An Exploratory Study of an Arts-Based Measure and Research Model that Examines the Relationship Between Attachment Style, Trauma, and the Use of Adhesive Materials in Art Therapy

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Dissertation submitted to the faculty of the University Graduate School in partial fulfillment of the requirements for the degree Doctor of Philosophy in the Graduate School of Arts and Social Sciences, Lesley University

April 25, 2020
Abstract

Though the use of art materials (pencil, paint, clay) have been widely researched in art therapy, little has been written about the role of adhesives (glue, tape, staples) in the art making process. This exploratory, sequential mixed methods study examined the relationship between attachment style, trauma, and the use of adhesive materials in art therapy and serves as a model for arts-based research which combines the scientific rigor of quantitative inquiry with a rich narrative descriptive of qualitative data. This research was the first step in developing the Arts-based Attachment Style Assessment (ABASA), a newly created art-based diagnostic tool to predict attachment style. A purposive sample (N=91) of college students from a small New England college participated in the research. While an initial MANOVA showed no main effect of adhesive choice for attachment style, $F(6, 172) = 1.26, p = .278$; Wilk's $\Lambda = 0.918$, a qualitative analysis of artwork and written narrative suggest that gender and trauma in combination with adhesive choice, might have a relationship to attachment style. As exploratory research, a second MANOVA, examining attachment style including three independent variables (trauma, gender, adhesive choice), was performed. Again, there was no significant main effect for adhesive on attachment. There was, however, a significant three-way interaction effect of gender, trauma, and adhesives on the attachment depend scale $F(2,76) = 5.50, p = .006$ with a small effect size ($\text{partial } \eta^2 = .126$) and high power ($1 - \beta = .838$). Future research should include replication with testing of gender and trauma as covariates with larger sample sizes along with establishing face and construct validity, factor analysis, and testing of internal consistency for the ABASA.
List of Tables

1. Parent Child Gender Representations in the Art by Participant Gender .................77

2. Six Emergent and Predicted Themes in the Descriptive Text ..................................89
List of Figures

1. Attachment Styles Conceptualized Through the Model of Self and Model of Others as Conceptualized by Bartholomew and Horowitz (1991) .................................................................21
2. Example of Socio-Normative Female Details in Artwork........................................74
3. Example of Socio-Normative Male Details in Artwork..........................................75
4. Graphic Indicators of Trauma Examled In The Artwork........................................81
5. Example of Artwork Made By a Participant With No Reported History of Trauma and a Secure Attachment Style.....................................................................................82
6. Means Across Groups for the DV Depend ................................................................85
7. Example of Typical Developmental Level of Adult Art ...........................................93
8. Example of Advanced Artistic Skill Level of Adult Art ..........................................94
9. Examples of Facing Attachment of Parent/Child Drawings.....................................96
10. Examples of Unusual Facing (feet to feet attachment) .........................................97
11. Examples of Unusual Facing (feet to head attachment) .......................................97
12. Example of Significant Overlap in Facing Which May Be Rated as Side to Side or Front to Back .............................................................................................................99
13. Example of Unusual Facing Attachment Where Figures Seem Wrapped Around Each Other Described as Entwinement.................................................................100
14. Example of a Side View Figure...............................................................................100
15. Diagram of the Emergent Data Analytic Process ..................................................121
16. Example of a Parent with Non-Binary Gender Identifiers.......................................113
Table of Contents

Abstract .......................................................................................................................... 2

List of Tables ................................................................................................................. 3

List of Figures ................................................................................................................. 4

Preface ............................................................................................................................ 8

CHAPTER 1 Introduction ............................................................................................... 10

CHAPTER 2 Literature Review ..................................................................................... 14

Attachment Theory ...................................................................................................... 14

Trauma and Attachment .............................................................................................. 21

Models of Art Therapy and Trauma Treatment ............................................................. 25

The Impact of Art Materials on Trauma Treatment ....................................................... 33

Art Therapy, Trauma, and Attachment Style .................................................................. 36

Rationale for Mixed Methods Arts-Based Research ...................................................... 40

CHAPTER 3 Pilot Study ................................................................................................. 43

Design and Method ....................................................................................................... 44

Participants and Setting ............................................................................................... 46

Instruments ................................................................................................................... 47

Procedure ...................................................................................................................... 51

Results of the Pilot Study ............................................................................................ 56
CHAPTER 4 Exploratory Study #1: Development of an Arts-Based Attachment Style

Assessment .............................................................................................................................................59

Design and Data Analytics Plan ...........................................................................................................59

Design ..................................................................................................................................................59

Data Analytics Plan Rationale ..............................................................................................................61

History of Data Analytics Plan ...........................................................................................................62

Hypothesis ..........................................................................................................................................63

Methodology .......................................................................................................................................64

Participants and Setting ......................................................................................................................64

Instruments .........................................................................................................................................65

Procedure ..........................................................................................................................................65

Results ................................................................................................................................................67

CHAPTER 5 Rationale for the Exploratory Analysis of the Archival Data .............................................68

The “File Drawer” Problem ..................................................................................................................68

Rationale for Analysis Using Three Subscales of Attachment .............................................................70

Archival Data Research and Alpha Inflation .......................................................................................71

Exploratory Analysis of the Archival Data Informed by Qualitative Data ..........................................73

Gender Represented in Art Content .....................................................................................................73

Trauma Indicators in the Artwork ........................................................................................................80

The Combined Influence of Gender and Trauma .............................................................................82

CHAPTER 6 Exploratory Study #2: Archival Research .........................................................................84

Quantitative Results .............................................................................................................................84
Preface

In the early 1990’s while working in the foster care system as an art therapist, I often saw children who had experienced myriad trauma in the form of multiple losses, sexual abuse, physical assault, and neglect over much of their short lives. While I was moved by their resilience in the light of such experiences, I was pained by their struggle to form any kind of close relationships with others. Trust, fear of intimacy, and a staunch resistance to asking for help manifested in these children as impaired bonding strategies, creating challenges in forming healthy attachments to their caregivers.

Over time, I came to see how art therapy was a unique way to engage these children. Art therapy provided a non-threatening way to establish a therapeutic relationship, acting as a testing ground for future relationships. The art process became a powerful way to understand their experiences. In sessions, these children would use art materials in blisteringly transparent ways to express their psychic pain and loss. From the swirling paint and pounded clay emerged monsters, demons, tidal waves, tornados, and volcanos that seemed to reflect the potential (and sometimes life-threatening) danger of becoming close to someone. In addition to the art materials and images, I noticed that these same children would use adhesive materials (such as glue, tape, and staples) in highly unusual ways, that seemed just as revealing of their impaired relational skills.

For example, I remember one boy, in particular, around the age of eight years, who was in foster care preparing to be adopted by his foster family. While this would by all accounts be a
very happy time, for most foster care children an impending adoption can also be a time of great ambivalence. Because a biological parent must give up or have lost legal rights over their own children in order to lawfully free them for adoption, the child must acknowledge this loss while also facing a new fears of abandonment, wondering if their new adoptive parents will, in fact, be able to care for them.

This ambivalence, anxiety, fear, and loss is often expressed in the artwork, as it was for this boy. While in a session, as we were discussing his upcoming adoption, he began making a large octopus out of clay. The octopus had a tremendously bulbous pink head and eight long outstretched arms; the creature looked like a mewling infant with eight outstretched arms, reaching into the unknown. Despite repeated instruction on how to attach these arms securely to the octopus’s body with clay slip, the completed piece was very fragile and not well constructed. At one point he tried to lift his piece, gently cupping his hands beneath it to share his accomplishment with me. Not surprisingly, the piece broke, immediately fracturing into dozens of tiny pieces, aptly symbolic of his greatest fears in connecting with others. Similarly, I would see other children in foster care who had experienced profound trauma use excessive amounts of tape or glue to attach images of family members together, as if the copious amounts of adhesive would somehow remedy the fragility of their family system.

Based on years of similar clinical anecdotes, I searched for research or literature on the use of adhesives and how these materials might relate to attachment styles in children with trauma. I found nothing other than a few scant references to adhesives, as a secondary part of the creative process in art therapy. Thirty years later, after a number of life detours, I found myself in a doctoral program, thinking about research and still wanting to understand more about adhesive use, trauma, and art therapy. I am grateful to finally pursue this research to answer these decades
old questions for myself, with the additional hope of offering something of import to my profession.

Chapter One

Introduction

The theoretical foundations of art therapy speak to both the art process and product as an indicator of an individual’s cognitive, social and emotional functioning (Huss, 2015, Kellogg, 1969; Kramer, 1972, 1987; Malchiodi, 2012; Naumberg, 1966; Rhyne, 1991). What a client creates and how they use art materials can play an important role in diagnosis and treatment; Art therapists believe that the symbolization of the art content and process can provide tremendous insight into an individual’s unique view of the world (Kramer, 2000). Different than art education and recreation therapy which focus more on the final art product, art therapy is defined as a holistic interface between art materials, the creative process, and the working therapeutic alliance (Huss, 2015). Yet, with such an emphasis on art materials as part of the art therapy process, surprisingly little attention has been given to how adhesive materials (such as glue, tape or staples and other binding agents) used to connect parts of artwork together can generate symbolic meaning.

Traditionally, adhesive materials are defined as any “substance applied to one surface, or both surfaces, of two separate items that binds them together and resists their separation” (Kinloch, 1987, p.1). In this context, even standard art materials may be used for adhesion in unconventional ways, such as using thick paint or wet clay to adhere items to a surface. In any case, the definition of “adhesives” is ripe with symbolic inferences for the art therapist. For example, the way a client connects their art together might also be a symbolic indicator of how
they connect, or attach, and/or resist separation with others in the real world. If these assumptions are true, the symbolic efforts of connection expressed in the art process may also be suggestive of an individual’s attachment style. As plausible as these inferences may be, to date no art therapy assessment tool specifically measures adhesive materials as an indicator of attachment style.

An art-based assessment tool that might predict attachment style would be a useful diagnostic tool for clinicians in that the ability to forecast attachment style can aid in forming therapeutic treatment goals and redirecting the development of unhealthy relationships (Erozkan, 2016; Marmarosh, Markin & Spiegel, 2014; O’Connor, Kivlighan, Hill & Gelso, 2018). In her article, *Attachments Beyond Infancy*, Mary Ainsworth (1989) discussed the intersection of attachment and developmental theory, citing several important ways that early attachment styles to primary caregivers can influence significant relationships across the lifespan. Specifically, Ainsworth described four areas of relational domains linked to attachment style later in life: parent/child bonds, kinship bonds (non-parental), romantic bonds, and platonic friendship bonds.

Similarly, Bowlby (1988) identified the relationship between therapist and client as another important relational area associated with attachment style. Using this kind of attachment model in treatment, the therapist creates a safe space for clients to explore important relationships. Bowlby stated that when viewing the therapeutic relationship through the lens of attachment theory, the therapist can provide an arena for a client to safely explore “representational models of himself and his attachment figures” of the past in the current context of his evolving relationship in treatment (p.137). In support of Bowlby’s theories on attachment and the therapist/client relationship, current research has also shown that a greater understanding of the impact of attachment style in the context of the evolving therapeutic relationship can
enhance the working alliance in treatment (Day, 2012; Marmarosh et al., 2014; O’Connor et al., 2018). Therefore, an attachment style assessment tool may also provide insight into the potential of the developing therapeutic working alliance.

Attachment style and subsequent therapeutic engagement may also be correlated with the impact of childhood trauma (Day, 2012). With all types of relational bonds (therapeutic, familial, romantic, and platonic), childhood trauma in the form of physical, sexual, and/or emotional abuse or neglect has been shown to be a predictor of attachment style (Bijari, Hosseini & Nasiri, 2016; Erozkan, 2016; Onen et al., 2017). Early trauma is likely to influence the developmental domains in the areas of social, emotional, and cognitive functioning (Erozkan, 2016; Herman, 2015; Stout et al., 2018; van der Kolk, 2014). Impairments in these domains of development are likely to affect relationships with caregivers, friends, and significant others reinforcing deviant attachment styles as a means of coping with the impact of the trauma (Bloom, 2013; Nicholson, Irwin & Dwivedi, 2010). Likely these deviations in attachment style would also impact an individual’s ability to form healthy levels of engagement in treatment (Day, 2012).

Given the wide-ranging relational effects of trauma, attachment focused assessment tools may be useful in the early stages of treatment to planning. Specifically, an arts-based tool that does not rely on language or self-report may illuminate relational strategies and influential experiences that are difficult to express in words (Kramer, 2000; Malchiodi, 1997, 2015; van der Kolk, 2014). While a number of self-reporting measures of adult attachment style (Bartholomew & Horowitz, 1991; Brennan et al., 1998; Fraley, Waller & Brennan, 2000; Gillath, Hart, Noftle & Stockdale, 2009; Hazen & Shaver, 1987) have been well validated, to date, no arts-based measure for attachment style has been developed, illuminating a gap in this area of research. An
arts-based assessment tool that can measure attachment style in those who have experienced childhood trauma might prove to be a useful predictor of relational style in interpersonal and/or therapeutic relationships later in life. This kind of tool may also be used as an indicator of risk factors for psychopathology as well as a determinant of an individual’s appropriateness for art therapy treatment. For individuals with a history of childhood trauma who are struggling to engage in treatment, alternative forms of traditional verbal therapy may be useful. Art therapy, for example, can be an effective tool in engaging clients resistant to the therapeutic process and has been shown to be useful in trauma treatment models (Carey, 2006; Hass-Cohen, Bokoch, Findlay & Witting, 2018; Levine, 2009; St. Thomas & Johnson, 2007). Art therapy has also been shown to mitigate some of the impact of childhood trauma on significant relationships later in life (Hass-Cohen, Bokoch, Findlay & Banford, 2018; Malchiodi, 1997). In consideration of the identified value of non-verbal, arts-based interventions with trauma populations and the symbolic implications of adhesives as a metaphor for attachment style, an arts-based assessment that can associate adhesive use with attachment style might be a uniquely useful diagnostic tool for trauma treatment.

The following review of the literature will survey the various constructs of attachment theory along with the theoretical relationship between attachment style and childhood trauma. The literature will also show support for art therapy as a diagnostic and therapeutic tool in trauma treatment. Finally, a review of related studies and gaps in discipline-specific research will support the need for an arts-based assessment tool that can predict attachment styles in adults with a history of childhood trauma as a predictor for engagement in treatment.
Chapter Two

Literature Review

Attachment Theory

Attachment theory acknowledges that the development of an attachment style is effectively influenced by the quality of significant early childhood relationships. John Bowlby (1965), in addition to his specific theories about the therapist/client relationship, is best known for his broad, founding work on attachment theory. Through a combined lens of developmental and object relations theory, Bowlby (1965, 1969, 1979) believed that children need an enduring, reliable and consistent physical and emotional attachment to a primary caregiver in order to facilitate healthy development. His attachment theory is rooted in the work of his psychoanalytic training supervisor, Melanie Klein (1935, 1940), who acknowledged the profound influence of the primary caregiver in the evolution of a healthy attachment. Bowlby’s theory differed from Klein’s, however, in that he believed formative attachment experiences were rooted in actual environmental experiences rather than unconscious intrapsychic fantasy. It is precisely Bowlby’s understanding of the impact of real-life experiences on relational development that later gave way to the use of his attachment theory as a basis for trauma treatment.

Attachment Styles

Building on Bowlby’s (1969) attachment theory, Ainsworth’s (1971, 1978) observational research on mother ¹ and child interactions provided the first experimental evidence to support

¹ mother – Although Ainsworth’s research involved observed interactions between mother and child, in the modern adaptations of her work, theorists have acknowledged that the term mother may also refer to any parent or primary care-giver.
the existence of specific attachment styles or qualities of attachment. The security of a person’s level of attachment to significant others is one of the main paradigms of Ainsworth’s attachment theory model (Ainsworth & Bell, 1970). As a means of identifying various levels of security and unique attachment styles, Ainsworth (1971, 1978) observed the interactions of babies (age 12 to 18 months) and their mothers using a technique she developed known as the strange situation procedure. In this experimental procedure, Ainsworth used one-way mirrors to observe the reactions of children when they were exposed to the introduction of a person that they had never met before, under various conditions, proposing that the child’s capacity to tolerate an anxiety provoking relational situation was an indicator of their unique attachment style. Ainsworth predicted that if a child had a secure, predictable attachment with a caregiver, then subsequent interactions with unknown persons would generate healthy curiosity and inquisitiveness when in the presence of a new person, whereas if attachment with the caregiver was inconsistent and unpredictable, the new person situation would evoke anxious, fearful responses.

Ainsworth (1978) saw this response to the returning mother as indicative of what would later correspond with three emergent attachment styles: secure, insecure avoidant, and insecure ambivalent (also known as anxious or resistant). Further, Ainsworth’s maternal sensitivity hypothesis argued that emergent attachment styles in infants are highly influenced by how the mother responds to the child. For example, if the primary caregiver’s response to the child is positive and loving, a secure attachment will result. Unresponsive or insensitive caregivers, according to Ainsworth (1978), would produce an insecure attachment style in the child. Specifically, if a child perceives the caregiver as unloving and rejecting, an avoidant attachment style would emerge. An angry and unpredictable caregiver would cultivate an ambivalent or
resistant attachment style in a child. One criticism of Ainsworth’s (1971, 1978) work is that she did not consider the possibility of biological, medical, and/or personality factors as an influence in attachment style.

**Secure Attachment Style**

Ainsworth’s (1971, 1978) theories rest on the premise that attachment is a developmental consequence of myriad early experiences. Similar to Erikson’s (1968) psychosocial stage of relational development (*trust vs. mistrust*) and Mahler, Pine, and Bergman’s (1975) work regarding the *practicing stage* (9-15 months) and *rapprochement stage* (15 – 24 months), Ainsworth (1971, 1978) believed that a baby’s desire to locomote and explore, within close range of the mother, is considered a normative developmental milestone and indicative of a healthy attachment with the primary caregiver that will eventually lead to autonomous functioning. Ainsworth (1971; 1978) and Mahler et al. (1975) also believed that, in this secure attachment, babies would express some distress when the mother left the room, as well be easily soothed by the mother upon her return. When exploring new surroundings, the child would also use the mother as a point of orientation, checking back to be reassured of her proximity. Like Bowlby (1980), Ainsworth (1971; 1978) also believed that the expression of distress at separation along with seeking comfort and reassurance suggested that the caregiver was consistent, available, and responsive, highlighting the influence of the caregiver in a secure attachment style.

**Insecure Attachment Styles**

Different than those with a secure attachment style, Ainsworth (1979) observed that some children did not exhibit checking back behaviors nor did they use the mother as a point of orientation in exploring the environment. These same children exhibited high levels of both physical and emotional disengagement and did not seek comfort from primary caregivers when
distressed. Ainsworth speculated that the caregivers of these babies were less attuned to the needs of their children and likely were rejecting and dismissive. Ainsworth believed that these children developed an avoidant attachment style in response to the need to acquire self-soothing mechanisms in times of distress, based on the mother’s withdrawal.

According to Ainsworth and Bell (1970), babies with an insecure ambivalent (also known as anxious or resistant) attachment style presented as insecure, anxious, and dependent yet, when the caregiver would attempt to soothe or engage them, they would reject them. This dialectical behavior is the hallmark of the ambivalent attachment style. Ainsworth observed that caregivers of babies with ambivalent attachment styles responded with inconsistency and unpredictability to their babies’ needs, resulting in children that were anxious and clingy in new environments and difficult to soothe when stressed.

Main and Solomon (1990) proposed classification criteria for a fourth category known as a disorganized pattern of attachment. The mechanisms underlying a disorganized attachment style generally present in a variety of incongruent ways, including freezing behaviors, dissociation, and unresponsiveness in infants. They noted that with a disorganized attachment style, there is no overarching strategy in response to stressful situations, likely a response to the fright and confusion presented by the incongruity of maltreating caregivers. Baer and Martinez (2006) validated the existence of the disorganized attachment style in a meta-analysis of over 80 studies, also corroborating a prevalence of this attachment style in children with a profound history of abuse and neglect.

Regardless of whether a child’s attachment style is secure, anxious, avoidant, or disorganized, the relational pattern which evolves in infancy as a coping skill to promote safety and survival is rooted in how the child maintains proximity to a caretaker (Bowlby, 1988). When
a child is stressed by challenging situations that outstrip their capacity for coping, the attachment schema will be triggered. Overall, the effectiveness of these early patterns of attachment seem related to global health outcomes, for they serve as an important aspect of the individual’s capacity to receive (and feel confident in relying on) adequate social support in the face of stressful events over the lifespan (Sarason & Sarason, 2001).

Continuous versus categorical attachment styles. Throughout the evolution of attachment style theory, researchers have debated whether adult attachment styles are most accurately described using a continuous or categorical model. Most continuous models view attachment along a two-axis continuum of anxiety and avoidance, while categorical models conceptualize three, four, or even five types of attachment styles (secure, anxious/ambivalent, avoidant, fearful, and disorganized). Early research (prior to the 1990s) on adult attachment assumed that individual differences were largely categorical, with finite definitions of these stylistic types; attachment style assessment at the time, such as Bartholomew and Horowitz’s (1991) Relationship Style Questionnaire (RSQ) were based on four patterns of attachment. Not long after, Collins and Reed (1990; 1996) saw the value in rating attachment style along a dimensional interpretation and developed the Adult Attachment Scale (AAS) and the Revised Adult Attachment Scale (RAAS). With this trend, researchers began to take into consideration latent and more subtle effects of attachment behaviors, suggesting that a dimensional framework was more accurate (Brennan et al., 1998; Fraley & Waller, 1998). Categorical measures continue to be used in quantitative research models and this may be because of the relative simplicity in data analysis of categories versus dimensional data. Fraley, Hudson, Heffernan, and Segal (2015) reviewed the four-category versus the two-dimensional models of attachment style and examined whether variation in global avoidant and anxious attachment was more compatible with a
categorical or dimensional model using taxometric analyses on questions from the Experiences of Close Relationships (ECR) questionnaire. The results suggested that none of the analyses demonstrated support of a categorical model of attachment style, favoring a continuous, dimensional model instead.

**Predicting Attachment Styles in Adulthood**

Following the early attachment theory work first pioneered by Bowlby (1969) and Ainsworth (1971), Bowlby (1979) later posited that relationship styles continued to evolve past childhood across an individual’s lifetime. Subsequent work by Hazan and Shaver (1987) noted that in adult romantic and platonic relationships of significance, adults were likely to behave in predictable ways when seeking comfort. Specifically, Hazan and Shaver noted that these styles of attachment in adults which were marked by anxiety, ambivalence, and/or avoidance had also been observed in children with their primary caregivers. These pair-bond relationship styles in close adult relationships seemed to act as a secure base to mitigate life stressors, in a similar role as a primary caregiver might serve for a child.

Significant relationships in adulthood also seem to have a dimension of mutual satisfaction, a requisite that may first evolve in infancy. Although an infant’s attachment style is born out a need for survival, Bowlby (1969) described the care-seeking process as a reciprocal experience; both care-seeker and care-giver benefit from the mutual and complementary experience. Ideally, in secure relationships, this concept of caregiving includes an attunement and sensitivity to expressed needs by both parties. From a normative, developmental perspective however, this mutual responsiveness may be frustrated by an infant’s normative self-preoccupation (Mahler et al., 1975). Nevertheless, as a child develops and narcissism is replaced
by an increased capacity for empathy, both caregiver and care-seeker may find a more mutually balanced reciprocal support similar to healthy adult close relationships (Fraley & Shaver, 2000).

In addition to the concept of mutual support, some constructs of attachment theory are based on how a person views themself in the context of the other: a concept also known as the *model of self* and *model of other* (Bartholomew & Horowitz, 1991). In this theoretical framework, the dimensional aspects of attachment style (along continuums of anxiety and avoidance) are conceptualized around four possible combinations relating to a dichotomous image of the self and the object of attachment. For example, individuals with preoccupied and secure attachment styles, both high in sociability (and low on avoidance), tend to reach out to people for connection but differ in their need for acceptance by the significant other (as indicated by levels of anxiety), whereas the dismissing and fearful styles are similar in that they are both avoidant of intimacy while different in their need for acceptance by others (Figure 1).
Figure 1. Attachment styles conceptualized through the model of self and model of other as conceptualized by Bartholomew and Horowitz (1991).

A number of theorists have described child attachment theory in the context of adult relationships (Carnelly, Pietromonaco, & Jaffe, 1996; Fraley & Shaver, 2000; Rholes & Simpson, 2004) and although the orientations differ slightly, all models share core concepts: (1) although the individual’s drive for survival is innate, attachment styles are formed through learned experiences (2) differences in attachment styles can contribute in a positive or negative manner to relationship quality and mental health outcomes, (3) relationship behaviors based on expectations of caregiving inform attachment styles, (4) internal models of relationship styles are largely constant but can be modified through life experiences, (5) emotional and behavioral dynamics of infant–caregiver relationships and adult relationships are regulated by the same biological system and therefore, to some degree, are transferable and predictive, and (6) attachment styles are most accurately conceptualized along a continuum, rather than as a categorical type. Regardless of slight differences in concepts and terms, all of these models acknowledge that the key principles in attachment theory are applicable across the lifespan.

Trauma and Attachment

In contrast to normative development, abuse, neglect, and loss appear to have different effects on the development of attachment style (Widom, Czaja, Kazakowski & Chauhan, 2018). Although the etiology of problematic attachment styles may be rooted in childhood, Bowlby (1980) believed that deviations in development and attachment styles can emerge at any stage of development. Specifically, Bowlby believed that traumatic experiences, such as loss of a parent in childhood, can impact normative relational development. Referencing the work of Barry,
Barry, and Lindeman (1965) and later, Birtchnell (1975), who examined female psychiatric patients and the relationship between the loss of a mother in childhood and anxious attachment styles in other adult relationships, Bowlby (1980) suggested that not only psychiatric patients but even normal adults who struggle with bereavement are prone to have attachment styles permeated with high degrees of anxiety and ambivalence. Additionally, some may be prone to compulsive caregiving in an attempt to secure an attachment bond in affectional relationships through dependency and enabling. These anxious/ambivalent style adults often present as clingy and emotionally temperamental, often with a history of anxiety and depression (Ingebretsen & Solem, 1998).

Other research has also supported a relationship between childhood loss and negative attachment styles in adults. Feeney and Noller’s (1990) correlational research examined attachment style as a predictor of adult romantic relationships in 374 participants (the majority between the ages of 17-19 years) using several self-reporting surveys on self-esteem, relationship styles, beliefs about relationships, and attachment style. The researchers found a positive correlation between securely attached individuals and positive perceptions of their early family relationships. Conversely, avoidant style adults, self-described as distrustful of others, were most likely to report childhood separation from their mother. Anxious-ambivalent style adults reported a lack of independence in childhood and a desire for deep commitment in relationships. Similar quantitative research has followed to date (Riggs & Kaminski, 2010; Smith & Ng, 2009); all of which support the assumption that (1) attachment history is predictive of adult attachment styles, and (2) negative early child experiences (such as loss, abuse, neglect, or other trauma) can have a negative effect on adult attachment styles.
In addition to profound loss, other kinds of trauma seem to affect developing attachment styles in children. Widom et al. (2017) studied 650 adults with a documented history of abuse and neglect to determine if abuse or neglect was a predictor of an adult attachment style. The researchers found that those who had experienced childhood neglect were correlated with anxious or avoidant adult attachment styles. Further, they found that anxious attachment style was a significant contributor to depression, anxiety, and low self-esteem in combination with a history of childhood abuse.

Similarly, using Ainsworth’s (1989) attachment theory as a construct, Liotti (2004) suggested that a relationship exists between disorganized styles of attachment and a history of trauma. In a meta review of quantitative research using Hesse’s (1999) Adult Attachment Interview (AAI), he posited that adult survivors tend to respond to trauma with dissociation and this can have a deleterious effect on their relational style. Liotti (2004) also suggested that when adults with disorganized attachment styles become parents, their manner of relating may create challenging relationships with their children. The research is suggestive of a transgenerational conveyance of trauma-induced relational styles with frequented effects on children. Still, Liotti suggested that a history of trauma alone is not indicative of a disrupted attachment style. He believes that some children may resolve the trauma through a cognitive integration process while unresolved trauma, on the other hand, will often present as “…poor reflective capacity [i.e., poor metacognitive monitoring] and incoherence in the narratives” (p.6), indicating the global impact of trauma on multiple spheres of development later suggested by Fonagy (2010) and Teska (2018).

More current research also suggests a link between attachment styles and childhood trauma. Erozkan’s (2016) correlational study, which precedes similar research by Onen et al.
(2017), used the Childhood Trauma Questionnaire- Short Form (CTQ-SF) as a 28-item retrospective, self-reporting screen for childhood abuse and neglect along with the Relationship Scales Questionnaire (RSQ) developed by Griffin and Bartholomew (1994) to identify attachment types. For Erozkan’s (2016) study, data was randomly collected on 911 college students with a demographic of 492 female and 419 male students. Data was analyzed using the Pearson product-moment correlation and structural equation modelling to determine if there was a relationship between subdimensions of childhood trauma and types of attachment. Both studies (Erozkan, 2016; Onen et al., 2017) found a significant negative relationship between childhood trauma and a secure attachment style; alternatively, there was a significant positive relationship between childhood trauma and fearful, preoccupied, and dismissing attachment styles. These results suggest that when childhood trauma is present, an insecure attachment style evolves from the expectation that significant others may not be able to meet the survivor’s emotional needs. Maintaining a poor attachment can be viewed as a means of self-preservation and protection (Tronick & Beeghly, 2011). The authors also suggest that regardless of a biological connection, parental attachment styles are highly influential in the development of child attachment styles. Parents with unhealthy attachment styles are likely to encourage similar styles in their children, perpetuating intergenerational difficulties with bonding, intimacy, and attachment style (Erozkan, 2016; Onen et al., 2017).

Because trauma has been shown to impact multiple domains of development, it is possible that a poorly developed ability for emotional expression may also act as an intermediary influence in the evolution of attachment style. Senkal and Isikli (2015) proposed that by understanding the impact of childhood trauma on emotional development and adult attachment style, practitioners may be better prepared to recommend specific trauma-based treatment
options. With the exception of relational affective management approaches, to date, few trauma treatment models specifically focus on emotional development. Currently, the accepted evidence-based approaches for trauma and post-traumatic stress disorder (PTSD) treatment include various phase-based and immediate trauma-focused approaches such as cognitive-behavioral therapies (e.g., Trauma Focused Cognitive Behavioral Therapy or Prolonged Exposure and Cognitive Processing Therapy), Eye Movement Desensitization and Reprocessing (EMDR), and a range of pharmacotherapies (mostly selective serotonin reuptake inhibitors), all of which demonstrate some impact on decreasing symptoms (Lancaster, Teeters, Gros, & Back, 2016). Research has also shown that nearly one third of patients with PTSD do not benefit from these evidenced-based therapeutic and drug treatments, requiring alternative forms of treatment. Because of the capacity for art to symbolically address trauma narrative and the associated affective states, arts-based therapies may be an effective alternative to treating trauma for those resistant to standard therapies (Schouten, van Hooren, Knipscheer, Kleber & Hutschemaekers, 2018).

Models of Art Therapy and Trauma Treatment

By definition, art therapy is a therapeutic treatment facilitated by a trained art therapist. Art therapy treatment uses the therapeutic relationship to engage clients in the creative process by using a variety of art materials including, but not limited to, pencil, paper, paint, and clay. Artwork made in sessions can be used as a vehicle to increase self-expression and self-esteem along with anxiety reduction (American Art Therapy Association, 2017). Because art-making can bypass verbal language and neurological memory obstructions, the act of creating visual images can be an alternative, non-threatening way to express what is too difficult to convey in words suggesting beneficial applications in the treatment of trauma (Herman, 2015; Lusebrink,
Further, art therapy may be useful in providing a less intrusive access to trauma content by using visual symbols rather than direct verbal content. The externalization of visual content in the artwork may also reduce emotional arousal and avoidance since the actual physical distance from the artwork provides a parallel opportunity for emotional distance, where the client can observe and reflect safely (Collie, Backos, Malchiodi, & Spiegel, 2006). Artwork relating to the trauma can be temporarily put away in a folder or removed from sight and taken out again when a client feels ready to address it, further allowing for a sense of control and agency over the content that may not be possible with verbal recall (Klorer, 2008, 2017; Malchiodi, 1997).

Research in support of art therapy as a treatment for trauma treatment is largely based on anecdotal experience and qualitative research, all of which cite positive effects in a client’s ability to safely recall experiences of the trauma without emotional deregulation along with reduction of symptoms in the areas of avoidance and arousal; very little research on this topic is in the form of quantitative inquiry (Avrahami, 2005; Schouten et. al, 2018). Like other forms of trauma treatment, trauma-based art therapy treatment may be implemented through a variety of theoretical orientations including a cognitive, developmental, or psychoanalytic lens. Art therapy trauma treatment may also be employed as a phase-based or immediate trauma-focused treatment. Each approach has unique attributes and benefits. A brief overview along with epistemology and theoretical framework of each model will be discussed for the purposes of presenting the range of diagnostic and therapeutic applications of art therapy in trauma treatment.

**Cognitive-based trauma treatment.** The bilateral manipulation of art materials in art therapy is believed to simultaneously access various sensory systems that deeply engage both hemispheres of the brain (McNamee, 2006; Talwar, 2007). For example, work with clay,
drawing with the non-dominant hand or combining scribble techniques with a structured verbal interview are all believed to stimulate limbic system activity which, in turn, can enhance emotional expression (Chapman, Morabito, Ladakakos, Schreier & Knudson, 2001). Art therapy, therefore, may offer a unique intervention as part of cognitively-based trauma treatment models. For example, a short-term structured trauma-focused art therapy group might combine psychoeducational opportunities to identify and manage triggers. In combination with discussion, body mapping, a sensorimotor-based, bilateral drawing technique developed by Elbrecht (2013) can be used as a way to deactivate the trigger stimuli and allow for visual identification of the kinesthetic response to triggers in the body. Bilateral clay work can also lend itself to exploration of tactile triggers using rhythmic, movement-focused, bilateral manipulation of the clay as described by Elbrecht (2013). The touch and physical aspects of clay work also allow for deeper exploration of the physical aspects of the trauma, however, because of the regressively stimulating aspects of the material, caution is recommended when using clay with trauma survivors (Elbrecht, 2013; Sholt & Gavron, 2006).

In a pre-experimental, one-group pretest-posttest design study on children with histories of sexual abuse, Pifalo (2007) tested the effectiveness of an eight-week group that combined trauma-focused cognitive behavioral therapy (TF-CBT) with art therapy. Children (N=41) between the ages of eight and 16 years were screened with Briere’s (1995) Trauma Symptom Checklist for Children (TSCC) before and after treatment as a measure of symptom reduction, as this measure has validated subscales of specific symptoms associated with trauma exposure. Following participation in the eight-week group, participants scored lower in nine out of the ten TSCC subscales for anxiety, anger, depression, dissociation, and sexual preoccupation. Pifalo’s
(2007) research suggests this combined model of art therapy and cognitive behavioral therapy reduced trauma symptoms in children who had experienced sexual abuse.

In a similar quantitative pilot study using an experimental design, Lyshak-Stelzer, Singer, St. John, and Chemtob (2007) examined the effect of a 16-week art therapy group on reducing trauma symptoms in adolescents on an inpatient psychiatric unit. The researchers compared two treatment conditions: a one-hour weekly Trauma-Focused Art Therapy (TF-ART) condition and one-hour weekly (treatment-as-usual) control employing an arts and crafts directive. The trauma-focused art therapy group included drawing and collage-based directives and discussions that addressed feelings, symptoms, coping skills, and triggers as they related to the participant’s trauma without directly addressing the trauma narrative itself. The treatment-as-usual group used craft-based diversional activities such as sewing pillows, jewelry-making, and other functional crafts without any structured discussions about trauma.

Lyshak-Stelzer et al. (2007) used a randomized group of 78 teens, ages 13 to 18 years, who were pre-screened for a history of trauma using a self-report and assessed pre and post treatment using the UCLA PTSD Reaction Index, a survey designed to measure PTSD symptoms in children. The scale has been utilized in the assessment of PTSD and traumatic stress in children and adolescents (Rodriguez, Steinberg, Saltzman & Pynoos, 2001) and uses DSM-IV correlated categories of trauma symptoms such as reexperiencing symptoms, avoidance symptoms, and hyperarousal symptoms. Effectiveness of trauma treatment is often measured by a reduction of symptoms (good response is a 66% reduction or more) that have been identified sequelae of PTSD criteria based on DSM categories in the areas of intrusive, avoidance, and arousal symptoms (Brady, Warnock-Parkes, Barker & Ehlers, 2015). For this reason, trauma treatment effectiveness will generally focus on trauma specific symptomatic behaviors as a
measure of change. Further, using symptom reduction as a measure in this study (Lyshak-Stelzer et al. 2007) also supported an effort to execute responsible and ethical research, since the researchers felt that directly addressing the trauma narrative might be detrimental to the fragile conditions of the psychiatrically hospitalized youth. Based on the responses in the post-test measures, participants in the TF-ART groups showed a greater decrease in symptoms than in the arts and crafts group. The authors suggest that treatment combining cognitive behavioral therapy with art therapy as TF-ART may be an effective adjunctive treatment for trauma symptom reduction.

**Developmentally-based trauma treatment and regression.** Because trauma can affect all spheres of development, the artwork and creative process of children who have been abused or neglected often feature regressed elements such as spattering, spilling, and splashing. This type of *chaotic discharge* as described by Kramer (1972) does not lead to the production of a cohesive art product, but rather leads to loss of control. Loss of control and impulsivity are often the hallmarks of aggression (Kramer, 2000; Lorenz, 1966) which can, at times, also be expressed through the regressive manipulation of art materials (Kramer, 1972). Different than playful, kinesthetic exploration often observed in normative art development, this non-productive use of art materials can often be reflective of the trauma-induced regression in development and is widely addressed anecdotally in art therapy literature (Gillespie, 2001; Klorer, 2017; Kramer 1972, 1978; Malchiodi, 2014, Saotome, 2010, Sholt & Gavron, 2006). In a correlational study, Pesso-Aviv, Regev, and Guttman (2014) recorded the responses of 41 children (ages 7-9 years) to a range of art materials (from regressive to controlled) using self-reporting measures for aggression, anxiety, self-perception, and self-control along with a session evaluation questionnaire developed by the researchers, which evaluated the participant’s feelings and
perceptions about the creative process using specific materials. The aim of this research was to determine if materials with more or less regressive features would impact the participants. The results did not show any significant changes in anxiety, self-esteem, or self-control but did show significant differences in aggression levels for the groups using pastel and paint. Because aggression is considered to be regressive behavior, this research may suggest that certain types of art materials may elicit aggressive expression.

Kris (1952) first described the notion of regression in the art process as a highly symbolic, controlled response to unwelcome unconscious material. According to art therapy literature, art material regression can be viewed as a symbolic reference to earlier traumatic experiences of the body or psyche along with feeling a lack of control (Hinz, 2009; Kramer, 1972; Wadeson, 2010). Certain materials, such as clay, that are difficult to control can often easily stand in for parallel traumatic experiences which the victim also felt unable to control (Henley, 2002). Because of the tactile responsiveness and the dimensional aspects of the material, clay as an art material lends itself to symbolic exploration of body image; adding water to the clay to create slippery, warm surfaces only adds to the metaphoric references to sexuality and bodily fluids which can also reference previous sexual traumas (Murphy, 2001). As Saotome (2015) describes, “The making of this very physical mess is sometimes considered as a reflection of violation of the body’s boundaries and as symbolic expression of internal chaos” (p. 183).

While art therapy literature describes this type of regressive behavior with primarily paint and clay (Gillespie, 2001; Sholt & Gavron, 2006), little has been said about the act of regression or the symbolic content of adhesive materials, such as liquid glue or tape. One of the few references is found in Cathy Moon’s (2010) Materials and Media in Art Therapy: Critical
Understandings of Diverse Artistic Vocabularies, pointing to Hagood’s (2000) primary reference of ejaculate-like quality of white liquid glue and her cautions against the potential for overstimulation when using these kinds of adhesive materials with survivors of sexual trauma.

The dearth of literature on the symbolic content of adhesive materials used in art therapy suggests a need for more research in this area, particularly in the context of child development and trauma. Given the important role of art materials as an integral part of the creative process in art therapy, more attention should be given to the potential significance of adhesive materials. Like art materials, the plastic qualities of adhesive materials offer the similar range of rigidity to fluidity, along with a capacity for connecting fragmented images and attaching artwork together in ways that can have powerful symbolic meaning. In the same way that the use of art materials can indicate levels of physical, cognitive, and emotional development, adhesive usage may have similar diagnostic features. Identifying the range of symbolic expression available with these adhesive materials can provide important diagnostic information about a client’s developmental functioning and can give voice to what cannot be put into words.

Psychoanalytically-based trauma treatment. In her work with traumatized, self-harming adolescents, art therapist Jane Saotome (2010) describes her clients as “being speechless” (p. 182), unable to articulate the deep psychic pain that they feel. Instead they symbolically project this pain onto their physical bodies through cutting, bruising, burning, and scalding themselves as a symbolic representation of their internalized pain. Saotome describes how these adolescents use art therapy to help reduce feelings of suicidality and the need for self-harm. Using art materials, these adolescents create images of a cut and bleeding body parts with both paper and clay and, finding some satisfaction and relief, they are then able to talk about how the art process keeps them from actively harming themselves. Saotome believes that the
symbolic displacement of these feelings into the creative art process seems to give these adolescents a voice for their pain.

Grounded in psychoanalytic theory, the notion of projecting or displacing internalized intolerable feelings externally through speech or behavior usually onto to another situation, object, or person is known as a defense mechanism that is employed to protect the individual from further psychic harm (Freud, 1894; 1896; 1933). *Displacement, projection, or projective identification* are primitive defense mechanisms which help the individual diffuse mounting psychic tension. In general, defenses are considered to be a normal part of psychic development and are only seen as maladaptive (as in the case of trauma) when they interfere with the person’s general development (Freud, 1937).

The creative art process can support a healthy use of defensive functioning (Kramer, 1987). In art therapy, intolerable feelings are projected or displaced into (or with) the art materials, a process generally considered to be a healthier alternative to the more maladaptive option of simply acting out impulses in the real world. Ego psychology-oriented art therapist Edith Kramer, who worked with traumatized children in a residential setting, believed that the art process encouraged both primitive and the more evolved defense mechanism of *sublimation* as a means of redirecting otherwise socially inappropriate behaviors. Sublimation, as described by Kramer has become a cornerstone in understanding the theoretical mechanisms of art as therapy. Kramer said:

*Sublimation is no simple mental act; it embraces a multitude of mechanisms.*

These include displacement, symbolization, neutralization of drive energy, identification, and integration. Always there is threefold change: of the object upon which interest
centers, of the desired goal, and of the kind of energy through which the new goal is attained. (p.28)

She goes on to say that artistic sublimation occurs when the art process can adequately substitute for the impulse, with the subsequent art product acting as a visual equivalent for symbolic communication that is understood by others. It is in this blending of investment in the creative process, self-expression through symbolism, and communication that the artwork has therapeutic value in this formed expression (Kramer, 1972).

**The Impact of Art Materials on Trauma Treatment**

Models of treatment provide a framework for therapeutic application, but art therapists have the additional responsibility of considering the impact of art media on the treatment process. Art therapists may opt for directed or free choice in the use of art materials, depending on the needs of the population, treatment goals, physical dexterity, and developmental functioning (Moon, 2010). Additionally, special populations may require limits on materials in order to promote mastery rather than a recapitulation of the primary trauma. For example, liquid glue, runny paint, or slippery clay may trigger negative memories and regression in clients with sexual trauma or eating disorders, as these materials can be reminiscent of bodily fluids (Fleming, 1989; Hagood, 2000; Moon, 2010).

Art therapy trauma treatment models can be enhanced by a deeper understanding of the impact of art (and adhesive) materials. The Expressive Therapies Continuum (ETC) developed by V. B. Lusebrink (Kagin & Lusebrink, 1978; Lusebrink, 1990) is a theoretical construct that categorizes art materials and their properties in the context of client responses to the materials. Hinz (2009) elaborated on this framework for specific applications in art therapy, outlining criteria for evaluating the range of use of materials. For example, art material properties can have
a linear range of characteristics from more controlled (like pencils) to more fluid (like paint and clay). Responsive, fluid materials tend to elicit regression while more linear, dry materials can offer more structure and control (Kagin & Lusebrink, 1978). Art materials can also be described by other features, such as opacity, texture, hardness, etc., and these features can elicit individual differences in responses from the user (Robbins & Sibley, 1976). Further the use of a brush or other tool can inhibit direct contact with the materials (unlike with finger painting, for example) and this distance from the material may elicit more reflective thinking about the art process (Kagin & Lusebrink, 1978).

Concurrently, client responses to these materials can be indicated in three hierarchical levels and a fourth domain which intersects all three levels (Kagin & Lusebrink, 1978). The first level is described as the foundational kinesthetic/sensory stage where interactions with art materials are informed by sensorimotor experiences. The second level is described as the perceptual/affective stage, where the client begins to experience art materials as a means of differentiating figure and ground. Lastly, the third level is described as the cognitive/symbolic level based on symbolization and conceptual thinking. The fourth domain of creativity intersects all three levels and supports the deepest aspects of creative expression in the art experience.

The ETC can be useful in gauging a client’s changing responses to art materials throughout treatment. Though the focus of the ETC’s theoretical framework is on art media, little mention is made of the implications for the use of adhesive materials, though adhesives contain many of the same properties as art materials. Hinz (2009) does, however, mention that sticky substances such as “glue, or other tacky substances can evoke disgust and attention to other negative affective states” (p. 67). These kinds of materials can elicit tactile stimulation that focus attention inward, increasing perceptions and emotional states that can be both positive
and/or negative in nature. Using tape, however, to adhere images can indicate an avoidance of sensory stimulation that might be found with liquid glue (Hinz, 2009). When treating clients with trauma, direct tactile interactions with fluid, sticky materials or adhesives may stimulate a cognitive overload of emotional expression that seeks to be avoided (Hinz, 2009). With these clients, drier adhesives like tape, glue sticks, or even staples may minimize stimulation and promote a positive experience.

Art Therapy, Trauma, and Attachment Style

To date, no research has been published that explores the relationship between adhesives used in the art therapy process and correlated attachment style. However, with that in mind, it should be noted that art materials may sometimes be used as an adhesive, such as when using clay or paint to join together elements in art. Conversely, adhesives are sometimes used as an art medium, such as when painting with glue or making dimensional elements with tape. Because of the interchangeability of art and adhesive materials as well as commonality in component features (water-based adhesives and acrylic paint both contain polymers as a main ingredient), it is possible to imply some level of transferability and look toward art therapy research on art materials and correlated attachment style for some insight into adhesive use, since no specific research on adhesive use, to date, exists.

To this end, Snir, Regev and Shaashua (2017) reported a correlation between anxious/avoidant attachment styles and participant responses to five different art materials; markers, oil pastels, gouache paint, finger paint, and clay. The researchers measured response to the art materials using the Arts-Based Intervention Questionnaire (ABI; Snir & Regev, 2013) and the Experiences in Close Relationships (ECR; Brennen et al., 1998) to identify attachment style. Using a sample of 409 volunteers (243 self-identified women and 163 self-identified men)
ranging in age from 20 to 80 years, the data suggested a negative correlation between avoidant attachment style and response to oil pastels, gouache, and finger paint meaning the higher the attachment avoidance, the more negative the art material experience. Further the researchers found that, in general, these negative correlations were more pronounced in women than men but did not offer any possible rationale for this trend.

However, Snir et al. (2017) did suggest that this response from avoidant attachment participants to these specific materials may occur because these materials might encourage a greater level of emotional engagement for some participants, which would be contraindicated to their avoidant attachment style. For example, fluid materials such as gouache and finger paint tend to encourage regression and the saturated color of paints and oil pastels tend to elicit emotionally based responses (Hinz, 2009). This kind of stimulation from the art materials might be less appealing to those who tend to avoid strong expressions of emotions in relationships. For this reason, those with avoidant attachment may refrain from using these kinds of materials in order to avoid any uncontrolled expression of affect. Given that these same art material properties (fluidity) are also more or less present in adhesives, this may suggest that individuals with avoidant attachment styles may also show a negative correlation to the use of fluid adhesives such as liquid glue.

**Challenges and Gaps in Art Therapy Research**

The field of art therapy research presents design challenges and gaps in research, making it difficult for other clinical professions to embrace it as an effective form of assessment and/or treatment. As a relatively new profession, art therapy lacks evidence-based research for treatment efficacy and lacks consistently strong psychometrics for arts-based measures (Uttley, Scope & Stevenson, 2015). Overall, systematic reviews and meta-analysis concur that the field
has many notable qualitative studies but cites few well-designed quantitative studies (Eaton, Doherty & Widrick, 2007; Kelly et al., 2015; Stuckey & Nobel, 2010). For example, few art therapy studies use a control group because of the ethical challenges of withholding treatment, so it can be difficult to measure art therapy as an agent of change (Eaton et al., 2007; Kelly et al., 2015). Additionally, many of the studies, regardless of the research design, lack information about the art therapy methodology, making reproducibility challenging and generalizability problematic (Eaton, et al., 2007).

In a meta-analysis of general art therapy efficacy studies between 2008 and 2013, Maujean, Pepping, and Kendall (2014) reviewed randomized trial control (RTCs) design studies with adult samples. Seven out of the eight total studies reported beneficial effects from art therapy treatment suggesting that the use of art therapy can be effective with a variety of adult populations (including veteran, geriatric, and prison inmate). Considering the overall large number of published art therapy studies, the exceedingly small number of RTCs is notable, suggesting a need for more methodological rigor in the field. Conversely, although RTC’s have long been considered the gold standard of evidence-based practice in science and medicine, this research methodology may not be the best fit for the social sciences and art therapy. Given the need for large sample sizes to achieve statistical significance, these kinds of studies tend to articulate central tendencies of large groups of similar kinds of people, rather than the unique responses of individuals, which is a valuable construct of qualitative social science research.

The iterative, unconstrained approach to art therapy seems to more naturally lend itself to qualitative, inductive inquiry which may explain the robust research in this area that has contributed to the evolution of the practice. Since the 1960’s phenomenological, heuristic, and narrative research through case study has provided the groundwork for art therapy assessment
and treatment (Kapitan, 2010); this method of inquiry seems most suited to the complex variables at work in the arts-based healing process such as symbolism, creativity, and meaning. However, small sample sizes and narrative descriptions of outcomes in the qualitative research make generalizability, validity, and causality difficult to determine (Kelly et al., 2015; Stuckey & Nobel, 2010). None-the-less, many art therapists would argue that generalizability and quantified outcomes are not of value to the profession. It is this polarity of opinion about the structural design of research that may also contribute to a dearth of well-designed art therapy studies (Kapitan, 2010). Some researchers suggest that a more diverse base of methodologies would produce a more uniquely distinct (and perhaps more accurate) base of evidence (Williams, 2010). Clift (2012), for example, acknowledges the multi-faceted complexity of creative arts therapy and the need for a shift from practice-based to evidence-based research. He proposes a hierarchy of evidence for arts-based research and cites the value of both qualitative case study narrative and quantitative methods. Kelly et al. (2015) also believe that there should be a more equitable balance of qualitative and quantitative research as “the latter gives some measure of the burden on/benefit to society overall while the former provides information for healthcare service” (p.16).

Problems in definition. Another challenge in arts-based research is that different disciplines have varied definitions of what constitutes art therapy (Kelly et al.; 2015 Regev & Cohen-Yatziv, 2018). Non-art therapists engaging in research may claim to use “art therapy” as an agent of change when the condition is actually an art activity. The American Art Therapy Association (2017) defines art therapy in this way, in the context of a therapeutic relationship:

Art Therapy is an integrative mental health and human services profession that enriches the lives of individuals, families, and communities through active art-making, creative
process, applied psychological theory, and human experience within a psychotherapeutic relationship. (para.4)

Art, on its own, will always have some inherent healing quality; this natural effect of art healing on its own, however, does not define the discipline of art therapy. Art therapy practice relies heavily on the triangulated effect of the creative art process, the art product, and the therapist/client relationship whereas an art activity, such as coloring, is considered a diversional activity which is generally performed independently (Malchiodi, 1998; Moon, 2010). This confusion in definition may, in turn, affect the internal validity of art therapy research designs in that the instruments may not be actually measuring the effect of art therapy but rather a diversional, recreational activity. Therefore, results of research on art therapy efficacy may not be accurate when performed under these conditions.

For example, in a recent meta-review of art therapy research that examined the effectiveness of art therapy with adult clients between 2000 and 2017, Regev and Cohen-Yatziv (2018) specifically eliminated research designs that utilized non-therapeutic art-based interventions that were not done in the presence of a certified art therapist. With these parameters, the researchers were unable to collect the required minimum number of studies to have an accurate meta-analysis of the research. However, Regev and Cohen-Yatziv noted that since the Reynolds et al. (2000) meta-analysis the number of RTC studies in the field of art therapy has increased, therefore creating research designs that are more valid and replicable. Most notable, though, was the authors’ discovery of a large number of studies that were implemented by non-art therapists which likely impacted the research outcomes. The authors go on to say that this trend exemplifies the need for art therapy research to “define, clarify and specify what art therapy is and what it is not, and specifically to clarify that this type of therapy
must be composed of ongoing sessions and be conducted by a certified art therapist who meets
the criteria defined for the profession” (p.15).

Even when art therapy is well defined as an agent of change in research, the actual
mechanisms of effect can be difficult to isolate and measure (Kapitan, 2010; Kelly et al., 2015).
The process of sublimation, for example, as an important part of the art process is defined
through the complex intersection of psychology, art aesthetics, art therapy, and anthropological
theory (Kramer, 1987). Concepts defined by multiple theoretical orientations can create
challenges in research design construction. Moreover, art skill level may be conflated with
success outcomes in treatment; artistic novelty may be confused for pathology, especially when
interpreted by non-art therapists, thus confounding rating measures and inter-rater reliability.

Rationale for Mixed Methods Arts-Based Research

Mixed methods arts-based research is a relatively new methodological approach rooted in
the paradigms of post-positivism and interpretivism, as is most research that uses art informed
inquiry (Kapitan, 2010; Marshall & Rossman, 2016). Arts-based research holds the paradigms of
creativity and scientific inquiry simultaneously, as each can inform each other (Sullivan, 2010).
Arts-based research is not easily oriented within paradigms but lives, rather, in a place between
two divergent models or, as Patton (2015) describes, a pluralistic model of science and research
in that post-positivist paradigms embrace both quantitative and qualitative inquiry. Similarly,
Haverkamp and Young (2007) describe the emergence of post-positivism that embraces both
objectivity as the root of unbiased interpretation of data, while at the same time accepting that
reality can only be accurately interpreted through a triangulated intersection of multiple methods.

The field of art therapy can benefit greatly from mixed methods research designs (MMR),
creating unique and innovative methodologies that can capture the nuances and complexities of
arts-based research while still employing systematic empirical investigation (Gerber, 2016). In recent years, MMR is gaining credibility and acknowledgment from the dominant quantitative research culture. Specifically, art therapy stands to effect more public policy change through MMR without compromising the essential values of the discipline while still providing robust and evidence-based research (Clift, 2012; Gerber, 2016). Archibald and Gerber (2018) believe that art therapy and MMR are well suited for integration because of the range of ground-breaking possibilities in methodology, data collection, and analysis, especially when examining issues within the social sciences. Cassidy, Jones, and Shaver (2103) believe that evidence-based attachment research, in the context of a preventative model, could influence public policy and treatment guidelines that ultimately may help reduce the occurrence of insecure attachment in the early stages of development. Early identification of maladaptive relational styles may decrease trends towards the development of chronic, long-term psychiatric illness, allowing for a better quality of life. To this end, arts-based MMR attachment research can provide opportunities for innovative capture of the nuances of a complex set of conditions.

**Conclusions and Aim of Research**

The ability to predict attachment style can be an effective tool in forming therapeutic treatment goals and redirecting the development of unhealthy relationships. An attachment-based assessment tool that supports development of the therapeutic relationship can enhance the working alliance in treatment and provide a model for other healthy relationships for the client. Specifically, the use of an arts-based assessment for attachment style can provide a non-threatening vehicle for diagnostic and therapeutic intervention, especially for clients with a history of trauma. Because abuse and neglect have an impact on attachment style and can affect broad areas of functioning, an effective art-based attachment style assessment tool can also be
integrated into trauma treatment models. Finally, mixed method, arts-based research can provide opportunities for a multifaceted description of the complex attachment dynamics of trauma survivors.
Chapter Three

Pilot Study

In April 2019, a pilot test of a purposive sample of young adults ($N=27$) in an undergraduate college setting was performed to examine the feasibility of a larger scale study with the same design, given the complexity of the arts-based assessment procedure. As described by Leon, Davis, and Kraemer (2011), the purpose of this pilot study was less about hypothesis testing and more about scrutinizing design and procedure as “requisite initial step in exploring a novel intervention or an innovative application of an intervention” (p.1). In this pilot study, the sequence and phrasing of art-making instructions was considered in order to reduce bias in results. Additionally, the feasibility of task completion in the time provided as well as participant fatigue was considered, given the number of questionnaires, forms, and art-making that was required.

The design, methods, procedure, and results of this pilot study are described in this chapter. Based on the outcome of this pilot study, some modifications to the procedure and data analytics plan were made to the larger scale study; these modifications are discussed in detail later in this chapter.

Hypotheses

1. In young adults, differences exist between the attachment style and their adhesive choice.

2. A relationship exists between trauma history, attachment style, and adhesive choice in young adults.

3. An interaction occurs between adhesive choice and facing that is related to attachment style in young adults.
4. There is a relationship between art/written content, attachment style, and adhesive choice in young adults.

**Design and Method**

The design of this mixed methods pilot study was aimed at examining whether there is a relationship between attachment style and adhesive choice in the art-making process of young adults. Additionally, because of the well-researched association between attachment style and trauma history, this research design sought to examine whether there is a relationship between trauma history and adhesive choice when making art relevant to attachment style and bonding. Finally, the examination of written responses and art content was designed to more deeply understand the meaning of quantitative outcomes regarding the relationships between attachment, trauma, and adhesive choice.

This sequential mixed methods model, as described by Tashakkori and Teddlie (2003), first used quantitative analysis followed by content analysis of qualitative data. The quantitative component of the research method used statistical analysis to compare data collected from three established self-reporting questionnaires (two interval scale attachment style measures and one dichotomous response trauma measure) to outcomes on the newly devised Arts-Based Attachment Style Assessment (ABASA) developed by this writer that measures adhesive choice and the manner of attaching figures (facing) in the art-making process. The goal in comparing data from the ABASA to valid and reliable attachment questionnaires is to begin the process of identifying variables of interest and outcomes that are common between the measures, serving as the first step in developing and determining the efficacy of this newly created measure.

The qualitative component of the research method used the participant’s written responses to their adhesive choice and art process to capture a rich, narrative data set that
complements a statistical analyses. Participant written responses to their artwork were thematically analyzed using a descriptive/inductive method with manual open, axial, and selective hand coding in order to identify common themes that relate to attachment style. The goal of using qualitative analysis for written content is to identify themes that are common in other attachment measures as evidence of construct validity of the ABASA.

Based largely on clinical experience and theory regarding the arousing properties of fluid (hard to control) and dry (easy to control) art mediums, it was predicted that adults with a secure attachment style (low on both the anxious and avoidant continuums) would choose tape as this material requires some direct tactile interaction with the adhesive while it is still easily controlled. It was predicted that adults with an avoidant/dismissive attachment style (low on anxious and high on avoidant continuums) would prefer the use of a glue stick since this material requires no direct tactile interaction with the adhesive. It was also predicted that those with anxious/preoccupied attachment styles (low on avoidant and high on the anxious continuums) would prefer staples, as the kinesthetic/motor interaction with the stapler provides some relief from anxiety while the puncturing aspects of the stapler metaphorically express the anger paradox that is often present in this attachment style. Finally, it was also predicted that those individuals with fearful/avoidant attachment styles (high on both the anxious and avoidant continuums) would prefer the use of liquid glue, as the less easily controlled aspects of the fluid material tends to elicit regression. Finally, given that there is a well-documented relationship between trauma and attachment, it was predicted that there would be a relationship between history of trauma and adhesive choice.
Participants and Setting

A purposive sample of participants (N=27) between the ages of 18 and 26 years (M=20.8 years) was recruited through referrals from an institution of higher education known to this researcher: a small, private college located in a mid-sized city in southern Connecticut with a relatively culturally diverse population with the majority (53%) of the students identified as persons of color and a binary gender (male to female) ratio of 3:7. The was comprised of 13 female identified and 14 male identified undergraduate students with the following self-reported racial identifiers: White, 59.3%; Black or African American, 16.5%; LatinX, 16.5%, Two or more races, 3.3%; Asian, 1.1%; American Indian or Alaskan Native, 0%; and Unknown or Not Listed 3.3%.

The age range of 18 to 25 years was chosen for this research based on the criteria described by Arnett (2000) who identified this developmental stage of emerging adulthood as one that encompasses late adolescence and early adulthood. These individuals generally do not have children nor are they completely financially independent yet have likely experienced significant relationships (romantic and platonic) outside of the primary family. Regarding screening for attachment styles, this age group would likely be old enough to have a well-developed attachment style while still being close enough to childhood and any trauma-based experiences that might have directly influenced attachment style. Given that the mean age was 19.8 years, this participant group was closer to the developmental stage of late adolescence than early adulthood.

The students were selected from economics and business administration classes and were offered extra credit for their participation. Although the questionnaires and arts-based assessment was administered in a group, participants worked independently with minimal interaction with
others. Several students asked to be informed of the research outcomes and others stayed afterwards to ask more about the research process. No student appeared upset or triggered by the trauma survey.

**Instruments**

**Dimensional attachment style measure.** In order to assess attachment style, participants were asked to complete the Revised Adult Attachment Scale (RAAS; Collins, 1996). The RAAS is an 18-item self-reporting survey that asks participants to use a 5-point Likert-type scale from 1 (not at all characteristic of me) to 5 (very characteristic of me) to best describe their feelings and behaviors in the context of romantic relationships. The RAAS (Collins, 1996) is a marginally modified version of the Adult Attachment Scale (AAS) originally developed by Collins and Read (1990). Based on Hazan and Shaver’s (1987) adult attachment descriptors, the original sample for the AAS was comprised entirely of American undergraduate students, which is similar to the sampling in this current study. Subsequent research has shown that AAS to be valid and scores correlate with other measures of attachment (Sperling, Foelsch, & Grace, 1996). Additionally, the AAS and the RAAS have been shown to be highly correlated with \( r = .98 \) (Graham & Unterschute, 2014).

Responses to the RAAS yields three different dimensions (close, depend, anxiety) that describe levels of comfort with closeness, the capacity to depend on others, and fear of abandonment, respectively, along each continuum. For example, a high score on the close continuum suggests that a person is comfortable in close/intimate relationships. A person scoring high on the depend scale will feel comfortable asking for help and relying on others for support. Finally, a person that scores high on the anxiety scale indicates a preoccupation with concerns about being rejected or unloved.
Adamcyzk and Bookwal (2013) using a sample of 298 college students determined that the internal consistency for the RAAS subscales (close, α=.72; depend, α=.76; anxiety α=.87) were acceptable. Collins (1996) provides a scoring protocol which allows for a conversion of the three dimensions to four categories (secure, anxious/preoccupied, avoidant/dismissing, and fearful/avoidant) based on the four adult attachment styles identified by Bartholomew and Horowitz’s (1991), also along the anxiety and avoidant continuums. Though better studied, scoring for the Experiences in Close Relationships (ECR) attachment measure does not yield four categories. Two other measures, the Relationship Questionnaire (RQ) and Relationship Styles Questionnaire (RSQ), do score for four categories but each have been shown to be less reliable and valid than the RAAS.

For the four-dimensional scoring protocol, Collins (1996) uses a theoretical mean cutoff of 3 for the individual participant subscale scores. The close and depend dimensions (which corresponds to the avoidant continuum) are combined to create a distinct value. Using this scoring criteria, (1) scores below the cut-off for anxiety and higher than the cut-off for close/depend are categorized as secure and conversely, (2) scores above the cut-off for anxiety and below the cut-off for close/depend are categorized as fearful/avoidant. Anxious/preoccupied styles are identified when scores are higher than the cut-off on both anxiety and depend subscales and avoidant/dismissive styles are identified when scores are below the cut-off in both subscales. Scores falling outside of the cut-off are excluded from the sample.

The theoretical construct for this adult measure is based on Ainsworth’s (1978; 1989) infant attachment styles (secure, anxious, avoidant) and rests on the premise that these individual’s attachment patterns in childhood will be reflected in close relationships in adulthood. In a meta-analysis of attachment styles in adults Fraley (2002) reported that
attachment security is largely influenced by primary relationship attachment styles in infancy and remain stable across the first 19 years of life therefore, in general, adult attachment measures appear to be a good indicator of primary relational dynamics in childhood.

**Trauma history screening measure.** Participants were asked to complete the Trauma Assessment for Adults (TAA) created by Resnick, Falsetti, Kilpatrick, and Freedy (1996). The TAA is a 12-item self-reporting survey that measures different types of stressful life events. Using yes/no responses, the TAA queries life events including physical and sexual assault, natural disasters, automobile accidents, and other stressful events in the context of perceived danger and resulting injury across the developmental span, with some questions specific to childhood and others to adulthood. Gray, Elhai, Owen, and Monroe (2009) assessed the performance of the TAA in two distinct samples: college students and adults receiving mental health services. With the college sample, test-retest reliability for the TAA showed a correlation of $r = .80$ and $p < .01$ over a seven-day period. On individual items, the TAA showed a mean $k$ coefficient of .60, comparing favorably with other trauma measures. Results with the clinical population were similar.

Overall, the TAA has sound psychometrics but does not appear to demonstrate any superior psychometrics over other similar existing measures. However, the TAA is different from other trauma measures in the flexibility of scoring options and question language; for these reasons, the TAA was chosen for the current study. For example, the TAA can be scored in several ways with dichotomous (yes/no) responses that can be used as either a continuous variable (number of yes responses) or categorical variable using groupings of various trauma types. These scoring options can be useful when examining trauma data in the context of type and frequency of trauma, since both factors can influence emergent attachment styles (Erozkan,
2016; Onen et al., 2017). Additionally, this measure also offers sensitivity to language in the questions regarding sexual and physical trauma. Compared to other trauma measures, the wording seemed less intrusive and, therefore, less likely to cause a trigger response in participants.

**Adult Disorganized Attachment Scale (ADA).** The Adult Disorganized Attachment Scale (ADA) is a 9-item Likert-type measure of disorganized attachment created by Paetzold, Rholes, and Kohn (2015). Design of this measure was based on a detailed review of the existing literature on disorganized attachment. Each of the 9 items thought to be characteristics of disorganized attachment (fear, confusion in relationships, and mistrust of others) are rated on a 7-point scale, from 1 (strongly disagree) to 7 (strongly agree), with higher scores indicating higher levels of disorganization. Sample items include “I find romantic partners to be rather scary” and “It is normal to have traumatic experiences with the people you feel close to.” As this is a relatively new scale, reliability statistics are not available, however, a factor analysis of the established Experiences in Close Relationships (ECR) and the ADA using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .96, and Bartlett’s test of sphericity was significant, $x^2=16,133.01$, $p < .001$.

**Attachment style projective drawing assessment.** The Arts-Based Attachment Style Assessment (ABASA) is a projective drawing measure that has been developed by this researcher, therefore its psychometric properties have yet to be determined. The current research is the first step in determining the validity of this tool. The purpose of this measure is to serve as a diagnostic tool that can indicate attachment style through the use of an art-based prompt that stimulates implicit and explicit content about attachment style and bonding strategies. The assessment involves examination of the manner in which images representing the parent and
child are drawn, cut out, and attached back together in the context of a selected adhesive. The protocol is described in detail in the procedure section.

**Procedure**

Data was collected in small groups of eight to 10 students in a classroom setting. Participants completed two copies of a consent form to participate and an art image release form which allowed for their artwork to be photographed. They were instructed to keep one copy of each form. The other set of copies was collected by the research facilitator, coded, and stored separately from data in order to maintain confidentiality. Each participant received a 9 in. x 12 in. (22.7 cm x 30.5 cm) clasp closure envelope with a numerical identifier written on the front. Participants completed a confidential demographics form and placed it in the envelope. Participants then completed the trauma screening (TAA) and the attachment style assessment (RAAS) to determine (1) if they experienced trauma across the developmental span and, (2) attachment style. Finally, they completed the disorganized attachment style assessment (ADA). They placed all three confidential questionnaires in their envelope.

Participants were then asked to complete the ABASA. One sheet of 8.5 in. x 11 in. (21.6 cm x 27.9 cm) Staples ™ brand 110 lb. white cardstock and a No. 2 pencil were distributed. Participants were instructed to: “Draw an image of a parent. Draw the full figure, not just the head. Draw only the parent; do not add any background or other images or people. Try not to make a stick figure. Artistic skill is not important; just do the best that you can.” Once completed, a second sheet of cardstock was passed out and participants were instructed to “Draw an image of a child. Draw the full figure, not just the head. Draw only the child; do not add any background or other images or people. Try not to make a stick figure. Artistic skill is not important; just do the best that you can.” After completing the second image, a pair of scissors
was passed out and participants were asked to “cut out each image.” After each image was cut out, the scissors were collected and participants were handed a 11.5 in. x 10.0 in. (29.2 cm x 25.4 cm) Ziploc™ bag containing four adhesives: Staples™ brand tape, Elmer’s™ All Purpose Glue Stick, Bostitch™ Desktop Stapler loaded with standard staples, and Elmer’s Multi-Purpose Glue. Participants were asked to select only one adhesive (tape, glue stick, staples, or liquid glue) to connect their two images together. Finally, participants received a 4 in. x 6 in. (10.2 cm x 15.2 cm) unlined index card and were asked to: write down their adhesive choice and anything they wanted to say about their artwork.

Following the data collection process, participants were debriefed about the nature of the research. They were provided with the contact information of this writer if they wanted to know the general results of the study when completed. Participants were also given a list of reference books on art therapy and attachment theory, as well as resources for counseling and additional time to debrief with this writer, a licensed professional counselor and registered art therapist with over 30 years of clinical experience. These resources were offered in the event that any aspect of the process stimulated emotional upset in participants.

Data Analysis Plan

Quantitative data analytic plan. To determine the main effect of each independent variable on the dependent variables as well as the interactions among the independent variables, the data would be statistically analyzed using a Multivariate Analysis of Variance (MANOVA). The MANOVA examines the level of avoidant and anxiety scores as the continuous dependent variables by adhesive use (tape, glue stick, staples, and liquid glue). If the MANOVA was significant, then follow-up analyses would be done using two-way Analysis of Variance (ANOVA) tests, one for each attachment continuum. If significant, follow up analyses with HSD
Tukey multiple comparisons would be performed. Additionally, a nonparametric Pearson’s chi square would be used to determine the relationship between trauma experience (yes/no) and adhesive choice (4 levels).

**Qualitative data analytic plan.** Following the quantitative data analysis, the visual imagery and written descriptions of the artwork was to be documented and analyzed using open, axial, and selective hand coding. An approximate initial list of thematic categories informed by the results of the quantitative analysis would be generated prior to coding, similar to the method described by Miles and Huberman (1994). The identified trends and themes would be used to then elaborate on and inform the quantitative findings, as well as guide additional quantitative analyses.

**Ethical Issues**

Because this research addresses topics of trauma, ethical conduct is of great importance in order to safeguard potentially vulnerable trauma populations. Hutchfield and Coren (2011) suggest that researchers should be particularly mindful of privacy concerns, intrusiveness, and informed consent when using participants with a possible history of trauma. Overall, the literature trends towards a reduced impact of the effects of trauma-focused research on adults compared to child participants. For example, although Brown et al. (2014) found an increase in stress for adult participants with active PTSD when participating in trauma focused studies, there was still an overall favorable risk–benefit ratio for conducting research with this adult population. Nielsen, Hansen, Elklit, and Bramsen (2016) also reported low risk with adult sexual assault victims.

Additionally, since language and reference in trauma screening measures often use direct language (for example, “Did an adult or person at least 5 years older than you ever try to or
actually have oral, anal, or vaginal sex with you?"") it is possible that the content of the measures will be triggering for children, so researchers may be reluctant to use them on child populations. For these reason, this study used young adults (ages 18-25 years) as they are likely developmentally more distant from the onset of the primary childhood trauma, better able to cognitively process the events, and therefore less susceptible to distress. Additionally, most young adults have already experienced some intimate relationships that would be reflective of a formed attachment style. A question about whether participants have engaged in an adult romantic relationship is included on the demographic form.

The use of art materials in research demands specific ethical considerations. First, consent forms should include disclosures about possible reactions to materials. Though ethical practice dictates only the use of Approved Product (AP) certified non-toxic materials, some individuals may have allergic responses to adhesives. Specific to art therapy research, assessment, and treatment of trauma populations, certain art materials may cause overstimulation and hyper-arousal. Watery, fluid materials like red paint or wet clay may stimulate memories of body fluids or aspects of sexual or violent trauma. Because pencils and other dry materials (markers) tend to contain less art material-based stimulation, this study only utilized pencil and paper, minimizing color and material fluidity as a possible stimulant.

**Results of the Pilot Study**

A MANOVA was used to examine the differences on the two dimensions of attachment style (anxious [DV1] and avoidant [DV2] continuaums) by adhesive choice (tape, n=10; glue stick, n=9; staple, n=7; liquid glue, n=1). There was not a statistically significant effect, $F(6, 44)=0.95$, $p=.470$, with small effect size ($partial \eta^2 = .115$) and low power (.334). For this test, quantitative results show attachment style is not significantly related to adhesive choice. This
lack of significance was likely due to the small sample size impacting power and representativeness of the population, i.e., only one participant chose liquid glue as an adhesive. A Pearson's chi-square test was performed to examine the relationship between the experience of trauma and adhesive choice. The relation between the variables and is statistically insignificant, $X^2 (3, N = 27) = 2.29$, $p = 0.41$.

While statistical analysis did not yield significant results, observations of the art content suggest some interesting trends in figure details, amount of adhesive used, amount of overlap of connected figures, relationships between adhesive choice and facing (how the figures are connected), as well as deviations from the directive. For example, for facing, all 10 participants who selected tape as an adhesive chose to attach their images side to side; however, those that chose glue stick or staples tended to have a more varied manner of attaching images together, choosing side to side, back to back, and front to back with a more even distribution. Some participants drew whole families even though the directive clearly stated that they should only draw one parent and one child. Some figures barely overlapped in their connection (1/4 inch or less) while other figures overlapped to the extent that one of the figures was covered up.

Additionally, trends in the thematic content of the art and written responses were observed. Most notable, those that used staples, presented contradictions in their artmaking and verbal responses. For example, one participant wrote, “Put the child on the parent’s back because the parent should care for the child” while stapling the parent figure though the eye. Similarly, another participant wrote, “The father is holding his daughter’s hand because he loves her” and stapled both figure’s hands together with an excessive number of staples. These participant responses seem to example the ambivalence and aggression sometimes observed in individuals with anxious/ambivalent attachment style as described by Kidd and Sheffield (2005).
and Rosso and Airaldi (2016). Surprisingly, both participants scored low on anxiety and avoidance (secure attachment) on the attachment questionnaire, which may reflect what Brenner and DeLamater (2016) describe as a measurement bias due to social desirability often found in self-reporting surveys. This accounts for frequently found low correspondence between objective quantitative self-report measures and projective performance based measures (McClelland, Koestner & Weinberger, 1989). The researchers posit that overreporting of normative behavior is related to the directness of a measurement, meaning that when participants felt they knew what the researchers were measuring, bias was higher. On the other hand, when presented with less knowledge of what was being researched, overreporting decreased. In the case of this pilot study, it is possible that the explicit questions of the attachment surveys prompted overreporting of normative behavior while the implicit, less direct art-making elicited more accuracy in terms of ambivalence about parent/child attachment. For example, one participant wrote, “I'm not sure how the drawing correlates with the survey” suggesting acute awareness of the self-reporting measure and uncertainty about the implicit nature of the art directive. The tendency for projective art techniques to elicit authentic internal constructs, thoughts, and beliefs has been widely reported in the literature (Handler & Thomas, 2014).

Other qualitative data form this pilot study was notable. For example, approximately one third of the participants referenced their own parent in their artwork along with themselves or a sibling as a child with statements such as, “For the parent I drew my dad and for the kid I drew my little sister because I think of her as younger and more childlike” and “I drew a parent as a mother holding her son’s hand representing my own mother and myself as a child.” The significant number of familial references suggests that the art directive is revealing personal participant constructs about attachment, specifically about emotional and behavioral dynamics of
infant–caregiver relational styles. Additionally, some child images looked less like children and more like teens or young adults suggesting internal beliefs that infant/caregiver attachment styles are likely transferable and predictive of adult attachment style as described in the literature (Carnelly, et al., 1996; Fraley & Shaver, 2000; Rholes & Simpson, 2004).

Another written response to the artwork also suggested predictive adult attachment styles in the context of race and social inequity; the participant wrote, “I feel like Black fathers aren’t welcome as much in the community but from this individual looking to be a father, I’d like to say thank you.” This participant response also suggests that when examining constructs about parenting, researchers must consider parent-child bonds subject to myriad institutional and societal biases that can frustrate parents from providing quality care for their children. Coles (2010) describes the imbedded institutional racism that can inhibit Black fathers from accessing parenting support, reinforcing negative stereotypes about their tendency to abandon their children. Coles believes that in the “scurry to reprimand and find blame, conscience black fathers have been erased, treated as nonexistent or as if their existence might endanger the monolithic picture of the irresponsible black father” (p.3). A quick search of the literature reveals a dearth of research examining the impact of race and ethnicity as a factor in attachment style differences, much less the added variable of societal racial bias. The opened ended structure of the art task, however, provided an opportunity for the participant to express explicit racial constructs that influenced this individual’s attachment style. Though out of the scope of this current study, future research on transgenerational effects of racial bias on parent/child bonding and adult attachment style must include consideration of structural and institutional racism.

In summary, the pilot study was intended to provide an opportunity to examine the feasibility of a larger-scale study with the same design and clarify the procedure for the arts-
based assessment, including but not limited to the order of the survey distribution, the order and specifics of the verbal instructions for the arts-based assessment, and a suitable data analytic plan. As a result of the pilot, the following design components were modified for the full study:

1. The Adult Disorganized Attachment (ADA) questionnaire was removed for several reasons. First, the ADA is focused on identifying more clinically acute presentations and associated with other negative behaviors such as delinquency and aggression (Obsuth et al., 2014). Additionally, the creators of the measure concluded that disorganized attachment is a different construct from attachment anxiety and avoidance (Paetzold, Rholes & Khone, 2015), therefore, data from this measure would not fit well conceptually into the data analytic plan for this current research.

2. Some verbal directions in the arts-based assessment were clarified based on participant confusion about the procedure.

3. Despite only being instructed to use one adhesive, some participants used more than one and had to be eliminated from the pilot study. It was more difficult to monitor for this when data was collected in groups. Therefore, adhesives would be packaged, distributed, and monitored more closely during the data collection phase.

4. Based on the responses in the trauma survey, the pilot study sample presented as relatively normative in their lack of self-reported trauma. This may be due to the sample or a social desirability bias. It was determined that in order to more accurately examine the relationship between trauma and attachment style, a less normative population should be sampled. For the full study, a more varied young adult population will be used.
Chapter 4

Exploratory Study #1: Development of the Arts-Based

Attachment Style Assessment

Design and Data Analytic Plan

Design. This mixed methods sequential, exploratory research study aimed to examine whether there is a relationship between attachment style and adhesive choice in the art-making process of young adults. Additionally, because of the well-researched association between attachment style and trauma history, this study examined whether there is a relationship between trauma history and adhesive choice when making art relevant to attachment style and bonding. Finally, written responses and art content were examined in order to more deeply understand the meaning of quantitative outcomes regarding the relationships between attachment, trauma, and adhesive choice.

The data analytic model (as described by Tashakkori & Teddlie, 2003) first used quantitative analysis followed by content analysis of qualitative data. The quantitative component of the research method used statistical analysis to compare data collected from two established self-reporting questionnaires (one interval scale attachment style measure, the Revised Adult Attachment Scale [RAAS] and one dichotomous response trauma measure, the Trauma Assessment for Adults [TAA] previously described in Chapter 3) to outcomes on the newly devised Arts-Based Attachment Style Assessment (ABASA) developed by this writer intended to measure attachment style as expressed through adhesive choice and the manner of attaching figures in the art-making process.² The goal in comparing data from the ABASA to a

² Based on results from the pilot study, the Adult Disorganized Attachment (ADA) metric was removed.
valid and reliable attachment questionnaire is to begin the process of identifying variables of interest and outcomes that are common between the measures, serving as the first step in developing and determining the efficacy of this newly created art-based measure.

The qualitative component of the research method used the participant’s written responses to their adhesive choice and art process as rich, narrative data that may complement the statistical analysis. Participant written responses to their artwork were thematically analyzed using a descriptive/inductive method with manual open, axial, and selective hand coding in order to identify common themes that relate to attachment style. The goal of using qualitative analysis for written content is to identify themes that are common in other attachment measures as a means to determine construct validity of the ABASA.

Based largely on clinical experience and theory regarding the arousing properties of fluid (hard to control) and dry (easy to control) art mediums, it was predicted that adults with a secure attachment style (low on both the anxious and avoidant continua) would choose tape as this material requires some direct tactile interaction with the adhesive while it is still easily controlled. It was predicted that adults with an avoidant/dismissive attachment style (low on anxious and high on avoidant continuum) would prefer the use of a glue stick since this material requires no direct tactile interaction with the adhesive. It was also predicted that those with anxious/preoccupied attachment styles (low on avoidant and high on the anxious continua) would prefer staples, as the kinesthetic/motor interaction with the stapler provides some relief from anxiety while the puncturing aspects of the stapler metaphorically express the anger paradox that is often present in this attachment style. Further, it was also predicted that those individuals with fearful/avoidant attachment styles (high on both the anxious and avoidant continua) would prefer the use of liquid glue, as the less easily controlled aspects of the fluid
material tend to elicit regression. Given that there is a well-documented relationship between trauma and attachment, it was further predicted that there would be a relationship between history of trauma versus no trauma and adhesive choice.

**Data analytics plan rationale.** This research aims to be a first step in establishing the validity of an arts-based diagnostic tool that would indicate attachment style through adhesive choice. This approach to data analysis is exploratory and serves as a model for future mixed methods research approaches to validate art-based assessments.

Open-mindedness in exploratory inquiry can be a valuable tool in research. Rubin (2017) believes that because exploratory research differs conceptually from confirmatory analysis, probability values and confidence intervals have less meaning in the overarching focus of the work. Different than confirmatory analysis, exploratory research often involves multiple testing of the hypothesis, thereby increasing the possibility of Type I errors, especially within a family of tests. Usually, the alpha rate is adjusted to accommodate for this error, but in exploratory work, the exact number of tests may not be known ahead of time, making it impossible to statistically correct for this error. For example, emergent data in the early stages of research may inform a different and more appropriate statistical approach, especially when there are gaps in the field (Matsunaga, 2007) as in the case with this current study. One solution may be to employ a *sensitivity analysis* (Steegen, Tuerlinckx, Gelman, & Vanpaemel, 2014; Thabane et al., 2013, as cited in Rubin, 2017), whereby researchers transparently report the results of variations in multiple analyses “reporting the results of variations in the analyses…(e.g., with and without outliers, with and without covariates, with and without transformations) in order to demonstrate that the key pattern of significant and nonsignificant results remains stable” (p.8);
Rubin argues that an alpha adjustment in this type of exploratory research using sensitivity analysis is not necessary.

In an attempt to increase understanding of the relationships between variables, this first study includes calculating the power required to test the multiple hypotheses. Based on the results, however, data analysis of the variables may continue disregarding the need for any further adjusted alpha levels in the spirit of exploratory research as described by Rubin (2017) and Matsunaga (2007), with full transparency of all performed tests that support patterns of potential significance. This approach is intended to strengthen the data analytics model for future replication and deepen an understanding of the complex relationship between the variables of attachment, trauma, and adhesives.

**History of the data analytics plan.** Based on an a priori power analysis, the original plan for this research was to obtain a sample of between 180-256 participants to provide enough statistical power and correction of the FWER to support a MANOVA and 4 follow up ANOVA analyses of adhesive use by facing (4 x 4) for two related dependent variables anxious attachment and avoidant attachment (a combination of the close and depend subscales). All sample size calculations were determined using GPower (Faul et al., 2013).

Considering both the conservative Bonferroni approach and more modern alternatives outlined by Chen, Feng and Ti (2017) and Perneger (1998) to correct for multiple analyses, alpha levels of between .008 and .03 were considered in sample size calculations that controlled for the FWER. The sample size calculations were based on medium effect sizes ranging from .25 to .3 and alphas of .008 to .03 for the ANOVAs and some follow up Tukey tests. Based on the results of the pilot, an additional independent variable of facing had been added along with adhesive choice which greatly increased the need to conduct multiple tests and thus raise the need to
correct more for the increase in the FWER. However, after the data collection phase, the second independent variable (facing) was dropped from the planned analysis to salvage adequate power and reduce alpha inflation rates due to a smaller than anticipated sample size. This revised a priori design consisted of one MANOVA with 1 IV (4 levels) and 2 DVs, requiring only 2 follow up ANOVAs. Revisiting the strictest a priori system would have determined a sample size need of 92 when increasing the expected effect size to .4 for the 2 ANOVAs. When factoring in the less conservative alternatives to the Bonferroni method (Chen, Feng and Ti, 2017; Perneger, 1998), the current study’s sample size of 91 seemed appropriate to the modified plan. Based on these adjustments to the analytic plan, a MANOVA examining the two attachment dimensions by adhesive use (4 levels) was conducted.

**Hypotheses.**

1. In young adults, differences exist between the attachment style and their adhesive choice.
2. A relationship exists between trauma history, attachment style, and adhesive choice in young adults.
3. An interaction occurs between adhesive choice and facing that is related to attachment style in young adults.
4. There is a relationship between art/written content, attachment style, and adhesive choice in young adults.
Methodology

Participants and setting. A purposive sample of participants ($N=91$) between the ages of 18 and 25 years ($M=19.8$ years) was recruited through referrals from an institution of higher education known to this researcher: a small, private college located in a mid-sized city in southern Connecticut with a relatively culturally diverse population with the majority (53%) of the students identified as persons of color and a binary gender (male to female) ratio of 3:7. The undergraduate sample for this study showed different demographic trends, as it was comprised of 51 female identified and 40 male identified undergraduate students with the following self-reported racial identifiers: White, 59.3%; Black or African American, 16.5%; LatinX, 16.5%; Two or more races, 3.3%; Asian, 1.1%; American Indian or Alaskan Native, 0%; and Unknown or Not Listed 3.3%. Different than the pilot study which only drew on students in economic and business classes, students for this study were selected from a greater range of undergraduate liberal arts classes (economics, psychology, fine art, statistics, and education) in order to provide a robust sample of various personality types on the chance that one type might lean towards any one particular major or class content interest. Extra credit notwithstanding, students seemed generally interested in participating, compliant, and inquisitive about the process. They worked independently with minimal interaction with others. Several students asked to be informed of the research outcomes and others stayed afterwards to ask more about the research process. No student appeared upset or triggered by the trauma survey. One student asked to step out of the

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3 The age range of 18 to 25 years was chosen for this research based on the criteria described by Arnett (2000) who identified this developmental stage of emerging adulthood as one that encompasses late adolescence and early adulthood. Rationale for this age range is described in detail in the participant section of the pilot study.
room for privacy to ask how to categorize a significant traumatic event; her tone of voice and behavior did not suggest any upset over the content, simply a need for clarification. During debriefing, she was offered, but declined, additional support to discuss any emotional response she may have had to the survey.

**Instruments.** In order to assess attachment style as a dimensional variable, participants were asked to complete the Revised Adult Attachment Scale (RAAS; Collins, 1996). The psychometrics and detailed description of this measure is outlined in the methods section of the pilot study. Participants were asked to complete the Trauma Assessment for Adults (TAA) created by Resnick, et al. (1996). The psychometrics and detailed description of this measure is outlined in the methods section of the pilot study.

**Attachment style projective drawing assessment.** The Arts-Based Attachment Style Assessment (ABASA) is a projective drawing measure that has been developed by this researcher, therefore its psychometric properties have yet to be determined. The current research is the first step in determining the validity of this tool. The purpose of this measure is to serve as a diagnostic tool that can indicate attachment style through the use of an art-based prompt that stimulates implicit and explicit content about attachment style and bonding strategies. The assessment involves examination of the manner in which images representing the parent and child are drawn, cut out, and attached back together in the context of a selected adhesive. The protocol is described in detail in the procedure section.

**Procedure.** Data was collected in small groups of 2 to 10 students in a classroom or conference room setting. Participants completed two copies of a consent form to participate and an art image release form which allowed for their artwork to be photographed. They were instructed to keep one copy each form. The other set of copies was collected by the research
facilitator, coded, and stored separately from data in order to maintain confidentiality. Each participant received a 9 in. x 12 in. (22.7 cm x 30.5 cm) clasp closure envelope with a numerical identifier written on the front. Participants completed a confidential demographics form and placed it in the envelope. Participants then completed the trauma screening (TAA) and the attachment style assessment (RAAS) to determine (1) if they experienced trauma across the developmental span and, (2) attachment style. They placed both confidential questionnaires in their envelope.

Participants were then asked to complete the ABASA. One sheet of 8.5 in. x 11 in. (21.6 cm x 27.9 cm) Staples™ brand 110 lb. white cardstock and a No. 2 pencil were distributed. Participants were instructed to: “Draw an image of a parent. Draw the full figure, not just the head. Draw only the parent; do not add any background or other images or people. Try not to make a stick figure. Artistic skill is not important; just do the best that you can.” Once completed, a second sheet of cardstock was passed out and participants were instructed to “Draw an image of a child. Draw the full figure, not just the head. Draw only the child; do not add any background or other images or people. Try not to make a stick figure. Artistic skill is not important; just do the best that you can.” After completing the second image, a pair of scissors was passed out and participants were asked to “cut out each image.” After each image was cut out, participants were handed a 11.5 in. x 10.0 in. (29.2 cm x 25.4 cm) Ziploc™ bag containing four adhesives: Staples™ brand tape, Elmer’s™ All Purpose Glue Stick, Bostitch™ Desktop Stapler loaded with standard staples, and Elmer’s Multi-Purpose Glue. Participants were asked to select only one adhesive (tape, glue stick, staples, or liquid glue) to connect their two images together. The scissors remained with the participants in case they wanted to additionally trim their figures before connecting them. Finally, participants received a 4 in. x 6 in. (10.2 cm x 15.2
cm) unlined index card and were asked to: write down their adhesive choice and anything they wanted to say about their artwork. 4

Following the data collection process, participants were debriefed about the nature of the research. They were provided with the contact information of this writer if they wanted to know the general results of the study when completed. Participants were also given a list of reference books on art therapy and attachment theory, as well as resources for counseling and additional time to debrief with this writer, a licensed professional counselor, and registered art therapist with over 30 years of clinical experience. This resources were offered in the event that any aspect of the process stimulated emotional upset in participants.

Results

MANOVA was used to examine the differences on the two dimensions of attachment style (anxious [DV1] and avoidant [DV2] continuums) by adhesive choice (tape, n = 21; glue stick, n = 17; staple, n = 41; liquid glue, n = 12). There was not a statistically significant effect, \( F(6, 172) = 1.26, p = .278; \text{Wilk's } \Lambda = 0.918 \). Low effect size (partial \( \eta^2 = .04 \)) and low power (.49) were observed. Results show for this test, attachment style is not significantly related to adhesive choice. Because of the non-significant results of the MANOVA, the a priori planned ANOVAs and follow up post hoc comparison tests are not reported.

4 It should be noted that based on a review of the pilot study, the order of the distribution of the measures was altered in this study in order to reduce survey order effect. One half of the groups received the written questionnaires first and the other half received the art-based assessment first. Additionally, for the ABASA, one half of the group was asked to draw a parent first, while the other half was asked to draw a parent first.
Chapter 5

Rationale for the Exploratory Analysis of the Archival Data

Consistent with a sequential mixed methods model (Tashakkori & Teddlie, 2003) and despite the small sample size, low power, small effect sizes, and inflated alpha rates incurred, continuing analyses beyond the insignificant MANOVA results persisted. The mixed methods model first uses quantitative analysis followed by content analysis of qualitative data, which then informs further exploratory quantitative analysis. The qualitative data in this study (artwork and text) was thereby analyzed and used to inform a readdress of the quantitative results. Qualitative analysis of the artwork and accompanying text show gender differences (which are discussed later in this chapter) warranting further inquiry into the possible influence of gender on the relationship between attachment style and adhesive choice.

Analysis of the archival data followed in an exploratory effort since the focus of this investigative work was also to begin to construct an appropriate model of inquiry and analysis for mixed method designs in the field using larger sample sizes. Moreover, formalizing a well-constructed mixed methodology framework for arts-based research would provide a blueprint of how a researcher could replicate the current study with a sufficient sample size to truly test the hypotheses under conservative statistical parameters.

The “File Drawer Problem”

There is a well-documented phenomenon of publication bias known as “file drawer problem” in which the majority of research that is not found to be statistically significant is not written up and this is prevalent in the social science field. In researching this trend in the social sciences, Franco, Malhotra, and Simmonovits (2014) reviewed 221 studies and found that studies
with significant results were 60% more likely to be written up and 40% more likely to be
published than those with insignificant outcomes. With a good deal more focus on the
phenomenon of false positive (Type I error), Fiedler, Kutzner, and Krueger (2012) argue that
although there are stringent statistical parameters to control alpha errors in an effort to reduce
false positives, there is not a similar adjustment in place for false negatives (Type II errors),
making them harder to detect. Additionally, Lederman and Lederman (2016) argue for
continued examination of nonsignificant results as an effort in the true service of research. They
believe that beyond the conventional definition of significance in quantitative research, there is a
concept of “practical significance” asking not for a value of probability but rather the question of
practical value to society. It is precisely for this reason that data analysis continued on this
research project, despite the lack of statistical significance in the original hypothesis testing using
MANOVA.

Based on the lack of significant findings, this research moved in the direction of
complementarity (as described by Greene et al., 1989) in which a mixed methods approach to
data analysis “seeks elaboration, enhancement, illustration, clarification of the results from one
method with the results from the other method” (p.259). In other words, next steps in the data
analytics for this research looked towards the qualitative results to inform a readdress of what
would now be considered an archival quantitative data set. Different than data dredging or p-
hacking (as described by Bruns & Ioannidis, 2016) in which an attempt is made to rescue a study
with poor outcomes by multiple retesting of data until mere chance produces a significant result,
this approach to posteriori realignment of data analytics seeks to broaden and enrich the study’s
conclusions in the true spirit of mixed methods by a reconsideration of quantitative data analysis
based on qualitative results and related research (Feise, 2002; Schoonenboom & Johnson, 2017).
This approach is most useful in the early stages of research when attempting to establish and/or refine a model for future research.

**Rationale for Analysis Using Three Subscales of Attachment**

The avoidant continuum demonstrates binary aspects of attachment which seem to influence relationship strategies that are not evidenced along the anxious continuum (Collins, 1996). For example, while the anxious continuum simply measures the extent to which a person is concerned about being rejected, the avoidant continuum identifies two related though quite different constructs: the extent to which a person is at ease with closeness and intimacy (close) and the extent to which a person feels he/she can rely or depend on others to be available when needed (depend). Though using only two attachment subscales may be simpler in terms of data analysis, collapsing the avoidant continuum scores may actually provide inaccurate data outcomes.

For example, recent research using the RAAS (Batool et al., 2019; Boroujerdia et al., 2019; Lyvers et al., 2017) utilized three subscales rather than collapsing to two dimensions of attachment. Fernandez and Dufey (2015) found that separating the close and depend scores provided more nuanced responses in the data analytics that were reflective of the complexity of the avoidant attachment continuum. When compared to other valid measures, the close dimension showed higher correlations with self-esteem constructs than the depend continuum, evidencing a differentiation between the two that might be lost by combining scores. Similarly, using the three subscales, Yasin and Ashraf (2019) found that individuals with anxious, close, and dependent attachment styles predicted different domains of interpersonal difficulties in the areas of assertiveness, sociability, aggression, supportiveness, and level of involvement.
Based on current research, the non-significant results in the current study for the avoidant dimension may be due to using two attachment subscale scores instead of three. Therefore, this next phase of exploratory analysis will employ a three-subscale model of attachment consistent with other research.

**Archival Data Research and Alpha Inflation**

Based on the reexamination of the literature in light of the non-significant results, the decision was made to use the archival data in a new follow-up study that uses the three RAAS subscales of anxiety, close, and depend (rather than the two dimensions of anxiety and avoidance) as well as examine the effect of gender as a variable in attachment and adhesive choice. Still, it should be noted that there are widely discussed limitations to posterior multiple testing of variables, most notably a rounding up of p values or an inflation of alpha levels that produce a tendency for Type I errors thus increasing the probability of a false-positive finding (Hartgerink, Wicherts, & van Assen, 2017; Ranganathan et al., 2016). To make corrections for the inflated alpha error, adjustments for the family-wise error rate (FWER) may be employed. To correct for the FWER, there are a variety of approaches/techniques such as the Bonferroni (dividing the alpha level by the number of tests) and/or the Sidak (1967) correction alone or in combination with the Holm step-down approach (testing the biggest effect first followed by successive tests) in order to compensate for the multiple inferences (or “family” of tests on the same data set).

Multiple testing has also been described as a violation of research ethics. Szucs (2016) describes a particular form of data misappropriation that involves misusing the number of grouping variables in subgroup testing known as hacking the number of grouping variables. This method involves forming subsets of variable groupings (such as gender, age, ethnicity, etc.) after
data has been analyzed to look for significance between these previously unplanned groups. In this publication centric scenario, Szucs states that the method “…can easily be camouflaged as testing an a priori hypothesis if group membership can be justified with post hoc arguments [and that researchers can] rationalize post hoc that the study could have been planned in the way as it was ultimately written up for publication” (p. 6). According to some researchers, this kind of analytic misstep can be mediated by complete transparency in reporting the research protocol, documenting repeated testing steps, and correcting for Type I error inflation that is caused by the repeated testing of regrouped variables, especially when assessing evidence of benefit (Ranganathan et al., 2016; Szucs, 2016).

On the other hand, some researchers believe that alpha corrections in multiple testing can be so conservative as to actually increase the Type II errors of false negatives, making the effort counter-productive and therefore argue that success of a study should focus on effect size and the model quality rather than simply statistical significance (Ranganathan et al., 2016; Szucs, 2016). Of note, Hartgerink et al., (2015) used an adapted Fisher method to examine results in 14,765 psychology papers and found that 66.7% of this peer-reviewed published research had evidence of false negatives, including non-significant results on gender effects. The authors believe that ignoring research that lacks statistical significance can lead to studies that are “…a waste of research resources and stifle the scientific discovery process” (p. 1).

Generally, in exploratory research and pilot studies, less emphasis is placed on the significance outcome and more on a learning and discovery process that builds a better and more authentic foundation for future research on the topic. When exploring a previously unresearched topic, a pilot study can be a useful first step in the process of refining methodology for future research to build upon. Lee et al. (2014) believe that “pilot studies are more about learning than
confirming” (p. 1) with a focus on clinical endpoints rather than hypothesis testing. The authors go on to say that data analytics in pilots should make use of lower confidence intervals (85% or even 75% as opposed to the standard 95%) to support descriptive statistics and estimations that broaden lines of inquiry.

Most notably, Lee et al. (2014) describe an overarching construct of the Bayesian approach to probability and threshold significance when constructing methodological research models. In its most simple form, the Bayesian framework is a probability construct that creates updating rules for predictive inference. In this approach, new information merges with existing information, continuously updating changes in the distribution of probability. The authors argue that this approach is effective when target populations are not well understood or present with complexities and nuances that might frustrate conventional interpretation, as is with the complex construct of attachment. The approach of updating inferences as new data become available easily lends itself to some of the iterative constructs of qualitative analysis, thereby making this inference construct well suited for mixed methodology research.

Exploratory Analysis of the Archival Data Informed by Qualitative Data

Artwork and written narrative were subjected to qualitative analysis to inform further quantitative analysis. Though other relevant content was identified in the text and art images, following is a review of the qualitative content from art and text that directly relates to gender and attachment, which subsequently informed the next steps of the exploratory analysis of the quantitative data.

Gender represented in art content. Though non-binary options were given, all participants in this sample self-reported as either male or female identified. It should be noted, however, that the gender questions in the self-reporting demographics did not distinguish
between gender assigned at birth and current gender identification. Gender identification of the artist can be expressed in artwork as a tendency towards drawing figures of the same gender to which the artist identifies. Cultural and social influences impact sexual and social identity and these aspects of the self can be expressed as socio and hetero normative gender indicators in art (Alter-Muri & Vazzano, 2014).

Socio-normative gender details such as dresses, ties, pants, purses, skirts, long hair, breasts, jewelry, or beards are seen in artwork as a means of identifying gender. For example, Figure 2 was drawn by a 25-year-old female and is a typical example of socio-normative female gender details in artwork, showing long hair, jewelry, and dresses on the figures. The accompanying text supports the visual gender references: “It’s a mother and daughter date wearing matching outfits.”

![Figure 2](image)

*Figure 2. Example of Socio-Normative Female Details in Artwork (insecure attachment, close 3.00, depend 3.00, anxiety 3.33 out of 5.00)*

Figure 3 was drawn by a 19-year-old male and is a typical example of socio-normative male gender details observed in the artwork which include pants, ties, sports emblems, beards, and briefcases.
Some participants also referred to gender identity and associated feelings both in the written responses and in the art. For example, a 21-year-old female stated: "I like drawing dresses so I drew both the parent and child with one. I am also more comfortable drawing females." Her statement suggests that she demonstrates a personal connection to the artwork in her expressed comfort in drawing gender identifiers that feel familiar to her own gender identification.

While the majority (77.5%) of respondents drew the child in the same gender as the gender expression indicated on their demographic form, more males (80.0%) than females (64.7%) drew a child of the same gender to which they identified. These descriptive numbers parallel the literature which suggests that individuals, particularly children, tend to draw human images that mirror their own gender (DiLeo, 1973; Malchiodi, 1998; Silver 1997). Additionally, the trend towards drawing the child in the same gender as their own identification may be indicative of the developmental stage of the sample (mean age of 19.8 years), which encompasses late adolescence and early adulthood. At this stage in life, these individuals are
likely to still be financially dependent on parents, living at home, and not married or having children of their own, so they may identify more with a child identity than that of an adult. It should be noted that 13% of the child drawings (7% of females and 6% of males) could not be identified by gender, so this may explain the disparity.

Also, of interest is the gender combination of the parent/child dyad as it relates to the gender of the participant in the context of the influence of gender on attachment. Connor (1996) found that gender had an effect on the parent/child attachment. Mothers responded differently toward female children and female babies showed a more secure attachment to mothers than male babies. Del Giudice and colleagues (Del Giudice, 2009; Del Giudice & Belsky, 2010) believe that gender differences in attachment style develop in middle childhood, as children begin to become sexually aware and influenced by media, culture, reproductive strategies, and socio-normative stereotypes. Neurobiology and developmental history can also influence attachment style changes at this stage in life. As children age, these gender specific attachment competencies carry into adulthood. Adamczyk and Pilarska (2012) explored the relationship between attachment style, relationship status, and gender in young adults, confirming earlier research that women exhibited higher levels (and different kinds) of social competences than men which contribute to the ability to form intimate relationships. In a meta-analysis and review of theoretical literature, Scharfe (2017) reported that men tend to score higher on avoidance dimensions and women tend to score higher on ambivalence, though research is inconsistent. Similarly, in a meta-analysis of 100 studies examining adult romantic attachment, Del Giudice (2011) found that males showed higher levels of avoidance and lower anxiety than females. These trends were larger in studies using general population samples than in college students. With regard to gender differences in attachment style across adulthood, avoidant styles of
attachment tended to increase over the life span whereas anxious styles were more prevalent in young adulthood. This review of the research suggests that gender differences have a notable impact on attachment style.

The majority (92-93%) of images included socio-normative graphic indicators. Table 1 shows the frequency of gender of the artist as it relates to the gender combination of the parent/child dyad in the artwork. These gender-based parent/child representations suggest implicit personal constructs about gender and attachment. As predicted from the literature, male respondents tended to draw more father/son images (62.5%) than mother daughter images (0%) and females tended to draw more mother/daughter images (43.1%) than father/son images (5.9%). Of the opposite gender combinations, males and females drew mother/son combinations nearly equally (15%, 17.6% respectively), however, females drew father/daughter images much more frequently (21.6%) than males (5%). This notable difference may be reflective of perceived social norms regarding gender affiliation and power (Ivashkevich, 2008), meaning that girls may identify with their fathers in an attempt to acquire a greater sense of power and control; conversely, the lower number of boys drawing father/daughter combinations may reflect socio-normative constructs about gender characteristics as they relate to male power, authority, and privilege (Loschiavo, Miller & Davies, 2007).

Table 1

<table>
<thead>
<tr>
<th>Parent Child Gender Representations in the Art by Participant Gender</th>
<th>Male (n = 40)</th>
<th>Female (n = 51)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Father/Son</td>
<td>62.5%</td>
<td>5.9%</td>
</tr>
<tr>
<td>Mother/Daughter</td>
<td>0%</td>
<td>43.1%</td>
</tr>
<tr>
<td>Mother/Son</td>
<td>15%</td>
<td>17.6%</td>
</tr>
</tbody>
</table>
Alternately, given the recent trends in actual and/or perceived parenting styles, power, and control over the last decade, gender roles have become less specific and more emphasis has been placed on parenting strategies that emphasize child-centered autonomy (Endendijk et al., 2016). These recent shifts differ from the previous conventional constructs of parenting that saw the mother as the primary caregiver/nurturer and the father as the dispenser of control and discipline. Research by Endendijk et al. supports this shift in parenting style constructs. In their meta-analysis of 126 recent observational studies they identified increases in autonomy centric and less gender-specific styles of parenting. These results differ from an earlier meta-analysis 15 years prior by Lytton and Romney (1991) which evidenced more traditional gender-based parenting styles.

Of note, the sample for this current research represents young adults aged 19-25 years, who would have been more influenced by parenting trends 15 years ago, than those currently. This may explain some of the conventional gender identifiers in the parent/child drawings. Additionally, since there is a well-known association between parenting style and the development of attachment style (Neal & Frick-Horbury, 2001) new trends in parenting and gender identity suggest a need for updated constructs in attachment style assessments.

**Gender and parenting constructs expressed in text content.** Content of the written responses showed fewer, though similar and more explicit themes regarding gender constructs.
and parent/child bonds. A number of respondents (20%) made direct references to constructs, ideology, and core beliefs about parenting and childhood in their descriptive text such as:

- “I put the child lower because he needs to learn from his parent and embrace their experience.”

Out of the total 65 respondents who provided written text, 32 respondents (49%) made references to gender with these identifiers: she, he, his, her, mom, dad, man, mother, father, daughter, son, nephew. In total, there were 65 direct references to gender in describing child/parent interaction or bonding; some responses had multiple references. Responses included statements such as:

- “I mirrored the daughter’s position to the father’s to reflect the saying ‘Like father like daughters.’”
- “My artwork depicts a father and daughter who is being picked up from school because she was feeling sick.”

Gender references also included gender likeness expressed through shared features.

- “It’s a mother and daughter date, wearing matching outfits.”
- “I also drew hearts on [their] pajamas. They have hearts as matching showing a likeness.”

These types of responses suggest that the art process stimulated combined thoughts about parenting behaviors, attachment, and gender. Art therapy constructs have long acknowledged the capacity for art to stimulate complex internalized belief systems, both implicit and explicit, making the art process a valuable tool in research (Huss, 2015; Kapitan, 2010).

**Additional rationale for exploring gender effects.** Since subjective interpretation of artwork and text is not strong support of a statistical trend, Ranganathan, Pramesh, and Buyse (2016) recommend identifying data from other similar research that might support these trends.
To this end, several recent studies (Barry, Seager & Brown, 2015; Scharfe, 2017) have addressed the impact of gender on attachment style and point to deficits in earlier research that did not consider this variable. Specifically, these researchers cite that the ability to detect gender differences may lie in the specifics of the sample, the type of measurement used, and sufficient power to determine the effect. Data in this sample suggest there are gender differences and review of the data for interaction of gender with other variables is warranted.

**Trauma indicators in the artwork.** Although interpretation of the content of the parent/child drawings is not the focus of this research project, it is important to note some of the graphic indicators observed in the artwork that seem to support a history of trauma. A formal, rigorous study of the contextual presence of graphic trauma indicators is beyond the scope of this current research project. However, in the context of additional qualitative support for additional exploratory research of a possible relationship between adhesive choice, trauma, gender, and attachment, a brief review of graphic trauma indicators was made for this study.

Body fragmentation, heavy shading, emphasis in the genital areas, exaggerated teeth, broken line quality, club-like or omitted hands, and/or sexualization of non-sexual body parts may indicate a history of physical abuse, neglect, sexual abuse, or precocious exposure to sexual content, all may present in artwork for those with trauma history (Amir & Lev-Weisel, 2007; Malchiodi, 1997). Simply identifying these indicators in artwork does not confirm or deny the presence of trauma; art therapists are trained to understand that interpretation of these indicators in the context of the whole drawing, as part of trends or themes, rather than isolated indicators and as part of an overall clinical presentation.

In a cursory inspection of the art collected from this current research sample, nearly all of those who indicated numerous trauma types (4 or more) displayed multiple contextual graphic
indicators of trauma in their artwork. As an example, Figure 4 is the image made by a 19-year-old female who reported experiencing 11 out of the 12 possible types of trauma on the TAA. Additionally, her attachment style score was noticeably high on the anxiety continuum (4.33 out of 5.00), suggesting an insecure attachment style.

![Figure 4](image.png)

*Figure 4. Graphic indicators of trauma exampled in the artwork (trauma history, close 3.00, depend 2.50, anxiety 4.33 out of 5.00)*

The drawing shows heavy line pressure, with predominant body shading on the body of the parent figure and heavy shading on the hair of both figures. One of the few details noted are the button and pockets in the genital area of each figure, with additional emphasis on the child, in the form of the dark band across the groin. Hands are also exaggerated and both figures seem stiff. Rather than looking like a smile, the teeth appear bared, more aggressive than inviting. The
overall expression, posture, and execution of these figures is unsettling and, in this writer’s opinion, clinically suggestive of trauma.

On the other spectrum, Figure 5 was made by an 18-year-old female who reported no trauma and scored low on the anxiety (1.50 out of 5.00) and high on the close and depend subscales (4.17 and 4.33, respectively) suggesting a secure attachment style. Though similar in level of artistic skill as the previous example, none of the graphic indicators for trauma appear and, overall, the images appear quite congenial.

![Figure 5](image)

*Figure 5. Example of artwork made by a participant with no reported history of trauma and a secure attachment style (close 4.17, depend 4.33, anxiety 1.50 out of 5.00)*

**The combined influence of gender and trauma.** Analysis of the art and written responses in this study as well as current research suggest that gender and trauma are significant variables that influence attachment style. Further, current research suggests a *combined influence* of gender and trauma creates a unique impact on attachment style. For example, Street and Dardis (2018) describe gender specific patterns of trauma exposure; they found that while men are more likely
to be exposed to trauma women are more likely to develop post-traumatic stress syndrome (PTSD). The authors also point out that men are likely to experience different kinds of trauma such as engaging in combat and/or witnessing death, violence, or life-threatening events compared to women who are more likely to experience forms of sexual violence and abuse, which may partially explain the gender difference in responses. Similarly, in the sample used for this current study, 81% of women reported some type of sexual assault in their lifetime, compared to 19% of men. Additional research suggests similar patterns of gender differentiated responses to trauma in other populations (Blain, Galovski & Robinson, 2010; Hagborg, Tidefors & Fahlke, 2017).

Other factors that point to the complex relationship between gender and trauma may include differences in societal expectations; for example, men are less likely to talk about their trauma and instead behaviorally act out by engaging in high risk behaviors whereas women are expected to internalize their emotions, which manifests as anxiety and depression. Overall, Street and Dardis’ posit that (1) gender assignment at birth is biological but gender characteristics are formed by socioenvironmental influences and (2) these societal expectations of gender behavior and responses are “entwined with the experience of trauma in myriad ways” (p.98) but not easily measured.
Chapter 6

Exploratory Study #2: Archival Research

Based on the analysis of the qualitative data and current research findings in the literature about gender and attachment style, the decision was made to improve the quantitative data analytic plan to examine attachment by adhesive choice, gender, and trauma, employing a three dimensional model of attachment (close, depend, anxiety). A second MANOVA, adding the independent variables of trauma (2 levels) and gender (2 levels), along with adhesive choice (4 levels), and using the three attachment subscale scores (close, depend, anxiety) instead of two (anxious, avoidant) as dependent variables, was performed. If the omnibus test showed significance, then follow-up one-way ANOVA (for four-level adhesive effects) with post hoc Tukey tests, and/or independent t tests (for two-level gender and trauma effects) would be performed.

Quantitative Results

Results of the ANOVA show there are main effects for both gender \((F(3,74) = 2.25, \text{Wilk}'s \Lambda = .885, p = .029, \text{with a small effect size} \ (\text{partial } \eta^2 = .115) \text{ and medium power } (1 - \beta) = .715)\) and trauma \((F(3,74) = 3.13, \text{Wilk}'s \Lambda = .888, p = .031, \text{with a small effect size} \ (\text{partial } \eta^2 = .112) \text{ and medium power } (1 - \beta) = .706)\) on attachment. There is no main effect for adhesive use. There is also a statistically significant three-way interaction of adhesive use, trauma, and gender on attachment \((F(6,148) = 2.25, \text{Wilk}'s \Lambda = .840, p = .042, \text{with a small effect size} \ (\text{partial } \eta^2 = .083) \text{ and medium power } (1 - \beta) = .775)\). There are no two-way interaction effects for adhesive by gender, adhesive by trauma, or gender by trauma.

Two-tailed independent-samples t-tests were conducted to test for main effects of gender and trauma on each of the attachment continuums (anxious, close, and depend). For gender on
anxious attachment, Levene’s Test for Equality of Variance is significant ($F=8.41$, $p = .005$), therefore equal variances are not assumed; results are presented. Female identified participants are significantly more anxious ($M=3.12$, $SD=1.19$) than male identified ($M=2.20$, $SD=0.91$); $t(87.84)=4.15$, $p <.001$. There are no significant differences in close and depend continuum scores for gender. Independent-samples t-tests to test for main effects of trauma on attachment continuum scores show no statistically significant differences for anxious or close, while there is a difference for depend, $t(88)=2.90$, $p=.005$, exhibiting a medium ($d = 0.61$) effect size according to Cohen’s (1988) benchmark. Those reporting trauma history score lower ($M=2.70$, $SD=0.65$) than those with no history ($M=3.18$, $SD=0.90$).

Similarly, ANOVA results show a main effect for gender on anxious attachment ($F(1,90)=5.96$, $p = .017$, with a small effect size ($partial \eta^2 = .073$) and moderate power ($1 - \beta) =.673$) and trauma on depend ($F(2,90)=7.31$, $p = .008$, with a small effect size ($partial \eta^2 = .088$) and moderate power ($1 - \beta) =.761$), and no significant main effect for adhesive use or significant two-way interaction effects of adhesive and gender, adhesive and trauma, or gender and trauma on attachment continuums. There is, however, a significant three-way interaction effect of gender, trauma, and adhesives on attachment depend ($F(2,76)=5.50$, $p = .006$, with a small effect size ($partial \eta^2 = .126$) and high power ($1 - \beta) =.838$). Figure 6 shows the means across groups for the DV depend. All post hoc Tukey HSD tests showed no statistical significance. There are no three-way interaction effects for adhesive, gender, and trauma on the variables close and anxious. It should be noted that many groups have extremely small sample sizes, potentially impacting power and generalizability of findings.
Figure 6. Means Across groups for the DV depend.

Qualitative Results

Content analysis of the art and text. In addition to qualitative results related to gender and trauma discussed earlier, other notable results were also found in the content analysis of the artwork and text that speak to the relationship between the artmaking and the participant’s ideas about parenting and attachment constructs similar to those expressed in the self-reporting measures. This qualitative data enhances the quantitative results and descriptions of this content analysis follows.

Content analysis of text is a well-established approach in quantitative, qualitative, and mixed methods of social science inquiry (Mustapha & Ebomoyi, 2019; Titscher et al., 2000). In its early inception, the term referred to a method which focused only on identifying the actual
frequencies of words with no relevance to syntax, semantics, or context. Though more easily quantifiable, with this approach important contextual content was often lost. Consequently, the method was expanded to include contextual meanings while still quantifying the frequency (Frey, Botan & Kreps, 1999).

Though less referenced, content analysis of images (including photography, film, and art) has widely been used in qualitative, art therapy, and arts-based research (Kapitan, 2010). Because visual imagery can hold many layers of meaning, both implicit and explicit, it can provide a wealth of data. Content analysis of artwork can provide a rich narrative in qualitative and mixed methods social science research (Bell, 2004).

Content analysis can also be used as quantitative data, reported as frequencies of percentages for either observed textual themes in narratives or graphic indicators in artwork. One of the challenges can be in defining variables and values in order to code content reliably (Jewitt & van Leeuwen, 2013). In spite of sometimes being described as “quasi-statistics,” Maxwell (2010) provides a good argument for advantages of integrating qualitative information in quantitative data collection, analysis, and reporting, because of its potential to expose undiscovered lines of inquiry that may otherwise be restricted by quantitative data analysis. When interpreting content, Maxwell suggests a non-binary construct that holds two different types of methodological inquiry known as variance theory and process theory as described by Mohr (1982; as cited in Maxwell, 2010). Variance theory “deals with variables and the correlations among them; it is based on an analysis of the contribution of differences in values of particular variables to differences in other variables” whereas process theory “deals with events and the processes that connect them…[i]t relies much more on a local analysis of particular individuals, events, or settings than on establishing general conclusions and addresses ‘how’ and
'why' questions, rather than simply ‘whether’ and ‘to what extent’ (Maxwell, 2010, p. 477). Maxwell explains that the apposition of this line of inquiry is an integral part of mixed methods research that moves beyond simply combining research designs and methods of data collection and analysis. This orientation seems particularly well suited to the first line of inquiry when developing an arts-based diagnostic tool and beginning to establish relevant content and normative responses. For this reason, the content analysis of the text and images in this research will be informed by quantitative results and vice versa, in an iterative process.

**Descriptive text results.** After the drawing activity, participants were given the option to provide a written response to the art-making on a separate piece of paper. The content analysis of the written responses was included as part of the art-based component for the following reasons; (1) written responses can often clarify the intent of the visual imagery, especially when the artistic skill of the artist is limited, (2) text can indicate abstract concepts that may be difficult to represent visually, and (3) text can describe parts of the art process that may not be visible in the completed image. In combination with visual imagery, written text can elicit a richness of data that might complement the quantitative data as well as widen the scope of data collection beyond the prescribed hypothesis, both of which can be useful in the early stages of the development of this diagnostic tool.

In total, there were 65 written responses out of a possible 91 participants for an overall written response rate of 71%. The accompanying text provided by participants was analyzed using open, axial, and selective hand coding as described by Strauss and Corbin (1990). An approximate initial list of predicted thematic categories informed by the literature (Ainsworth, 1989; Bowlby, 1965; Kramer, 1972; Malchiodi, 2012) was generated prior to coding, similar to the method described by Miles and Huberman (1994). These thematic categories included: (1)
emotional bonds between parent/child (2) images identified as self and/or as their own parent, and (3) references to emotional expression. The first two categories were thought to describe a participant’s ability to use the art as a representation of themselves and/or their own parent/child bond, thus demonstrating a capacity for the artwork to be reflective of the participant’s explicit and implicit constructs about attachment. The category for emotional response was thought to reflect the capacity for art to be used as a vehicle for affective expression as widely described in art therapy literature (Kramer, 1972; Malchiodi, 2012). In addition to the predicted themes, three other related themes emerged when the written content was examined: (1) descriptions of what was drawn or the art process, (2) constructs about parenting and/or childhood, and (3) apologizing for drawing skills. Table 2 shows the percent of participants referencing all six themes (predicted and emergent) that were observed in reviewing the content of the written narrative.

Table 2

<table>
<thead>
<tr>
<th>Theme</th>
<th>Percentage (n=65)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description of what was drawn and/or art process</td>
<td>51%</td>
</tr>
<tr>
<td>Emotional expression</td>
<td>34%</td>
</tr>
<tr>
<td>Constructs about parenting and/or childhood</td>
<td>20%</td>
</tr>
<tr>
<td>Bond and/or attachment between parent and child</td>
<td>15%</td>
</tr>
<tr>
<td>Apologizing for drawing skills</td>
<td>12%</td>
</tr>
</tbody>
</table>
Relationship to Self

6%

Descriptions of what was drawn. Most respondents (51%) used the descriptive text to describe or clarify what they had drawn or their art process, such as “This is a picture of a mother and daughter” and “He originally had a mustache [sic] but I erased it.” These kinds of concrete descriptions likely reflect a level of investment on the part of the artist to ensure the viewer’s perception of what has been drawn is correct, thereby reducing misunderstanding. Such attention to clarity can suggest a deeper personal connection to the artwork and a need to be understood (Silver, 2001). Concrete descriptions may also reflect a limited capacity for abstract thinking (Piaget, 1954) that may simply be reflective of those participants’ cognitive levels of development.

Of the 51% (n = 33) that used descriptive text, 7.7% (n = 5) of this group not only used the text to describe what they drew but also to imply some ideology or core belief such as “The child is bald [drawn without hair] because they should be able to express themselves [emphasis added] however they’d like” and “I drew the child smiling because they are always happy [emphasis added].” These kinds of responses may reflect a capacity for abstract thinking and cognitive conceptualization that suggests insight and emergent concepts of the self as described by Beck (2011). A separate 12.3% (n = 8) of respondents used the text to apologize for their drawing skills with responses such as:

- “My drawing isn’t the best…”
- “My artwork is a bit sloppy…”
• “I am NOT an artist…”

These kinds of responses may be related to the participant feeling that the image will not effectively communicate and/or general anxiety often found in adults about their drawing skills as described by Malchiodi (2006).

**Emotional expression.** A significant percentage (34%) of descriptive text included references to emotional expression. Of this group of responses, there were generally two types of emotional expression: (1) direct references to the artwork and (2) references to the self. The following is an example of emotional expression referenced in the artwork:

I decided to make the mom holding a broom stressed out and the child upset with his phone because it shows how moms are very stressed and detached from their kids and that leaves the child upset finding an escape (cellphone).

A typical example of text that described an emotional response referencing the self would be “I was more comfortable [emphasis added] drawing the child than I was drawing the parent. I found it more difficult [emphasis added] to draw the parent not knowing how I wanted to draw them.” In this example, the participant speaks directly about their emotional response to the art process.

Expression of emotion through the art content and/or art process can have diagnostic and therapeutic value. Emotional expression in art making can be indicative of cognitive, social, and emotional development as well as a capacity for the imagery to support information processing (Lusebrink, 1990). Additionally, some persons may find it easier to express emotions through the creative process thereby allowing greater insight in therapy (Beck, 2011)

**Attachment between parent and child.** Of most interest to the focus of this research were the direct references in descriptive text to bonds between parent and child. While these
statements comprised only 15% of the total responses, the relationship of these responses to the implicit intent of the art-based directive is evident, suggesting that the use of adhesives in the art process can stimulate attachment metaphors. A sample of these types of responses includes:

- “I drew my stepmom and myself and glued them together because when things were at their worst, she was able to put me back together as if she were gluing me.”
- “I used the staples because the bond between the child and his parent has to be strong.”
- “This drawing implies [sic] that the mom and daughter are stuck together like glue.”

These type of responses suggest that the art process stimulated thoughts about parenting behaviors. Research has shown that certain types of parenting styles and behavior patterns are connected with the evolution of attachment styles (Neal & Frick-Horbury, 2001).

**Analysis of the art images.** Following the quantitative data analysis, the visual imagery was digitally scanned and deidentified for coding. The images were compiled in various subgroups such as gender, number of trauma experiences, and type of trauma experience, as well as reviewed for any unusual graphic markers in the artwork to identify any trends in graphic indicators within these criteria. Each image was verified for adhesive choice (by examining the artwork and comparing the adhesive use to what was reported by the participant). The manner in which the images were connected together (i.e., side to side, front to back, back to back and front to front) was confirmed by four separate raters (results discussed later). Images were also examined for any notable over usage or ineffective use of an adhesive, such as too much liquid glue or not enough tape or staples to keep the images together.

While participants were instructed to complete two drawings of a parent and child, all appeared to comply, with the exception of one respondent who drew what he described as a dog and a child, saying “The dog parent had a puppy next to it. Babies and dogs go hand in hand
within a family.” Six participants added additional items to the drawings such as balloons, a cell phone, a dog on a leash, a basketball, and a broom. Nearly all participants (92%) created child images that were smaller in size than the parent, using size differential as a graphic marker to depict the parent/child relationship. Some participants also referred to size in the written responses stating, for example:

“I made the parent taller and gave them more features to represent how they are older.

You can just tell they are the one in charge.”

For those that did not use size, there were other indicators such as swaddling, infantile features, or written explanations (“I accidentally made the child about the height of the mom…woops!” and “Child left Parent Right”) to clarify. Based on size differences and graphic indicators, all images seem to depict a parent with an infant, young child or teenager; no participant explicitly stated that their image was a parent and adult child. This trend may be related to the mean age (19.8 years) and developmental stage (late adolescence/early adulthood) of the sample.

**Developmental indicators.** Most participants reported having no previous art experience (67%) and 33% reported taking some high school/college level art course or some kind of art instruction beyond what is offered as basic curriculum in primary school. Accordingly, the majority of the artwork is executed on the developmental level of a 9 to 10-year-old child which is to be expected of adults that do not demonstrate artistic ability. Figure 7 is an example of a typical drawing from this stage of artistic development done by a 24-year-old male with no reported art experience.
As described by Lowenfeld and Brittain (1987), this period of artistic development, which is known as the late schematic stage is characterized by figures that appear flattened and lacking in dimensionality, with a cookie-cutter appearance; there is no evidence of shading. Still, there are hetero-normative gender specific indicators (dress, shirt logo, hair length) and some minimal body details (pupils, fingers). The frontal, schematic presentation also naturally lends itself to a side-to-side connection between the figures, usually with hands touching.

By way of contrast, Figure 8 was created by an 18-year-old female with above average artistic ability and is a typical example of participants who reported some level of advanced art training.
Figure 8. Example of Advanced Artistic Skill Level of Adult Art (secure attachment, close 4.83, depend 2.67, anxiety 4.33 out of 5.00)

The figures appear dimensional with shading, and a range of line quality, line pressure, and detail. Movement is implied in the posture of the parent figure, who is shown in three-quarter view. According to Lowenfeld and Brittain (1987) this level of artistic development is beyond that of most adults and displays a higher level of skill and competency. Because of the often unusual presentation of figures made by those with artistic ability, the connections between figures often reflect some level of artistic novelty, as in this case, where the child is hiding behind the parent’s leg. Images high in creativity and artistic novelty can be challenging to rate as they do not often easily fit into prescribed categories (Kaplan, 2001).

Facing

In addition to textual references that refer to attachment in the artwork, the way that parent/child figures were connected to each other seemed to indicate both implicit and explicit
participant constructs about relationships and bonding. *Facing*, by definition in this study, refers to the manner in which the participant connected the figures once they were cut out, by moving or rotating them to then make contact with each other. Initially, it was hypothesized that most participants would simply attach the parent/child figures in a conventional side by side fashion as if they were holding hands, yet during the pilot study, a significant number of participants used various attachments other than a side to side attachment of the figures: *front to back* (both figures facing in the same direction with overlap), *front to front* (both figures facing each other), and *back to back* (both figures facing away from each other with overlap). (See Figure 9.)

![Attachment Types](image)

*Figure 9. Examples of facing attachment of parent/child drawings.*

In these cases, the front to front facing, for example, made the figures’ faces touch in a manner of *obstructing the viewer* from sight, creating a more intimate manner of attachment, suggesting a close or intense connection. This type of facing seemed in direct contrast to attaching the figures back to back, with neither figure facing each other, suggesting a more distant connection or relationship between figures.

Based on data from the pilot study, it was decided that *facing* would be observed, both as descriptive and comparative data for this current study due to the potential for additional diagnostic information that might complement data on adhesive choice. Choices in moving or repositioning figures can have meaning in metaphor. For example, unconventional rotation of
figures has been cited in art therapy literature as having potential diagnostic significance in the following manner: feelings of disorientation (Burns & Kaufman, 1972); feeling different than others (Burns & Kaufman, 1972); feelings of rejection (Reynolds, 1978); and/or cognitive/neurological deficits (Reynolds, 1978; Silver, 1996), all of which could have an impact on attachment style. In the current study, two images were rotated and connected in highly unusual manners, such as feet to feet (Figure 10) or feet to head (Figure 11) and were not easily categorized.

**Figure 10.** Examples of unusual facing (feet to feet attachment; insecure attachment, close 3.17, depend 3.00, anxiety 2.50 out of 5.00)

**Figure 11.** Examples of unusual facing (feet to head attachment; insecure attachment, close 3.17, depend 2.67, anxiety 2.67 out of 5.00)
Rating the facing. In order to validate the observations of this researcher, facing was evaluated by outside raters. Four raters (three seasoned art therapists and one music teacher) were trained (Appendix F) with examples of criteria for inclusion in a facing category. Each rater was provided with digital copies of the original drawings and asked to assign them to one of the following facing categories based on how the two images were attached: (1) side to side, (2) front to back, (3) front to front, and (4) back to back. Additionally, if any facing attachment seemed ambiguous and they had difficulty deciding on a category, they were asked to select the best possible choice and write the rationale for their final choice. They did not have access to attachment scores and knew only that the study involved the initial stages of validating an arts-based assessment. This textual information was thought to be useful in modifying inclusion criteria for the facing categories. The rater process overall was an initial step in developing a facing subscale as part of the arts-based measure. Additional subscales for the measure could serve as a means of triangulation of data sources for measuring attachment style as manifested in the art process.

To test interrater reliability (IRR), Cohen’s (1960) kappa was calculated comparing all raters on the four possible facing choices. Because four raters were used, a variant of Cohen’s kappa (Light, 1971) was computed for each coder pair and then all scores averaged, in order to produce a single IRR index (as described by Hallgren, 2012). The intended purpose of the IRR estimate was to validate criteria for different facing categories in creating a subscale for the arts-based measure of attachment style. The resulting average kappa indicated substantial agreement, $k=0.68$ (Landis & Koch, 1977). The IRR analysis suggests that all four coders had substantial
agreement in the facing ratings, in consideration of expected amounts of error variance due to the subjective nature of the rating process.

**Ambiguity in assigning facing.** Raters unanimously indicated that certain images with a large percentage of overlap were difficult to easily categorize as either *side by side* or *front to back*. For example, Figure 12 is an example of an image that raters were conflicted about because of the significant amount of overlap. It is not clear if the figures are next to each other (*side to side*) or if one figure is positioned behind the other (*front to back*).

![Figure 12](image)

*Figure 12.* Example significant overlap in facing, which may be rated as *side to side* or *front to back* (secure attachment, close 4.00, depend 3.50, anxiety 2.33 out of 5.00)

Sometimes the overlap was due to a large amount of excess paper around the figure, other times the figures were trimmed close to the image, but body parts (in addition to the hands) were covered by overlap. In discussing the images afterwards, raters generally agreed that when they had to decide if an image with overlap as either side to side or front to back, there was general agreement that over 25% of overlap was considered a front to back image. This feedback was helpful in considering criteria for a future facing subscale.
Additionally, a figure that overlaps another figure by more than 25% can be seen as covering or obliterating parts of the other figure and this may be a graphic indicator of levels of attachment. For example, Burns and Kaufman (1972) describe the distance between figures as indicative of perceived emotional closeness or distance. Additionally, raters identified other methods of connecting figures that were not easily categorized, such as Figure 13, which shows a kind of entwinement between the figures, as they are purposefully wrapped around each other. Of note, these individuals scored high on the close and depend scales and low on anxious attachment scales, suggesting that they are comfortable in close relationships.

*Figure 13. Example of unusual facing attachment where figures seem wrapped around each other described as entwinement (secure attachment, close 4.50, depend 3.67, anxiety 1.33 out of 5.00)*

This method of attachment seems to suggest a kind of enmeshed or intense connection between the figures. Other images, such as Figure 14 were difficult to categorize as one or both of the figures were shown in a side view. A side view, rather than frontal view, can suggest an aversion or avoidance (Burns & Kaufman, 1972; Koppitz, 1968).
Figure 14. Example of a side view figure (insecure attachment, close 2.00, depend 2.67, anxiety 3.33 out of 5.00)

Associations between facing and adhesive choice. A likelihood-ratio chi-square test was performed to examine the relationship between facing and adhesive choice. Only data that had a 100% level of agreement (n=62) between all four raters was used; all other data was discarded for this test. The association between these variables was significant, $G^2 (9, N = 62) = 17.2, p = .045$. Participants who selected tape, staples, or glue stick were more likely to attach their figures side to side. Those that chose liquid glue were more likely to attach their figures front to back.

Based on the level of agreement between raters and the statistically significant association between facing and adhesive choice, a facing subscale should be included as part of the ABASA assessment tool. Additionally, because of the implications of facing as a metaphor for differing relational attachment strategies, future research should consider facing (along with adhesive choice) as a variable in predicting attachment styles.
Results Summary

Using a sequential, mixed methodology approach to data analysis informed by an iterative, Bayesian approach to probability and threshold significance, this study sought to construct an innovative and replicable research model which examined the relationship between attachment style, trauma, and gender as related to adhesive choice in an arts-based projective technique. Findings across multiple methods show small to medium effects that support the clinical impression that adhesive use is related to attachment style, trauma history, and gender. A diagram of the emergent data analytic process can be seen in Figure 15. A summary of the results follows.

![Diagram of the emergent data analytic process.](image)

**Figure 15.** Diagram of the emergent data analytic process.

The first MANOVA using the two DVs of anxious and avoidant attachment and a 4-level IV of adhesive choice showed that attachment style is not significantly related to adhesive use,
$F(6, 172) = 1.26, p = .278$; Wilk's $\Lambda = 0.918$, with small effect size ($\text{partial } \eta^2 = .048$) and low power (.49). In an effort to explore the possible reasons for these results, trends in the artwork and accompanying text were observed, noting gender differences in artwork. A posterior review of the literature confirmed gender as a possible variable in the development of attachment style. Similarly, when the qualitative text and art content was analyzed, trends in trauma history and attachment were noted that suggested trauma history differences might be a factor in the formation of attachment styles, as originally anticipated. A posterior review of the literature not only supported this trend but some research also pointed to a combined effect of gender and trauma history on attachment style (Street & Dardis, 2018).

In further trying to understand the insignificant results, a posterior review of the research on various attachment models leaned towards the use of a three-dimensional model of attachment (anxious, close, depend), rather than two dimensions (anxious, avoidant), in order to capture subtle differences in attachment style, especially along the avoidant continuum. This retrospective review of the literature and the current findings suggested that both trauma and gender may act as influencers in attachment style, and that avoidant attachment styles may be more complex than previously anticipated.

Based on this new information, a second MANOVA was then performed on the data set as archival research, using the three dimensions (anxious, close, depend) as the dependent variables and the four-level independent variable of adhesive choice, along with both trauma and
gender as dichotomous independent variables. Alpha levels were abandoned in the spirit of exploratory research as described by Rubin (2017) and Matsunaga (2007).

There are main effects for both gender \((F(3,74) = 2.25, \text{ Wilk's } \Lambda = .885, p = .029)\), with a small effect size \((\text{partial } \eta^2 = .115)\) and medium power \((1 - \beta) = .715\) and trauma \((F(3,74) = 3.13, \text{ Wilk's } \Lambda = .888, p = .031)\), with a small effect size \((\text{partial } \eta^2 = .112)\) and medium power \((1 - \beta) = .706\) and no main effect for adhesive use. There is also a statistically significant three-way interaction of adhesive use trauma, and gender on attachment \((F(6,148) = 2.25, \text{ Wilk's } \Lambda = .840, p = .042)\), with a small effect size \((\text{partial } \eta^2 = .083)\) and medium power \((1 - \beta) = .775\). There are no interaction effects for adhesive by gender, adhesive by trauma, or gender by trauma.

Two-tailed independent-samples t-tests were conducted to test for main effects of gender and trauma on each of the attachment continua (anxious, close, and depend). For gender on anxious attachment, Levene’s Test for Equality of Variance is significant \((F = 8.41, p = .005)\), therefore equal variances are not assumed; Results show female identified participants are significantly more anxious \((M = 3.12, SD = 1.19)\) than male identified \((M = 2.20, SD = 0.91); t(87.84) = 4.15, p = .000\). There are no significant differences in close and depend continuum scores for gender. Independent-samples t-tests to test for main effect of trauma on attachment continuum scores show no statistically significant differences for anxious or close, while there is a difference for depend \((t(88) = 2.90, p = .005)\), with medium\((d = 0.61)\) effect size according to Cohen’s (1988) benchmark. Those reporting trauma history score lower on depend \((M = 2.70, SD = 0.65)\) than those with no history \((M = 3.18, SD = 0.90)\).

Similarly, results from the ANOVAs show a main effect for gender on anxious attachment \((F(1,90) = 5.96, p = .017)\), with a small effect size \((\text{partial } \eta^2 = .073)\) and moderate power \((1 - \beta) = .673)\) and trauma on depend \((F(2,90) = 7.31, p = .008)\), with a small effect size
(partial η² = .088) and moderate power (1 - β) = .761) and no significant main effect for adhesive on attachment. Additionally, there are no significant two-way effects of adhesive and gender, adhesive and trauma, or gender and trauma on attachment. There is, however, a significant three-way interaction effect of gender, trauma, and adhesives on attachment depend (F(2,76) = 5.50, p = .006, with a small effect size (partial η² = .126) and high power (1 - β) = .838. There are no three-way interaction effects for adhesive, gender, and trauma on the variables close and anxious. All post hoc Tukey HSD tests show no statistical significance. It should be noted that many groups have extremely small sample sizes, potentially impacting power and generalizability of findings.

Qualitative results produced a rich and varied array of thematic content. Contextual analysis of the text using axial coding revealed referential themes in addition to descriptions of what was drawn such as emotional expression, constructs about parenting and childhood, and narratives about bonds between parent and child.

Thematic analysis of the artwork revealed similar implicit and explicit themes of relational bonding and attachment. Developmental indicators suggested most artwork was executed on the developmental level of 9-10 year old child, typical of most adults with limited art skill. Socio-normative gender indicators were prevalent in the artwork and reinforced in gender specific indicators in the accompanying text. The prevalence of visual and textual references to bonding and the parent/child relationship suggest that the art process of drawing a parent, drawing a child, cutting them out, and connecting them together elicited participant constructs of attachment.
Facing (how the images were attached) was evaluated using a variant of Cohen’s (1960) kappa (Light, 1971) for two or more raters; results showed an average interrater reliability of $k=0.68$. Raters identified four different manners of facing: *side to side*, *front to back* (both figures facing in the same direction with overlap), *front to front* (both figures facing each other), and *back to back* (both figures facing away from each other with overlap). Raters also identified criteria for distinctions between *side to side* and *front to back overlap* and an additional category where figures appeared to be entwined, a more complex version of the *front to back* facing that seemed to indicate a more purposeful attachment between the figures. A likelihood-ratio chi-square test produced a significant result for a relationship between facing and adhesive choice, $G^2 (9, N = 62) = 17.2, p = .045$. Participants who selected tape, staples or glue stick were more likely to attach their figures side to side. Those that chose liquid glue were more likely to attach their figures front to back.

In summary, there was no statistically significant main effect for adhesive use on attachment scores. However, the qualitative results of the graphic indicators in the artwork along with themes in the accompanying text, as well as the statistically significant results indicating a relationship between facing and adhesive choice are compelling outcomes. In combination with the attachment scores, these results triangulate from a qualitative and quantitative perspective to suggest that future research should explore the complex relationship between gender, trauma,
adhesives, and attachment style with further quantitative analysis. The following chapter will outline specific approaches for future research informed by the qualitative results in this study.
Chapter 7

Conclusions

The iterative process of this research endeavor has proved to be a profound learning experience. Moving back and forth through the quantitative and qualitative results provided opportunities for reflection, interpretation, and a deep understanding of the complexities of the emergent attachment process in young adulthood. Sequential consideration of the variables of trauma and gender provided a greater understanding of their influence than if they were all tested simultaneously at the start. Flexibility in the data analytics process allowed for the constructs of quantitative and qualitative inquiry to have interface, working in concert with the research process, rather than as opposing binary constructs. Focusing on the similarities between these paradigms, rather than the differences has allowed me to become what Onwuegbuzie and Leech (2005) describe as a pragmatic researcher, in that my research questions informed the methods with an understanding that epistemological purity and mono-methods might have restricted my path to a true support and understanding of my hypothesis.

Pragmatic research proponents believe that “quantitative methods are not necessarily positivist, nor are qualitative techniques necessarily hermeneutic” (p. 377), moving away from a perceived false dichotomy of both methods. I now feel fully confident that this approach to research is best suited for the field of art therapy, which itself is a complex practice not easily categorized, measured, or described. This approach to research is reminiscent of the iterative approach taken in the clinical setting of art therapy, where psychological testing, assessment of the artwork, and written and spoken narrative, all contribute to the effort of increasing a client’s capacity for insight into their presenting problems. These various perspectives of data collection construct complementary (not contradictory) information that create a wholistic and rich image
of the client. Research in the field of art therapy should parallel the clinical process in this way. My hope is that this current research will be replicated and later modified to continue the process of validation of the ABASA. I also hope that this model of research will be applied to other research endeavors in the field of art therapy.

In keeping with a mindset of exploratory research, there are a number of possible reasons why the results of the initial MANOVA did not support the main hypothesis that a relationship exists between attachment style and adhesive choice. While the initial tests yielded modest non-significant results, it is possible that the results would have been significant if only for greater statistical power from a larger sample size. Although there was a statistically significant finding of a combined effect in the second MANOVA, because of the multiple dependent variables and multi-level independent variables, sample sizes at the cell level was not large enough to produce reliable and generalizable results. For example, when examining the intersection of gender, trauma, and adhesive choice with attachment, only one male identified participant with a trauma history used liquid glue. For this reason, replication of this study should include sample sizes 10 to 20 times larger than this study, in order to have sufficient quantities of data at the individual cell level, allowing for a more accurate statistical assessment.

However, in all likelihood, the lack of quantitative evidence for a direct relationship between adhesive use and attachment is not simply due to effect size or power. Human behaviors are often multifaceted, unpredictable, and therefore difficult to quantify. A review of the literature has shown that there is much complexity in understanding the variables of gender and trauma and their potential effect on the relationship between attachment and adhesive choice, some of which was discussed previously and some of which will be discussed in this chapter.
To be clear, there was no statistically significant main effect of adhesive use on attachment style. However, finding statistical significance for a combined effect in the second MANOVA (after adding the variables of gender and trauma) is certainly thought provoking. These results are even more interesting given that there were no significant two-way interactions of trauma and gender on attachment style, raising more questions than answers, particularly in light of research (Blain, Galovski & Robinson, 2010; Hagborg, Tidefors & Fahlke, 2017; Street & Dardis, 2018) describing the entwined effect of gender and trauma on attachment; all of these considerations lend support to the notion of further examination of a possible combined effect.

In spite of the statistical significance of the three-way interaction in the second MANOVA, some might argue that these results are merely the product of a statistical or a methodological artifact, resulting from the manipulation of data in this exploratory process. It is possible that the findings of the second MANOVA do not reflect the population as a whole but are, rather, an unintended consequence of errors in the data analytics. For example, although there is a significant three-way interaction, there is no two-way interaction of trauma and gender on attachment style (as demonstrated in the literature), suggesting that the three way interaction significance could merely be a Type 1 error of a false positive. It is quite possible that the statistical significance of a combined three-way effect in this study is due to probability errors related to variable confounds. On the other hand, perhaps the 3-way interaction is tapping into a more complex relationship between adhesive choice, gender and trauma. Only additional research will help to reveal what is happening between these three factors and attachment style.

Methodologically, the next step would be a deeper examination of the effects of gender and trauma as confounds in the results, so using a linear or step down regression might give insight into the effects of these variables. Another way to further explore these results would be
to perform a Multivariate Analysis of Covariance (MANCOVA) whereby gender and trauma are covariates; the MANCOVA would indicate if the IV adhesive had a statistically significant effect on the combined DVs of attachment when controlling for gender and trauma.

**Exploratory MANCOVA**

In the spirit of exploratory research, a MANCOVA was conducted (without consideration of alpha values) to determine if a statistically significant difference existed between IV adhesives (tape, glue stick, staples, liquid glue) on the combined DV attachment (anxious, close, depend) controlling for the covariates of gender and trauma. There was no statistically significant effect of adhesives on attachment after controlling for gender and trauma, \( F(9, 202.15) = 1.33, \) \( \text{Wilk's } \Lambda = .869, \) \( p = .222, \) with a small effect size \( \text{partial } \eta^2 = .046 \) and low power \( (1 - \beta) = .526 \). Like the original MANOVA examining the direct effect of adhesive on attachment, this MANCOVA suggests no direct connection between adhesives and attachment when controlling for gender (female, male) and trauma (yes, no). As with all of the previous tests, the low power suggests the need for much larger sample sizes in order to employ more rigorous control of alpha levels, more robust statistical power, and adequate membership in each cell of inquiry which may produce different results. With significant sample sizes, interpretation of the results may be more defined.

Regardless of the next steps, future research in this area and in the field of art therapy, should not ignore results that are statistically insignificant or close to significance. As suggested by some previously cited research, these conclusions may be inaccurate. Insignificant results should not be an endpoint, but rather an impetus to look towards other data sets, constructs, measures, and methods in order to fully understand the results. From a hermeneutic perspective, in this current research project, the initial insignificant quantitative results may have been due to
the inherent complexity of the etiology of attachment style strategies, and the influential effects of gender and trauma history.

**Future Research**

Future research on this topic must include trauma and gender along with attachment style when looking for relational effects. There are many artifacts that could be contributing to the current findings. Future research needs to address each of these when examining the relationship between adhesive choice and attachment style in the context of gender and trauma. While the MANCOVA did not find a significant relationship between adhesive choice and attachment style, the vast amount of the variance was removed to control for the variance caused by gender and trauma. It was still worth looking through the lens of a MANCOVA but additional statistical tools will need to be utilized in the future when trying to control for dichotomous variables with all participants being coded as either male or female and as trauma and no trauma. The MANCOVA would not have had much variance left after removing the variance associated with gender and trauma. Therefore, the lack of a result might simply be due to the way the MANCOVA controls for covariates. Factor in the 3-way interaction found in the second MANOVA, this raises issues and questions for further study with a much larger sample size with excellent membership in each cell to help determine what is happening.

Another confounding struggle stems from the relationship that gender and trauma each have with the DV attachment style. Across all the analyses that did not find significance, it is possible that each variable is canceling out its scores on the DV because both men and women and trauma and non-trauma participants have almost opposite responses on the DV. Indeed, the main effects of gender and trauma in the second MANOVA show that there are different response patterns on the DV across gender and trauma. Moreover, it is possible that each
confounding independent variable (gender and trauma) can have the opposite effect with the other independent variables, the result of which can be a cancelling of a statistical effect. Future research will have to address these potential artifacts to the findings and explore alternative methods for controlling for these confounding variables.

Additionally, it is possible that the current instrument of attachment was sensitive to error from the confounds of gender and trauma. Currently, no attachment measure takes into account the combined effects of gender and trauma, so metric flaws likely contributed to these confusing results. Finally, Pourhoseingholi, Baghestani, and Vahedi (2012), suggest using randomization (random distribution of confound variables between study groups) restriction (include only participants in the study with confounding factors, in this case trauma history), and matching (equal distribution of confounders) in the design phase of research and regression models to control for confounding variables. Future research should consider a logistic regression model or another sophisticated analytic tool that might address these complex artifacts the researcher will have to contend with moving forward. Moreover, based on the qualitative data, more nuanced measures for gender and trauma will need to be considered.

**Additional considerations for gender as a variable.** In this study, the variable of gender was only considered after the first MANOVA showed no significant combined effect for adhesive on attachment style and the qualitative data from the artwork suggested differences in the way female-identified and male-identified participants drew and wrote about attachment constructs, thereby informing a readdress of the archival data. A posterior review of the literature also supported differences in gender approaches to attachment strategies (Adamczyzyn & Bookwala, 2013; Barry, Seager & Brown, 2015; Scharfe, 2017)
The influence of gender on attachment style presents as more confounding, particularly in light of the current societal trend away from binary models of gender orientation. The complexity of this variable is rooted in a network of internal and external social constructs that are reflective of current societal archetypes (Ivashkevich, 2008; Tuman, 1999). More recently there has been a cultural shift in understanding gender stereotypes. Although gender identity exploration can be evidenced through attitude, behaviors, sexual orientation, and dress, a socially dictated binary gender expression is coming to be viewed as culturally oppressive. This shift in cultural thinking is also evidenced in artwork. Though much of the artwork in this research demonstrated socio-normative gender identifiers, some of the artwork defied binary categorization. For example, Figure 16 shows an image of what the participant identified as a parent who is wearing what looks to be a zippered form fitting top with accentuated breasts, wide shoulders, muscular arms, narrow hips, as well as both masculine and feminine facial features, making the gender of the figure seem non-binary. A few decades ago, this kind of drawing content would have been deemed pathological, whereas today, it is seen as a reflection of changing attitudes about gender in society.

Figure 16. Example of a Parent with Non-Binary Gender Identifiers
The elusive substantiation of the impact of gender on the formation of attachment style calls out for more targeted research on this relationship. The mixed results of current attachment research in the context of gender may be due to the accuracy of measures, the particulars of samples, or underlying shifts in gender identity that are not easily captured (Crangle & Hart 2017; Del Giudice & Belsky, 2010; Givertz, Woszidlo, Segrin & Knutson, 2013; Kachadourian, Fincham, & Davila, 2004; Kane et al., 2007). A first step in the context of current societal evolutions is to reconsider the binary and categorical constructs of gender looking, instead, to measuring gender along a continuum. Reilly (2019) posits that gender in psychology research should be viewed as a continuous variable. In this way, nuances of biological, social, and internalized constructs of gender are better captured. Perhaps future research which challenges conventional measures of gender will also impact the way attachment style is measured. At the very least, future research in all areas should include non-binary gender options (intersex, asexual, pansexual, polysexual) or, at the very least, an open-ended response on demographic questions, as in this current study.

**Sexual orientation, gender, and attachment style.** The impact of gender on attachment style has been addressed in previous sections of this document, however, this literature on adult attachment was based largely on cisgender and heterosexual couples. Little research has been done on adult attachment strategies in gay, lesbian, bisexual, transgender, agender, and bigender couples and individuals. Researchers (Ridge & Feeney; 1998; Rosario et al., 2014; Wilson, Zeng, & Blackburn, 2011) found that while most adult attachment strategies and associations with attachment models were similar in heterosexual and monosexual couples, differences were found in monosexual samples in which parental relationships were strained due to the effects of self-disclosure of their sexual orientation and/or gender identity. The global damage to familial and
interpersonal relationships due to negative responses to “coming out” have been widely reported and anecdotally experienced; it is not difficult to imagine the effect of this kind of a response on an individual’s ability to form trusting and intimate relationships as an adult. From a developmental framework, Rosario (2015) describes the importance of a healthy pathway to sexual identity in lesbian, gay, and bisexual (LGB) individuals and the intersection with attachment strategies. In a review of current literature, the author cites a great deal of research correlating a relationship between healthy attachment and sexual identity development, however, the causal direction of the relationship is not clear (i.e., attachment style affects sexual identity formation, or vice versa). This may be due in part to a lack data about attachment in LGB children to date.

Based on the current literature, gender identity and sexual orientation are related to attachment style constructs and adult relationship strategies. A more focused exploration of the impact of the gender continuum on attachment is beyond the scope of this current research project, however, future research should include an expanded definition of the gender variable in the context of current social constructs.

**Additional considerations for trauma as a variable.** In this study, trauma was first considered as a testing variable based on anecdotal clinical experience which suggested relationships among trauma, attachment style, and adhesive choice; it was observed that individuals with a documented history of trauma presented with insecure attachment styles and particular adhesive choices. Literature (previously described in this document) also supported the link between trauma and attachment style. Aspects of trauma (type, length, response to the experience) seemed to also influence attachment style, making the prospect of integrating trauma
as a measurable discrete, categorical, or finite variable into this study quite challenging.

Weathers and Keane (2007) state:

Creating an all-purpose, general definition [of trauma] has proven remarkably difficult. Stressors vary along a number of dimensions, including magnitude…complexity, frequency, duration, predictability, and controllability. At the extremes, i.e., catastrophes versus minor hassles, different stressors may seem discrete and qualitatively distinct, but there is a continuum of stressor severity and there are no crisp boundaries demarcating ordinary stressors from traumatic stressors. Further, perception of an event as stressful depends on subjective appraisal, making it difficult to define stressors objectively, and independent of personal meaning making (p. 108).

Challenges in defining trauma create challenges in creating accurate means of measuring trauma, thereby complicating the ability to accurately describe the impact of trauma in the context of other experiences. In hindsight, a more accurate measure of trauma may be a tool such as the Trauma History Survey (THS) developed by Sheline and Rosen (2017) which measures the severity of trauma, rather than the number of incidents of trauma. The survey has three components to each question: (1) whether the person has experienced a particular kind of trauma, (2) the frequency of the event, and (3) a scale indicating the perceived personal distress caused by the event. The researchers found that in spite of a history of severe trauma, participants that reported posttraumatic growth were less likely to become suicidal than those that did not report posttraumatic growth. The research suggests that certain factors, such as posttraumatic growth, have an impact on the detrimental effects of trauma.
**Mitigating factors for trauma resolution.** Additionally, the literature suggests that it is not the experience of trauma itself that can cause long term effects but, rather, a lack of *resolution* to the experience that can foster pathology and impact the ability to form healthy attachments (Lyons-Ruth et al., 1999). Concurrently, the literature also suggests that existing healthy relationships at the time of the onset of trauma can provide a wider range of coping skills that lead to resilience, ultimately culminating in a healthier adaptation to trauma (Jardin et al, 2017; van der Kolk 1996). The literature (Calhoun & Tedeschi, 2006; Frans, Rimmö, Aberg, & Fredrikson, 2005; Joseph & Linley, 2006; 2008; Sheline & Rosen, 2017) also describes a particular response to trauma, known as *posttraumatic growth* which is defined as a more positive outcome to trauma that allows for the development of a wider range of coping skills, insight, and higher psychological functioning, in the face of traumatic events. Sheline and Rosen (2017) describe this phenomenon in this way:

‘posttraumatic growth’ involves self-reported positive psychological changes induced by the experience and processing of a traumatic event and its aftermath. These changes include improved interpersonal relationships, a greater sense of new possibilities, increased personal strength, heightened spirituality, and an enhanced appreciation for life…[and] is an experience of improvement that, for some, is deeply profound (p. 403).

In their research, participants reported experiencing life changes and personal growth “self-acceptance, autonomy, purpose in life, relationships, [and] sense of mastery” (p. 406).

Interestingly, posttraumatic growth outcomes in the research cited above are varied, with some studies suggesting that posttraumatic growth can only occur following severe trauma. For example, Sheline and Rosen (2017) suggest that in order for posttraumatic growth to occur, the stress from the trauma event must “be severe enough to challenge survivors' core beliefs, which
prompts both intrusive and deliberate cognitive processing” (p. 408). The authors state that it is not so much the number of traumatic events that occur, but rather the intensity of the stress impact in combination with a capacity for resilience that can initiate growth instead of pathology.

Future research may consider using a specific tool to measure resilience and posttraumatic growth such as the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996), a Likert-type 6-point scale which consists of 21 items that measure positive outcomes following traumatic experiences in the five subscales of relating to others, new possibilities, personal strength, spiritual change, and appreciation of life. This measure was validated with undergraduate students and found to be reliable and may be a useful tool in separating out the impact of trauma versus response to trauma on attachment style and adhesive choice.

**Trauma indicators in the artwork.** As previously demonstrated in the literature review for this study, the connection between trauma and insecure attachment has been well documented. Though not consistently reliable, graphic indicators in artwork that suggest a person may have experienced trauma have also been identified in the literature and have supported the use of drawings as a part of larger trauma and abuse screenings. A meta-analysis of research by Allen and Tussey (2012) did not find empirical evidence to support the use of any scoring system for graphic indicators of sexual or physical abuse, though they admit that interpretation of the results was difficult due to methodological flaws, confounds from co-morbidity (such as various types of mental illness) may have contributed to the negative findings. They also cite individual studies that did support certain graphic indicators but had not been replicated. One year after this meta-analysis, Jacobs-Kayam, Lev-Wiesel, and Zohar (2013) identified four graphic indicators (face outlines, exaggerations/omissions of eyes, exaggeration omissions of hands/arms, and
presence of genitals) that had been identified in previous research as indicators of sexual/physical trauma.

The results of this current study were no less mixed with regard to graphic trauma indicators as suggestive of insecure attachment styles. For example, graphic indicators of trauma were also noted in this sample, some of which were associated with an insecure attachment score, while others were not. Equally confounding, other images demonstrated what appeared to be, in this writer’s opinion, clear graphic indicators of trauma, yet the participant reported no trauma.

There are a number of conclusions that might explain the inconsistent results from this qualitative data: (1) there is no conclusive evidence of a relationship between trauma and attachment indicated in the artwork, (2) participants under or over reported trauma and attachment scores, thereby confounding any association to graphic indicators in the art, (3) one individual piece of art (as opposed to multiple pieces over time) is not a reliable diagnostic indicator, or (4) myriad effects of trauma (frequency, type, individual response, time from initial onset) are complex and not easily captured, thereby accurately measuring the combined effect on attachment style and adhesive choice remains challenging.

**Trauma in undergraduate populations.** One final consideration in the use of trauma as a variable lies in the sample population. Undergraduate students have been long identified as a sample of convenience; at the same time, they also present as a unique population with regard to their standing in the developmental span of adulthood, lying somewhere between late adolescence and early adulthood. Traditional-age undergraduate students are in an age group that has been identified in the literature as at high risk for trauma exposure. Additionally, studies of undergraduate samples suggest that the peak age for trauma exposure is 16 to 20 years (Wilcox,
Storr, & Breslau, 2009). Parallel to the literature, the sample for this study showed a high percentage of sexual trauma among female identified participants, occurring over the age of 18 years, suggesting that this particular developmental age group of young adults may be at risk for trauma in ways that are unique.

In consideration of the different aspects of trauma and the limitations of measures, future research should be clear about which aspects of trauma will be measured: frequency, type, intensity, perceived stress response, posttraumatic growth. Future research should be mindful of how the impact (and measurement) of trauma may be influenced by the developmental stage of the population.

Other Limitations and Considerations

Flawed self-reporting measures of attachment. In a previous section, the limitations of trauma measures based on parameters of definition and impact were discussed. Another methodological consideration for the initial insignificant findings in this study may be that self-reporting attachment measures are also flawed. In this case, it may be that it is not that there is not a significant relationship between adhesive and attachment style, but rather that attachment measures in the form of self-reporting questionnaires are flawed because they do not access unfiltered, unconscious processes that inform attachment style. Serra et al. (2019) proposed that using an indirect measure of attachment style such the Implicit Association Test or IAT (Greenwald, McGhee & Schwartz, 1998) rather than an introspective measure as implicit measures can capture automatic responses more effectively than reflection. Further, some research suggests that interview style attachment measures are more accurate (though more difficult to score) in capturing the complexities of attachment styles; further, self-reporting instruments “…assume a certain measure of self-awareness, and may be subject to defensive
distortions” (Garabino, 1996, p. 19). Ideally, future research should incorporate multiple measures using different testing strategies in order to most effectively capture an individual’s attachment style (Scharfe & Bartholomew, 1994). Unfortunately, this may not always be possible given time constraints and sample sizes, as in the case with this study.

**Alpha levels and multiple testing.** As discussed in previous sections, depending on the reader’s orientation, multiple testing can be considered a methodological flaw or an integral part of exploratory research. Rothman (1990) makes an elegant argument for not making alpha adjustments for multiple testing, citing that this policy undermines the basic tenet of empirical research which holds that “nature follows regular laws that may be studied through observations” (p. 43). Further, he states that the presumption that chance alone accounts for insignificant findings (or the rejection of the null hypothesis) is a misinterpretation of the statistic. Rothman (1990) states, “The p-value is an indicator of the relative compatibility between the data and the null hypothesis, but *it does not indicate whether the null hypothesis is a correct explanation for the data* [emphasis added]” (p. 44). Outcomes of chance or randomness may still have causal explanations that are not easily identified. Further, employing a “penalty for peeking” (reducing alpha values for multiple testing) does not ensure scientific accuracy but rather minimizes opportunities of heuristic pursuits “in a universe brimming with interrelated phenomenon” (p.46). He closes by saying, “The possibility that we may be misled is inherent to the trial-and-error process of science; we might avoid all such errors by eschewing science completely, but then we learn nothing” (p. 46).

In this mixed methods study, the researcher made every attempt to honor the stringent guidelines of quantitative methods while also using the qualitative data to inform analytic decisions. The hope was to not use a mixed method as an excuse for loosening standards on the
quantitative testing but rather to truly integrate the most useful aspects of each divergent methodology in an attempt to deeply understand the research questions.

**Next Steps**

The scope of this study was broad in an attempt to create a conceptual framework upon which future research could be improved with efficiency and focus. Next steps for future research should be: (1) replication of the MANCOVA or use of a other statistical procedures such as a logistic regression to accurately address the shared variance of the covariates (gender and trauma) on attachment and adhesive choice, (2) larger sample size to provide sufficient power and adequate cell membership, (3) randomization (random distribution of confound variables between study groups), restriction (include only participants in the study with confounding factors, in this case trauma history), and matching (equal distribution of confounders) in the design phase of research (4) utilization of more nuanced measures for gender and trauma and, (5) continued use of a mixed method approach to arts-based research that combines both quantitative and qualitative data analysis for a rich understanding of research questions. Replication procedures and methodologies for future research have been discussed at length in previous chapters. The following passage will outline specific next steps in the validity research.

**Continued establishment of validity.** This research represents the first stages in the establishment of validity for an arts-based diagnostic tool. However, because visual data is quite different than language-based data, arts-based assessment tools do not fit easily into the prescribed procedure for validating tools such as those in the form of questionnaires, surveys, or interview-based measures. With self-reporting or interview measures, according to Collingridge (2014), the process would involve (1) establishing face and construct validity, (2) using Factor
Analysis in the form of Principal Component Analysis, and (3) checking for internal consistency with Cronbach’s Alpha.

Establishing face validity. Qualitative data from this research project suggests that when asked to draw a parent and child, cut them out, and attach them back together, constructs of attachment and bonding were evident in the content of the artwork and in the accompanying text. In future research, this process should be repeated, always making sure that the art-based measure is administered before any attachment surveys, so as not to influence the art or text content. This art and text content should be evaluated by other art therapy experts in the field as raters to determine if the art and text content captures the constructs of attachment.

Factor analysis using Principal Components Analysis (PCA). In surveys and questionnaires, PCA is used to identify constructs of content that are being measured in the questions. Factor loading identifies the extent of the relationship (usually through correlational statistics) of each observed (measured) variable to the underlying factor. So, in future research projects, graphic indicators of artwork and themes identified in the text would be subjected to factor analysis. Grouped themes would then be reviewed with the expectation that they are alluding to attachment related constructs. Art content themes would be identified contextually (Gantt, 2004), rather than as individual symbols, and rated for presence along a continuum of the degree of presence. These graphic identifiers would then take the place of question-based data content, creating the model for arts-based factor analysis, as described by Gant (2001). Further, Gilroy, Tipple, and Brown (2011) stress the importance of the formal aspects of art over art content analysis as an integral part of developing arts-based rating systems. This approach simplifies the process of comparing artwork, eliminating the distraction of subjective content which can vary greatly between raters.
**Check internal consistency.** Internal consistency would be reviewed by checking that the visual themes (bonding and connectedness, gender expression, trauma indicators) and formal qualities (composition, line quality, size of image, distance, and proximity of figures) expressed in the artwork and text load onto the same factors. Statistical confirmation would be obtained through a Cronbach’s alpha composite reliability test.

**Construct validity.** Resulting factors from the ABASA are then correlated with validated self-reports of attachment, post traumatic growth (Posttraumatic Growth Inventory, PTGI; Tedeschi & Calhoun, 1996), impact of trauma (Brief Trauma Questionnaire (BTQ), a 10-item self-report questionnaire that measures the perceived severity of the trauma (Schnurr, et al., 2002)), and inclusive gender identity expression (Fraser, 2018). Behaviors such as overuse and underuse of adhesive would be examined using multiple raters to examine the artwork.

**Closing**

This research found no statistically significant main effect for adhesive use on attachment style; however, there were a number of findings that were unanticipated and deserve deeper exploration, notably, the possible relationship between gender, trauma, attachment style, and adhesive choice. The quantitative model of this study must be modified in order to more accurately examine if a relationship exists. While there is great value in the unconventional, exploratory model of this current research project, aspects of the quantitative analyses would not be considered acceptable by the more rigorous standards of conventional social science research.

Still, it is this writer's belief that the most significant outcome of this work was the opportunity to articulate and expand a framework model that is uniquely suited for art therapy research and to provide a blueprint of how one might go about testing the hypotheses based on anecdotal evidence through clinical practice, specifically examining whether the art product and
process (adhesive choice) are related to attachment. While the current study did not find direct quantitative support for this link between adhesive and attachment (a central finding of the work), the research process did illustrate the challenges in establishing a model that might quantitatively capture this relationship. As is common in pioneering research, this study has generated more questions than answers, which provides much inspiration for future research and an appreciation for the need to use more complex quantitative modeling and control for confounding variables in an effort to demonstrate a relationship between adhesive choice and attachment style.

The value of art as an indicator of social, emotional, cognitive, and physiological function has long been recognized anecdotally. However, it has only been since the 1940’s and 50’s that clinicians and educators sought sound, repeatable, and effective art-based assessments to measure the effects of medication and clinical intervention, and assess levels of emotional, motor, and intellectual functions (Aslow & Kadis, 1946; Buck, 1948; Lehmann & Risquez, 1953). Art-based interventions can impact social policy, provide clarity in dual or complex diagnoses, and inform treatment strategies. By discovering a relationship between art process and attachment style, arts-based attachment measures may be able to inform diagnostic and treatment guidelines. The field of art therapy would benefit from a standardized methodology that is uniquely suited to developing and validating arts-based assessments. With this consistency in research, the field stands to achieve its well-deserved status among other social science disciplines. No other form of data compares to the art process in its richness and depth. As cited by Syed, Afridi and Dars (2019) “Art making can be considered as form of inquiry – a learning process which is experiential and constructivist and in which creative image making helps construct knowledge, creates new insights and transforms perceptions” (p. 86).
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### Appendix A

Trauma Assessment for Adults (TAA; Resnick, Falsetti, Kilpatrick, & Freedy, 1996)

<table>
<thead>
<tr>
<th>Trauma Assessment for Adults – Brief Revised Version*</th>
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<tbody>
<tr>
<td>This questionnaire asks about many different types of stressful or difficult life events. These kinds of events can be frightening or appalling to almost everyone. During your life, have any of the following things ever happened to you?</td>
</tr>
<tr>
<td><strong>INSTRUCTIONS:</strong> PLEASE CHECK YES OR NO IN RESPONSE TO EACH QUESTION ABOUT THE FOLLOWING TYPES OF EVENTS.</td>
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<tr>
<th>Yes</th>
<th>No</th>
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<tr>
<td>1. Have you ever been in the military in a war zone, or had a military combat experience?</td>
<td></td>
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<td>2. Have you ever been in a really bad accident (car, at work, or somewhere else) and thought you might be killed or injured?</td>
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<tr>
<td>3. Have you ever been in a natural disaster (tornado, hurricane, flood, or major earthquake) and thought you might be killed or injured?</td>
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<td>4. Have you had a serious illness, such as cancer, leukemia, AIDS, multiple sclerosis, etc.?</td>
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<th>Yes</th>
<th>No</th>
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<tr>
<td>The next three questions are about unwanted sexual experiences you may have had during your life. You may not have reported these experiences to the police or even told family or friends. Also, the person who did these things might not have been a stranger, but may have been a friend, a date, or even a family member. These kinds of sexual experiences can happen at anytime in a person’s life, even as a child. Regardless of how long ago it happened, or who did these things, have any of the following events ever happened to you...</td>
<td></td>
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<tr>
<td>5. Did you ever have sexual contact with anyone who was at least 5 years older than you before you reached the age of 13?</td>
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<tr>
<td>[Sexual contact can mean between someone else and your sexual organs—genital or rectal area in men; vagina, genital area, or breasts for women; or between you and someone else's sexual organs (a male or female's genital area, or a woman's breasts).]</td>
<td></td>
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<tr>
<td>6. Before you were age 18, has anyone ever used pressure or threats to have sexual contact with you?</td>
<td></td>
</tr>
<tr>
<td>7. At any time in your life, whether you were an adult or a child, has anyone used physical force or threat of force to make you have some type of unwanted sexual contact?</td>
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<tr>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td>8. At any time in your life has anyone (including family members or friends) ever attacked you with a gun, knife, or some other weapon, regardless of whether you ever reported it?</td>
<td></td>
</tr>
<tr>
<td>9. At any time in your life has anyone (including family members or friends) ever attacked you without a weapon, but with the intent to kill or seriously injure you?</td>
<td></td>
</tr>
<tr>
<td>10. Have you ever witnessed someone seriously injured or killed?</td>
<td></td>
</tr>
<tr>
<td>[If yes, what happened? ____________________________]</td>
<td></td>
</tr>
<tr>
<td>11. Have you experienced any other situation that was not already asked about which was extremely stressful?</td>
<td></td>
</tr>
<tr>
<td>[If yes, what was it? ____________________________]</td>
<td></td>
</tr>
<tr>
<td>12. Has a close friend or family member ever been intentionally killed or murdered by another person or killed by a drunk driver?</td>
<td></td>
</tr>
<tr>
<td>A. Murdered/killed?</td>
<td></td>
</tr>
<tr>
<td>B. Killed by a drunk driver?</td>
<td></td>
</tr>
<tr>
<td>Relationship of the victim(s) to you?</td>
<td></td>
</tr>
</tbody>
</table>
Appendix B

Revised Adult Attachment Scale (RAAS; Collins, 1996)

The following questions concern how you generally feel in important close relationships in your life. Think about your past and present relationships with people who have been especially important to you, such as family members, romantic partners, and close friends. Respond to each statement in terms of how you generally feel in these relationships.

Please use the scale below by placing a number between 1 and 5 in the space provided to the right of each statement.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all characteristic of me</td>
<td>Very characteristic of me</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1) I find it relatively easy to get close to people. ________
2) I find it difficult to allow myself to depend on others. ________
3) I often worry that other people don’t really love me. ________
4) I find that others are reluctant to get as close as I would like. ________
5) I am comfortable depending on others. ________
6) I don’t worry about people getting too close to me. ________
7) I find that people are never there when you need them. ________
8) I am somewhat uncomfortable being close to others. ________
9) I often worry that other people won’t want to stay with me. ________
10) When I show my feelings for others, I’m afraid they will not feel the same about me. ________
11) I often wonder whether other people really care about me. ________
12) I am comfortable developing close relationships with others. ________
13) I am uncomfortable when anyone gets too emotionally close to me. ________
14) I know that people will be there when I need them. ________
15) I want to get close to people, but I worry about being hurt. ________
16) I find it difficult to trust others completely. ________
17) People often want me to be emotionally closer than I feel comfortable being. ________
18) I am not sure that I can always depend on people to be there when I need them. ________

Revised Adult Attachment Scale (Collins, 1996) - Close Relationships Version
Appendix C

Art Image Release Form

Art Image Release

The artwork that you create during this study will remain anonymous; your name will not be connected with the artwork. Photographs of the artwork will only be taken with your consent for the purposes listed below. Photographs taken of the artwork will not contain any identifying information.

I agree to have my artwork photographed without identifying information for the following purpose(s), please check any and all that apply:

( ) Educational and training purposes
( ) Presentation at a professional conference
( ) Publication in a professional journal
( ) None of the above

I herby give consent as noted above for the use of my artwork.

__________________________
Print name

__________________________
Date

__________________________
Signature

*Please note that if at a later date you choose to withdraw permission for your artwork to be shown as noted above, it may be difficult or impossible to contain images already disseminated in public settings.

____ I have received a copy of this form to keep for myself.
Appendix D

Debriefing Statement: Adhesive Use and Attachment Study

Thank you for your participation! Your participation in this research will provide valuable information about the use of arts-based assessments to understand more about the different ways that people relate to each other.

Goal of Study
The goal of this study is to begin to establish the validity of Art-based Attachment Style Assessment (ABASA) as a measure of attachment style. You were asked to fill out questionnaires about your traumatic life experiences and your relationship styles as an adult. Then you were asked to draw an adult, draw a child and cut each image out using scissors. You were then asked to select one form of adhesive (tape, glue stick, liquid glue or stapler) to attach the two images together. The researcher will analyze the way you attached your two images together and compare this to your scores on the surveys to determine if there is a statistically significant relationship between traumatic life experiences, attachment style, and your adhesive choice.

Hypothesis of Study
The hypothesis of this study is that there is a relationship between a person’s attachment style, traumatic life experiences, and the choice of adhesive and the kind of adhesive chosen to attach two figure drawings together.

If interested, please refer to the following resource for literature regarding this topic:


Post-Survey Responses
One of the questionnaires surveyed potential traumatic life experiences. If you feel that the questions in this survey made you feel uncomfortable in any way, or you are experiencing higher than normal anxiety and/or negative feelings about this research experience, please alert the researcher, who is a licensed professional counselor and board-certified art therapist. The researcher will provide provisional support and make an outside referral to a mental health practitioner, if necessary and desired.

Results of the Research
When all the data is collected, analyzed, and documented, the researcher would be happy to provide you with the overall research results (but not individual results). If you would like a copy of the general results from this study, please provide your email address to the researcher.
Appendix E

**Demographics**

Please choose *one* response that is most accurate or fill in a response as appropriate. These questions are for demographic purposes only.

1. Gender:  
   - [ ] Male  
   - [ ] Female  
   - [ ] Not Listed (Please specify) ____________

2. Age: ___________________

3. Race:  
   - [ ] African American  
   - [ ] Asian  
   - [ ] Caucasian  
   - [ ] LatinX  
   - [ ] Native American  
   - [ ] Not Listed (Please specify) ____________

4. What is your highest level of education completed?  
   - [ ] High School/GED  
   - [ ] Some College  
   - [ ] Associate Degree  
   - [ ] Bachelor’s Degree  
   - [ ] Vocational, Trade or Technical School  
   - [ ] Master’s Degree  
   - [ ] Doctorate Degree

5. Did either of your parents attend college?  
   - [ ] Yes  
   - [ ] No

6. Are you currently a student?  
   - [ ] Yes  
   - [ ] No

7. Are you currently employed?  
   - [ ] Yes  
   - [ ] No

8. Have you had previous art experience beyond what is taught in general school curriculum (such as art school, continuing education courses, college level art courses, professional artist)?  
   - [ ] Yes  
   - [ ] No  
   - Please describe:

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________
Appendix F

**Rater Training Guidelines for Facing**

**RATER INSTRUCTIONS**

FOR FACING CATEGORY ASSIGNMENT

Please look at each drawing and rate the facing (manner in which the two images are stuck together) using the following categories:

1. SIDE TO SIDE  (S2S)
2. FRONT TO BACK (F2B)
3. FRONT TO FRONT (F2F)
4. BACK TO BACK  (B2B)

<table>
<thead>
<tr>
<th>1. SIDE TO SIDE</th>
<th>2. FRONT TO BACK</th>
<th>3. FRONT TO FRONT</th>
<th>4. BACK TO BACK</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Side to Side" /></td>
<td><img src="image2" alt="Front to Back" /></td>
<td><img src="image3" alt="Front to Front" /></td>
<td><img src="image4" alt="Back to Back" /></td>
</tr>
</tbody>
</table>

If you are confused about what to choose, make your best choice but please indicate your second choice and/or thought process.