, which of the following statements are correct:</p>	<p>A: Client is blind or otherwise visually impaired B: Client has difficulty making sense and interpreting information seen C: Client has a lack of awareness in the immediate environment D: Client’s has a decreased ability to react to facial expressions, which in turn impacts social interactions E: Client intentionally tunes out anything he/she sees because of his/her hatred of authority figures F: None of the Above G: B,C, and D</p>	G
<p>25. The reason that including a trauma assessment as well as auditory and visual screening assessments in our holistic assessment of the client is so important is:</p>	<p>A: We need to separate out what components of resistant/oppositional behavior is motivational and what components of resistant/oppositional behavior is processing (brain problems) B: We need to replace assessment services provided by a doctor or psychologist C: We need to assure our clients can hear D: We need to assure our clients can see E: These types of screen are not important to our assessment, the trauma assessment is sufficient in guiding us in our intervention planning F: None of the Above</p>	A
<p>26. In general, the interventions selected to use with youth who have experienced trauma should:</p>	<p>A: Support brain in working optimally B: Increase healthy coping C: Increase affect regulation D: Support youth and family in making needed structural changes to enhance fit with person and environment E: All the Above</p>	E

		F: A, C, and D only G: A and B only	
27.	In the training we discussed some of the benefits of biofeedback training and you watched as the trainer demonstrated the use of the Wild Divine Game. Based on your understanding of biofeedback, which of the following benefits can it offer to clients and caregivers?	A: Vehicle for awakening “person” to the inner world B: Enhances belief in mind/body connection C: Supports exercising self-talk abilities D: Increases Heart Rate Variability E: Increases self capability of self-governance F: Increases immune system functioning G: All the above	G
28.	In the course we observed and participated in several "attunement activities" that can be used with youth and families who have experienced trauma. The intent behind these activities is to: (Choose the BEST answer)	A: Distract youth and caregivers from their problems B: Relieve stress and inspire fun and laughter C: Enhance the Therapeutic Relationship with the clinician or mentor D: Provide an opportunity for non-verbal connection and closeness in relationship for the caregiver and child E: Provide more oxygen to the brain and engage parts of the brain that promote cognitive flexibility F: A, B and C only G: D and F only	G

Appendix H: Attitude and Beliefs Survey

The following items are related to your attitudes and beliefs about working with youth who have conduct related behavior problems.

Read each statement and then note the level to which you agree or disagree with the statement.

When the word "youth" is used in each statement ... note that this refers to youth who have conduct related mental health disorders such as Reactive Attachment Disorder (RAD), Conduct Disorders (CD) and or Oppositional Defiant Disorders (ODD).

1.. Youth with conduct related mental health disorders rarely have experienced trauma.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

2. These youth need to experience significant consequences in order to change their decision making.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

3. Strict behavior reward and consequence systems work best with these youth.

- Strongly Disagree
- Disagree

- Neutral
- Agree
- Strongly Agree

4. Assessing if a youth has experienced trauma is important to clinical practice.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

5. If a youth has experienced major and/or minor traumas in their life, considering how this trauma impacts their decision making is important in my treatment planning.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

6. In clinical work with youth, biological perspectives of treatment are secondary to psychosocial perspectives of treatment.

- Strongly Disagree
- Disagree
- Neutral
- Agree

Strongly Agree

7. *In practice with youth, a good counselor would teach youth about the physiological impact of experiences they have had and how that impacts their ability to use problem solving skills.*

Strongly Disagree

Disagree

Neutral

Agree

Strongly Agree

8. *The primary focus of clinical practice with youth should be on managing their problematic behaviors.*

Strongly Disagree

Disagree

Neutral

Agree

Strongly Agree

9. *Clinical practice with youth should include teaching youth and caregivers' skills to manage their anxiety and stress.*

Strongly Disagree

Disagree

Neutral

Agree

Strongly Agree

10. *Clinical practice with youth should make teaching self soothing and relaxation a major goal of treatment.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

11. *The focus of clinical practice with youth should include increasing their closeness in relationships with authority figures.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

12. *Clinical practice with youth should primarily focus on teaching caregivers how to enforce strict limits on behavior.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

13. *Clinical practice should focus on supporting the caregiver in providing safety and relaxation to the youth.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

14. *Things like sleep, diet, exercise, and stress management are less important clinically than a good behavior plan for a youth.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

15. *Holistic assessment and treatment balances the use of biological, psychological, social and spiritual perspectives. None is more important than the other.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree



Appendix I

Qualitative Analysis Coding Frame

Evaluation Requests

Specific Formal Assessment Tools – these would be tools mentioned that are formal measures of symptoms experienced by the client (Connors, Child Behavior Checklist, or psychological or psychiatric evaluation). This would include formal trauma assessments

Need for trauma assessments – this would be any phrasing indicating a need for an assessment of trauma but where a specific formal assessment tool for trauma was not mentioned

Need to Clarify the Caregiving Experience – Any phrases interested in learning more about the history of the client with a caregiver

Assess Family Members and Family Dynamics – Any phrases that showed interest in family members history (mental health) or interest in ways in which family members related to each other (but no mention of the word “attachment”)

Medical Evaluation – Any phrase mentioning need for medication evaluation, medical exam, and/or medical attention

Significant Life Changes – Any phrase mentioning interest in developmental milestones or interest in any event that would have had a significant impact on client during a certain period of time. Many participants were particularly interested in client’s life experiences between the ages of 3 and 5.

Assessing Attachment History and Ability – Any phrases which directly mentioned “attachment” and/or a desire for an attachment history or experience of attachment

Diet, Exercise, Sleep – Any phrases that mentioned interest in diet, exercise, or sleeping patterns and getting more information in these areas

Diagnoses

Disruptive Behavior Disorders (including Conduct Disorder, ADHD, ODD, Disruptive Behavior Disorder NOS, Adjustment Disorders with Disturbance of Conduct)

Mood Disorders (including Bipolar, Depression, Dysthymia)

PTSD or Anxiety Related Disorder (PTSD, GAD, Anxiety NOS, Separation Anxiety)

Pervasive Developmental Disorder- Pervasive Developmental Disorder, also includes autism

Reactive Attachment Disorder (RAD) – Reactive Attachment Disorder

Treatment Goals

Relational Goals (and subtheme that involved skills which were connected to the way in which one or more persons related to each other)

Building Rapport and Trust with Professionals – Any activity/goal that revolved around client or family building rapport with a professional (counselor, teacher, etc.)

Building Relationship with Sibling – Any activity/goal that mentioned relationship skill building with the brother or sibling

Building Caregiver Relationships – Any activity/goal directly linked to improving the caregiving-child relationship (ex: communication skills, attunement activity, bonding activities)

Peer Relationship Skills - Any activity/goal directly linked to improving the peer-child relationships (ex: communication skills, social skills, reduction of aggression towards peers)

Empathy Skills – Any goal that mentioned empathy

Coping Skill Development (any subtheme that involves skills designed to assist client or family in enhancing functioning through the direct development of a skill)

Overall – Any coping skill that did not fall directly into the other categories below, but was seen as a skill building goal that improved client or family members’ ability to cope was included here and examples were given

Build Self Esteem – Any goal mentioning building self esteem

CBT approaches to clarifying thinking – Any activity or goal that focused on changing thinking or teaching connection between thinking, feeling and behaviors

Anger Management Techniques – Any goal targeted at reducing aggression, reducing inappropriate displays of anger, violence

Learn to Focus – Any goal or activity designed to decrease distractibility, increase ability to focus or pay attention

Learn to Follow Rules – Any goal or activity designed to support client in following directions, being redirected, or following rules

Trauma Focused Goals (any subtheme that involves trauma including abuse or neglect)

Trauma Assessment – Any goal mentioning the need for a trauma assessment (specifically with a tool or just a need for a trauma assessment)

Processing Past Trauma – Any goal that focused on supporting client or a caregiver in understanding trauma or an activity designed to process traumatic events

Reducing Anxiety – Any goal focused on reducing anxiety

Biological Enhancement Goals (any subtheme that focuses on a goal or activity designed to connect feelings or thoughts with physiology, any activity designed to lower physical arousal, this could be teaching a client or family member about connections between mind and body OR engaging them in an activity designed to address treatment goal that utilized the mind/body connection)

Emotional Regulation – Any phrasing about lowering arousal, understanding emotions, using skills to lower arousal or emotional intensity, relaxation skills or stress management skills/techniques

Learning how body works and controlling body – Any activity targeted towards teaching about the body, physical responses to stress or arousal, treatment goals directed at changing physiological responses

Medical Concerns and Medicine Evaluations – Any activity or goal mentioning a medical need, need for medication management, or medical attention

Modality of Therapy (any subtheme that was connected to recommendations for a specific type of therapy)

- Includes family therapy, individual therapy, individual therapy with caregivers

Specific Assessment Tools Recommended

While a specific question was asked to participants about evaluation recommendations, many participants included evaluation recommendations in their treatment goals. Those recommendations were coded and entered here.

Other Goals Identified (any subtheme that did not fit into one of the categories above, but rather presented as a different type of category that could not be clustered with the main themes appearing in the text)

Examples include: Focusing on School Behaviors, Providing Predictable Routines for the client, incorporating a Behavior Modification Plan into treatment,

Interventions

Relational Practice (any subtheme that connects to relationship skill building)

Family Interaction Practice Activities – Any activity or intervention method that has family members (including client) actively practicing relationship skills

Boundary and Family Structure Clarification – Any phrases that mention boundaries or structures in the intervention strategy, any relational activity designed to enhance or strengthen a boundary between family members or professionals

Professionals Build Rapport with Clients - Any intervention strategy that revolved around client or family building rapport with a professional (counselor, teacher, etc.)

Incorporate Family Assessment Tools – Any intervention strategy that involved the utilization of a family assessment tool in the work (e.g.: genogram, interaction pattern mapping, etc)

Social Skills Development – Any intervention strategy directly mentioning social skills work or a skill that is designed to build a social skill

Role Playing/Role Modeling – Any intervention strategy mentioning role playing, role modeling, or other role techniques to achieve treatment goals

Inclusive of the Biological Perspective (any subtheme that focuses on a intervention strategy that connects feelings or thoughts with physiology, any strategy designed to lower physical arousal, this could be teaching a client or family member about connections between mind and body OR engaging them in an activity designed to address treatment goal that utilized the mind/body connection)

Relaxation Techniques and Emotional Regulation - Any phrasing about lowering arousal, understanding emotions, using skills to lower arousal or emotional intensity, relaxation skills or stress management skills/techniques

Assurance of Medical Needs being met - Any intervention strategy mentioning a medical need, need for medication management, or medical attention

Teach Connection between feelings and the body - Any intervention strategy targeted towards teaching about the body, physical responses to stress or arousal, treatment goals directed at changing physiological responses

Behavioral Planning Strategies

This theme had no subthemes. Rather any intervention strategy that had a focus on using a feedback system to change behaviors was included here (e.g.: reward and consequence systems, positive reinforcement plans, etc.)

Experiential Activities (Right Brain) - any type of expressive therapy that targets more holistic and artistic forms of expressing emotion or processing feelings. Subthemes included art therapy, play therapy, and journaling activities. Typically, artistic forms of therapy are more targeted to the right side of the brain.

If any mention of art, play or journaling was in the text as an intervention strategy, it was coded and included here.

Trauma Processing

This theme had no subthemes. Any intervention strategy that focused on supporting client or a caregiver in understanding trauma or an activity designed to process traumatic events was included here.

Coping Skills Development

This theme had no subthemes. Any coping skill intervention strategy that was seen as a skill building strategy that improved client or family member's ability to cope was included here.

Examples include: parent education, anger management techniques, strategies designed to

support the identification of triggers, problem solving skill building. Examples are mentioned in this category.

Professional Support (this theme included any subtheme that involved a strategy or activity direct practitioners completed to support the treatment plan)

Subthemes included: Providing case management services, classroom support, interdisciplinary teamwork, and/or consultation recommendation.

Evaluations

While a specific question was provided to participants to recommend specific evaluation tools, many participants included evaluation recommendations in treatment goals and intervention strategies as well. If a participant mentioned an evaluation tool in the intervention strategy questions, it was coded and included here.

Modalities (like with treatment goals, any subtheme that was connected to recommendations for a specific type of therapy was included here)

- Includes family therapy, individual therapy, individual therapy with caregivers

Specific Therapy Models

Some intervention strategies included the mentioning of a specific model of therapy. Those models were included here (e.g.: Object Relations Theory, CBT, etc.)

Assuring Physical and Emotional Safety

This theme had no subthemes. Any time in an intervention strategy if there was a mention of the word “safety”, whether the strategy was focused on creating emotional safety or physical safety, it was coded and included here.