

FREE FORM CREATION VS. THE MANDALA AND  
THEIR EFFECTS ON VETERANS WITH  
POSTTRAUMATIC STRESS DISORDER: A  
RECREATIONAL THERAPY INTERVENTION

By

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I would have never reached this accomplishment without the support of my wonderful friends and family. My husband, Austin, provided the initial inspiration for my thesis topic. He was serving overseas in a war zone during the conceptualization phase of my thesis. He was angry and stressed and I remember one night he had said, “I need some crayons and paper!” and I was instantly intrigued. It sparked my curiosity, I followed it, and now I am at the end of the research process. I am eternally grateful to my grandmother, Carol, for being my best friend, always pushing me to go further, and reminding me of how far I’ve come. I am also grateful for Dr. Passmore’s guidance and encouragement throughout my graduate career. I am thankful for the friends and connections I have made along the way and I look forward to what the future holds.

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FREE FORM CREATION VS. THE MANDALA AND THEIR EFFECTS ON VETERANS WITH POSTTRAUMATIC STRESS DISORDER: A RECREATIONAL THERAPY INTERVENTION

Major Field:

RECREATIONAL THERAPY

Abstract:

**Objective**— The objective of this study was to compare free form creation to the mandala and examine their effects on veterans with posttraumatic stress disorder (PTSD).

**Method**— Data for this study was collected from 18 veterans who self-disclosed as being clinically diagnosed with PTSD. Veterans participated in either the creation of an unstructured mandala or coloring of a pre-drawn mandala as interventions, and free form creation as the control group. The PCL-5 was used to detect clinically significant change.

**Results**— All the hypotheses were exposed through analytical and statistical analysis to be the opposite of what was expected. In terms of clinical significance, the free form group was superior over the unstructured mandala, with the pre-drawn mandala most inferior. However, there was no superior intervention individually or among groups related to statistical significance. Limitations and delimitations need to be taken into consideration when interpreting results.

**Conclusion**— The results of this study demonstrated that free form creation delivers clinically significant reduction in the overall symptomology of veterans with PTSD. This thesis supports the theory that creative art modalities, which are free of structural form and autonomous in nature, show promising results as an alternative treatment for veterans with PTSD.

**Keywords** PTSD; mandala; veteran; Recreational Therapy; art therapy; creative art modality, expressive art therapy; coloring; Jung.

## TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION.....	1
Statement of The Problem .....	2
Proposition .....	3
Purpose of The Study.....	4
Research Questions and Hypotheses .....	4
Assumptions.....	6
Limitations .....	6
Delimitations.....	7
Definition of Terms.....	10
II. REVIEW OF LITERATURE.....	24
Recreational Therapy and Veterans .....	27
Creative Art Modalities.....	28
Neurobiological Evidence.....	30
Psychological Origins of Art .....	33
The Archetypes .....	36
The Individuation Process.....	38
Recreational Therapy .....	39
Leisure and Healing from Trauma .....	41
The Mandala .....	42
Mandala Research.....	43
Mediums for Mandalas .....	46
Conclusion .....	47

Chapter	Page
III. METHODOLOGY .....	50
Selection of Participants .....	50
Research Design.....	51
Study Procedures .....	52
Instrumentation .....	54
Demographics .....	54
PCL-5.....	54
Validity and Reliability of the PCL-5 .....	54
PCL-5 Distribution.....	55
Structure of the PCL-5 .....	55
Scoring of the PCL-5 .....	56
Interpretation and Measuring Change.....	56
Statistical Analyses .....	56
IV. FINDINGS.....	58
Introduction.....	58
Site Procedure .....	58
Demographic Results .....	59
PCL-5 With Criterion A.....	60
PCL-5 Analysis and Interpretation .....	60
Statistical Analyses Results .....	62
Hypotheses .....	62
Discussion.....	63
V. CONCLUSION.....	64
Study Limitations.....	64
Accounting for Results .....	65
Conclusion .....	66
Implications for The Therapeutic Recreation Profession .....	66
Recommendations for Future Studies.....	66
REFERENCES .....	69
APPENDICES .....	90

## LIST OF TABLES

Table	Page
1.....	90
2.....	91
3.....	92
4.....	93
5.....	96
6.....	97
7.....	97
8.....	98
9.....	98
10.....	99

## LIST OF FIGURES

Figure	Page
1.....	100
2.....	101
3.....	102



## LIST OF IMAGES

Image	Page
1.....	103
2.....	104
3.....	105
4.....	106
5.....	107
6.....	108
7.....	109
8.....	110
9.....	111
10.....	112
11.....	113
12.....	114
13.....	115
14.....	116
15.....	117
16.....	118
17.....	119
18.....	120
19.....	121
20.....	122

## CHAPTER I

### INTRODUCTION

Veterans of Operation Enduring Freedom (OEF), Operation Iraqi Freedom (OIF), and Operation New Dawn (OND) experience extreme physical and mental trauma while overseas (Department of Veterans Affairs, 2017b; Taff, Dattilo, Davis, & Moeller, 2016; Wilder et al., 2011). A significant percentage of veterans (90%) are living longer than military members in past wars due to advances in technology and defense tactics, and thus, more veterans with both visible and invisible injuries are returning home (Goldberg, 2010; Taff et al., 2016; Tanielian, Jaycox, Adamson, & Metscher, 2008; Van Puymbroeck & Lundberg, 2010; Wilder et al., 2011). *The Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; DSM–5; American Psychiatric Association, 2013) is the most updated and widely used manual for researchers, and provides the diagnostic criteria for a complex and invisible mental disorder (Dustin et al., 2011; Spiegel et al., 2006), known as posttraumatic stress disorder (PTSD) (American Psychiatric Association, 2013). The stigmatization of getting help, especially in the military culture, and other barriers suggests a need for alternative treatment options and settings that focus on a “holistic approach” (DiRamio, Ackerman, & Mitchell, 2008, p. 73), which also encompasses individualized needs (Dustin, Bricker, Arave, Wall, & Wendt, 2011; Iwasaki et al., 2014; Spiegel et al., 2006).

## **Statement of the Problem**

Posttraumatic stress disorder (PTSD) is an insidious mental disorder that brings about chaos and affects multiple life domains; it impairs functioning in “social, interpersonal, developmental, educational, physical health, and occupational domains” (American Psychiatric Association, 2013, p. 279), as well as the emotional and cognitive domains (Porter, 2015). Posttraumatic stress disorder can manifest in anyone, regardless of age, gender, nationality, ethnicity, or culture, however, the United States has the highest prevalence (3.5%) of PTSD compared to other nations (American Psychiatric Association, 2013). Although PTSD is common among veterans in the United States, there are many barriers that make it hard to seek treatment. Barriers include, but are not limited to, lack of transportation, financial support, motivation, time, and the desire not to talk about the traumatic experience, as well as fear of an adverse impact on their career and a negative stigma from the military and civilian communities (Assis et al., 2008; Crawford et al., 2015; Dustin et al., 2011). Posttraumatic stress disorder is difficult to isolate, so treatment has been aimed towards maintaining or reducing the symptoms, instead of finding a remedy (Lake, 2015; Poulsen, Stigsdotter, Djernis, & Sidenius, 2016). Although PTSD is difficult to isolate, the symptoms of PTSD can be identified and measured by using the posttraumatic stress disorder Checklist for DSM-5 (PCL-5), which is a 20-item self-report measure created by the Veteran Association (VA) National Center for PTSD (Weathers et al., 2013a). Treatment protocols for PTSD in the United States have been driven by conventional interventions that push verbal expression of trauma as well as exposure-based interventions (Newton, 2015). Although these treatments are effective, no single conventional treatment has been identified as “uniquely effective” (Spiegel et al., 2006, p. 158) or comparably statistically significant over the other (Benish, Imel, & Wampold, 2008; Cusack et al., 2016; Tran & Gregor, 2016). In the United States, these verbal and exposure-based treatments continue to be prominent protocols for PTSD, despite growing research in areas of neurobiology, which provide evidence that trauma is stored in non-verbal areas of the brain (Glaser, 2000; Harris, 2009; Klorer, 2008) and that exposure and

desensitization can cause re-traumatization (Newton, 2015). Because of human survival instincts, as well as neurological brain mechanisms, exposure to trauma dominates the normal brain processes and interrupts verbal consciousness, which leads to displacement of memories into the nonverbal realm of the brain (Gantt & Tinnin, 2009; Schore, 2002). The trauma is unable to be consciously accessed by traditional verbal therapies because the left side of the brain shuts off when individuals are asked to verbally express their trauma (Bremner et al., 1992; Talwar, 2007). The trauma and memories are displaced in the unconscious area of the brain. If the trauma remains unexpressed, then PTSD symptoms can persist across the lifespan (American Psychiatric Association, 2013).

### **Proposition**

The Therapeutic Recreation profession has a long-standing history of providing recreational services for the military (Brasile et al., 1998). Recreational Therapists offer a holistic alternative treatment option that addresses multiple life domains (Dustin et al., 2011; Ida, 2007; Iwasaki et al., 2010; Iwasaki et al., 2014; Resnick & Rosenheck, 2006; Slade, 2010; Young, Chinman, Forquer, et al., 2005). Recreational Therapists help individuals exposed to trauma overcome challenges and barriers through “enjoyable, expressive, and meaningful leisure” (Iwasaki et al., 2014 p. 149) and recreational activities (Arai, Griffin, Miatello, & Greig, 2008; Fullagar, 2008; Iwasaki, Coyle, & Shank, 2010; Rudnick, 2005). It was noted by Nathan and Mirviss (1998) that around 330 B.C.E. Aristotle had said that art “releases unconscious tensions and purges the soul” (p. 7). Theoretically derived professions have recognized the potential of art to provide therapeutic value and note that an individual’s “most fundamental thoughts and feelings, derived from the unconscious, reach expression in images rather than in words” (Naumburg, 1980, p. 511). Art as an intervention for individuals with PTSD has neurobiological and psychoanalytical support in the literature (Gantt & Tinnin, 2009; Harris, 2009; Spring, 2004; Talwar, 2007). Art provides a way to communicate with the unconscious and nonverbal mind to access and organize the trauma, and is considered an ideal intervention for individuals with PTSD

(Gantt & Tinnin, 2009; Tinnin, 1990). Introduced by Jung, Mandalas are believed to provide access to the unconscious self, which increases awareness to bring “elements that were previously unacceptable and displaced” to consciousness (Adamski, 2011, p. 565). It is believed that the “meditative properties” of mandalas combined with the creative and therapeutic expression of art “magnify the beneficial effects” of the intervention (Mann, 2013, p.16).

### **Purpose of the Study**

The purpose of this study was to compare the pre-drawn mandala (See *Image 1*) and unstructured mandala (See *Image 2*) to free form creation, and gauge if the interventions had statistically significant effects on the PTSD symptoms of veterans. Furthermore, this thesis was meant to expand on the current literature pertaining to mandalas and free form creation. Finally, this thesis is meant to provide a foundation for the Therapeutic Recreation profession to build upon the findings and provide implementation procedures for various diagnoses and settings.

### **Research Questions and Hypotheses**

RQ1. Will veterans with PTSD experience clinically significant improvement in the signs and symptoms of PTSD after one 20-minute session of coloring a pre-drawn mandala?

- Null Hypothesis: Veterans with PTSD will not experience clinically significant improvement in the signs and symptoms of PTSD after one 20-minute session of coloring a pre-drawn mandala.
- Alternative Hypothesis: Veterans with PTSD will experience clinically significant improvement in the signs and symptoms of PTSD after one 20-minute session of coloring a pre-drawn mandala.

RQ2. Will veterans with PTSD experience clinically significant improvement in the signs and symptoms of PTSD after one 20-minute session of creating and coloring a mandala (unstructured)?

- Null Hypothesis: Veterans with PTSD will not experience clinically significant improvement in the signs and symptoms of PTSD after one 20-minute session of creating and coloring a mandala (unstructured).
- Alternative Hypothesis: Veterans with PTSD will experience clinically significant improvement in the signs and symptoms of PTSD after one 20-minute session of creating and coloring a mandala (unstructured).

RQ3. Will veterans with PTSD experience clinically significant improvement in the signs and symptoms of PTSD after one 20-minute session of free form creation?

- Null Hypothesis: Veterans with PTSD will experience clinically significant improvement in the signs and symptoms of PTSD after one 20-minute session free form creation.
- Alternative Hypothesis: Veterans with PTSD will not experience clinically significant improvement in the signs and symptoms of PTSD after one 20-minute session of free form creation.

RQ4. Will the group mean of the signs and symptoms of PTSD measurements be statistically significant compared between the intervention groups and control group?

- Null Hypothesis: The group mean of the signs and symptoms of PTSD measurements will not be statistically significant compared between the intervention groups and control group.
- Alternative Hypothesis: The group mean of the signs and symptoms of PTSD measurements will be statistically significant compared between the intervention groups and control group.

RQ5. Will the group mean of each specific PTSD cluster (B-E) measurements be statistically significant compared between the intervention groups and control group?

- Null Hypothesis: The group mean of each PTSD specific cluster (B-E) measurements will not be statistically significant compared between the intervention groups and control group.
- Alternative Hypothesis: The group mean of each specific PTSD cluster (B-E) measurements will be statistically significant compared between the intervention groups and control group.

### **Assumptions**

It was assumed that veterans will gain positive outcomes because mandalas are considered by Jung to be innately beneficial, even if they are not being consciously constructed by the participant (Jung, 1972; Miller, 2005). A higher proportion of women were expected to be present in the study because gender occupies a significant role in the length, rates of reported levels, and duration of PTSD symptomology (American Psychiatric Association, 2013). Compared to males, females are more likely to develop PTSD due to “gender differences in emotional autobiographical memories” of traumatic events (Rubin, Berntsen, & Bohni, 2008, p. 988). The control group was expected to experience more distress due to the unstructured nature of the task (Curry & Kasser, 2005).

### **Limitations**

One main limitation of this study is that participants were recruited from a single veteran population, which means that results cannot be generalized. Another limitation is that the study is acute, meaning that there will not be a follow-up measurement after the post-intervention measurement, compared to other longitudinal studies where additional measurements are taken anywhere from a month to years later (Henderson, et al., 2007).

## **Delimitations**

The Oklahoma State University BOSS Search Engine was used to find all articles used for this thesis; the search engine combs through articles from more than 100,000 journals and 400 databases simultaneously. To provide up to date and scholarly information, selection criteria included articles from peer-reviewed journals with a publication date from 2006-2016. Due to the rarity of this topic, literature and resources past 10 years were included, but only if it was considered necessary, such as documents which are pioneer studies, original books, or origin documents. The official definition of creative arts therapy (CAT) continues to be disputed within the literature without a consensus:

The terms “expressive” and “creative” arts therapies frequently are used interchangeably...Expressive arts therapy is a multimodal approach combining different art modalities into the therapeutic process. It is not grounded in any particular media...Creative arts therapy is a collective approach in which the specialized art therapy disciplines work together collaboratively but within their respective medias. (Puetz, Morley, & Herring, 2013, p. 1)

Art being utilized as a medium in an intervention was referred to as “creative art modalities” (Austin, 2009, p. 129) for this thesis. The exception was that if the article had explicitly stated which technique or CAT category was used, and the term was referred to verbatim. The possibilities of creative art interventions are “almost endless” (Austin, 2009, p. 129). The mandala was used as a therapeutic intervention above all other CAT because it allows an individual with PTSD to express emotions and thoughts about trauma experience(s) non-verbally and creatively (Henderson, 2012), is cost effective (Campbell, 2009), and is considered valid in the literature (Curry & Kasser, 2005; Henderson et al., 2007; Mann, 2013; Renée van der Vennet & Serice, 2012; Sandmire et al., 2012; Small, 2006). Interpretation of mandala symbolism was not utilized in this study because that would be considered art therapy and is reserved for “trained



art therapists” (Austin, 2009, p. 129). However, many art therapists “support the use of creative techniques by other therapists and professionals – with proper training, supervision and experience” (Green, 2011, p. 14). The researcher was undergoing training through clinical internships and supervision by a Certified Therapeutic Recreation Specialist (CTRS) and this thesis is one part of the requirement for a Master’s level degree in Leisure Studies. “Creative arts modalities can be used in interventions by recreational therapists” because it falls under the Recreational Therapy scope of practice (Austin, 2009, p. 129).

While there are multiple mandala types (See *Definition of Terms Section*), the constructed mandala and the Zendala® were excluded because they both use the Zentangle® technique, which the researcher was not trained in because it requires a Certified Zentangle Teacher™ (CZT®) to teach the technique (“Zentangle Practice | Zentangle”, 2017). The unstructured mandala creation group was provided with an explanation of what a mandala is, as well as a visual example to avoid confusion, as suggested by previous researchers (Henderson, 2012; Ireland & Brekke, 1980). The free form mandala was not used because the “person is expected to create a mandala” without instruction (Mann, 2013, p. 18; Curry & Kasser, 2005; Henderson et al., 2007). This study utilized the unstructured mandala and the pre-drawn mandala compared to a control group. The pre-drawn mandala was chosen because it is the most commonly studied and “empirically established” (Mann, 2013, p.16) in the literature (Curry & Kasser, 2005; Henderson et al., 2007; Small, 2006; Renée van der Venet & Serice, 2012). The plaid form found in previous studies (Curry & Kasser, 2005; Renée van der Venet & Serice, 2012) was substituted with the unstructured mandala because it was found in a replication study that the pre-drawn mandala was superior over the plaid form and it was suggested that future studies should focus on the difference between pre-drawn mandalas and the creation of mandalas (Renée van der Venet & Serice, 2012). The unstructured mandala was specifically chosen because three different levels of structure were needed to avoid the interventions being on the same level of complexity (Curry

& Kasser, 2005; Henderson, et al., 2007). The unstructured mandala is less structured than the pre-drawn mandala but more structured than the blank page (Mann, 2013). A blank 8.5" x 11" piece of paper was used for the control group because previous studies have used it as a control (Curry & Kasser, 2005; Renée van der Venet & Serice, 2012). The terms "unstructured" and "free form" have been used synonymously by previous researchers to describe the control group (Curry & Kasser, 2005; Renée van der Venet & Serice, 2012). However, the control group (blank 8.5" x 11" piece of paper) is referred to throughout this document as the "free form creation" group to avoid confusion between it and the unstructured mandala group.

## **Definition of Terms**

**Alternative Communication in Relation to Creative Art:** “Some creative arts involve expression through images, sound and movement. They bypass left-brain thinking and engage right-brain processing which is more holistic, less detail-oriented, less logical but more integrative. This often enables individuals to explore and express a troublesome thought, feeling or conflict in a new way, through an image, a sound or a movement that communicates it more clearly than ever before. Even when using words, as in a creative writing session, the words have more power and take on an expanded meaning” (Nathan & Mirviss, 1998, p. 3).

**Analytical Psychology:** “is composed of part- theories and ideas at different levels of abstraction—it is not a complete theory, not even a complete clinical approach, but rather a *body of ideas*” (Samuels, 1985, p. 216).

“Forging a more conscious relationship to the Self to achieve greater individuation, is a fundamental purpose of analytical psychotherapy” (Miller, 2005, p. 166).

**Anhedonia:** Is considered “low levels of positive affect and disinterest in pleasurable activity” (Kashdan, Elhai, & Frueh, 2006, p. 457).

**Archetype:** “Jung’s complex theory of the psyche is a philosophical human attempt to understand cognition as it is expressed cross-culturally and through time” (Fleisher, Mundkur, & Reyman, 1982, p. 335).

“Archetypes are a bridge to the world of the spirit, whereas instincts connect us with the reality of matter. Their ultimate nature is transcendental and unable to recognize. Themes of the archetypal images are the same for all cultures, are common to all people of different ages, races and cultures and correspond to the phylogenetically conditioned part of the human structure” (Adamski, 2011, p. 564).

**Art Therapy:** “Art therapy is defined by the American Art Therapy Association as the therapeutic use of art media, images, and the creative process, within a professional relationship, to “improve and enhance the physical, mental and emotional well-being of individuals of all ages” (American Art Therapy Association, 2011)” (Green, 2011, p.14).

“Art therapy is an expressive psychotherapy that uses the art-making process to improve social, mental, and emotional functioning and increase feelings of well-being” (Rowe et al., 2017, p. 26).

**Artmaking:** “Is a conversion of image through sensory components leading to the interpretation of symbolic form through verbal narrative; it fills in or rearranges autobiographical memory as means to make sense out of experience” (Spring, 2004, p. 207).

**Art Making Process:** “The art-making process can involve creative interactions with a variety of media including kinesthetic, perceptual, and cognitive methods” (Nanda, Gaydos, Hathorn, & Watkins, 2010, p. 382).

“Art making allows for healing through nonverbal communication, exploration of feelings, self-discovery, and catharsis” (Rowe et al., 2017, p. 26).

**Assertiveness Training:** “Technique focusing on replacing an assertive response for the anxiety response typically elicited by a trauma reminder” (Freeman, 2006, p. 232).

**Autobiographical Memory:** Memories of our individual past which “may be recalled from two different perspectives: field memories, in which the person remembers the scene from his or her original point of view, and observer memories, in which the person remembers the scene as an observer would, often seeing him- or herself in the memory image” (Rubin, Berntsen, & Bohni, 2008, p. 998).

**Biofeedback and Relaxation Training:** “Anxiety management techniques used to help patients master overwhelming anxiety feelings elicited by a trauma reminder” (Freeman, 2006, p. 232).

**Circumambulation:** “A term used to describe the interpretation of an image by reflecting on it from different points of view. Circumambulation differs from free association in that it is circular, not linear. Where free association leads away from the original image, circumambulation stays close to it” (“Lexicon of Jungian Terms | New York Association for Analytical Psychology”, 2011).

**Cognitive Behavioral Therapy (CBT):** “Addresses the thoughts and beliefs generated by the traumatic event, rather than the conditioned emotional response addressed by exposure therapy” (Freeman, 2006, p. 232).

**Cognitive Therapy:** “Techniques focused on relearning thoughts and beliefs generated from the traumatic event, which impede current coping skills” (Freeman, 2006, p. 232).

**Collective Unconscious:** “Is formed by instincts and archetypes that are symbols, signs, patterns of behavior, and thinking and experiencing, that are physically inherited from our ancestors” (Adamski, 2011, p. 563).

**Coloring Therapy:** “When individuals color complex geometric forms, they are provided an opportunity to suspend their “inner dialogue” and to deeply engage in an activity that removes them from the flow of negative thoughts and emotions that can sometimes dominate their lives” (Curry & Kasser, 2005, p. 81).

**Complementary and Alternative Medicine (CAM)** “Modalities used to prevent or treat PTSD emphasizes interventions that are not widely used in VA/DOD clinics and programmes” (Lake, 2015, p. 13).

**Complex:** “Jung stressed that complexes in themselves are not negative; only their effects often are. In the same way that atoms and molecules are the invisible components of physical objects,

complexes are the building blocks of the psyche and the source of all human emotions” (“Lexicon of Jungian Terms | New York Association for Analytical Psychology”, 2011).

**Creative Arts Therapies:** “Creative arts therapy is a collective approach in which the specialized arts therapy disciplines work together collaboratively but within their respective medias” (Puetz, Morley, & Herring, 2013, p. 1).

**Creative Arts Therapists:** “Practitioners of art, dance/movement, drama, music, and poetry therapy” (Haen, 2010, p. 3).

**Delayed Expression (previously known as “delayed onset”):** “The recognition that some symptoms typically appear immediately and that the delay is in meeting full criteria” (American Psychiatric Association, 2013, p. 276).

**Distance-delivered Interventions:** “A distance delivery approach (e.g., via telephone, mail, videoconference, or Internet) is one way to minimize treatment barriers and increase access to care while still delivering standardized, evidence-based services. This type of approach is often described by the umbrella terms “telehealth,” “telemedicine,” “e-health,” or “telepsychology,” among others” (Olthuis et al., 2016, p. 10).

**Drawing:** “Though drawing, the client uses line, color, shape, and texture to help express existing feelings that are difficult to verbally communicate” (Nathan & Mirviss, 1998, p. 107-108).

**Ego:** In Jungian terms, “It is a factor in which all the contents of consciousness are related - it is a center of the field of consciousness...Ego is a complex factor which is based on two grounds - somatic and mental. It is based on the awareness and the total content of the unconscious. Ego is the reference point of consciousness, which has its base and bounds - it is subordinated to the self, and it is a part of it” (Adamski, 2011, p. 565).

**Ego–Self Axis:** Representation of the distance and the “the relationship between consciousness and the unconscious” (Young-Eisendrath & Dawson, 2008, p. 302).

**Emotional Numbing:** “Consists of disinterest in activities, detachment from others, and a restricted range of emotional expressiveness” (Kashdan, Elhai, & Frueh, 2006, p. 457).

**Expansiveness and Freedom in Relation to Creative Art:** “The creative arts stimulate our senses, our bodies, our thoughts, and our feelings. For period of time we are beyond the bounds of time, space and physical limitations. Outside our normal realm of existence, we are free to think, feel and express what seems natural to us” (Nathan & Mirviss, 1998, p. 2).

**Explicit memory:** This type of memory “enables the telling of one’s story, narrating events, associating meaning with experience, and constructing a chronology of events” (Talwar, 2007, p. 24).

**Exposure Therapy:** “Techniques aimed at disconnecting the overwhelming sense of fear from trauma memories” (Freeman, 2006, p. 232).

**Expressive Art Therapies (EAT):** “May include the use of music, art, and poetry, among other tools” (Canto, McMackin, Hayden, Jeffery, & Osborn, 2015, p. 147).

“Expressive arts therapy is a multimodal approach combining different art modalities into the therapeutic process. It is not grounded in any particular media” (Puetz, Morley, & Herring, 2013, p. 1).

**External Communication in Relation to Creative Art:** “When we express our ideas and feelings in a form through expressive arts, we have the opportunity to say, “This is me. I exist. This is how I feel and see the world.” While the sharing of self is often scary for people, it can also create a bridge to other human beings. Those who thought they knew a client well may react

with amazement when they observe a piece of artwork that the client has created” (Nathan & Mirviss, 1998, p. 3).

**Eye Movement Desensitization and Reprocessing (EMDR):** “Developed as a comprehensive integrative psychotherapy approach using structured protocols that draw from psychodynamic, cognitive behavioral, interpersonal, experiential, and body-centered therapies... the hypothesis is that eye movements (and other methods for dual-attention stimuli) decrease the vividness of and affect related to traumatic or distressing memories” (Makinson & Young, 2012, p. 134).

**Goal-Directed Resilience in Training (GRIT):** “The goal-directed resilience training program activates natural mechanisms of resilience and helps participants to apply them to their own challenges” (Kent, Rivers, & Wrenn, 2015, p. 295).

**Group Behavioral Therapy:** Allows individuals to “share traumatic material within the safety, cohesion, and empathy provided by other survivors and so that they can regain the ability to form trusting relationships” (Spiegel, Malchiodi, Backos, & Collie, 2006, p. 158).

**Healing in Relation to Creative Art:** “The creative arts can be healing in two ways. First, when an individual is deeply involved in the act of creating, s/he may experience a kind of ‘mental vacation.’ Individuals who are normally disturbed by thoughts or anxieties will have noticeably more relaxed faces and bodies during creative activity. Relaxation can occur when the chattering, active mind is occupied and thoughts and feelings are channeled into positive activity. Secondly, individuals may experience a surge of energy during creative activity and a feeling of well being” (Nathan & Mirviss, 1998, p. 4).

**Holistic Approach:** Pertaining to a “biopsychosocial and spiritual” viewpoint while utilizing a whole team approach to address multiple domains (Porter, 2015, p. 314).



**Imagery Rescripting (IR):** “A cognitive-behavior alternative to PE that does not create overwhelming memories for the client... Distressing images and outcomes can be reimagined, for example, with positive schemata that reframe the traumatic experience and empower the victim” (Newton, 2015, pgs. 25-26).

**Implicit Memory:** This type of memory “bypasses language and thought. It is a direct response from internal states that are automatic and operate unconsciously” (Talwar, 2007, p. 24).

**Individuation:** “A process of *self-education* in which both unconscious and conscious aspects of life-experiences are integrated completely” (Semetsky & Delpech-Ramey, 2012, p. 70).

C. G. JUNG: "I use the term 'individuation\*' to denote the process by which a person becomes a psychological 'individual'/that is, a separate, indivisible unity or 'whole\*'" (Jung, Read, Fordham, & Adler, 1953, p. 275).

**Internal Communication in Relation to Creative Art:** “During creative activity we are linked with our inner selves. We interact with an object or situation and find ways to communicate our thoughts and feelings about what we are seeing or experiencing. While we are involved in creative activity we are engaged in a sustained union with self that is different from normal consciousness and profound before because we are closer to touching our unique self” (Nathan & Mirviss, 1998, p. 3).

**Interpersonal Relations in Relation to Creative Art:** “Are developed through working out problems together” (Nathan & Mirviss, 1998, p. 4).

**Leisure:** “A subjective experience in which a person (a) is intrinsically motivated to participate in activity that is perceived to be freely chosen and meaningful; (b) which, when engaged in competently, is a form of self-expression; (c) contributes to a sense of identity, connectedness, and/or relaxation; and (d) results in enjoyment” (Taff, Dattilo, Davis, & Moeller, 2016, p. 266).

**Leisure Counselling:** “It is the systematic exploitation of a client’s past, existing or prospective hobbies, activities and interests for broad psychotherapeutic purposes” (Juniper, 2005, p. 27).

**Leisure in Relation to Creative Activity:** “During creative activity, it is possible to escape the hectic, overwhelming external and often internal distractions of life. Creative activity freezes time. Many people experience a sensation of “flow” – of being totally engaged and at peace with self during creative activity. Only the activity of that moment exists. We are given the chance to regroup, rethinking, and reenter the world with a fresh perspective” (Nathan & Mirviss, 1998, p. 3).

**Mandala:** “In Jung, symbol of the center, the goal, or the self as psychic totality; self - representation of a psychic process of centering; production of a new center of personality.

This is symbolically represented by the circle, the square, or the quaternity, by symmetrical arrangements of the number four and its multiples” (Jung, 1963, p. 478).

### **Types of Mandalas:**

- a. Constructed Mandala-* “A blank mandala shape that has accompanied technique-specific instructions to guide the creation of the mandala at each step of the process (Small, 2006). This study’s constructed mandala used a three-part series of simple designs, called tangles®, from the Zentangle® technique to guide the creation process, and the constructed mandala is considered to be more structured than the unstructured mandala but less structured than the pre-drawn mandala” (Mann, 2013, p.18).
- b. Disturbed Mandala:* “Any form that deviates from the circle > square, or equal-armed cross, or whose basic number is not four or its multiples” (Jung, 1963, p. 478).

- c. Free Form Mandala-* “Most commonly a free form mandala is either a completely blank piece of paper or a piece of paper with a blank circle shape from which a person is expected to create a mandala” (Mann, 2013, p. 18).
- d. Pre-Drawn Mandala-* “This type of mandala is the most structured of the mandala varieties explored in this study due to its structured, complex, and complete geometric pattern enclosed inside the circle shape” (Mann, 2013, p. 18).
- e. Unstructured Mandala-* “A phrase used for the purposes of this study to describe a blank mandala shape (a circle) with accompanied instructions for creating a mandala. The unstructured mandala is considered less structured than the constructed mandala but more structured than the free form mandala” (Mann, 2013, p. 18).
- f. Zendala®-* “A phrase used for the purposes of this study to mean a fusion of Zentangle’s® tangles® and string® concepts with a mandala. This study’s Zendalas® used the circle shape of the mandala, a string® to divide the Zendala® into sections, and Zentangle® tangles® to fill the mandala circle shape. Zendala® is a product of Thomas and Roberts (2012), but they do not list an official definition on their website at this time. Quotation marks are used to differentiate this study’s working definition of a Zendala® versus the intended definition of Thomas and Robert’s product” (Mann, 2013, p. 19).

**Meditation:** “Any activity that keeps the attention pleasantly anchored in the present moment” (Nathan & Mirviss, 1998, p. 260).

**Memory:** “Consists of the storage, categorization and recall of information under appropriate circumstances” (Talwar, 2007, p. 23).

**Music Therapy:** The “clinical and evidence-based use of music interventions...within a therapeutic relationship to address physical, emotional, cognitive, and social needs of individuals” (Green, 2011, p. 14).

**Narrative Exposure Therapy (NET):** “A primary goal is to address the hot-spots and integrate traumatic events (including “cold spots”) with the client's whole life story, creating a coherent narrative... therapists encourage clients to describe the traumatic memories in detail, to identify sensory, emotional, and cognitive components of memories...the goal is to integrate memories into a narrative that helps to make meaning from a chaotic event” (Mørkved et al., 2014, p. 456).

**Neuroplasticity:** “Refers to the modification of preexisting circuitry or changes to the structural interconnectedness between neurons or brain regions as a result of experience” (Makinson & Young, 2012, p. 133).

**Persona:** “The “I,” usually ideal aspects of ourselves, that we present to the outside world... The persona is . . . a functional complex that comes into existence for reasons of adaptation or personal convenience” (“Lexicon of Jungian Terms | New York Association for Analytical Psychology”, 2011)

**Positive Psychology:** “The scientific study of the strengths that enable individuals and communities to thrive. The field is founded on the belief that people want to lead meaningful and fulfilling lives, to cultivate what is best within themselves, and to enhance their experiences of love, work, and play” (“Positive Psychology Center”, 2017).

**Posttraumatic stress disorder Checklist for DSM-5 (PCL-5):** “A 20-item questionnaire, corresponding to the DSM-5 symptom criteria for PTSD” (Weathers et al., 2013a).

**Post-Jungian:** Term is “in preference to Jungian to indicate both connectedness to Jung and distance from him” (Samuels, 1985, p. 15).

“A professional culture...expressed in a variety of conceptual perspectives—of the original spirit of Jung’s profound theoretical and clinical discoveries regarding the nature of the human psyche” (Ferrell, 2015, pgs. 176-177).

**Post-Freudian:** Term to show the connection to original Freudians ideas, but the branching off of concepts in psychoanalysis into different directions (Myers, 2013; Samuels, 1985).

**Posttraumatic Stress Disorder (PTSD):** “The essential feature of posttraumatic stress disorder (PTSD) is the development of characteristic symptoms following exposure to one or more traumatic events... The clinical presentation of PTSD varies.” (American Psychiatric Association, 2013, p. 274).

**Posttraumatic Growth (PTG):** “Defined as positive psychological changes in response to trauma” (Moran, Burker, & Schmidt, 2013, p. 34).

**Posttraumatic Resilience:** “Is a form of behavioral adaptation to situational stress and a style of personality functioning” (Agaibi & Wilson, 2005, p. 196).

**Prolonged Exposure (PE):** “The primary components of PE include imaginal exposure to the trauma memory followed by processing of the trauma memory as well as in vivo exposure to feared but safe situations. The theorized mechanisms underlying PE are based on emotional processing theory and broader extinction models of fear reduction.” (van Minnen, Zoellner, Harned, & Mills, 2015, p. 2).

**Psyche:** “The totality of all psychological processes, both conscious and unconscious” (“Lexicon of Jungian Terms | New York Association for Analytical Psychology”, 2011).

**Psychodynamic Psychotherapy:** “Is based on a number of concepts, beginning with the original contributions of Sigmund Freud” (Schottenbauer, Glass, Arnkoff, & Gray, 2008, p. 14).

**Psychogenesis:** “The origin and development of a mental disorder” (Makinson & Young, 2012, p. 133).

**Recovery:** “A journey of healing and transformation enabling a person with a mental health problem to live a meaningful life in a community of his or her choice while striving to achieve his or her full potential” (Iwasaki et al., 2014, p. 148).

**Recreation:** Refers to enjoyable activities performed during leisure time (Leitner & Leitner, 2012).

**Recreational Therapy:** “A systematic process that utilizes recreation and other activity-based interventions to address the assessed needs of individuals with illnesses and/or disabling conditions, as a means to psychological and physical health, recovery and well-being” (ATRA Board of Directors, 2015).

**Resilience:** “The activity of rebounding or springing back; to rebound; to recoil” (Agaibi & Wilson, 2005, p. 198).

**SEE FAR CBT:** A combination of fantastic reality, somatic experiencing, and cognitive behavioral therapy proposed to treat PTSD that utilizes therapeutic cards as a way to externalize trauma (Lahad, Farhi, Leykin, & Kaplansky, 2010).

**Self by Jung:** “A term coined by Jung reflecting the Hindu Upanishads and its depiction of the higher personality, or atman...is considered to be the central archetype of the collective unconscious and serves as the organizing principle of the individual personality” (Miller, 2005, p. 165).

The self “symbolizes the fullness of personality. It is an ideal, which an individual is never able to reach, but toward which he or she directs all his or her life. It is a fusion of all parts of the

personality; a condition in which awareness will be expanded and will include elements that were previously unacceptable and displaced” (Adamski, 2011, p. 565).

**Self in Relation to Leisure:** “Is about being mindful of feelings and personal needs or wants and consciously responding to that self-awareness with nurturing leisure choices” (Arai et al., 2008, p. 54).

**Self-worth in Relation to Creative Art:** “The process of expressing creativity involves an exploration of self in order to be able to respond and communicate ideas from a personal perspective. It also involves working materials, such as words or movements with one’s own hands or body and dealing with one’s own evaluation of the work and the evaluation of others. The process can be both frightening and joyful. It takes courage to embark on a creative journey in which there are many “what ifs”... When one still perseveres, witnessing the product of this output of energy is highly validating. No matter how one might feel about the product, an individual can be proud of the journey, of taking a different, unknown path and not turning back (Nathan & Mirviss, 1998, p. 4).

**Stress Inoculation Training (SIT):** “A variety of anxiety management techniques designed to increase coping skills for current situations” (Freeman, 2006, p. 232).

**Systematic Desensitization:** “A technique designed to help patients substitute a relaxation response typically elicited by a reminder of the trauma” (Freeman, 2006, p. 232).

**Symbol:** “A symbol is not a sign; that refers to what is already known...The psyche spontaneously produces symbols when the intellect is at a loss and cannot cope with an inner or outer situation” (Samuels, 1985, p. 75).

**Trait Anxiety:** “A category of anxiety measurement developed by Spielberger (1966) for his State Trait Anxiety Inventory that measures a person’s levels of long-term proclivity towards anxiety” (Mann, 2013, p. 17).

**Trauma:** “Is the result of life-threatening or emotionally overwhelming events generally beyond the scope of normal human experience... and places immense physical and psychological stress on an individual” (Arai et al., 2008, p. 38).

**Trauma Narrative:** “Places traumatic memories in declarative memory so they can be reinterpreted and integrated into the person’s life history” (Spiegel, Malchiodi, Backos, & Collie, 2006, p. 158).

**Trigger:** Refers to “persons, places, sounds or smells, that elicit memories of the traumatic event” (Arai et al., 2008, p. 39).

**Veteran:** “Title 38 of the Code of Federal Regulations defines a veteran as “a person who served in the active military, naval, or air service and who was discharged or released under conditions other than dishonorable.” This definition explains that any individual that completed a service for any branch of armed forces classifies as a veteran as long as they were not dishonorably discharged.” (Authority, 2017).

**Virtual Reality Exposure Therapy (VRET):** “Employs technology-based treatments to mimic exposure to duplicate sensory-based environments reminiscent of the original trauma (Newton, 2015, p. 22).



## CHAPTER II

### REVIEW OF THE LITERATURE

A 2017 report by the Department of Veterans Affairs (VA) noted that “1,965,534” OEF/OIF/OND post-deployment soldiers retired from active duty and became eligible for veteran status (Department of Veterans Affairs, 2017b, p. 2). Of those, “422,167 OEF/OIF/OND Veterans were seen for potential or provisional PTSD” at the VA (Department of Veterans Affairs, 2017b, p. 3). Around 31% of OEF/OIF/OND veterans are more likely to develop musculoskeletal injuries, ill-defined conditions, or mental health disorders compared to other injuries/disorders (Department of Veterans Affairs, 2017a; Rogers, Loy, & Brown-Bochicchio, 2016; Tanielian et al., 2008). There is an 80% chance of individuals with PTSD to exhibit or develop comorbid disorders such as anxiety, major depression, personality, bipolar, or substance abuse disorders, etc. (American Psychiatric Association, 2013; Rogers et al., 2016). Out of all the mental health disorders, they are more prone to develop posttraumatic stress disorder, especially if they have been exposed to trauma (Cohen et al., 2010; Taff et al., 2016; Walker, 2010). In general, DSM-5 PTSD symptom criterion clusters B-E include intrusion, avoidance, negative cognitions and mood, and arousal (See *Figure 1*). To be diagnosed with PTSD, one must be exposed to a traumatic event following with the appearance of specific PTSD symptoms and the duration of the disturbances needs to last at least one month and cause “clinically significant distress or impairment in social, occupational, or other important areas of functioning” (American

Psychiatric Association, 2013, p. 272). It has been reported that complete recovery time of PTSD is three months in approximately half of adults, however, symptoms can last anywhere from one to fifty-plus years. Adverse symptoms can manifest, reoccur, or intensify at various stages across the lifespan due to exposure to triggers that remind the individual of the original trauma, a new trauma, or life changes/stressors (American Psychiatric Association, 2013).

Treatment offered for PTSD targets the signs and symptoms of the disorder (Lake, 2015; Poulsen, Stigsdotter, Djernis, & Sidenius, 2016). In the United States, treatment protocols for PTSD are focused mainly on verbal expression of trauma as well as exposure-based interventions (Newton, 2015), which are referred to as “traditional” or “conventional” interventions throughout this document. Both verbal and exposure-based treatments provide short-term relief, but do “not provide immunity to the multisystemic imprints of PTSD that could ultimately induce a holistic and inclusive recovery” (Newton, 2015, p. 47). Conventional treatments include, but are not limited to posttraumatic resilience (Agaibi & Wilson, 2005), psychotherapy (Bradley, Greene, Russ, Dutra, & Westen, 2005), cognitive behavioral therapy (CBT), cognitive therapy, cognitive processing therapy (CPT), stress inoculation training (SIT), systematic desensitization, assertiveness training, biofeedback and relaxation training (Freeman, 2006), group behavioral therapy, trauma narratives (Spiegel et al., 2006), psychodynamic psychotherapy (Schottenbauer, Glass, Arnkoff, & Gray, 2008), pharmaceuticals (Searcy, Bobadilla, Gordon, Jacques, & Elliott, 2012), Posttraumatic Growth (PTG) (Moran, Burker, & Schmidt, 2013), Prolonged Exposure (PE) and Narrative Exposure Therapy (NET) (Mørkved et al., 2014), eye movement desensitization and reprocessing (EMDR) (Makinson & Young, 2012), virtual reality exposure therapy (VRET) and imagery re-scripting (IR) (Newton, 2015), as well as distance-delivered interventions (Olthuis et al., 2016). This complex mental disorder/injury is “resistant to conventional therapies” (Dustin et al., 2011, p. 326) due to the adverse effects that severe trauma has on the brain and the biopsychosocial etiology of PTSD (Bird, 2015; Poulsen, Stigsdotter,

Djermis, & Sidenius, 2016; Spiegel et al., 2006), as well as the “pathophysiology of trauma” (Newton, 2015, p. 4). While these treatments are effective, no single conventional treatment has been identified as “uniquely effective” (Spiegel et al., 2006, p. 158) or comparably statistically significant over the other (Benish, Imel, & Wampold, 2008; Cusack et al., 2016; Tran & Gregor, 2016). Some treatments even create unwanted and negatively perceived results or side effects (Poulsen et al., 2016; Searcy et al., 2012).

Individuals with trauma exposure or PTSD are less likely to be engaged in CBT interventions or those that involve talking about the trauma (Trusz, Wagner, Russo, Love, & Zatzick, 2011). Many conventional treatments emphasize exposure and verbal expression of trauma, however, due to the avoidance and numbing symptoms of PTSD (See *Figure 1*), it is difficult for individuals to verbally express their trauma (Freeman, 2006; Spiegel et al., 2006). Anhedonia, or lack of interest or pleasure in activities, is positively related to the emotional numbing symptoms uniquely characteristic of PTSD (Kashdan, Elhai, & Frueh, 2006). Avoidance and emotional numbing symptoms have a significant effect on an individual’s ability to “thrive in society” because it affects multiple life domains (Spiegel et al., 2006, p. 159; Matlack, 2010). Researchers suggest that individuals with PTSD should focus on “pleasant activities” (Spiegel et al., 2006, p. 159) to increase engagement (Kashdan, Elhai, & Frueh, 2006). Hawkins, McGuire, Linder, and Britt (2015) found that “adapted sports, recreation, and other social programs” (p. 527) are important factors for successful community reintegration of service members who suffer from PTSD and comorbid physical disabilities and mental disorders. Researchers note that the topic of lifestyle changes and their effect on successful civilian re-integration for veterans with PTSD is lacking in the literature due to barriers previously mentioned (Dustin et al., 2011; LePage & Garcia-Rea, 2008). The stigmatization of getting help, especially in the military culture, suggests a need for alternative treatment options and settings that focus on a “holistic

approach” (DiRamio, Ackerman, & Mitchell, 2008, p. 73) and individualized needs (Dustin et al., 2011; Iwasaki et al., 2014; Spiegel et al., 2006).

Activities or interventions, which focus on non-verbal expression is referred to as “alternative” throughout this document. These include activities such as leisure counselling (Juniper, 2005), drumming (Bensimon, Amir, & Wolf, 2008), therapeutic cards (Lahad, Farhi, Leykin, & Kaplansky, 2010), play/art and mind-body skills (Rolfesnes & Idsoe, 2011), group music therapy (Bensimon, Amir, & Wolf, 2012), fly-fishing (Vella, Milligan, & Bennett, 2013), surfing (Caddick, Smith, & Phoenix, 2014b), sports and physical activities (Caddick & Smith, 2014a), creative arts workshops (Canto, McMackin, Hayden, Jeffery, & Osborn, 2015), peer outdoor support therapy programs (Bird, 2015), Goal-Directed Resilience in Training (GRIT) (Kent, Rivers, & Wrenn, 2015), Complementary and Alternative Medicine (CAM) (Lake, 2015), and nature-based activities/therapy (Poulsen, Stigsdotter, Djernis, & Sidenius, 2016), which have all been used to treat individuals with trauma and/or PTSD with promising and positive outcomes.

### **Recreational Therapy and Veterans**

Recreational Therapists have a history of providing recreational services for the military; Brasile et al. go into detail of the impact of RT throughout the major world wars in chapter 2 of their book *Perspectives in Recreational Therapy* (1998). Recreational Therapists help individuals exposed to trauma overcome challenges and barriers to becoming more engaged and present in their lives through “enjoyable, expressive, and meaningful leisure” (Iwasaki et al., 2014 p. 149) and recreational activities (Arai, Griffin, Miatello, & Greig, 2008; Fullagar, 2008; Iwasaki, Coyle, & Shank, 2010; Rudnick, 2005). Preferred leisure and recreational activities are different across individuals, and therefore, is highly subjective in nature. The subjective perception of being engaged in leisure was a significant predictor in the reduction of symptoms and recovery of

physical and mental health disorders/disabilities across diverse populations (Iwasaki et al., 2014; Iwasaki, Coyle, & Shank, 2010). Leisure within the literature includes play, recreation, and other activities that an individual chooses to participate in during free time (Hood & Carruthers, 2007a; Hood & Carruthers, 2007b). Leisure and recreation provide individuals suffering from trauma with coping skills (Hutchinson, Loy, Kleiber, & Dattilo, 2002; Iwasaki et al., 2014; Iwasaki, Mackay, Mactavish, Ristock, & Bartlett, 2006; Kleiber, Hutchinson, & Williams, 2002), as well as healing in the spiritual, emotional, and psychosocial domains (Arai et al., 2008). Recreational Therapists have helped individuals with trauma and PTSD cope and heal by utilizing interventions such as river running and other nature-based therapeutic interventions (Dustin et al., 2011), adaptive sports and recreation (Lundberg, Bennett, & Smith, 2011), programming (Wilder et al., 2011), yoga, meditation, mantram and mindfulness activities (Fiore, Nelson, & Tosti, 2014), as well as hunting and outdoor gaming skills (Rogers, Loy, & Brown-Bochicchio, 2016). Recreational Therapists utilize leisure and recreational activities in effort to facilitate positive changes, both consciously and unconsciously, in cognition, affect, and behavior typically seen in individuals with PTSD (Arai et al., 2008; Haskell, 2003). It was suggested that non-verbal expression through art “may be necessary for the symbolic processing” of trauma (Spiegel et al., 2006, p. 158; van Der Kolk & Fisler, 1995).

### **Creative Art Modalities**

Creative art is applicable to multiple cultures because art forms are found universally in each culture across the world (Campbell, 2009). Art therapy has commonly been used among clinicians since the early 1900s, but the efficacy of the techniques and qualitative outcome claims have not been empirically validated until the late 1990s and early 20<sup>th</sup> century (Austin, 2009; Eaton, Doherty, & Widrick, 2007; Reynolds, Nabors, & Quinlan, 2000). In response to Reynold’s (2000) article that called for operationalization and improvement in the research process of art modalities, a literature review compiled by Slayton and colleagues (2010) identified studies from

1999-2007 which focus on isolated art therapy interventions that utilize research designs; These researchers found that while the literature is limited, quantifiable data exists to support the efficacy of art therapy as an intervention for “treating a variety of symptoms, age groups, and disorders” (Slayton, D'Archer, & Kaplan, 2010, p. 108). Schouten et al. (2015) conducted a systematic review to determine the efficacy of art therapy for adults exposed to trauma and found that while there is support, the studies have many limitations. There needs to be more research conducted pertaining to the efficacy of art for trauma exposed populations utilizing evidence based practice (EBP) (Schouten, de Niet, Knipscheer, Kleber, & Hutschemaekers, 2015).

Creative arts have gained momentum in the literature as a therapeutic modality due to the shift in EBP (Coiner & Kim, 2011). Researchers found that art has an impact on multiple life domains (Austin, 2009). Art therapy has been used since the 1970s as an alternative treatment for a wide range of trauma survivors, including those with PTSD (Campbell, 2009; Canto et al., 2015; Eaton, Doherty, & Widrick, 2007; Green, 2011; Henderson, 2012; Lahad et al., 2010; Rowe et al., 2017; Spiegel, Malchiodi, Backos, & Collie, 2006). Art therapists have used quilting (Baker, 2006), art therapy trauma protocol (ATTP) (Talwar, 2007), visual art therapy (Nanda, Gaydos, Hathorn, & Watkins, 2010), group art therapy (Slayton, D'Archer, & Kaplan, 2010), creative art therapy (Green, 2011), and a broad range of art modalities (VanDahlen, 2015), to name a few, for individuals with posttraumatic stress with promising outcomes that promote efficacy. Spiegel (2006) outlines the unique benefits that art offers for individuals with PTSD:

*Relaxation* during art making directly reduces hyperarousal. *Non-verbal expression* facilitates the expression of memories and emotions that are difficult to put into words. *Containment* of traumatic material within an object or image gives a sense of control over terrifying and intrusive memories and promotes emotional self-efficacy. *Symbolic expression* makes progressive exposure/expression of traumatic material tolerable and helps overcome

avoidance, thus allowing the therapeutic process to advance relatively quickly. *Externalization* of traumatic memories and emotions facilitates insight and the ownership of trauma and helps shift traumatic memories from the present to the past. The *pleasure* of creation builds self-esteem, helps rekindle responsiveness to rewards, reduces emotional numbness, and helps re-establish adaptive social functioning. (p. 161)

The Therapeutic Recreation profession has contributed to this body of knowledge and uses creative arts modalities to address various populations, and multiple domains with specific processes outcomes for the interventions, as outlined in *Therapy Techniques Using The Creative Arts* (Austin, 2009). Austin outlines that creative art groups, especially for VA population, have benefits such as kinesthetic learning, opportunities for non-verbal expression, clearing of “unconscious tensions,” enhancement of self-perception and self-awareness, subjective positive affect, as well as “insight and knowledge” (p. 129). “Creative arts modalities can be used in interventions by recreational therapists” because it falls under the Recreational Therapy scope of practice (Austin, 2009, p. 129).

### **Neurobiological Evidence**

When traditional “verbal psychotherapy” (Talwar, 2007, p. 22) and exposure-based interventions fail, artmaking is recommended as a complimentary intervention for the treatment of individuals with PTSD because it has theoretical support, as well as empirical research rooted in neurology (Gantt & Tinnin, 2009; Spring, 2004). When people with PTSD are asked to verbally express their trauma, they often have difficulty thinking, feeling, and speaking (Van der Hart et al., 2006) because they experience dissociation (See criterion B & D in *Figure 1*), which is commonly believed to be the brain’s coping mechanism to trauma (Lynn, Lilienfeld, Merckelbach, Giesbrecht, & van der Kloet, 2012; Talwar, 2007). The prefrontal cortex (PFC) and

the amygdala are important brain structures that are involved in the processing of traumatic memories (Bremner, 2001; Bremner, Southwick, Johnson, Yehuda, & Charney, 1993; Talwar, 2007). Neuroimaging shows that when patients exposed to trauma are asked to verbally express their trauma, the Broca's area (controls speech) does not light up, but the amygdala does (Bremner et al., 1992; Talwar, 2007). Researchers hypothesized that "the imprint of trauma does not reside in the verbal, analytical regions of the brain. Instead, it affects the limbic system and non-verbal region of the brain, which are only marginally employed in thinking and cognition" (Talwar, 2007, p. 24).

The PFC and the amygdala have important roles pertaining to the neural pathways associated with human survival instincts. The PFC has an executive role in the expansion of thoughts, the determinate of personality, and acts as a regulator of emotions through learning and expression (Banks, Eddy, Angstadt, Nathan, & Phan, 2007; Bishop, 2007; Makinson & Young, 2012; Shin et al., 2005; Talwar, 2007). The amygdala aids the limbic system by identifying external stimuli and assigning negative emotions with specific stimuli (events) to protect the body from potential threats (Makinson & Young, 2012; Shin et al., 2005). The PFC and amygdala have vast connections of neural pathways throughout the brain, which are vital to the body's natural survival response (Makinson & Young, 2012). Hyperactivity and dysregulation of the amygdala, which leads to abnormal associations with external stimuli, can induce fight or flight instincts of individuals with PTSD even when no threat is present (Bishop, 2007; Makinson & Young, 2012; Ressler & Mayberg, 2007; Scott, 2015; Shin et al., 2005; Shvil, Rusch, Sullivan, & Neria, 2013). It is presumed that exposure to a traumatic event is the instigator of a hyperactive amygdala, which leads to psychogenesis of PTSD (Makinson & Young, 2012). The PFC, which normally counterbalances the alarming messages sent by the amygdala, becomes disrupted by the "inappropriate amygdala activation" (Makinson & Young, 2012, p. 133), which leads to the



regulatory structure being bypassed (Banks et al., 2007; De Raedt, 2006; Quirk & Mueller, 2007; Talwar, 2007).

The connection between the PFC and the amygdala is important to self-regulation and the retention of personal experiences and emotions, also known as long-term memory (Makinson & Young, 2012). Memory is stored in either implicit (procedural) and explicit (declarative) systems: Implicit memory is unconscious actions such as learned activities, while explicit memory is conscious and based on verbal expression (Rothschild, 2000; Talwar, 2007; van der Kolk, 1994). Traumatic memories are imprinted unconsciously on the brain, which leads to an inability for sufferers to process the trauma verbally or assign the traumatic memories a place in their autobiographical memories, which leads to continued PTSD symptomology (Rothschild, 2000; Talwar, 2007; van der Kolk, 1994). Posttraumatic stress disorder is unique in the sense that it experiences a disruption of autobiographical memory, either consciously or unconsciously through “fragmented memories and intrusive involuntary memories related to the trauma” (Rubin, Berntsen, & Bohni, 2008; Rubin, Boals, & Berntsen, 2008, p. 592). The cluster B symptoms (see *Figure 1*) can last for years after the trauma exposure (American Psychiatric Association, 2013; van der Kolk & Fisler, 1995; van der Kolk, Hopper & Osterman, 2001). It is believed that when the trauma-related imprints fail to be integrated into the correct system that the affected individuals remain “at an increased level of hyper-vigilance” (Talwar, 2007, p. 23).

The PFC and amygdala exhibit high neuroplasticity, meaning that the brain structures can be rewired and that an intervention could re-regulate the amygdala and potentially correct adverse PTSD symptoms (De Raedt, 2006; Makinson & Young, 2012; Martin & Kandel, 1996).

Researchers (Ogden & Minton, 2000; Shapiro, 2002) have proven that “trauma sufferers process their trauma from the bottom up – body to mind—and not top down – mind to body” (Talwar, 2007, p. 25). Neurobiological evidence has led researchers to encourage therapists and clinicians to shift the focus from verbal to non-verbal interventions for individuals processing trauma to

integrate and process the memories effectively (Talwar, 2007). Read's (1960) ideas of a "language of images" (p. 156) shaped the use of artmaking for individuals suffering from PTSD. Artmaking is the mediator of "the conversion of unsymbolized sensory knowledge to symbolized visual form" through the process of trauma being "represented by recurring distinct graphic forms" (Spring, 2004, p. 207). It is noted that through the "kinesthetic, neurological interaction" (Spring, 2004, p. 207), the brain hemispheres can rewire how trauma is processed (Bremner, 2002; Chapman et al., 2001; Solomon et al., 2003). Artmaking "fills in or rearranges autobiographical memory as means to make sense out of experience" (Spring, 2004, p. 207).

### **Psychological Origins of Art**

The origin of art as an intervention is rooted in psychoanalytic theory (Eaton, Doherty, & Widrick, 2007; Gantt & Tinnin, 2009). Sigmund Freud is considered the father of psychoanalysis and he "demonstrated empirically the presence of an unconscious psyche" (Jung, 1963, p. 208; Schottenbauer, Glass, Arnkoff, & Gray, 2008). Carl Gustav Jung (1875–1961), who founded Analytical Psychology, was a Swiss psychiatrist who built upon Freud's research (Adamski, 2011; Ferrell, 2015). Researchers emphasize the rareness of Jungian theory throughout scientific literature and point towards Jung's ideas as being either too ambiguous or too intricate, thus leaving it to be utilized by qualitatively derived professions such as art or religion (Henderson et al., 2007; Slegelis, 1987). Jung was aware of his complexities and said, "my ideas would go uncomprehended" (Jung, 1963, p. 207). It has been cited that because Jung had a "multi-faceted personality" with broad interests, that he garnered attention from various professions, thus leading to different interpretations of his original work (Samuels, 1985, p. 2). One famous figure who had similar interests as Jung and "introduced psychology into psychiatry, although he himself was a neurologist" was Sigmund Freud (Jung, 1963, p. 144). Jung was interested in Freud's work, specifically, the unconscious and his dream analysis because it aligned with his own theories. Jung said, "What chiefly interested me was the application to dreams of the concept of the

repression mechanism, which was derived from the psychology of the neuroses” (Jung, 1963, p. 183). Jung met Freud in 1907 and was instantly magnetized, so much so that they spoke for 13 hours and quickly became comrades who corresponded and collaborated over the years. Jung saw Freud as a father figure from which he could learn, and he placed great value on their relationship, while Freud saw Jung as someone who could continue his work (Jung, 1963). As time passed, they began to drift apart intellectually, and Jung found that he had suppressed his own criticisms and judgements because he was overshadowed by Freud. Jung supported and defended Freud throughout the years, but the area that he constantly disagreed with Freud was the notion that repression revolved only around sexual trauma; Jung believed that repression could be caused by multiple things, such as problems in social adaptation or “oppression by tragic circumstances of life” (Jung, 1963, p. 183). Jung dared to say that although sexuality is important, it is not central, and he planned to explore spirituality, which “Freud was so fascinated by but was unable to grasp” (Jung, 1963, p. 207). They mutually parted ways around 1928 when Freud took his theories of psychoanalysis to a more scientific level with hypothesis and methods, while Jung kept to more symbolic meanings in his work (Jung, 1963).

Although Jung viewed himself as a scientist, he was regarded as a “mystic” in the academic world (Jung, 1963, p. 206). Jung’s theory of the collective unconscious, which is composed of elements such as the “Archetype,” has long been criticized as being “unverifiable” by scientific standards (Fleisher, Mundkur, & Reyman, 1982, p. 335). However, Jung was adamant that Jungian theory cannot be tested scientifically because “it is an experiential encounter with one’s own unconscious expressing itself symbolically” (Fleisher, Mundkur, & Reyman, 1982, p. 335). A theory is “a non-empirical entity which can explain facts” (Samuels, 1985, p. 4); Facts come after theory by means of observation. To understand Jung’s work, one must understand his process:

Jung begins from the human interaction in analysis or from observation of life, develops a theory which is then illustrated by comparative material or further observation. Only then could the mass of imagery and data from many sources be organised. The organisation itself then helps to understand one aspect or other of human behaviour. Thus the process is circular: human material—theory—illustration—application to human behavior. (Samuels, 1985, p. 4)

The application of Jung's ideas and processes to human behavior is known as Analytical Psychology. Since its inception, Analytical Psychology (as originally envisioned by Jung), has branched off into different "schools of post-Jungian analytical psychology" (Samuels, 1985, p. 9). In modern day, there are "Post-Jungian" and "Post-Freudian" schools of thought, which are similar in origin, yet differ on details and theoretical implementation practices, thus reflecting differences between Jung and Freud (Samuels, 1985, p. 1). Compared to Post-Jungians, Post-Freudians have been growing in vast amounts due to Freud's push of less abstract ideas and scientific processes as well as official educational institutions (Samuels, 1985). Jung "stated that there simply was one Jungian—himself" and openly detested schools because he believed in "Individuation" and wanted everyone to be an individual (Samuels, 1985, p. 1). His detest of conforming is cited as the reason that Jungian schools took so long to form (Samuels, 1985, p. 2). In 1936, Jungians created the "Analytical Psychology Club of London" which later turned into the "Society of Analytical Psychology" in 1946 (Samuels, 1985, p. 1). The society is composed of Jungian analysts and psychotherapists whom are leaders in the field of Jungian analysis ("About SAP", 2017). The society provides analysis training and created the *Journal of Analytical Psychology*, which keeps a record of Jungian clinical practice by "integrating Jungian and post-Jungian developments with those of psychoanalysis" ("About SAP", 2017). A 2016 article goes into depth of the history of Analytical Psychology from its inception to present day applications (Gitz-Johansen, 2016). Over the past 100 years, Analytical psychology gained

respect in the scientific community (Ferrell, 2015; Gitz-Johansen, 2016). In 2015, it was documented that 2,500 Jungian practicing psychoanalysts existed across the world (Ferrell, 2015).

### **The Archetypes**

Jung recognized the unconscious in relation to the self and discovered the “collective unconscious,” that is composed of “Archetypes” (Adamski, 2011, p. 563), which are innately found in all humans across different age, race, cultures, and time periods (Young-Eisendrath & Dawson, 2008). Jung goes into detail the layers of Archetypes which compose the psyche in his collected works (Jung, Read, Fordham, & Adler, 1953). While the hierarchy and classification of Archetypes are outlined by Jung, the approach models and application vary widely (Samuels, 1985). Archetypes have been compared to the human body; Each system has its individual function(s), yet they are all related and important to the body (Samuels, 1985). Jung believed that humans have an instinctive desire to grow closer to their true self and that symptoms are the organism’s “*attempt*” to self-regulate and obtain homeostasis (Samuels, 1985, p. 23). Jung viewed the Archetypes on a bipolar scale of opposites, which helped to explain one another (Samuels, 1985). The “Self” is the “central archetype of the collective unconscious” (Miller, 2005, p. 165; Hall & Nordby, 1973) and represents “the striving for individuation, wholeness, and psychological integration through the reconciliation and unification of opposites” (Miller, 2005, p. 166) within the mind (Argüelles & Argüelles, 1972; Clarke, 1994; Edinger, 1992; Fontana, 1994; Jung, 1959; Moacanin, 2003). The self, commonly depicted in psychoanalysis, typically refers to the ego, which is “the conscious ‘I’ with whom individuals normally identify” (Miller, 2005, p. 166). The ego is in control of conscious thinking, feeling, intuition and sensations (Samuels, 1985). The ego and the Self are independent of one another; However, the Self exhibits a “supra-ordinate nature,” meaning that it superiorly transcends the ego (Samuels, 1985, p. 72).

Jung believed that the Archetypes were linked to biological, psychological, behavioral, and spiritual aspects of humans (Samuels, 1985). Jung noted that just as humans inherit physical properties and go through similar lifespan experiences, they too inherit Archetypes, which act as innate blue prints that have “crystallised” experience since the inception of humanity (Samuels, 1985, p. 22). Jung’s theories of the psyche and the Archetypes have been deemed as unscientific and were initially rejected by Einstein (Fleisher, Mundkur, & Reyman, 1982; Samuels, 1985). Jung even believed that his theories were not able to be validated by science because they were unconscious constructs and processes of the psyche (Samuels, 1985). However, scientists ignored Jung’s stance and explored tangible areas of research, such as biological and physical facets to provide support of his theories (Samuels, 1985). The Archetypes are thought to contribute to issues of the psyche, such as dissociative disorders, borderline syndromes, and magical thinking (Young-Eisendrath & Dawson, 2008). According to neurologists, the Archetypes are thought to be related to imagery and are believed to exist in the right hemisphere of the brain, which is better at taking in fragmented and irrational information and forming a whole picture than the analytical left side of the brain (Samuels, 1985). Quantum theory and theoretical physics verified that subatomic particles mimic the other’s “action-at-a-distance” without any kind of signal or link to connect them, thus providing a theoretical backing for the connection and communication of the Archetypes (Samuels, 1985, p. 24). Theorists suspected that aspects of the collective unconscious and the Archetypes were biologically derived and thought to be passed on through DNA (Samuels, 1985; Young-Eisendrath & Dawson, 2008). This theory was verified much later by quantum psychology through bioelectronic properties that not only save information about a person’s life and environment, but pass it on at a cellular level across generations (Adamski, 2011).

## **The Individuation Process**

The individuation process is a theory engrained in Jung's Analytical Psychology and is considered broad and complex, and as a result, it has been interpreted differently by scholars and practitioners. However, the traditional Jungian view is that the individuation process occurs throughout the human lifespan with succession through three distinct stages: ego emergence (1), ego alienation (2), and ego relativization (3) (Young-Eisendrath & Dawson, 2008). This process exists on a plane between the "unconscious unity" (of Self and ego) and "conscious wholeness" (goal of individuation) (Young-Eisendrath & Dawson, 2008). When the conscious and unconscious are divided, the individuation process is the means used to merge the split and reintegrate them (Miller, 2005) "into a subjectively meaningful whole" (Young-Eisendrath & Dawson, 2008, p. 60). The ego emergence begins around infancy and is a split of the ego and Self, which results in domination of the ego (consciousness) (Young-Eisendrath & Dawson, 2008).

The purpose of the first half of the human lifespan is to develop "one's ego identity and to construct a *persona*" in effort to adapt to external stimuli, such as cultural and societal norms (Young-Eisendrath & Dawson, 2008, p. 304); Anything viewed as unacceptable is repressed and sent into the unconscious, which results in development of complexes and ego-centeredness (Young-Eisendrath & Dawson, 2008). The second stage happens around the middle of the lifespan and is when the split between the ego and the Self is at its greatest, thus resulting in higher disassociation and "growth of complexes" (Young-Eisendrath & Dawson, 2008, p. 305). The ego copes with this split by going through phases of "inflation and depression" (Young-Eisendrath & Dawson, 2008, p. 304). The third stage marks a connection of the ego to the Self, also known as the "ego-Self axis" (p. 304), in which the ego recognizes the Self, becomes "partially conscious" (p. 305), and accepts the Self's superordinate nature (Young-Eisendrath & Dawson, 2008). Jung noted that this shift must take place in "an active, synthetic state of

engagement” which induces “psychological states” (Young-Eisendrath & Dawson, 2008, p. 60). Through this integration comes transformation and understanding which was believed by Jung to be blocked by past trauma and hesitance of new pursuits (Young-Eisendrath & Dawson, 2008). While there are critiques to Jung’s theory (Myers, 2013; Samuels, 1985), Jung’s individuation process has been compared to Maslow’s (1968) concept of self-actualization in his hierarchy of needs (Miller, 2005): “The act of creation fulfills the need to explore and express one’s potential and validate one’s own ability to do more than just survive” (Nathan & Mirviss, 1998, p. 4). Jung believed that the pursuit of the Self was a way to find purpose and gain higher consciousness, which superseded regular “self-realization” (Samuels, 1985, p. 71), such as that is psychotherapy (Miller, 2005).

### **Recreational Therapy**

The reintegration through the individuation process is necessary for health and wholeness (but not perfection), which Jung referred to as living up to one’s individual potential (Young-Eisendrath & Dawson, 2008). Jung envisioned the Self as being holistically encompassed with “all psychological and mental processes, physiology and biology, all positive and negative, realised or unrealised potentials, and the spiritual dimension” (Samuels, 1985, p. 72). Recreational Therapists help individuals reach their full potential by focusing on the “whole person” (Dustin et al., 2011, p. 330) and addressing multiple life domains (Howe-Murphy & Charbonneau, 1987; Hutchison & McGill, 1992; McGill, 1996; Murray, 2003; Sylvester, 1994/1995) “from a holistic/ecological, person-centered, and strength-based perspective” (Iwasaki et al., 2014, p. 148) rooted in positive psychology (Ida, 2007; Iwasaki et al., 2010; Resnick & Rosenheck, 2006; Slade, 2010; Young, Chinman, Forquer, et al., 2005). The pursuit of the Self through the individuation process has been viewed “as an organ of meaning” and a way for transcendence “through creative action” (Samuels, 1985, p. 103). The elements of creative art modalities bear similarities of Jung’s individuation process (Jung, Read, Fordham, & Adler,



1953). The benefits of creative arts, as outlined by Recreational Therapists Nathan and Mirviss (1998), include expansiveness and freedom, internal communication, external communication, leisure, alternative communication, self-worth, healing, and interpersonal relations. Creative arts allow for the expansion and freedom to go beyond normal limits as well as feeling as if one has access to a different realm of the self:

During creative activity we are linked with our inner selves. We interact with an object or situation and find ways to communicate our thoughts and feelings about what we are seeing or experiencing. While we are involved in creative activity we are engaged in a sustained union with self that is different from normal consciousness and profound before because we are closer to touching our unique self. (Nathan & Mirviss, 1998, p. 3)

Individuals can increase self-worth and be validated in their newfound creation by participating in an individual journey and exploration of the self through creative endeavors (Nathan & Mirviss, 1998). Alternative communication provides a means of expression that bypasses normal processing patterns of the brain and allows one to view a situation more clearly (Nathan & Mirviss, 1998). Creative arts promote external communication and interpersonal relations by allowing one to share about themselves and connect with others (Nathan & Mirviss, 1998). Creative activity provides a way to escape internal and external life stress and “many people experience a sensation of “flow” – of being totally engaged and a peace with self during creative activity. Only the activity of that moment exists” (Nathan & Mirviss, 1998, p. 3). The key to flow is attempting a new activity while keeping the difficulty within the individual’s ability, but also providing enough of a challenge so they are not bored.

## **Leisure and Healing from Trauma**

Creative arts allow for healing through deep engagement and physical and mental relaxation (Nathan & Mirviss, 1998). Healing is a process of confronting the past, seeking individual growth, and access to a “deeper consciousness and understanding of self in relation” to multiple life domains (Arai et al., 2008, p. 38). “Trauma is associated with deficits in awareness of self,” which creates a barrier to experiencing the benefits of leisure (Arai, Griffin, Miatello, & Greig, 2008, p. 40). “Developing a personal and conscious relationship with the whole self and learning to connect the self to leisure” (Arai et al., 2008, pgs. 53-54) is important for the “role of leisure in the process of coping, healing, and transcending the effects of trauma” (Arai et al., 2008, p. 37). Leisure becomes a vessel for individuals to unconsciously re-enact aspects of their trauma to deal with it, which can lead to negative associations and avoidance of leisure until the individual becomes self-aware of their negative coping mechanisms (Arai, Griffin, Miatello, & Greig, 2008; Griffin, 2005). Harris (2009) goes into details of the “psychotherapeutic understanding of play and individuation” (p. 103) in the context of traumatic experiences of young individuals from remote areas of the world riddled with war. They found that these children experienced recovery from trauma through the “interplay of symbolization” (p. 102) and mindfulness. They recommend creative art interventions that incorporate symbolic representation to allow individuals whom are haunted by trauma a pathway to restoration and a reunification of their body-mind connection (Harris, 2009). Jung was inspired by Goethe’s epigram: "Formation, Transformation, Eternal Mind's eternal recreation" (Goethe, 1959 p. 79). Jung noted that “The creative mind plays with the object it loves” (p. 175) and that spontaneous play stems from internal necessity and is the means to the creation of something new (Ruhl & Johnson, 2009). Jung fixated upon a symbol that he believed to represent Goethe’s epigram and the key to the unconscious mind (Jung, 1963).

## The Mandala

The object that Jung was fascinated with is known as the Mandala; “ मण्डल ” is the Sanskrit word for Mandala (See *Image 1*), which translates to “circle” (Mann, 2013, p. 23) in English (Jung, 1963; Miller, 2005). Jung noted the mandala’s significance as a therapeutic tool to connect to the Self and assist in the individuation process (Jung, 1963; Miller, 2005). The mandala is believed to be an “archetypal symbol reflecting the common neuropsychological inheritance of humankind” (Di Leo, 1983, p. 13; Miller, 2005). The mandala is found as a spherical symbol or structure in all cultures across time (Miller, 2005; Moacanin, 2003; Singer, 1994). Miller (2005) goes into detail the religious and philosophic roots of the mandala ranging from the Paleolithic era to its effects on present ideas of Analytical Psychology. The mandala, in relation to Analytical Psychology, is a symbolization of the Self (Argüelles & Argüelles, 1972; Clarke, 1994; Edinger, 1992; Fontana, 1994; Jung, 1959; Miller, 2005; Moacanin, 2003). Jung believed that the mandala was a “magic circle,” and he defended the importance of its spiritual and symbolic meaning throughout his works and career (Jung, 1963, p. 478). Jung first discovered the mandala through subjective descriptions of his client’s dreams (Miller, 2005). Jung painted his first mandala in 1916, but he did not understand it’s meaning until 1918-1919. Jung would draw a mandala in his sketchbook daily; He believed that the mandala corresponded to his “inner situation” and that he could track changes in his “psychic transformations” by observing his mandala transformations each day (Jung, 1963, p. 238). Through his observations, he started to see mandalas as “cryptograms” into the unconscious, and a key to the “whole being” (Jung, 1963, p. 239). Jung believed that the central point of the mandala was the “circumambulation of the self,” meaning that all paths to the center led to individuation, or a process of becoming whole and a balance between the unconscious, consciousness, and the ego (Jung, 1963, p. 240).

## **Mandala Research**

Slegelis (1987) was one of the first to apply the scientific method to Jung's work. He found that individuals who colored within a circle, compared to a square, experienced better affect (Slegelis, 1987). In 1999, researchers found that mandalas produced a calming effect on children who were stressed (DeLue, 1999; Henderson, 2012). Curry and Kasser's (2005) research study focused on the difference in anxiety levels of undergraduate students (n = 84) between coloring a mandala outline (n = 30), a plaid form (n = 27), or an unstructured blank page (n = 27). The randomized pre-post intervention design consisted of an anxiety induction exercise followed by a randomized intervention of one session per participant lasting for 20- minutes. Researchers found that the mandala and plaid coloring groups were equal in reduction of anxiety levels compared to the unstructured coloring group, which did not reduce anxiety and seemed to cause more distress due to lack of structure. "These findings suggest that structured coloring of a reasonably complex geometric pattern may induce a meditative state that benefits individuals suffering from anxiety" (Curry & Kasser, 2005, p. 81). Researchers suggest that structured coloring also provides a framework for the inner chaos created by anxiety (Curry & Kasser, 2005; Grossman, 1981). The next study replicated the Curry & Kasser (2005) study. The researchers evoked anxious feelings, implemented the intervention of either a pre-drawn mandala, a plaid design, or unstructured coloring on a blank sheet of paper for 20-minutes, and measured outcomes from the pre-post design. Contrary to the 2005 study, results showed that only coloring a pre-drawn mandala provided more significant outcomes. "The results provide evidence that the act of coloring as well as the focus on the mandala design can be useful to reduce anxiety" (Renée van der Vennet & Serice, 2012, p. 92). The researchers suggested that future studies should focus on the difference between pre-drawn and creation of mandalas and their effect on anxiety levels (Renée van der Vennet & Serice, 2012). The next researcher built upon the research of Curry and Kasser's (2005) and Renée van der Vennet and Serice's (2012), but combined elements of the

two and utilized a randomized pre-post design using multiple versions of mandalas “against the more empirically established pre-drawn mandala” (Mann, 2013, p.16). First, a four-minute writing exercise was used to evoke anxious feelings. Then, participants were randomly selected to be in the pre-drawn mandala, constructed mandala (Zendala®), or the unstructured mandala circle shape group for the intervention phase. Anxiety was measured during baseline, after writing, and after the intervention. Paired sample *t*-tests between the unstructured ( $p < .05$ ) and pre-drawn ( $p < .05$ ) mandala results provided support for the possibility of using the modalities to reduce anxiety (Mann, 2013).

In 2012, a researcher integrated the framework of positive psychology combined with mandalas and positive affect, and studied the effects on college student’s emotions, as well as their physical and psychological well-being (Henderson, 2012). Results showed that there was no effect on the physical or psychological measures, however, participants did experience positive affect after each session (Henderson, 2012). Another researcher found that mandalas positively affected the levels of hope for psychiatric patients (Kim, Kim, Choe & Kim, 2017). In 2012, researchers looked at the effect of art making in general, using various mediums including “painting or coloring predesigned mandalas, free-form painting, collage making, still life drawing, and modeling with clay” (Sandmire, Gorham, Rankin, & Grimm, 2012, p. 68) and their effect on 57 undergrad students the week before finals. The results showed that the art making group ( $n = 29$ ) significantly decreased anxiety levels ( $p < .001$ ,  $t = 3.98$ ) compared to the control group ( $n = 28$ ). This study has implications for support of using creative expression for a period of 30-minutes to decrease anxiety levels (Sandmire, Gorham, Rankin, & Grimm, 2012). In 2015, A qualitative research study was conducted to see the subjective effects of mandala creation on medical students ( $n = 241$ ). Mandala making allowed the students to reflect and gain insight into their unconscious psychological state of development (Potash, Chen, & Tsang, 2015). Another study found that Mandala making increased student’s self-awareness (Pisarik & Larson, 2011).

While mandalas have commonly been used to treat individuals with anxiety, which is a comorbid disorder of PTSD (American Psychiatric Association, 2013), there are specific studies pertaining to mandala's effects on individuals with PTSD. A study by Henderson and colleagues (2007) focused on the creation of mandalas and their healing effects on undergraduate students (n = 36) with clinical levels of PTSD. The researchers theorized that creating mandalas would promote positive changes for multiple health outcomes, such as PTSD, anxiety and depressive symptoms, and provide an alternative means of processing traumatic events. This article also contains a literature review of mandala research up to 2007. The participants were randomly selected to participate in the control group (n = 17) and asked to draw an assigned object or the experimental group (n = 19) and asked to create a mandala. The study lasted for three consecutive days with 20-minute sessions per participant each day. Self-report measures were taken before the intervention, after the intervention, and one month after as a follow-up. Researchers found that participants experienced a significant reduction in PTSD symptoms after one month of exposure to the intervention compared to the control group. This research provides evidence that creating mandalas reduces PTSD symptoms, however, it did not produce changes for other health outcomes (Henderson, et al., 2007). Allen (2011) replicated the research by Henderson et. al. (2007), but used mandala creation vs. neutral drawing task (instead of an assigned object) and utilized a randomized control group pretest, posttest, post-posttest research design. This researcher noted that the studies conducted by Henderson et. al. (2007) and Henderson (2007) resulted in contradictory findings "supporting both mandala creation and engaging in a neutral drawing task as superior in the alleviation of traumatic symptom severity, but only for PTSD symptom severity" (Allen, 2011, p. 120). However, Allen's (2011) research supported both interventions and showed that mandala creation produced broader positive outcomes than simply the reduction of PTSD symptoms. Pre-to-Post measurements showed significant changes of trauma related symptoms in depressive, trait anxiety, as well as physical wellbeing measurements (Allen, 2011).

These studies were a step in the right direction towards providing empirical research in the realm of art psychotherapy, which has historically rendered little respect or credibility in the scientific community (Henderson, 2012; Henderson, Rosen, & Mascaro, 2007). Collectively, these studies provided evidence for mandalas as a potential modality for treating individuals with PTSD and/or comorbid PTSD symptoms (Allen, 2011; Curry & Kasser, 2005; DeLue, 1999; Henderson, 2012; Henderson et al., 2007; Mann, 2013; Potash, Chen, & Tsang, 2015; Renée van der Vennet & Serice, 2012; Sandmire, Gorham, Rankin, & Grimm, 2012; Small, 2006).

### **Mediums for Mandalas**

Jung noted that “It may even be assumed that just as the unconscious affects us, so the increase in our consciousness affects the unconscious” (Jung, 1963, p. 391). Simplistically, he was trying to point out the “Countereffect” that the unconscious can produce when an individual gains awareness (Jung, 1963, p. 189). The process of creative arts involves relaxing, focusing on the task, and allowing inspiration and creativity to flow through “with words, drawings, notations or symbols the thoughts and images” (Nathan & Mirviss, 1998, p. 259). This expression comes from the unconscious and we are only able to decipher the messages when “we allow them to be revealed to us” (p. 260) through creative arts (Nathan & Mirviss, 1998). Art mediums can be useful for therapists to “complement desired goals” (p. 106) of interventions (Nathan & Mirviss, 1998). Crayons, colored pencils, and felt tip pens are identified as ideal expressive art materials that allow for “non-verbal expression of thoughts, feelings, and ideas” (Nathan & Mirviss, 1998, p. 107).

The left side of the brain is typically involved in logical, verbal, and analytical functions, while the right side is holistically driven and is involved in intuitive, creative, and non-linear functions; Both sides are better at certain tasks, and sometimes work together, but the left side is usually dominant (Nathan & Mirviss, 1998). It is suggested that providing tasks that the left side

cannot do, such as creative endeavors, will allow the right side of the brain to take over (Nathan & Mirviss, 1998). The traditional way to do this is through meditative techniques, which requires training to shift the brain from “beta mode,” which is the state adults are typically in that involves alertness, “problem-solving, and decision- making,” to “alpha mode” (Scott, 2015, p. 104), which is similar a child-like state (Nathan & Mirviss, 1998). During human development, circles are drawn from ages 2-4 and mandalas begin to emerge around age 5, which is the pivotal moment in art development because it is when children either embrace or abandon creative endeavors. Sometimes, children who abandon art will “rediscover it later in life in a new form” (Nathan & Mirviss, 1998, p. 58). Coloring has become a popular pastime for adults since around 2013 when adult coloring book sales skyrocketed (Scott, 2015). Participants have recorder anecdotal benefits of coloring, such as it being a stress reliever and soothing, providing creative escapism, and evoking meditative mindsets, as well as restorative elements, and bringing them back to their childhood (Scott, 2015). Coloring therapy is a combination of art therapy and meditation and provides an opportunity for the mind to enter a “state of deep engagement” (Curry & Kasser, 2005, p. 81). This engagement and the “repetitive nature” of coloring is said to help people shift from a “‘fight or flight’ mentality into a ‘stay and play’” one (Scott, 2015, p. 104). The process behind drawing involves both sides of the brain and “promotes cognitive and affective mastery of traumatic material” (Allen, 2011, p. 125; Rubin, 2006; Siegel, 2003).

## **Conclusion**

In conclusion, while there is an abundance of long-standing traditional interventions, which focus on verbal expression and exposure therapy for individuals with PTSD (Agaibi & Wilson, 2005; Bradley, Greene, Russ, Dutra, & Westen, 2005; Freeman, 2006; Moran, Burker, & Schmidt, 2013; Mørkved et al., 2014; Newton, 2015; Olthuis et al., 2016; Schottenbauer, Glass, Arnkoff, & Gray, 2008; Spiegel et al., 2006), the nature of this disorder makes it difficult for verbal expression of trauma (Freeman, 2006; Kashdan, Elhai, & Frueh, 2006; Spiegel et al., 2006)



and no specific intervention has been proved superior over the other (Benish, Imel, & Wampold, 2008; Cusack et al., 2016; Spiegel et al., 2006; Tran & Gregor, 2016). Researchers point to the need for alternative therapies because of the disorder's resistance towards conventional therapy options (Dustin et al., 2011), the neurobiological expression of PTSD and trauma (Bird, 2015; Newton, 2015; Poulsen, Stigsdotter, Djernis, & Sidenius, 2016; Spiegel et al., 2006), and barriers in the military culture (Assis et al., 2008; Crawford et al., 2015; Dustin, Bricker, Arave, Wall, & Wendt, 2011). While there has historically been theoretical support for creative art as a modality (Austin, 2009; Eaton, Doherty, & Widrick, 2007; Reynolds, Nabors, & Quinlan, 2000), it has recently gained attention in the Neurobiological literature because creative expression provides access to the non-verbal area of the brain, which is the area of the brain that trauma is thought to be stored (Gantt & Tinnin, 2009; Spring, 2004; Talwar, 2007). It is thought that through creative endeavors, one can access the non-verbal area of the brain and utilize art as a means of unconscious processing and expression of trauma. The mandala is a unique creative art modality for individuals with PTSD because it is thought to be the bridge to the complete Self and bring awareness to displaced or repressed information in the unconscious (Adamski, 2011). The mandala may provide additional therapeutic benefits for individuals with PTSD due to its "meditative properties" (Mann, 2013, p.16) and innate ability to provide higher consciousness of the individual (Miller, 2005).

Recreational Therapists have a history of working with the military (Brasile et al., 1998) and may be the key to unlocking a veteran's full potential through meaningful leisure and recreational interventions aimed specifically for trauma expression. Through development of a relationship with the "whole self" and connection to leisure, one can heal, cope, and rise above trauma (Arai et al., 2008, pp. 53-54). The issue with the mandala is that it has historically been subjectively validated and commonly accepted as a therapeutic form, yet lacks empirical research; Researchers suggested that "future research ought to be conducted that might bridge the

worlds of the artistic and the scientific in an effort to increase awareness of healing techniques derived from Jungian theory and art psychotherapy” (Henderson et. al., 2007, p.153). Researchers note that there needs to be more research conducted pertaining to the efficacy of art for trauma exposed populations utilizing evidence based practice (EBP) (Schouten, de Niet, Knipscheer, Kleber, & Hutschemaekers, 2015). This research was meant to build upon the body of mandala research as well as provide awareness to the potential use of the mandala as an intervention to address PTSD symptomology.

## CHAPTER III

### METHODOLOGY

The purpose of this study was to investigate the impact of the unstructured mandala, pre-drawn mandala (interventions), or free form creation (control group) on the PTSD symptoms of veterans. The researcher hypothesized that: Veterans with PTSD will experience clinically significant improvement in the signs and symptoms of PTSD after one 20-minute session of coloring a pre-drawn mandala (RQ1) and creating and coloring a unstructured mandala (RQ2), while the control group will not experience a clinically significant improvement in PTSD signs and symptoms (RQ3). The group mean of the signs and symptoms of PTSD measurements will be statistically significant compared between the intervention groups and control group (RQ4). Individuals within each intervention group will experience statistically significant differences of specific PTSD clusters (B-E), however, the control group will not (RQ5).

#### **Selection of Participants**

Delayed expression is when the signs and symptoms of PTSD manifest months or years after the exposure to trauma (American Psychiatric Association, 2013); Because of this, individuals may be diagnosed with acute stress disorder upon initial assessment. Diagnostic criteria for acute stress disorder is similar to PTSD, but diagnoses are restricted to one month after “exposure to the traumatic event” (American Psychiatric Association, 2013, p. 297). It has been shown that since the PTSD diagnostic criteria has changed in the DSM-5, a “high portion of soldiers” (Armour et al., 2015, p. 112) who met the diagnostic criteria for PTSD in the DSM-IV

no longer meet the new criteria in the DSM-5 (Hoge, Riviere, Wilk, Herrell, & Weathers, 2014). This study used data from individuals who self-disclosed as being clinically diagnosed with PTSD on the demographics section, or who self-disclosed as having had exposure to a “very stressful” experience on the PCL-5 with a brief Criterion A assessment (Blevins et al., 2015, p. 490). To make sure the results were not being skewed by other variables, participants were asked to self-disclose on the demographics section (See *Table 4*) if they were currently in psychotherapy or taking medication to assist with controlling or reducing their PTSD symptoms (Henderson, 2012). The PCL-5 can be used with college students or civilians who have been exposed to trauma (Blevins et al., 2015; Bovin et al., 2015), as well as “active duty military service members and new veterans seeking care for PTSD” (Wortmann et al., 2016, p. 10), which allowed the utilization of a wide age range of the veteran population for this study. A convenience sample of at least 30 veterans from the Coffee Bunker facility was used for this study. Convenience sampling was selected due to limitations related to location of proposed study population and because the Randomized Control Trial (RCT) design allowed for convenience sampling (Wludyka, 2016).

### **Research Design**

This research study used the RCT with a pre-post design (See *figure 2*). This design was selected due to the strength of internal validity for single studies, which use the RCT design, and it is considered the “gold standard” of research (Wludyka, 2016, p. 99). Certain aspects of this study were altered to accommodate for the veteran population (American Psychiatric Association, 2013). One aspect that was accommodated for was the exclusion of an inducement of PTSD symptoms before the intervention. Previous studies induced symptoms of anxiety pre-intervention (Curry & Kasser, 2005; Renée van der Venet & Serice, 2012). PTSD symptom inducement was excluded because individuals with PTSD already exhibit hyperactivation and dysregulation of the amygdala, without an external stimulus, even when no threat is present (Bishop, 2007; Makinson

& Young, 2012; Ressler & Mayberg, 2007; Scott, 2015; Shin et al., 2005; Shvil, Rusch, Sullivan, & Neria, 2013). Furthermore, the PCL-5 with criterion A included multiple questions asking about trauma exposure, however, veterans were told nothing was mandatory and were only asked to write about the trauma if they “feel comfortable doing so” (See *Table 1*).

## **Study Procedures**

The location of the data collection was at the Coffee Bunker, which is in the Southwest region of the United States within the city of Tulsa, Oklahoma. Approval was sought through the Institutional Review Board (IRB) at Oklahoma State University as well as the Coffee Bunker facility. After IRB and facility approval, individuals were recruited through the Coffee Bunker facility by means of a sign-up sheet. The study was advertised through a sign-up sheet which had the words “art modalities” instead of the word “Mandala”, to avoid result biases. Before consent was obtained, the researcher provided participants with an explanation about how the nature of the study accesses the subconscious mind and could “bring up negative feelings, emotions, or events,” (Porter, 2016, p. 483) and also provided a list of community resources in case the participants felt distressed at any time throughout the intervention or afterwards (Henderson, et al., 2007). Participants who volunteered read and signed a consent form before continuing. Participation was voluntary, and participants had the option to stop the intervention at any time. Participants also had the option to choose what sensitive information they wanted to disclose, and no information was mandatory.

After consent was obtained, they completed a demographics section (See *Table 4*). Then, they completed the PCL-5 (See *Table 2*) with criterion A (See *Table 1*) before the intervention to provide a baseline of PTSD symptoms and to measure trauma exposure in alignment with DSM-5 PTSD criterion A (American Psychiatric Association, 2013; Weathers et al., 2013a). One out of three intervention sessions took place per evening during the regularly scheduled art class across

three consecutive days (Henderson, et al., 2007). The condition of each session was assigned by the researcher through randomization via dice the day of the class session. Participants did not know which session they were attending because each group was labeled as an “art modality” and they picked which day and time they wanted to attend. A sample size of at least 30 veterans were expected to participate in either the intervention groups (pre-drawn mandala or unstructured mandala) or control group (free form creation). The interventions took place in a private room to avoid the potential chance of other veterans at the facility seeing the various activities available (Curry & Kasser, 2005).

All groups were given the following documents within individual folders: The pre-drawn mandala group was given a mandala template (See *Image 1*) on an 8.5" x 11" piece of paper, the unstructured mandala creation group was given a blank circle (See *Image 2*) on an 8.5" x 11" piece of paper, and the control group was given an 8.5" x 11" blank piece of paper (Curry & Kasser, 2005). All groups were given the choice of using crayons, colored pencils, or felt tip pens in a range of colors because they are considered ideal expressive art materials that allow for “non-verbal expression of thoughts, feelings, and ideas” (Nathan & Mirviss, 1998, p. 107). The unstructured mandala creation group was given a brief explanation of what a mandala is, as well as a visual example (See *Image 1*) to avoid confusion, as suggested by previous researchers (Henderson, 2012; Ireland & Brekke, 1980) and they were asked to create and color for 20 minutes. The pre-drawn mandala group was asked to color for 20 minutes. The control group was asked to create and color for 20 minutes. The overall process took about an hour, which was expected (Henderson, et al., 2007). The PCL-5 without the Criterion A (See *Table 2*) was administered post-intervention to detect if there had been a clinically significant change in PTSD symptoms.

## **Instrumentation**

**Demographics:** Composed of questions about age, race, ethnicity, socioeconomic status, gender, educational level, a branch of service, adverse life events, prior trauma, the length of service/deployment, duration diagnosed with PTSD (See *Table 4*), and other specific questions because they were identified as risk factors for developing PTSD among the veteran population (Xue et al., 2015). Participants were asked to self-disclose if they were currently in therapy for PTSD symptoms or if were taking medication to assist with controlling variables and outcomes (Henderson, 2012).

**PCL-5:** The Post-Traumatic Stress Disorder Checklist for DSM-5 (PCL-5) is a 20-item self-report instrument used to measure 20 PTSD symptoms identified in the DSM-5 (Weathers et al., 2013a). The PCL-5 is “intended for a variety of clinical and research assessment tasks” (Blevins, Weathers, Davis, Witte, & Domino, 2015, p. 497). The PCL-5 can be used for identifying “veterans with probable PTSD,” (Bovin et al., 2015, p. 10) as well as “identifying provisional PTSD diagnostic status, quantifying PTSD symptom severity, and detecting clinical change over time in PTSD symptoms” (Wortmann et al., 2016, p. 2). This study used the PCL-5 for research purposes to detect clinical PTSD symptom changes between pre-post measurements.

***Validity and Reliability of the PCL-5:*** Research confirmed the PCL-5 as a “psychometrically sound measure of PTSD symptoms,” which is considered valid and reliable through statistically significant measures (Blevins et al., 2015, p. 489; Bovin et al., 2015; Wortmann et al., 2016). The preliminary psychometric evaluation of the PCL-5 was conducted by Blevins et al. (2015) and found that the PCL-5 had high “internal consistency ( $\alpha = .94$ ), test-retest reliability ( $r = .82$ ), and convergent ( $r_s = .74$  to  $.85$ ) and discriminant ( $r_s = .31$  to  $.60$ ) validity” (p. 489). The PCL-5 also fit the DSM-5 4-factor, 6-factor, and 7-factor models ( $p < .001$ ) (Blevins et al., 2015). Bovin et al. (2015) studied the psychometric measures of the PCL-5 within the veteran

population and found that the “internal consistency ( $\alpha = .96$ ) test–retest reliability ( $r = .84$ ), and convergent and discriminant validity” (p. 1) were significant. They found that the PCL-5 best fit the 6-factor and 7-factor models (Bovin et al., 2015). Wortmann et al. (2016) studied the psychometric measures of the PCL-5 within the active military population of individuals seeking PTSD treatment; The focus was on internal consistency ( $\alpha = .95$ ), convergent ( $r = .87$ ) and discriminant validity ( $r = .10$ ), the DSM-5 factor structure, interview scores, and measures responsible for predicting a diagnosis of PTSD (Wortmann et al., 2016, p. 8). They found that the 7-factor hybrid model was superior ( $p < .001$ ) and that the PCL-5 is “useful for identifying provisional PTSD diagnostic status, quantifying PTSD symptom severity, and detecting clinical change over time in PTSD symptoms among service members seeking treatment” (Wortmann et al., 2016, p. 2).

***PCL-5 Distribution:*** There are three forms of the PCL-5 available for distribution: “without Criterion A (brief instructions and items only),” “with a brief Criterion A assessment,” and “with the revised Life Events Checklist for DSM-5 (LEC-5) and extended Criterion A assessment” (Weathers et al., 2013a). The PCL-5 takes “approximately 5-10 minutes to complete” and is intended to be filled out “by participants as part of a research study” (Weathers et al., 2013a). The PCL-5 was administered before and after the intervention to detect “clinical change over time in PTSD symptoms” (Wortmann et al., 2016, p. 2).

***Structure of the PCL-5:*** The 20 descriptor items of the PCL-5 are in alignment with the terminology of the four PTSD symptom clusters in the DSM-5 (See *Figure 1*). The PCL-5 descriptor items are presented in a 5-point Likert scale form ranging from 0 - 4 points for each symptom (See *Table 2*). The self-report options are: 0 = "Not at all," 1 = "A little bit," 2 = "Moderately," 3 = "Quite a bit," and 4 = "Extremely". Participants rated their symptom severity based on how much it had affected them over the past month (Weathers et al., 2013b).



**Scoring of the PCL-5:** There are four ways to score the PCL-5. However, this study scored the total symptom severity and the separate cluster severity for the purpose of clinical detection of PTSD symptom change. The 20 individual items were added together to give the total symptom severity score (0-80) (Weathers et al., 2013a). “A total score of 44 is considered to be PTSD positive for the general population while a total score of 50 is considered to be PTSD positive in military populations” (PCL Scoring, 2017, p. 1). PCL-5 items (See *Table 2*) correspond to specific DSM-5 PTSD cluster criterion (See *Figure 1*). The following cluster criteria were added together in order to score the DSM-5 symptom cluster severity scores: cluster B (1-5), cluster C (6-7), cluster D (8-14), cluster E (15-20). The PCL-5 scoring summary sheet (See *Table 3*) from the Lancashire Care NHS Foundation Trust (PCL-5 Scoring Summary Sheet, 2017) was used.

**Interpretation and Measuring Change:** The PCL-5 should be interpreted by a clinician, which can be considered a “master’s- and doctoral-level independent clinician” (Monson et al., 2008, p. 133; Weathers et al., 2013a). A change of 5-10 points from baseline measurement to post measurement is considered reliable, or not due to chance (Weathers et al., 2013a). A change of 10-20 points from baseline measurement to post measurement is considered clinically significant, which means that there is a clinically meaningful change in symptoms (Lang et al., 2012; Weathers et al., 2013a).

### **Statistical Analyses**

The dependent variable was the PCL-5 PTSD symptom measurements (individual and cluster) and the independent variables were the two interventions and the control groups. A multisampling non-parametric test was warranted because the ordinal outcome measurement of symptom severity was expected to be different across and within groups, the sample size was expected to be small, and comparisons were between three groups (Frost, 2017; "Unistat Statistics

Software", 2016). First, the total symptom severity and the separate cluster severity were calculated at baseline and after the intervention using the instructions outlined by Weathers et al. (2013a) (See *table 3*). The calculated difference between individual pre-post measurements for the total symptom severity were used to decipher if results were reliable, clinically significant, or not significant. Statistical significance was measured using statistical analysis of the scored data (See *Table 3*). The most updated version of the Statistical Analysis System (SAS®) analytic software was used to analyze the raw data ("About SAS", 2017). The non-parametric One-Way ANOVA test and procedure, known as the "PROC NPAR1WAY" was utilized to provide an analysis of variance on the raw data ("SAS/STAT(R) 9.2 User's Guide, Second Edition", 2017). The PROC NPAR1WAY test provides the one-way ANOVA statistic, which is also known as the Kruskal-Wallis test for Wilcoxon scores ("SAS/STAT(R) 9.2 User's Guide, Second Edition", 2017). First, the PROC NPAR1WAY output data included a summary of the Wilcoxon scores (rank sums) assigned by level and included the number of participants per group, Wilcoxon scores, expected sum and standard deviation under the null hypothesis as well as the mean score. Next, the NPAR1WAY Kruskal-Wallis test was used to compare independent samples and provide the Chi-square, degrees of freedom, and the *p*-value ("SAS/STAT(R) 9.2 User's Guide, Second Edition", 2017), with the  $\alpha$  level set at 0.05.

## CHAPTER IV

### FINDINGS

#### **Introduction**

The purpose of this study was to investigate the impact of the unstructured mandala, pre-drawn mandala (interventions), and free form creation (control group) on the PTSD symptoms of veterans. This research expands the limited body of mandala research and contributes to the need of more substantial evidence within the humanities branch of literature (Schouten, de Niet, Knipscheer, Kleber, & Hutschemaekers, 2015). The following analytical and statistical results provide promising insights into the effects of the mandala on veterans with PTSD symptoms.

#### **Site Procedure**

After IRB approval, veterans were recruited through the Coffee Bunker facility. Participants were 18 years or older. All participants in this study self-disclosed as being veterans (n = 18). Other participants (n = 4) were excluded because they either did not complete their assigned intervention task for a minimum of 20-minutes or they left before the intervention (See *Figure 3*). The intervention and control sessions occurred across three-consecutive days (Henderson, et al., 2007). The researcher had all intervention packets ready and on-site before intervention randomization occurred. Randomly assigned intervention and control days are as follows: Pre-drawn mandala group (Day 1), unstructured mandala group (Day 2), and the control group (Day 3). Participants were randomly assigned depending on the day they chose to participate in the intervention. Participants independently and blindly signed up for either the pre-

drawn mandala (n = 7), unstructured mandala (n = 5), or the free form creation (n = 6) group.

Veterans were told that the nature of the study could bring up trauma and that they could leave at any time if they felt distressed and were given community resources as well. Participants read and signed a consent form and were reminded that all information was confidential and voluntary.

The intervention folders were passed out after participants signed a consent form. Participants completed a demographics section, a baseline measurement of PTSD symptoms, and the intervention. The pre-drawn mandala group colored in the geometric pattern, the unstructured mandala group was given a visual example of what a mandala was, and they created and colored a mandala, while the free form creation group was given a blank sheet of paper and colored and drew without any direction. After 20-minutes, all participants completed a post-measurement of PTSD symptoms.

### **Demographic Results**

The sex ratio (male to female) for each group are as follows: Pre-drawn mandala (0:7), unstructured mandala group (4:1) and control group (5:1). Military branches represented were Army (n = 10), Air Force (n = 2), Marine Corps (n = 1), and the Navy (n = 5). The youngest veteran was born in 1993 (24 years old) and the oldest was born in 1957 (60 years old). Military Eras represented were Lebanon, Panama, Persian Gulf War, Operation Enduring Freedom (OEF), Operation Iraqi Freedom (OIF), Operation New Dawn (OND). Most of the participants were OEF/OIF/OND (n = 14) veterans. Service length ranged from 1-5 years (n = 12), 6-10 years (n = 5), and 11-15 years (n = 1). Over half of the veterans had been deployed at least once (n = 10) and/or experienced multiple deployments (n = 6). Most of the participants were Caucasian (n = 14), with a small amount being American Indian or Alaskan Native (n = 2), or African American (n = 1). Highest level of education obtained are as follows: graduation from high school (n = 5), some college (n = 8), graduated from college (n = 3), some graduate school (n = 1), and completed graduate school (n = 1). A majority of participants made 24k or less per year (n = 8),

with a little less earning 25-49k per year (n = 6), and a minority earning 50-74k a year (n =4). Most of the veterans were clinically diagnosed with PTSD before the intervention (n = 15). Most of the veterans used therapy (n = 11), medication (n = 10), or a combination of the two to manage their PTSD symptoms. Ten veterans disclosed that they had one or more of the following clinical diagnoses: bipolar disorder, depression, general anxiety disorder, social anxiety, traumatic brain injury, and/or borderline personality disorder. Although these demographics are anecdotal, more research needs to be conducted to understand the risk factors of PTSD and how they influence the progression of the disorder throughout the lifespan (Xue et al., 2015).

### **PCL-5 With Criterion A**

Results from the Criterion A section showed that all participants experienced a traumatic event that involved actual or threatened death, serious injury, or sexual violence. These are the types of trauma that were reported by participants: Rape or sexual assault (n = 6), vehicle crash (n = 1), witnessing or being hit with an explosive device (n = 3), killing or watching someone die (n = 5), going to jail (n = 1), and unknown trauma (n = 2). Time since the exposure of the traumatic incidence(s) are as follows: 1 year (n = 1), 2-10 years (n = 4), 11-20 years (n = 8), 21-30 years (n = 0), 31-40 years (n = 3), 41-50 years (n = 1), and unknown (n = 2). The ways in which participants experienced the trauma overlapped occasionally. For example, fifteen participants experienced the trauma directly, four participants witnessed the traumatic incidence(s), while three were repeatedly exposed to details about it as part of their job. Nine veterans disclosed that they had experienced adverse life events prior to joining the military, which means that at least eleven of the participants experienced the trauma during their contract period or afterwards.

### **PCL-5 Analysis and Interpretation**

The PCL-5 total symptom severity scores were calculated at baseline and post-intervention. The calculated difference between individual pre-post measurements for the total

symptom severity scores were used to determine clinical significance (See *Table 5*). These results provided answers for RQS 1-3. Overall, the data rendered reliable (n = 6), clinically significant (n = 8), and insignificant results (n = 4). However, there were differences in significance levels compared among groups. The pre-drawn mandala group had more reliable (n = 4) and clinically significant (n = 1) results, with a small portion of insignificance (n = 2). The unstructured mandala group results showed an even amount of insignificant (n = 2), reliable (n = 2), and clinically significant (n = 2) results. The control group had the highest level of clinical significance (n = 5), with no reliable results and one insignificant result. It was important to take into consideration the level of PTSD severity when interpreting results. According to scoring guidelines, the total score should be at least 50 to be considered PTSD positive for the military population (PCL Scoring, 2017). Therefore, veterans considered to be PTSD positive pre-intervention among groups are as follows: pre-drawn mandala group (n = 3), the unstructured mandala group (n = 2), and the control group (n = 3). This means that before the intervention began, eight veterans had significant levels of PTSD. However, other veterans who participated exhibited signs and symptoms of PTSD even though they did not meet the minimum score of 50-points pre-intervention to be considered PTSD positive for the military population. This is especially important related to the interpretation of the positive and negative differences from pre-to-post measurements. For example, participant number 14 (See *Table 5*) never met the 50-point minimum to be considered PTSD positive for the military population, but had clinically significant results because the change pre-post was 21 points (PCL Scoring, 2017). This simply means that they had PTSD levels that would be considered clinically significant within the civilian sector. Furthermore, participant number 6 (See *Table 5*) met the minimum 50-points both pre/post-intervention, but did not experience a change great enough to render clinical significance, which means that the intervention did not have a positive or negative effect on them. However, participants 13 (See *Table 5*) did not meet the 50-point criteria pre-intervention, but ended up meeting the 50-point criteria after the intervention because their symptoms got worse.

Participant numbers 5, 8, 15, 17, and 18 (See *Table 5*) met the 50-point minimum before the intervention but did not meet it afterwards because their symptoms improved significantly.

### **Statistical Analyses Results**

Next, statistical significance was measured using statistical analysis of the total and separate cluster severity scored data. The most current version of the Statistical Analysis System (SAS®) analytic software was used to analyze the raw data (See *Table 5*). The non-parametric One-Way ANOVA test and procedure, known as the “PROC NPAR1WAY” was utilized to provide an analysis of variance on the raw data. The output value of the Chi-Square was 1.7296 with two degrees of freedom and a  $p$ -value of 0.421 (See *Table 6*). The  $p$ -value is larger than the significance level ( $\alpha = 0.05$ ), resulting in a failure to reject the null hypothesis (RQ4).

Additionally, the Chi-Square is larger than the critical value of 5.991 ("Table: Chi-Square Probabilities", 2017), which is also revealing of insignificant results. This means that no intervention was proven superior in terms of statistical analysis. Next, cluster statistical significance was calculated for each group. The pre-drawn mandala (See *Table 7*), unstructured mandala (See *Table 8*), and the control (See *Table 9*) groups exhibited insignificant results related to clusters B-E (RQ5).

### **Hypotheses**

The researcher hypothesized that: Veterans with PTSD would experience clinically significant improvement in the signs and symptoms of PTSD after one 20-minute session of coloring the pre-drawn mandala (RQ1) and creating and coloring an unstructured mandala (RQ2), while the free form creation (control) group would not experience clinically significant improvement in PTSD signs and symptoms (RQ3). The group mean of the signs and symptoms of PTSD measurements would be statistically significant compared between the intervention groups and control group (RQ4). Individuals within each intervention group would experience

statistically significant differences of specific PTSD clusters (B-E), however, the control group would not (RQ5).

## **Discussion**

All the hypotheses were exposed through analytical and statistical analysis to be the opposite of what was expected. In terms of clinical significance, the free form group was superior over the unstructured mandala, with the pre-drawn mandala most inferior. However, there was no superior intervention individually or among groups related to statistical significance. The pre-drawn mandala (n = 4) and the unstructured mandala (n = 2) produced reliable results; This simply means that the results were not due to chance alone. The purpose of this study was to look at clinical and statistical significance, and therefore, reliable results were not interpreted as important. Although the pre-drawn and unstructured mandala groups collectively had two clinically significant results, it was not enough to be superior over the free form creation group which had four participants who experienced clinically significant improvements in the signs and symptoms of PTSD after one 20-minute session (See *Table 10*).



## CHAPTER V

### CONCLUSION

#### **Introduction**

The purpose of this thesis was to expand the creative art literature by investigating the impact of the unstructured mandala, pre-drawn mandala (interventions), and free form creation (control group) on the PTSD symptoms of veterans. Although we found significant results pertaining to the free form creation group, there were multiple internal and external limitations that need to be considered for the implications of this research and future studies.

#### **Study Limitations**

The small and convenient sample taken from the Coffee Bunker facility posed as the main limitations in this study. Next, there was an even ratio of females to males overall, which was unexpected (American Psychiatric Association, 2013; Rubin, Berntsen, & Bohni, 2008). However, among groups the females were not evenly distributed; The pre-drawn mandala group was composed of all females, while the other groups only had one female each. Additionally, this study used a self-report measure of PTSD, which can be flawed by biases even though self-reports are assumed to be truthful. The limited time used to collect data also hindered the possible prospects. The environment was not the same each day due to disruptions at the facility. For example, there was music being played over the intercom on the first day but not any other day, and there were multiple distractions each day including people coming in and out of the room, cell phones, and changes in room temperature. Furthermore, it cannot be dismissed that results

could have been influenced by individual participation in therapy outside of the intervention, other clinical psychological diagnoses, and/or psychotropic medication. Finally, it cannot be assumed that these results are indicative of a broader population because of the small sample size and lack of statistical significance.

### **Accounting for results**

The researcher observed that participants in each group needed more than 20-minutes to complete their intervention and allowed them to finish their intervention after the distribution of the PCL-5 at the 20-minute mark. However, it may have been more beneficial and therapeutic to allow the participants of each group to finish their intervention completely before distributing the PCL-5 or to extend to the time to 30-minutes (Sandmire, Gorham, Rankin, & Grimm, 2012). The control group reported frustration and confusion, which was expected (Curry & Kasser, 2005), and requested more verbal structure and direction; However, participants were consistently reminded to create and color for at least 20-minutes. Two participants in the free form group were excluded from this study (See *Figure 3*) because they chose to leave after they completed the PCL-5 with Criterion A and did not complete the demographics section. Had they stayed, analytical and statistical analyses may have been different. All participants who chose to leave were provided a list of community resources. Participant 12 (See *image 14*) verbalized that he was triggered after the distribution of the PCL-5 with criterion A and left the group. However, he came back 20-minutes later and requested to complete the intervention and PTSD post-measurement. Participant 12 drew a politically-driven image and was the only participant in the unstructured mandala group that drew outside of the lines and rendered a negative clinically significant result (See *Table 5*). The free form group also created images politically-driven and traumatic in nature (See *Images 15, 18, 19, 20*). It is noteworthy that the group which had the most autonomy and verbalized the most distress (from lack of direction) exhibited the most clinical significance.

## **Conclusion**

This research supports the theory that creative art modalities, which are free of structural form and autonomous in nature, show promising results as an alternative treatment for veterans with PTSD. This study demonstrated that free form creation delivers clinically significant reduction in the overall symptomology of veterans with PTSD. This research supports the theory that free form creation may be indicated for individuals with PTSD.

## **Implications for The Therapeutic Recreation Profession**

This paper provides support for Recreational Therapists to utilize autonomous and free form creation as a modality in the treatment and management of PTSD symptoms, specifically for the veteran population. Recreational Therapists need to pursue evidence-based support for free form creation and the mandala as an intervention for various populations and settings. Programs need to be developed with indications and contraindications for various diagnoses as well as potential program goals and client outcomes. Implementation procedures need to be developed, including recreational therapy assessments, along with recommendations for self-measurements. Interventions utilized should be free form creation and a range of mandala forms based on the structural complexity, techniques, and level of autonomy.

## **Recommendations for Future Studies**

It would be extremely interesting to research how free form creation compares to other forms of mandalas and their impact on veterans with PTSD. Researchers listed the free form mandala as a contraindication for individuals with anxiety due to their lack in structure and direction (Curry & Kasser, 2005; Henderson et al., 2007; Mann, 2013). However, the free form mandala is worth investigating further due to the clinically significant results of the free form creation group in this study. A free form mandala is defined as “a mandala that lacks accompanied written/verbal instruction, regardless of format, and represents the least structured

of all mandalas” (Mann, 2013, p. 18). The free form mandala was not used in this study because the “person is expected to create a mandala” without instruction (Mann, 2013, p. 18; Curry & Kasser, 2005; Henderson et al., 2007). However, the main differences between the free form mandala and free form creation used in this study is the verbal direction provided and lack of spontaneous mandala creation. In fact, had the participants spontaneously created a mandala without any instruction, it would be considered by Jung to be a free form mandala.

Future researchers should create a hierarchy, or classification system, of various mandala forms based on their structural level of complexity and autonomy. For example, the free form mandala is the least structured with the most autonomy and is void of any direction. The unstructured mandala follows because it is a blank circular form with accompanied instructions for mandala creation. The constructed mandala is next because it has more structure than the unstructured mandala but requires technique-specific instructions. Finally, the pre-drawn mandala is last because it has the highest structure and least amount of autonomy. There are other types of mandalas, including the Zendala® or sand mandala, to name a few. Furthermore, Jung considered any form that deviates from a circle to be a “disturbed mandala” (Jung, 1963, p. 478). Researches should identify all mandala forms as well as sub-categories and organize them into a mandala classification system. It would also be beneficial to include all the potential mediums that could be used to create a mandala.

Even though the hypotheses of this study were focused on clinical significance, it is thought-provoking that fourteen participants rendered reliable or clinically significant results, meaning that all interventions had at least a reliable impact (not due to chance) on the signs and symptoms of PTSD. It would be interesting to replicate this study with a bigger and more diverse population size to gauge the significance at a macro level. It would have been beneficial to collect data before the intervention, after the intervention, and one month after as a follow-up as Henderson and colleagues (2007) did. It would also be valuable to include a question gauging

how often the intervention was utilized during the month post-intervention. Although this study focuses on self-measure identification regarding the signs and symptoms of PTSD, self-measures can be flawed by biases. It would be fascinating to conduct neurologically-based research regarding various mandala forms compared to free form creation and their effects on the physiological chemistry within the brains of individuals with PTSD. In conclusion, additional evidence-based research needs to be put forth by scholars and clinicians to gain a more encompassing perspective of the impacts of free form creation on trauma-related diagnoses.

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## APPENDICES

*Table 1* Weathers, F., Litz, B., Keane, T., Palmieri, P., Marx, B., & Schnurr, P. (2013b). *The PTSD Checklist for DSM-5 (PCL-5) – Standard [Measurement instrument]* (1st ed.). National Center For PTSD. Retrieved from <http://www.ptsd.va.gov/professional/assessment/>

**PCL-5 with Criterion A**

**Instructions:** This questionnaire asks about problems you may have had after a very stressful experience involving actual or threatened death, serious injury, or sexual violence. It could be something that happened to you directly, something you witnessed, or something you learned happened to a close family member or close friend. Some examples are a serious accident; fire; disaster such as a hurricane, tornado, or earthquake; physical or sexual attack or abuse; war; homicide; or suicide.

First, please answer a few questions about your worst event, which for this questionnaire means the event that currently bothers you the most. This could be one of the examples above or some other very stressful experience. Also, it could be a single event (for example, a car crash) or multiple similar events (for example, multiple stressful events in a war-zone or repeated sexual abuse).

**Briefly identify the worst event (if you feel comfortable doing so):**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**How long ago did it happen?** \_\_\_\_\_ (please estimate if you are not sure)

**Did it involve actual or threatened death, serious injury, or sexual violence?**

Yes

No

**How did you experience it?**

It happened to me directly

I witnessed it

I learned about it happening to a close family member or close friend

I was repeatedly exposed to details about it as part of my job (for example, paramedic, police, military, or other first responder)

Other, please describe \_\_\_\_\_

**If the event involved the death of a close family member or close friend, was it due to some kind of accident or violence, or was it due to natural causes?**

Accident or violence

Natural causes

Not applicable (the event did not involve the death of a close family member or close friend)

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PCL-5 with Criterion A (14 August 2013) National Center for PTSD Page 1 of 2

Table 2

Weathers, F., Litz, B., Keane, T., Palmieri, P., Marx, B., & Schnurr, P. (2013b). *The PTSD Checklist for DSM-5 (PCL-5) – Standard [Measurement instrument]* (1st ed.). National Center For PTSD. Retrieved from <http://www.ptsd.va.gov/professional/assessment/>

Second, below is a list of problems that people sometimes have in response to a very stressful experience. Keeping your worst event in mind, please read each problem carefully and then circle one of the numbers to the right to indicate how much you have been bothered by that problem in the past month.

In the past month, how much were you bothered by:	Not at all	A little bit	Moderately	Quite a bit	Extremely
1. Repeated, disturbing, and unwanted memories of the stressful experience?	0	1	2	3	4
2. Repeated, disturbing dreams of the stressful experience?	0	1	2	3	4
3. Suddenly feeling or acting as if the stressful experience were actually happening again (as if you were actually back there reliving it)?	0	1	2	3	4
4. Feeling very upset when something reminded you of the stressful experience?	0	1	2	3	4
5. Having strong physical reactions when something reminded you of the stressful experience (for example, heart pounding, trouble breathing, sweating)?	0	1	2	3	4
6. Avoiding memories, thoughts, or feelings related to the stressful experience?	0	1	2	3	4
7. Avoiding external reminders of the stressful experience (for example, people, places, conversations, activities, objects, or situations)?	0	1	2	3	4
8. Trouble remembering important parts of the stressful experience?	0	1	2	3	4
9. Having strong negative beliefs about yourself, other people, or the world (for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is completely dangerous)?	0	1	2	3	4
10. Blaming yourself or someone else for the stressful experience or what happened after it?	0	1	2	3	4
11. Having strong negative feelings such as fear, horror, anger, guilt, or shame?	0	1	2	3	4
12. Loss of interest in activities that you used to enjoy?	0	1	2	3	4
13. Feeling distant or cut off from other people?	0	1	2	3	4
14. Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you)?	0	1	2	3	4
15. Irritable behavior, angry outbursts, or acting aggressively?	0	1	2	3	4
16. Taking too many risks or doing things that could cause you harm?	0	1	2	3	4
17. Being "superalert" or watchful or on guard?	0	1	2	3	4
18. Feeling jumpy or easily startled?	0	1	2	3	4
19. Having difficulty concentrating?	0	1	2	3	4
20. Trouble falling or staying asleep?	0	1	2	3	4

Table 3

PCL-S Scoring Summary Sheet. (2017) (1st ed.). Retrieved from

<http://www.lancashiretraumaticstressservice.nhs.uk/documents/2015PCL5.pdf>

PCL 5								
SCORING SUMMARY SHEET								
CRITERION	QUESTION NUMBER							TOTALS
<b>B</b>	1	2	3	4	5			
<b>C</b>	6	7						
<b>D</b>	8	9	10	11	12	13	14	
<b>E</b>	15	16	17	18	19	20		
							<b>TOTAL SCORE</b>	

Criterion B – at least one YES/NO  
 Criterion C – at least one YES/NO  
 Criterion D – at least two YES/NO  
 Criterion E – at least two YES/NO

Table 4

Demographics Section

1. Are you considered a veteran?

- Yes, I am
- No, I am not

2. In what year were you born? (Write 4-digit birth year; for example, 1976).

\_\_\_\_\_

3. What is your gender?

- Female
- Male
- Other (please specify below)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4. What is your ethnicity? (Please select all that apply).

- American Indian or Alaskan Native
- Asian or Pacific Islander
- Black or African American
- Hispanic or Latino
- White / Caucasian
- Prefer not to answer
- Other (please specify below)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

5. What is the highest level of education you have completed?

- Did not attend school
- 1st grade
- 2nd grade
- 3rd grade
- 4th grade
- 5th grade
- 6th grade
- 7th grade
- 8th grade
- 9th grade
- 10th grade
- 11th grade
- Graduated from high school
- 1 year of college
- 2 years of college
- 3 years of college
- Graduated from college
- Some graduate school
- Completed graduate school

6. What is your approximate average household income?

- \$0-\$24,999
- \$25,000-\$49,999
- \$50,000-\$74,999
- \$75,000-\$99,999
- \$100,000-\$124,999
- \$125,000-\$149,999
- \$150,000-\$174,999
- \$175,000-\$199,999
- \$200,000 and up

7. In which branch (or branches) of the United States military have you served? (Check all that apply).

- Army
- Air Force
- Marine Corps
- Coast Guard
- Navy
- Other (please specify below)

\_\_\_\_\_

\_\_\_\_\_

8. How many total years have you served in your respected branch (or branches)?

- 1-5
- 6-10
- 11-15
- 16-20
- Longer than 20 years
- Other (please specify below)

\_\_\_\_\_

\_\_\_\_\_

9. What is the highest rank you achieved during your military career?

\_\_\_\_\_

\_\_\_\_\_

10. Have you ever been deployed?

- Yes
- No
- Does not apply

11. If you have been deployed, how many deployments have you had?

- 1
- 2
- 3 or more
- Does not apply

Table 4

Demographics Section Continued

12. If you have been deployed, what is the total length of your deployment(s) in months or years?  
\_\_\_\_\_

13. Have you been clinically diagnosed with PTSD?  
 Yes  
 No

14. If Yes, how long have you been clinically diagnosed with PTSD?  
 Less than a year  
 2 years  
 3 years  
 4 years  
 5 years  
 6-10 years  
 11-15 years  
 16-20 years  
 More than 20 years  
 Does not apply  
 Other (please specify below)  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

15. Are you currently in therapy for your PTSD?  
 Yes  
 No  
 Does not apply

16. If you answered yes to #15, please specify the type of therapy below:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

17. Are you currently on any medication for PTSD symptoms?  
 Yes  
 No  
 Does not apply

18. If you answered yes to #17, please specify the type of medication below:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

19. Do you have any other clinical diagnoses?  
 Yes  
 No  
 Does not apply



Table 4

Demographics Section Continued

20. If you answered yes to #19, please specify what clinical diagnoses you have below:

\_\_\_\_\_

\_\_\_\_\_

21. Have you experienced adverse life events (ex: a lack of social support, life stress, trauma severity, childhood abuse, etc.) prior to joining the military?

Yes

No

Does not apply

22. If yes, please identify the adverse life event(s) below:

\_\_\_\_\_

\_\_\_\_\_

Table 5

Cluster and Total PCL-5 Scores

	B Pre	C Pre	D Pre	E Pre	Total Pre	B Post	C Post	D Post	E Post	Total Post	Difference Pre to Post	Significance	
1	17	8	24	20	69	17	8	22	16	63	6	R	
2	14	6	15	12	47	12	6	10	12	40	7	R	
3	3	1	7	3	14	0	0	5	2	7	7	R	
4	7	6	12	9	34	6	6	12	9	33	1	NS	R = 6
5	13	4	16	19	52	12	3	14	11	40	12	CS	CS = 8
6	15	5	19	15	54	17	6	20	15	58	-4	NS	NS = 4
7	7	2	1	9	19	6	1	1	5	13	6	R	
8	10	5	17	18	50	0	0	0	4	4	46	CS	
9	10	6	16	16	48	11	8	14	15	48	0	NS	
10	10	4	12	12	38	8	4	9	11	32	6	R	
11	12	3	6	5	26	9	0	4	4	17	9	R	
12	8	4	21	21	54	18	8	27	22	75	-21	CS	
13	3	2	8	10	23	14	4	21	15	54	-31	CS	
14	14	2	14	15	45	0	2	8	14	24	21	CS	
15	13	6	16	22	57	14	0	3	7	24	33	CS	
16	5	6	12	16	39	6	4	12	14	36	3	NS	
17	20	8	28	24	80	0	0	0	0	0	80	CS	
18	18	8	27	19	72	0	0	0	0	0	72	CS	

Table 6 Statistical Analysis on Scored Data

**Nonparametric One-Way ANOVA**  
The NPAR1WAY Procedure

Wilcoxon Scores (Rank Sums) for Variable Diffe Classified by Variable Group					
Group	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
A	7	58.0	66.50	11.013064	8.285714
B	5	42.0	47.50	10.118578	8.400000
C	6	71.0	57.00	10.649496	11.833333

Average scores were used for ties.

Kruskal-Wallis Test	
Chi-Square	1.7296
DF	2
Pr > Chi-Square	0.4211

Table 7 Pre-Drawn Mandala Group

**t Test**  
The TTEST Procedure  
Difference: B Post - B Pre

N	Mean	Std Dev	Std Err	Minimum	Maximum
7	-0.8571	1.5736	0.5948	-3.0000	2.0000

Mean	95% CL Mean	Std Dev	95% CL Std Dev
-0.8571	-2.3125 0.5982	1.5736	1.0140 3.4652

DF	t Value	Pr >  t
6	-1.44	0.1996

**t Test**  
The TTEST Procedure  
Difference: C Post - C Pre

N	Mean	Std Dev	Std Err	Minimum	Maximum
7	-0.2857	0.7559	0.2857	-1.0000	1.0000

Mean	95% CL Mean	Std Dev	95% CL Std Dev
-0.2857	-0.9848 0.4134	0.7559	0.4871 1.6646

DF	t Value	Pr >  t
6	-1.00	0.3559

**t Test**  
The TTEST Procedure  
Difference: D Post - D Pre

N	Mean	Std Dev	Std Err	Minimum	Maximum
7	-1.4286	1.9881	0.7514	-5.0000	1.0000

Mean	95% CL Mean	Std Dev	95% CL Std Dev
-1.4286	-3.2672 0.4101	1.9881	1.2811 4.3778

DF	t Value	Pr >  t
6	-1.90	0.1060

**t Test**  
The TTEST Procedure  
Difference: E Post - E Pre

N	Mean	Std Dev	Std Err	Minimum	Maximum
7	-3.2000	6.0992	2.2726	-14.0000	1.0000

Mean	95% CL Mean	Std Dev	95% CL Std Dev
-3.2000	-10.7731 4.3731	6.0992	3.6542 17.5263

DF	t Value	Pr >  t
4	-1.17	0.3058

Table 8 Unstructured Mandala Group

**t Test**  
The TTEST Procedure  
Difference: B Post - B Pre

N	Mean	Std Dev	Std Err	Minimum	Maximum
5	-0.8000	7.2595	3.2465	-10.0000	10.0000

Mean	95% CL Mean	Std Dev	95% CL Std Dev
-0.8000	-9.8138 8.2138	7.2595	4.3494 20.8605

DF	t Value	Pr >  t
4	-0.25	0.8175

**t Test**  
The TTEST Procedure  
Difference: C Post - C Pre

N	Mean	Std Dev	Std Err	Minimum	Maximum
5	-0.4000	3.6469	1.6310	-5.0000	4.0000

Mean	95% CL Mean	Std Dev	95% CL Std Dev
-0.4000	-4.9282 4.1282	3.6469	2.1850 10.4796

DF	t Value	Pr >  t
4	-0.25	0.8183

**t Test**  
The TTEST Procedure  
Difference: D Post - D Pre

N	Mean	Std Dev	Std Err	Minimum	Maximum
5	-3.6000	8.3247	3.7229	-17.0000	6.0000

Mean	95% CL Mean	Std Dev	95% CL Std Dev
-3.6000	-13.9364 6.7364	8.3247	4.9876 23.9214

DF	t Value	Pr >  t
4	-0.97	0.3883

**t Test**  
The TTEST Procedure  
Difference: E Post - E Pre

N	Mean	Std Dev	Std Err	Minimum	Maximum
5	-3.2000	6.0992	2.7276	-14.0000	1.0000

Mean	95% CL Mean	Std Dev	95% CL Std Dev
-3.2000	-10.7731 4.3731	6.0992	3.6542 17.5263

DF	t Value	Pr >  t
4	-1.17	0.3058

Table 9 Free Form Creation Group

**t Test**  
The TTEST Procedure  
Difference: B Post - B Pre

N	Mean	Std Dev	Std Err	Minimum	Maximum
6	-6.5000	12.5658	5.1300	-20.0000	11.0000

Mean	95% CL Mean	Std Dev	95% CL Std Dev
-6.5000	-19.6870 6.6870	12.5658	7.8437 30.8191

DF	t Value	Pr >  t
5	-1.27	0.2609

**t Test**  
The TTEST Procedure  
Difference: C Post - C Pre

N	Mean	Std Dev	Std Err	Minimum	Maximum
6	-3.6667	4.2740	1.7448	-8.0000	2.0000

Mean	95% CL Mean	Std Dev	95% CL Std Dev
-3.6667	-8.1519 0.8186	4.2740	2.6678 10.4824

DF	t Value	Pr >  t
5	-2.10	0.0896

**t Test**  
The TTEST Procedure  
Difference: D Post - D Pre

N	Mean	Std Dev	Std Err	Minimum	Maximum
6	-10.1667	15.9175	6.4983	-28.0000	13.0000

Mean	95% CL Mean	Std Dev	95% CL Std Dev
-10.1667	-26.8711 6.5377	15.9175	9.9358 39.0395

DF	t Value	Pr >  t
5	-1.56	0.1785

**t Test**  
The TTEST Procedure  
Difference: E Post - E Pre

N	Mean	Std Dev	Std Err	Minimum	Maximum
6	-9.3333	11.5701	4.7235	-24.0000	5.0000

Mean	95% CL Mean	Std Dev	95% CL Std Dev
-9.3333	-21.4754 2.8087	11.5701	7.2221 28.3769

DF	t Value	Pr >  t
5	-1.98	0.1051

Table 10

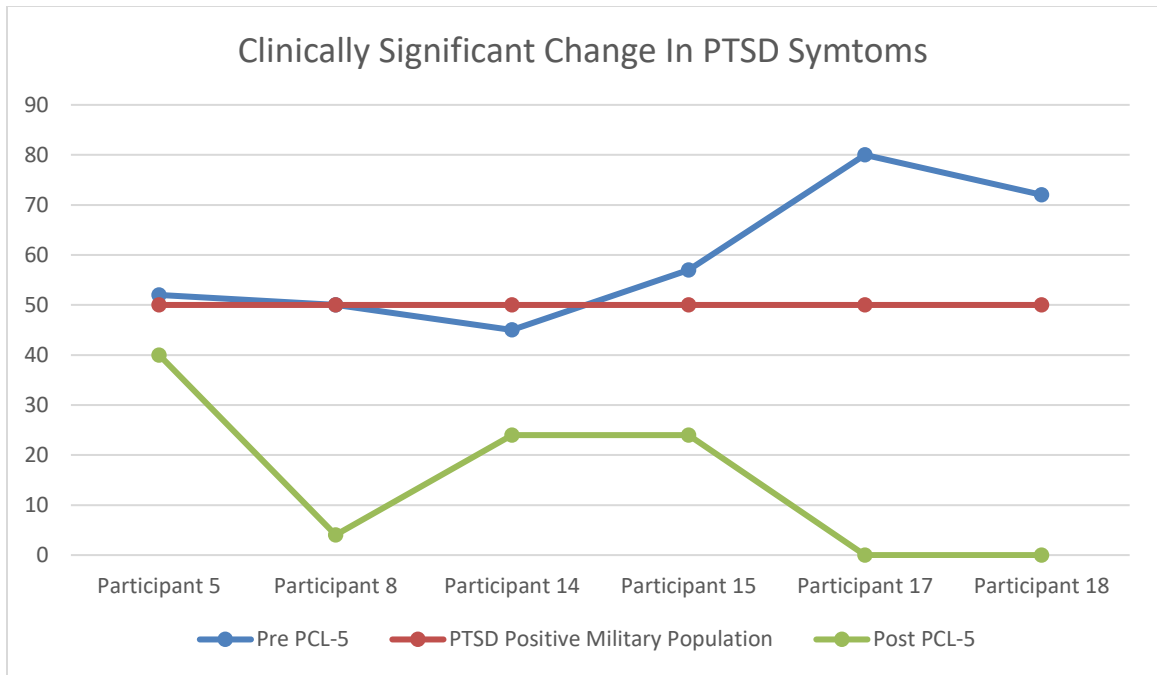


Figure 1

Taken verbatim from:

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA:

American Psychiatric Publishing.

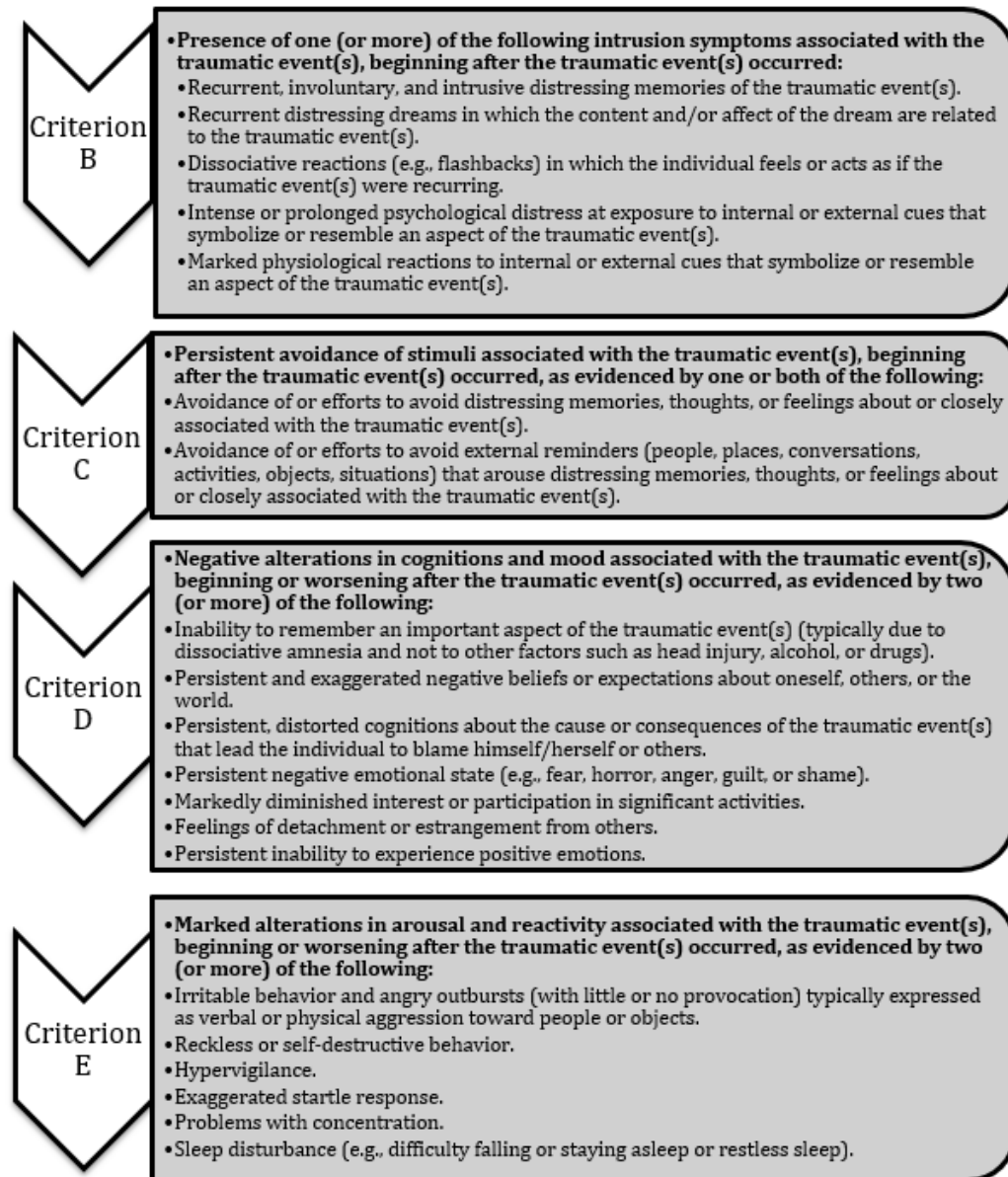


Figure 2

Randomized Control Trial Outline

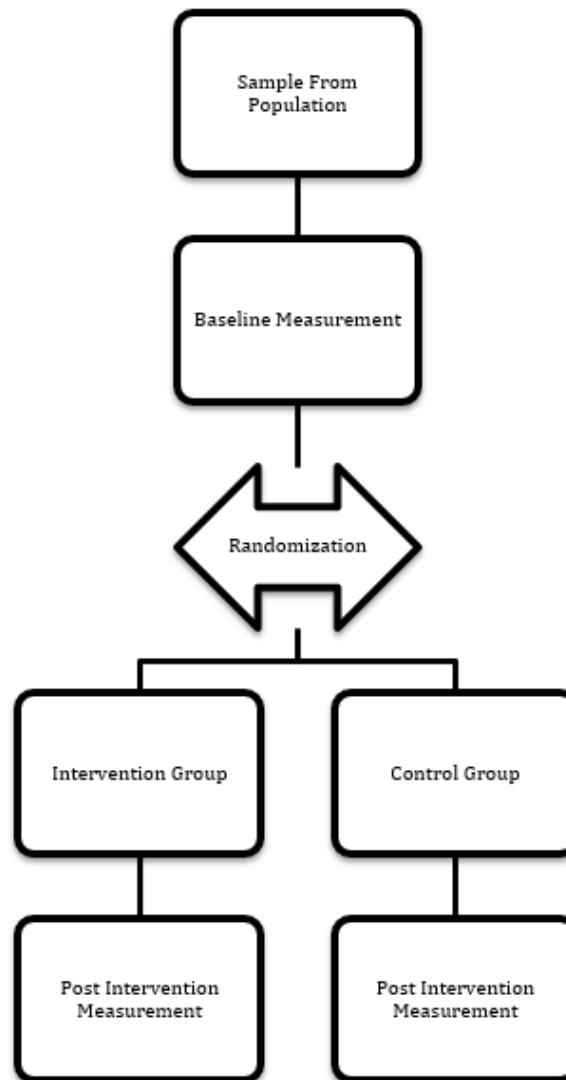


Figure 3 Participant Flow Chart

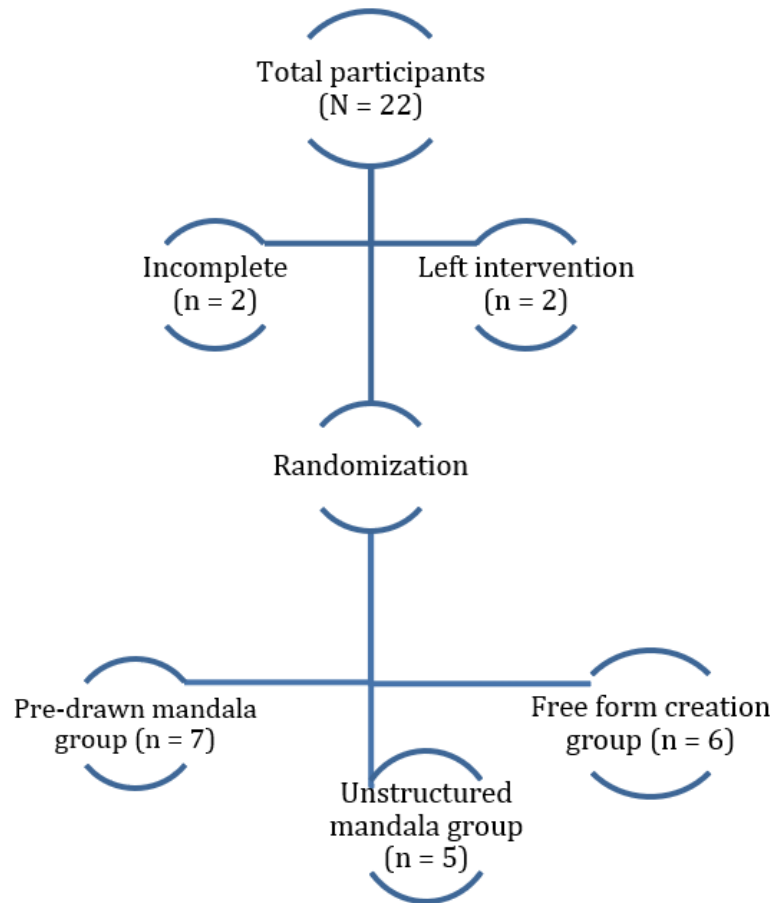
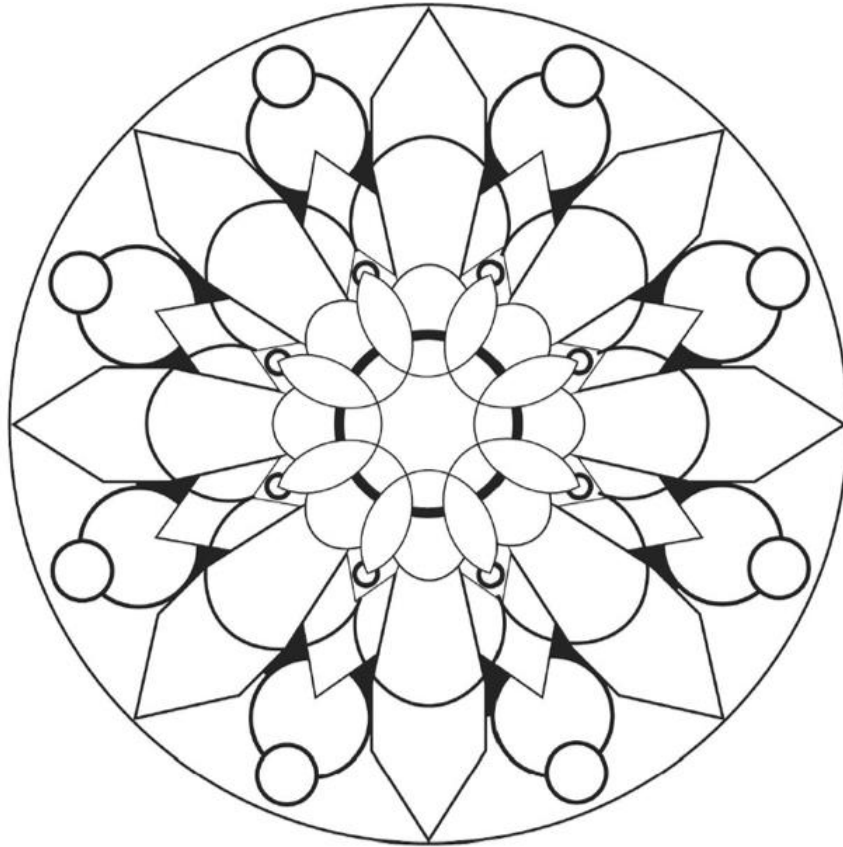


Image 1

Used with permission from:

Mandala #2. (2010) (1st ed.). Retrieved from

<http://www.mandalaproject.org/images/Change-2.pdf>





*Image 2*

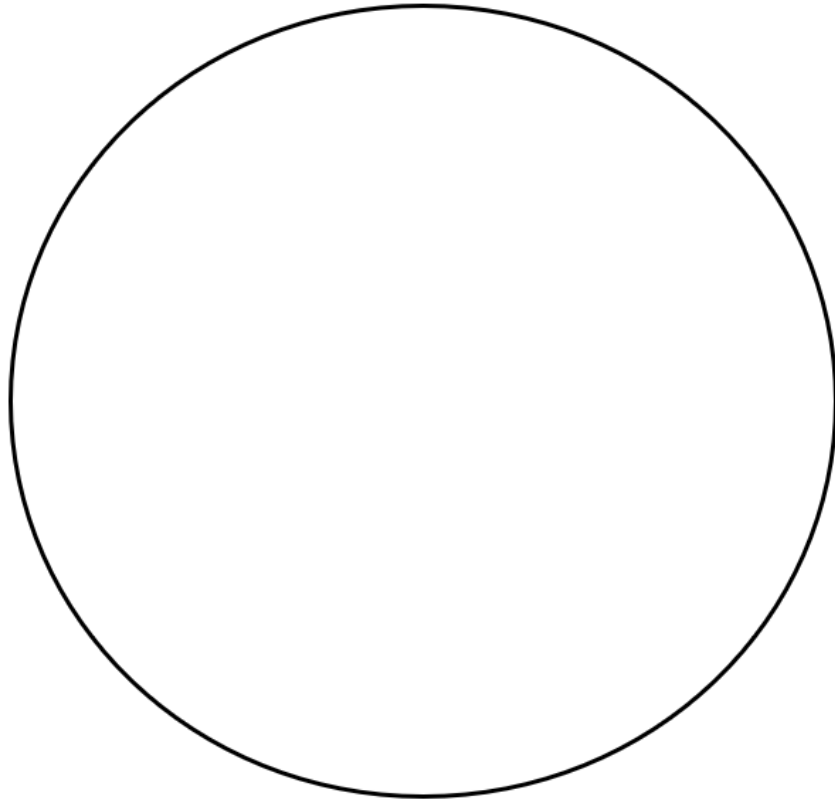


Image 3 - Participant 1



Image 4 - Participant 2

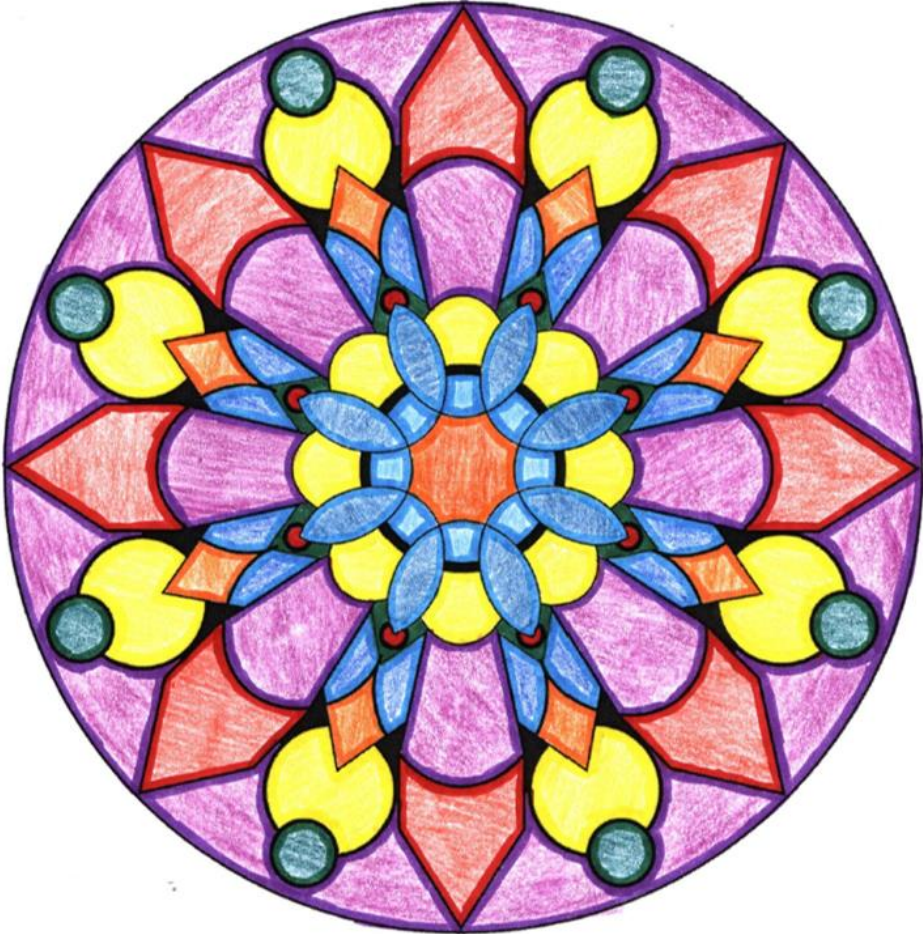


Image 5 - Participant 3



Image 6 - Participant 4

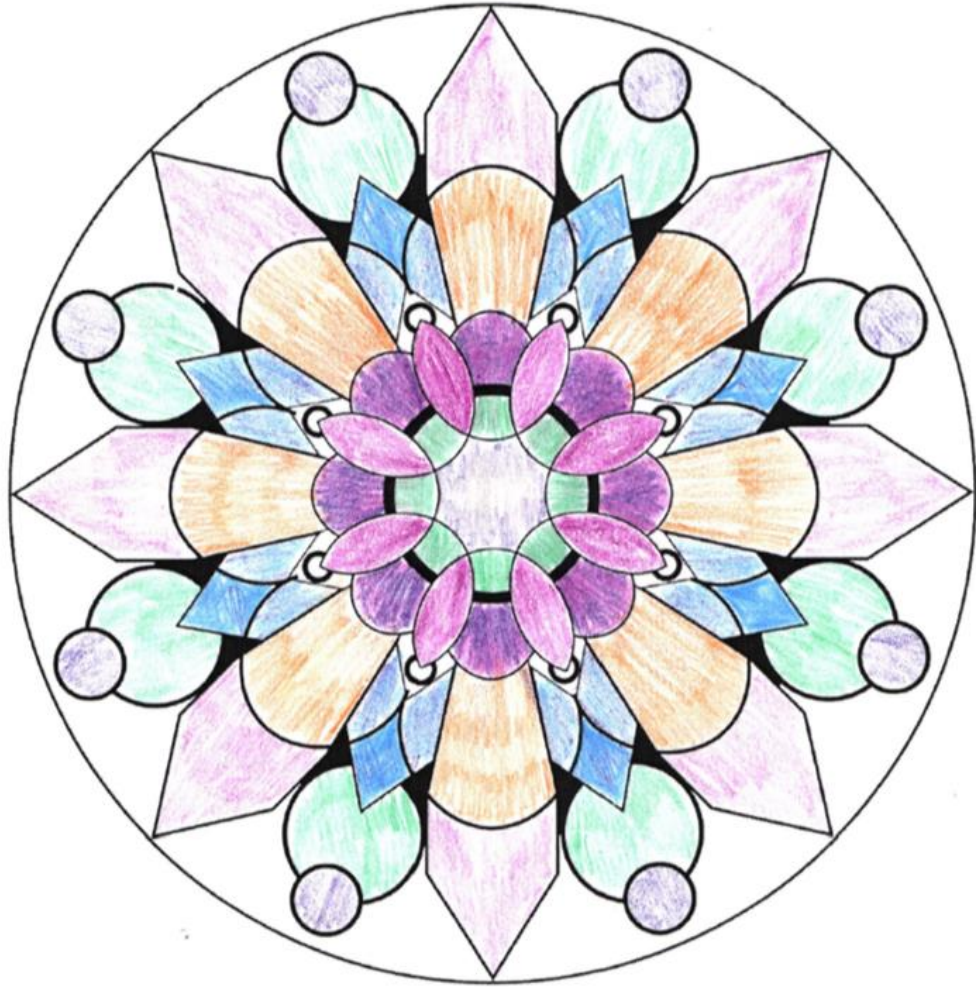


Image 7 - Participant 5

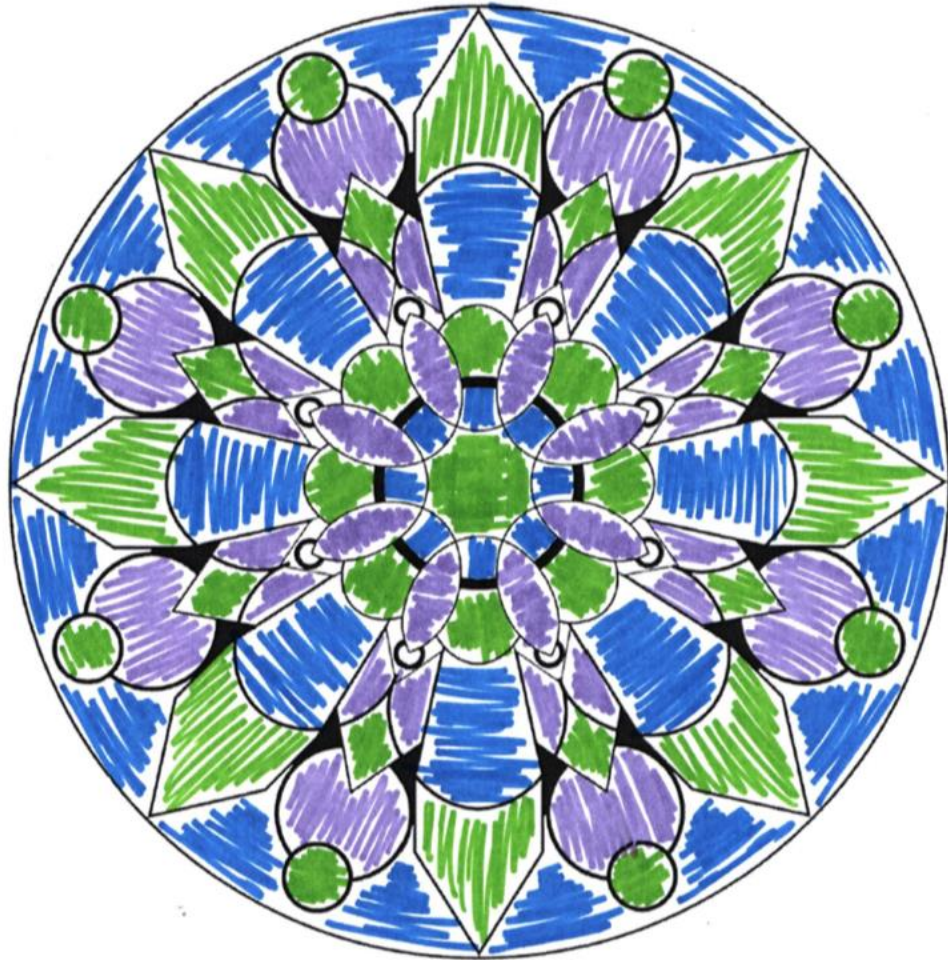


Image 8 - Participant 6

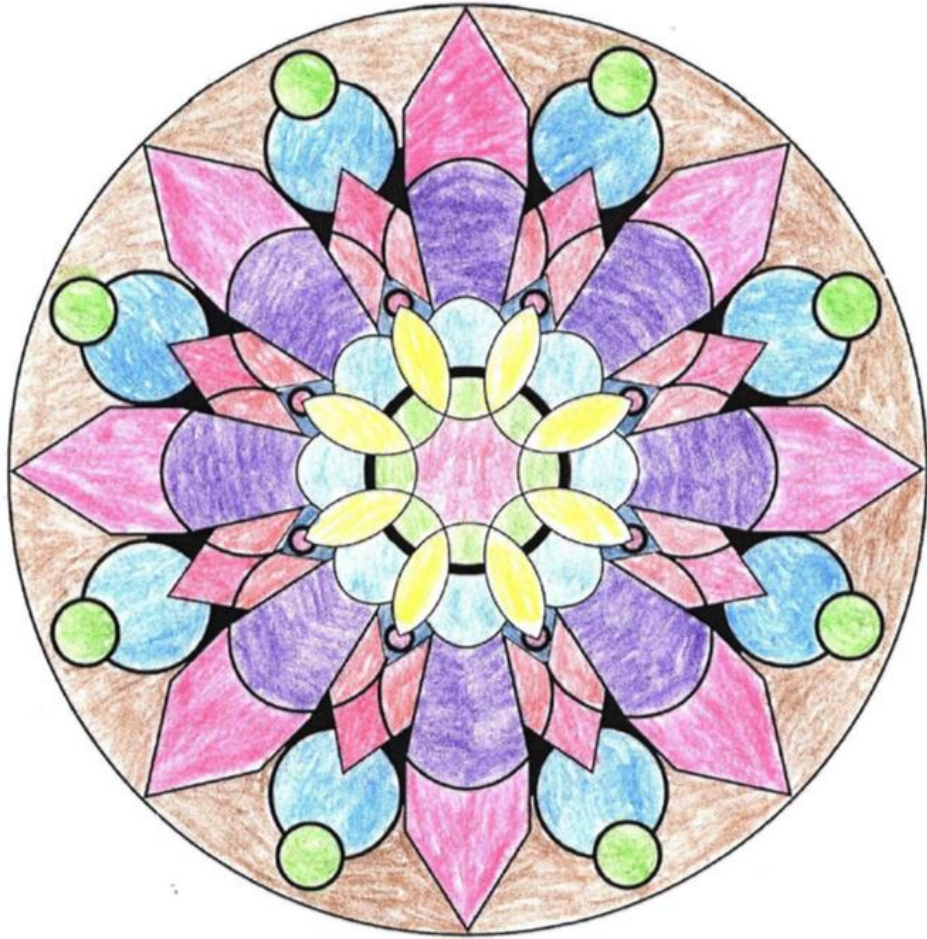


Image 9 - Participant 7

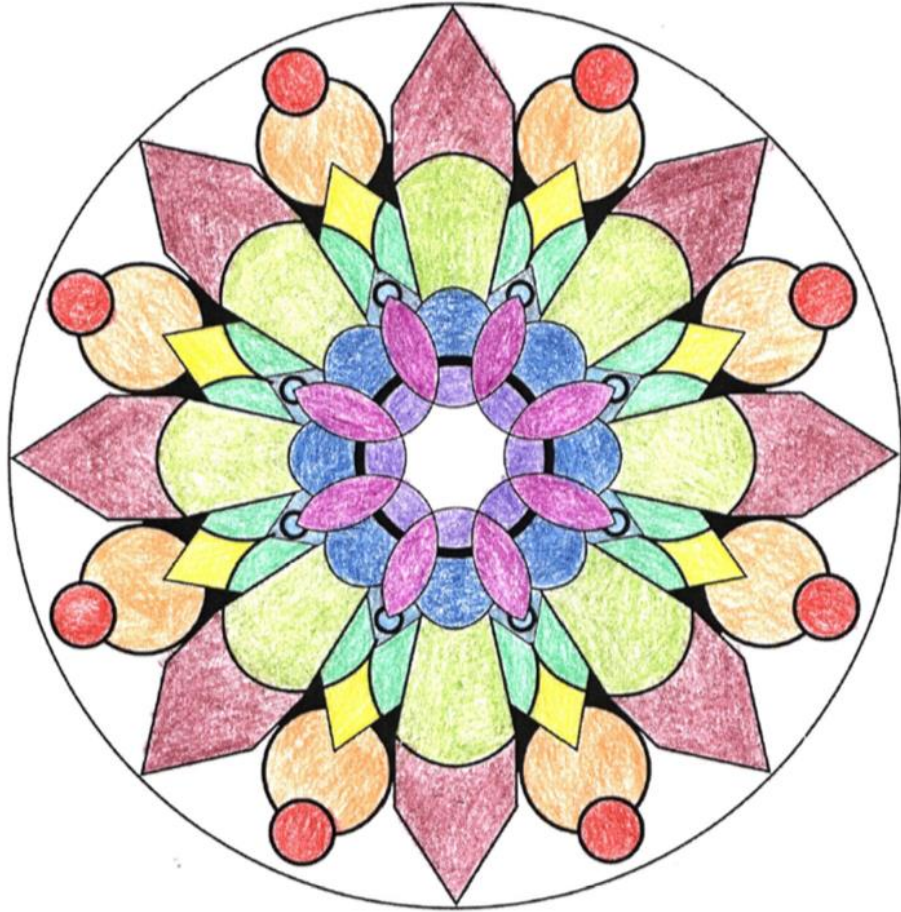




Image 10 - Participant 8

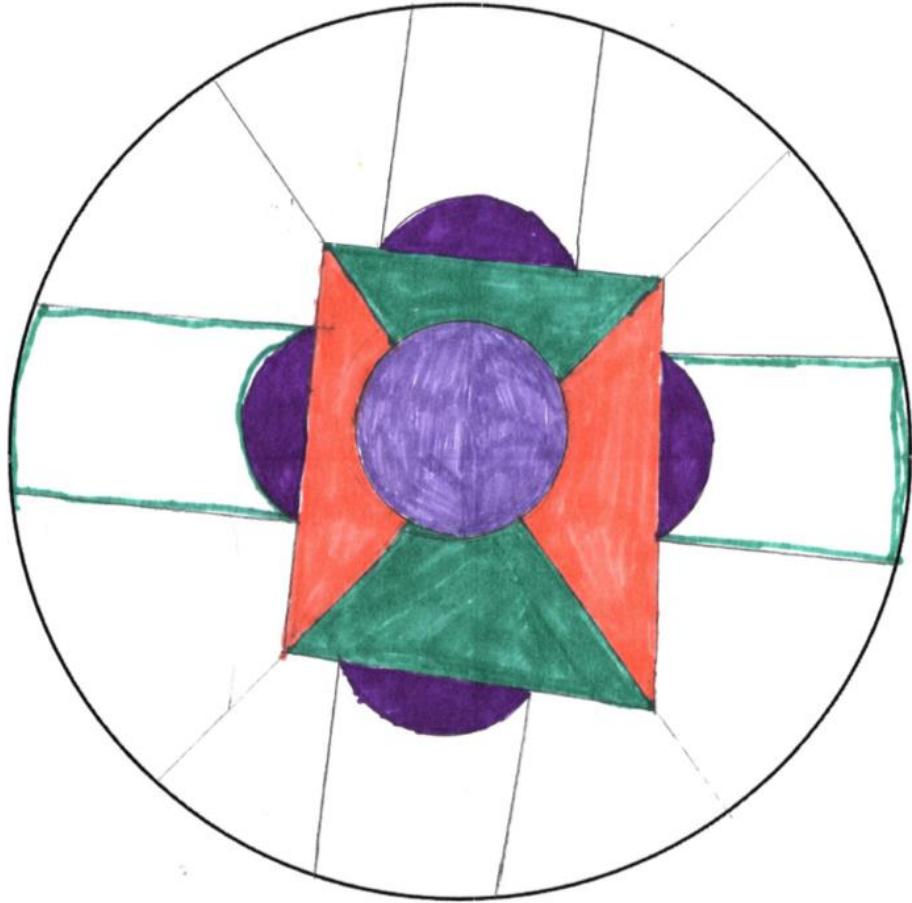


Image 11 - Participant 9

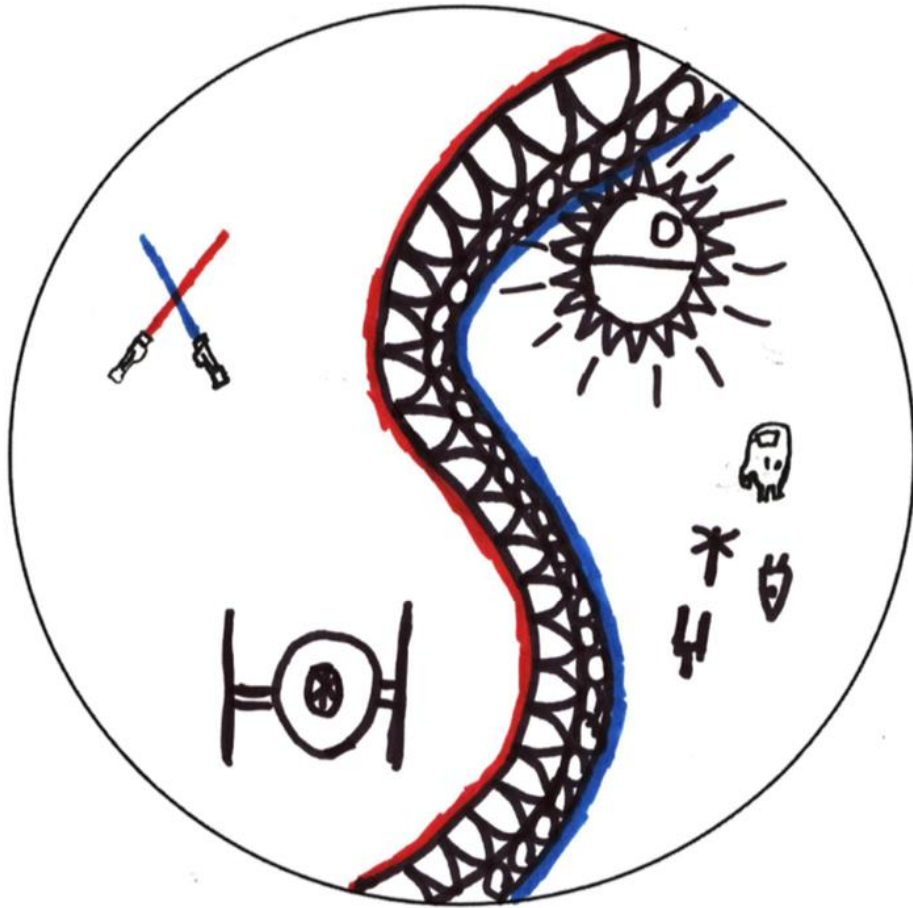


Image 12 - Participant 10



Image 13 - Participant 11

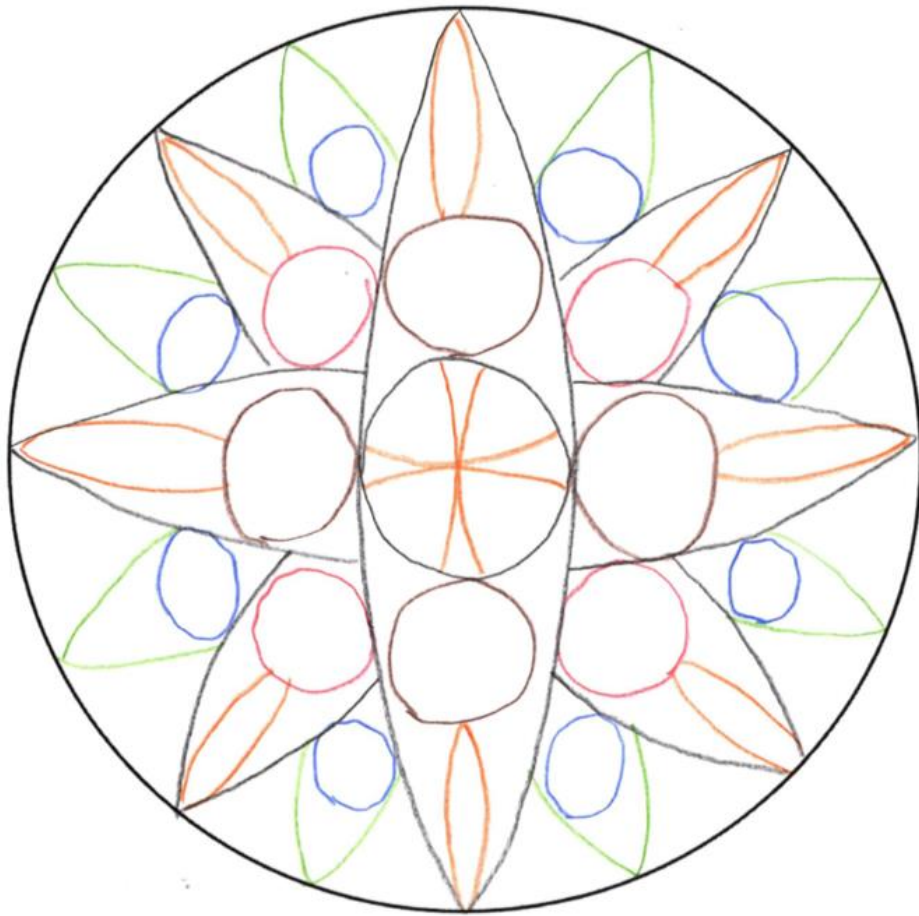


Image 14 - Participant 12

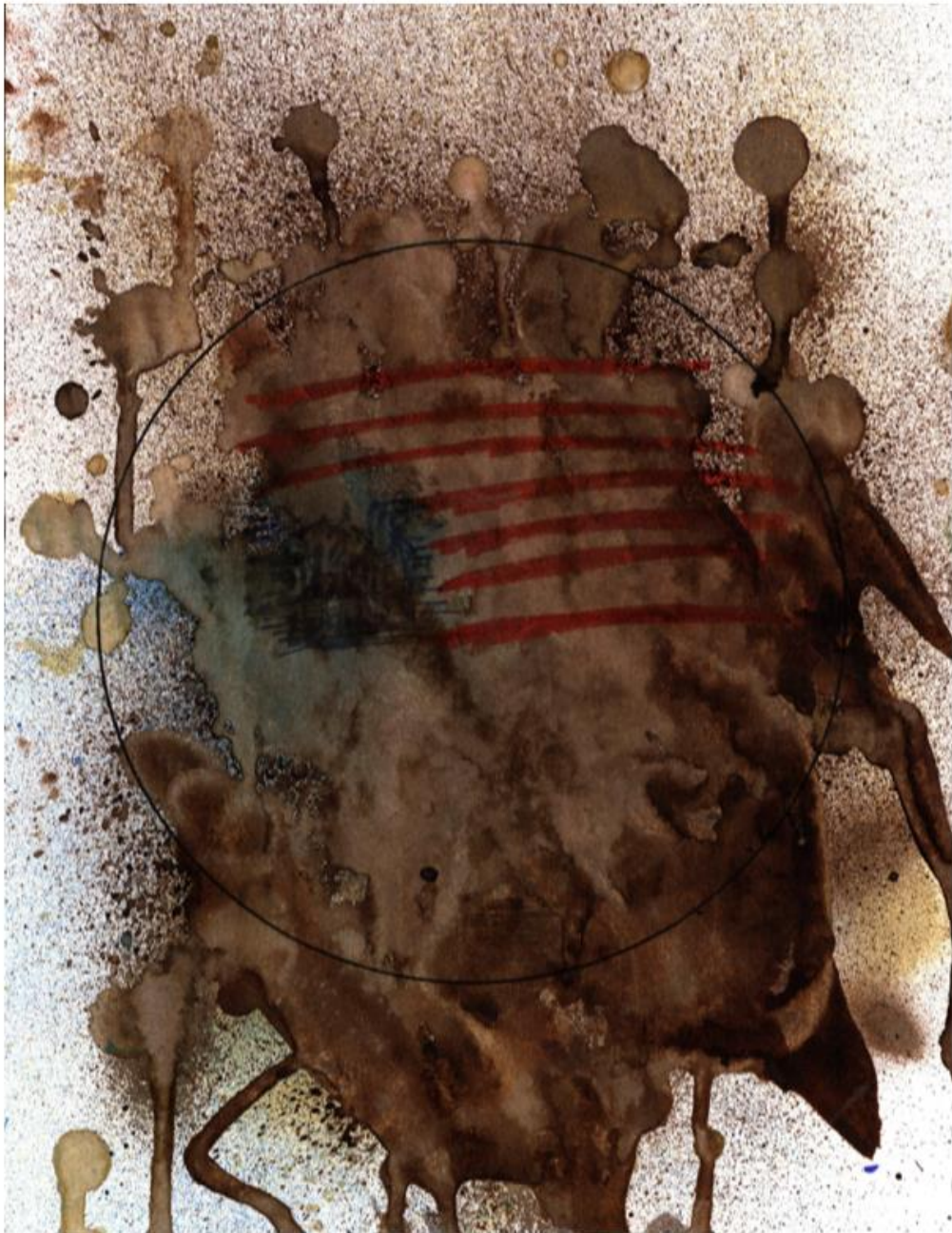


Image 15 - Participant 13



Image 16 - Participant 14

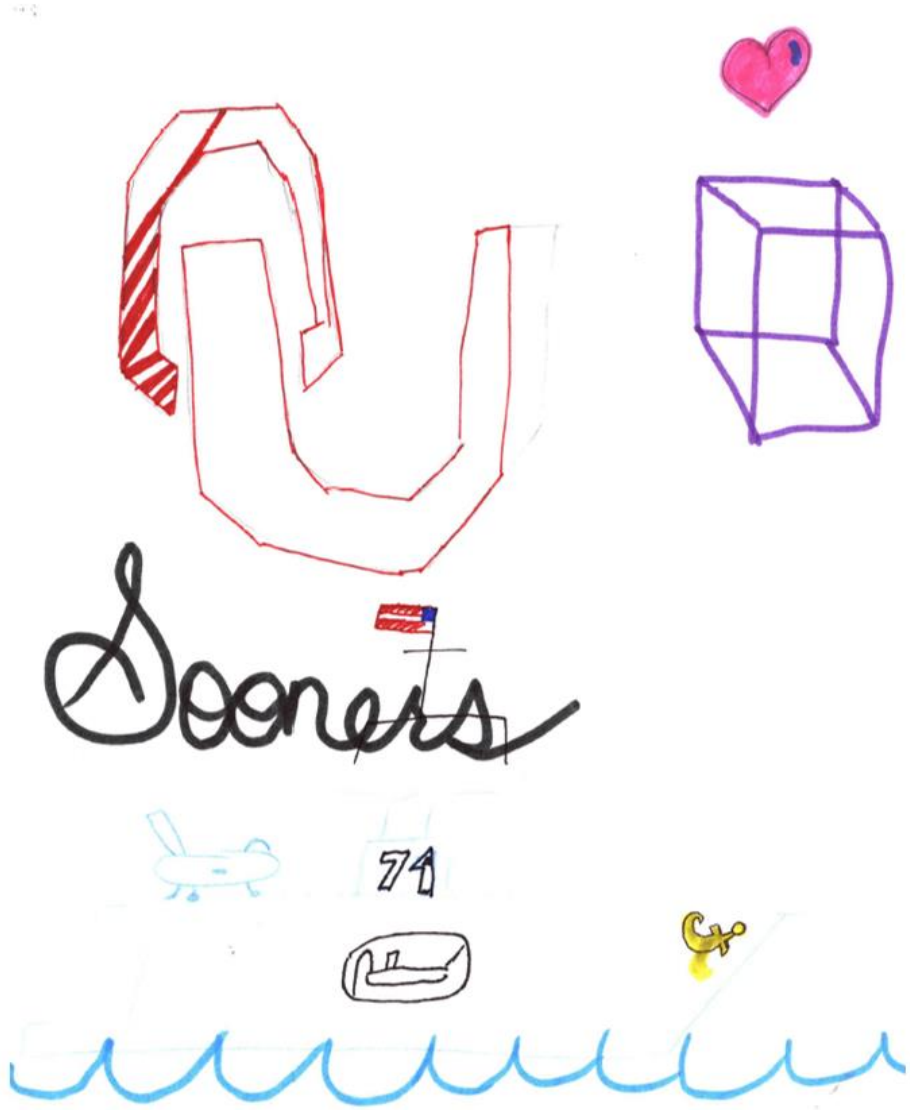


Image 17 - Participant 15





Image 18 - Participant 16

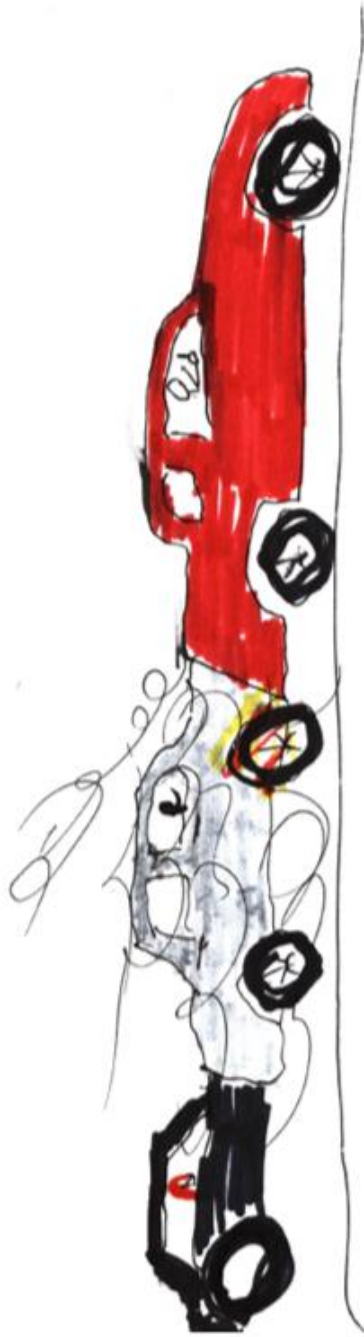
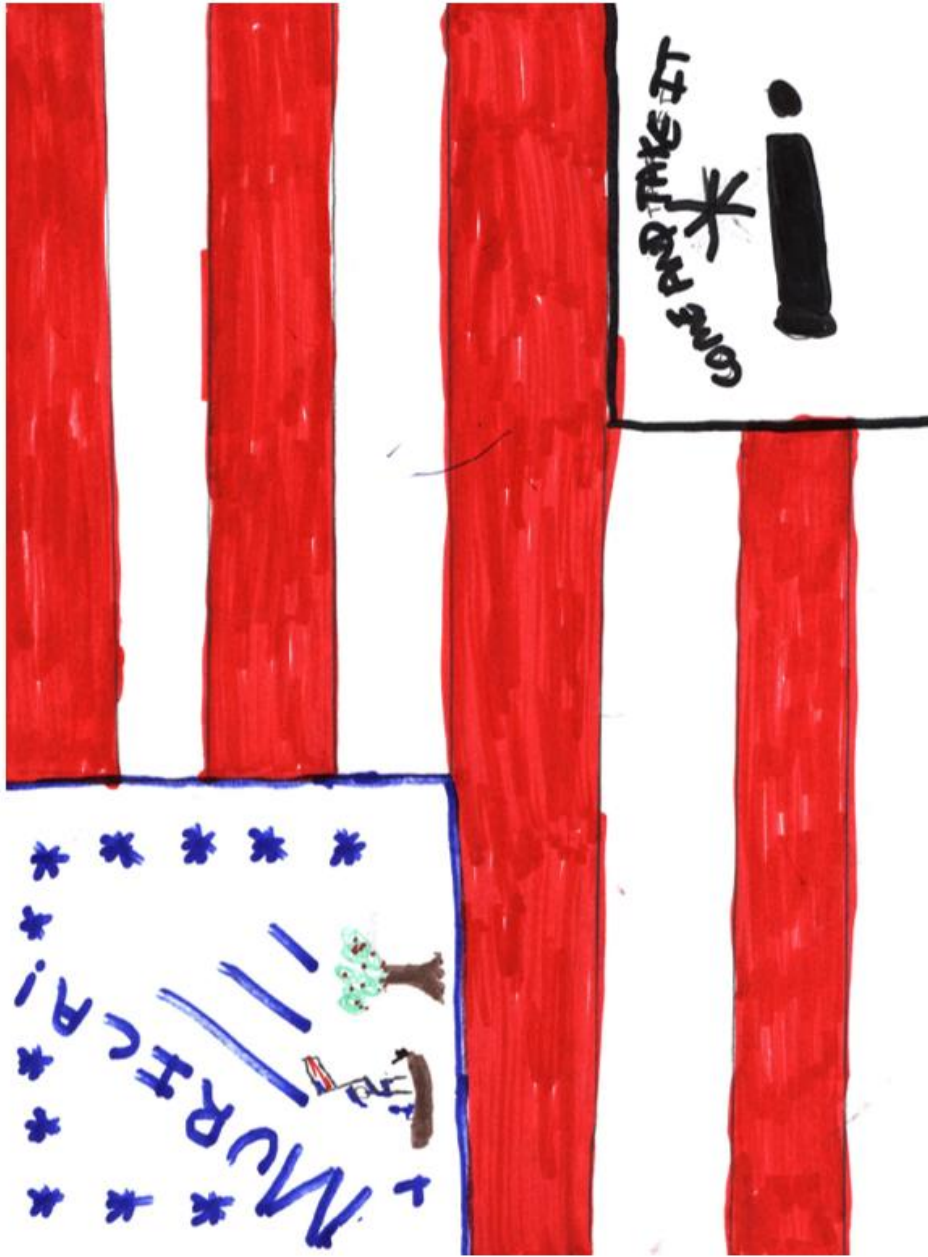




Image 20 - Participant 18



## VITA

Taylor Ann Gbur

Candidate for the Degree of

Master of Science

Thesis: FREE FORM CREATION VS. THE MANDALA AND THEIR EFFECTS ON VETERANS WITH POSTTRAUMATIC STRESS DISORDER: A RECREATIONAL THERAPY INTERVENTION

Major Field: Recreational Therapy

Biographical: Taylor is a first-generation college student from the town of Choctaw, Oklahoma. Her hobbies include exercising, traveling with her husband, learning new things, reading and writing poetry, and being creative in all areas of her life. Her holistic view point was shaped during her undergraduate education at a Liberal Arts University. She discovered her passion for Recreational Therapy and pursued a Master's Degree. Her time at Oklahoma State University provided foundational knowledge and experience in the field, enhanced her strengths and weaknesses, and solidified her dedication to the Therapeutic Recreation profession. She aspires to work with the veteran population and focus on the creation and implementation of evidence-based interventions.

### Education:

Completed the requirements for the Master of Science in Recreational Therapy at Oklahoma State University, Stillwater, Oklahoma in December 2017.

Completed the requirements for the Bachelor of Science in Kinesiology at Southern Nazarene University, Bethany, Oklahoma in 2015.

### Experience:

Junior and Senior Internships | Summer and Fall 2017 |  
ATRA Presidential Award Recipient | 2016 ATRA Annual Conference |  
Graduate Research Assistant | August 2015 – August 2017 |  
Ronald E. McNair Postbaccalaureate Scholar | 2014 – 2015 |  
ODSA TRiO Hall of Fame Recipient | 2014 |

### Professional Memberships:

American Therapeutic Recreation Association (ATRA)  
Oklahoma Therapeutic Recreation Association (ORTA)