A heuristic exploration of autonomic nervous system responses and the art-making process utilizing the expressive therapies continuum

Katherine Valkanas

A Research Paper

in

The Department

of Creative Arts Therapies

Presented in Partial Fulfillment of the Requirements

for the Degree of Master of Arts

Concordia University

Montreal, Quebec, Canada

April 2018

CONCORDIA UNIVERSITY

School of Graduate Studies

This research paper prepared

By: Katherine Valkanas

Entitled: A heuristic exploration of autonomic nervous system response and the art-making process through utilizing the expressive therapies continuum

and submitted in partial fulfilment of the requirements for the degree of

Master of Arts (Creative Arts Therapies; Art Therapy Option)

complies with the regulations of the University and meets the accepted standards with respect to originality and quality as approved by the research advisor.

Research Advisor:

Bonnie Harnden, MA, RDT

Department Chair:

Yehudit Silverman, MA, R-DMT, RDT

April 2018

ABSTRACT

A HEURISTIC EXPLORATION OF AUTONOMIC NERVOUS SYSTEM RESPONSES AND THE ART-MAKING PROCESS UTILIZING THE EXPRESSIVE THERAPIES CONTINUUM

KATHERINE VALKANAS

This arts-based heuristic research will explore how the art-making process can assist in therapeutically processing autonomic nervous system responses with individuals managing stress levels, and its potential to assist clients working through personal trauma. This inquiry will gather current research to develop a link between the autonomic system responses (ANS) and the Expressive Therapies Continuum (ETC) assessment to form the base for the heuristic inquiry. This inquiry investigates the author's use of various art media to process the somatic experience of autonomic nervous system responses and their ability to cope with perceived stressful moments. In the course of three months, the author developed 26 artworks, in which the lived autonomic nervous system responses were measured using the ETC assessment and Pat Allen's Intention/Witness writing process (Allen, 1995; Hinz, 2009).

The contextual essay results will primarily explore how the perceptual and symbolic components of the ETC can assist in processing and building a greater window of tolerance for working through stress moments. This information will synthesize text exploring ANS responses such as fight, flight, and freeze and how these responses can link to reactions formed within individuals who have experienced trauma. The research supports how artmaking and the therapeutic alliance can safely assist individuals in working through present overarousal in ANS responses and strengthen one's sense of self in coping with stress. It will explore how symbolic formation can contain and gradually integrate trauma narrative to build on personal meaning and perspective of one's life. This process will integrate art therapy relational neuroscience approach (ATRN), mindfulness art therapy, and working through bottom-top thinking therapeutic techniques to assist in safely guiding clients in present and past influences of trauma experiences.

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Chapter 1: Introduction

My connection to my inner knowledge in relation to my own emotions and thoughts, environment, and people is primarily mediated through my sensory experience within my body. The proprioceptive, kinesthetic receptors such as muscle tension, and visceral feelings connecting to my gut instinct provides conscious awareness of thoughts and emotions activated within the present moment. As I pursue the role of art therapist, I have become more curious as to how clients can safely explore the sensory sensations — which are primarily the activation of the autonomic nervous system responses such as flight, fight, and freeze — and process using art materials. The heuristic arts-based study was chosen to gain full insight into the cognitive, emotional, physical, and behavioural components during ANS arousal in response to perceived stress, and how creation and inner reflection from within the artmaking process can link to trauma memory.

In art therapy, the Expressive Therapies Continuum (ETC) model is used to explore a client's interaction with art materials and the final art product. Art therapists' can use ETC assessments to evaluate client's response, processing, integration of internal and external influences, expression of thoughts, emotions, and behaviours that can mirror other aspects in their life (Hinz, 2009). Over the course of three months, I created 26 artworks in my studio space and I administered two ETC assessment scale after each artmaking session: the ETC Reflection and Art Therapist Self-Rating Scale and the Preference and Aversion for the Artistic Practice Scale (Hinz, Nan, Riccardi, M., & Gotshall, 2017). Both ETC Rating Scales lists all components from kinesthetic, sensory, perceptual, affective, cognitive and symbolic (See Figure 2 and 3). In the ETC Reflection and Art Therapist Self-Rating Scale, I rated each components' incorporation within my artmaking process from 1-5: 1 being least and 5 being most integrated element within my artmaking experience (see Figure 2). The Preference and Aversion for the Artistic Practice Scale, I rated each 1-5 for each component: 1 rated as most aversion and 5 as greatest preference for components' integration within my artmaking process (see Figure 3). Pat Allen's (1995) intention/witness writing was used to navigate my inner knowledge of the artmaking process. My personal artwork will offer a dialogue of how the symbolic and perceptual components of the ETC can assist in understanding reactions and patterns within the body and mind to develop meaning and strengthen a window of tolerance in moments of stress.

The contextual essay will link autonomic nervous system arousal to perceived stress with individuals experiencing similar physical sensations when working through their personal traumas. It will explore links with art therapy relational neuroscience approach (ATRN), mindfulness art therapy, and top-down and bottom-up ETC processing techniques to assist in safely guiding clients to understand present and past influences on their stress responses.

Chapter 2: Literature Review

This literature review will investigate artmaking through the lens of the Expressive Therapies Continuum (ETC) and the use of art making and reflection of the final product to process Autonomic Nervous System (ANS) responses and neuroscience. It will focus primarily on the effect of ANS on the physical, emotional, and behavioral self and its connection to the art therapy environment. The ETC is presented to develop connections of the artmaking process' ability to assist in engaging and recognizing layers of self within this lived experience. This literature review will inform the investigation of processing somatic sensations, derived from ANS responses, through the artmaking process.

Autonomic Nervous System (ANS)

ANS Interaction Within the Body

Individuals gain sensory information from the external world through their eyes, ears, nose, and skin, which is then processed within the thalamus, the part of the limbic system that processes autobiographical information. The limbic system reaches into two different sections: the amygdala, which is the unconscious, emotion center, and the frontal cortex, which is the conscious, logical, and organization center (van der Kolk, 2014). The amygdala sends information to the hippocampus, the area that builds relationships of current experience with past experiences, and then sends perceived stress experiences to the hypothalamus. This, in turn, triggers cortisol and adrenaline, which increase heart rate, blood pressure, respiration, circulation, digestion, swallowing, pupillary movement, and defensive social engagement (Kreibig, 2010; Rasmussen, & Bliss, 2014; van der Kolk, 2014; Yilmaz, Yasar, Goktepe, Alaca, Yazicioglu, Dal, & Mohur, 2007). Kornelson, Smith, and McIver (2015) state that neuroanatomical studies show a link between these physiological responses to regions of the spinal cord, especially the thoracic cord: "Spinal nerves emanating from the thoracic spinal cord innervate muscles in the trunk and abdomen, stimulating muscle contraction of regions" (Kornelson, Smith, & McIver, 2015, p. 586). The amygdala processes information from the

thalamus more quickly than the frontal lobes (Kreibig, 2010; Quillman, 2012; Rasmussen, & Bliss, 2014; van der Kolk, 2014).

The sympathetic nervous system (SNS) is responsible for arousal, including fight or flight mode; this results in increased blood flow to muscles to prepare the body for defensive action (van der Kolk, 2014). These interactions can be voluntary or involuntary depending on the individual's ability to cope with external stimulus regarding mortality, emotional threat or serious illness or injury (Kreibig, 2010; Levine, 2010). In comparison, the parasympathetic nervous system (PNS) promotes self-preservation such as digestion and wound healing (van der Kolk, 2014). This center triggers the release of acetylcholine to halt arousal by slowing down the heart and activated muscles, and connecting back to the breath, and the regulated respiratory system (Kok, Coffey, Cohn, Catalino, Vacharkulksemsuk, Algoe, Brantley, & Fredrickson, 2016; van der Kolk, 2014). A core component within the PNS is the vagal tone that reflects the function of the vagus nerve, located within the 10^{th} cranial nerve; this mediates facial expression and vocalization, which, in turn, regulates the heart rate in response to signals of safety and interest (Kok et al., 2016).

ANS Protective Responses

There are responses including: orient, dodge, duck, stiffen, brace, retract, fight, flee, freeze, and collapse. These protect us from externally or internally perceived danger (Payne, Levine, & Crane-Godreau, 2015). The nervous system is attuned to assessing the potential risk within an environment; this unconscious evaluation process is called neuroception (Levine, 2010). The vagus nerve mediates facial movement and vocalization, which can be found within the unconscious connection to the throat, face, middle ear, heart, and lungs. These components come together to communicate emotions (Levine, 2010; Quillan, 2012). This system is myelinated, which allows rapid adjustments in facial muscles and larynx, therefore, enforcing non-verbal communication such as facial expression and vocal tone to inform one's feeling of security within social interactions (Levine, 2010; Quillan, 2012).When individuals perceive danger, the ventral vagal system disconnects from the sympathetic branch within the ANS to activate hyperarousal within the body to prepare for fight (aggression) or flight (fear/avoidance) instinctive emergency responses (Pereira, Campos, & Sousa, 2017; Rasmussen, & Bliss, 2014; Quillman, 2012). This elicits responses including pupil dilation, increase in heart rate and respiration, adrenalin and cortisol release through the hypothalamic to the pituitary and the

adrenal system. The freeze response, or dissociative state, is active when an individual is overwhelmed by perceived danger. This hyperarousal response may lead the individuals to shut down the dorsal vagal nerve and switch to the unmyelinated vagal nerve. Dorsal shut down is perceived as the body's method of preparing for death (Pereira, Campos, & Sousa, 2017; Rasmussen, & Bliss, 2014; Quillman, 2012). The dissociative/immobilized systems include spaceyness, unreality, depersonalization, and somatic or health complaints (Levine, 2010). Somatic systems include gastrointestinal problems, migraines, forms of asthma, persistent pain, chronic fatigue, and general disengagement from life (Levine, 2010). This can alter one's ability to develop relationships, attachment, and bonding (Levine, 2010). An individual's natural desire is to have a secure connection within social situations and environment, this can be impacted by one's attachment behaviour and instinctive fight or flight behaviour to perceived danger (Levine, 2010).

ANS Emotional and Behavioural Responses

The autonomic nervous system responses can operate at different conceptual levels, depending on the individual's emotions (Kreibig, 2010). The collections of different emotions dependent on experiences are translated in the brain through response patterns within subcortical structures, such as the hypothalamus, the brainstem nuclei, and the cortical regions, such as the insula, the anterior cingulate, and the secondary cortex. There are different behavioural modes corresponding with emotional reactions through their ability to cope and engage with defense mechanism due to physiological arousal of ANS responses (Kreibig, 2010; Shulman, Smith, Silva, Icenogle, Duell, Chein, & Steinberg, 2016).

Negative emotion responses include: anger (approach-oriented, withdrawal-oriented, defensive to others or self, and indignation), anxiety (performance and social anxiety, future-oriented, perfectionism tendencies), disgust (disease related, food-related), embarrassment (social anxiety, shame, social rejection), fear (threat response), and sadness (achievement failure, dejection, depression) (Kreibig, 2010). Commonly, these behaviours will have physiological responses of decreased cardiac vagal nerve influence, sympathetic system activation, pattern of reciprocal inhibition, and increased respiratory activity that includes faster breathing and decreased expiratory time that results in decreased carbon dioxide blood levels (Kreibig, 2010). In addition, the disgust feeling will have parasympathetic and sympathetic system activation, and increase electro-dermal activity (Kreibig, 2010).

Positive emotional responses include: affection (love, tenderness, sympathy), amusement (humour, play, happiness, comedy), contentment (serenity, pleasure, calmness, peacefulness, relaxation), pride, joy, happiness, and surprise/suspense (Kreibig, 2010). The anticipatory pleasure of these emotions elicits an increase on cardiac vagal nerve and sympathetic system responses or decrease engagement of parasympathetic system, activation of the adrenergic system, and increase of electrodermal and respiratory activities (Kreibig, 2010). In comparison, contentment and other positive emotions allows the deactivation of the sympathetic nervous system (Kreibig, 2010).

An individual's ability to maintain a higher vagal tone is associated with a greater ability to regulate their own emotions. When people engage more with positive emotions, they experience greater social engagement, social inclusiveness, individuation, perspective building, interpersonal trust, and compassion for self and others; therefore, this results in building on an upward-spiral dynamic (Kok et al., 2016). Vagal activation is greater in the presence of supportive, close social relationships (Kok et al., 2016).

ANS and Chronic Stress

Chronic arousal can affect brain structures such as the hippocampus, prefrontal cortex, and amygdala, resulting in functional and connectome alterations that impact sensory responses to external environment (Filippova, & Nozdracheve, 2016; Pereira, Campos, & Sousa, 2017). Chronic stress reorganizes the frontal striatal circuits, the neural pathways that connect the frontal lobe regions within the basal ganglia, which mediates motor, cognitive, and behavioural functions within the brain. This results in individuals experiencing difficulty in their decision-making abilities (Pereira, Campos, & Sousa, 2017). Magnetic Resonance Imaging (MRI) tests suggest that chronic stress, through the action of glucocorticoids and mineralocorticoids within the adrenal cortex, affects the brain connectome, resulting in the individual's inflexibility and capacity to cope with ANS arousals (Pereira, Campos, & Sousa, 2017; Schestasky, Simis, Freeman, Pascuel-Leone, & Fregni, 2013). An individual's experience of persistent stress can develop into a deregulation within the autonomic nervous system, which leads to the ANS imbalance toward the sympathetic system within stress-free intervals and over longer periods. Individuals with high levels of emotional and social stress have a greater risk of myocardial infarction and cardiovascular incidences (Pereira, Campos, & Sousa, 2017; Schestasky et al., 2013).

Resilience to extreme stresses can be altered through life events. Individuals working through feeling overwhelmed or feeling too little can lose a connection to their sense of self during moments of perceived stress (Levine, 2010). Levine (2010) describes the importance of assisting clients to "cultivate and regulate the capacity to tolerate extreme sensations" (p. 137) by strengthening self-awareness, self-acceptance, and balance uncomfortable feelings and sensations. The individual can build their window of tolerance through developing strong links with sensations, feelings, perceptions, and thoughts (Levine, 2010). Therefore, the development of stress resilience can shift throughout life due to an individual's connection to self and modification to internal or external stress stimuli (Levine, 2010; Pereira, Campos, & Sousa, 2017).

ANS Engagement within Therapeutic Alliance

Levine (2010) states that a key component in building on a client's healing and transformation is to recognize and track thought patterns within autonomic and muscular expression to determine if the individual is experiencing stages such as immobilization, hyperarousal or social engagement in working through complex trauma during therapy. For clients experiencing shut-down, it is important to help them mobilize their energy: the therapist is to assist them in recognizing and normalizing their shut-down experience (Levine, 2010). Afterwards, they are to assist them in gently moving into a sympathetic state, such as defensive/self-protection, in other words, into an equilibrium present state and connection to current life (Levine, 2010). Clients experiencing hyperarousal, can have the guidance of the therapist to learn how to hold visceral experiences without becoming too overwhelmed and potentially discharge energy (Levine, 2010). After these phases, the therapist can guide the client through the social engagement phase, in which their face-to-face engagement, such as facial recognition, sound, intonation, and rhythm of the human voice, can create calming feelings when exploring their lived experiences (Kykyri, Karvonen, Wahlstrom, Kaartinen, Penttonen, & Seikkula, 2017; Levine, 2010; Rasmussen, & Bliss, 2014). This knowledge assists art therapists in their engagement during sessions. The client's ventral vagal connection is strengthened when gaining a trusting alliance with the therapist, which can be emulated through the development and maintenance of relations outside of therapy sessions (Kykyri et al., 2017). This process assists in addressing issues in self-regulation by working through the client's past and present experiences (Quillman, 2012).

Somatic experience therapy focuses on working through chronic stress and post-traumatic stress through directing the client's attention to internal sensations: both visceral (interoception) and musculoskeletal (proprioception and kinesthesis) (Payne, Levine, & Crane-Godreau, 2015). It works to regulate core response networks, such as the autonomic nervous system (ANS), the emotional motor system (EMS), reticular arousal systems (RAS), and the limbic system (LS) (Payne et al., 2015). This can be achieved through the therapist creating a safe environment and assisting the client in re-framing their experience. By allowing the client to engage in a response such as crying, helps the individual to approach their inner experience in a regulated state (Payne et al., 2015). This reduces sympathetic arousal and suppresses alarming interoceptive experiences. This, subsequently, facilitates regulation of ANS arousal and strengthens the sympathetic-parasympathetic balance in tolerating perceived stress in relation to present stimuli and past experiences (Payne et al., 2015).

Expressive Therapies Continuum (ETC)

ETC Assessment and Art Therapy Sessions

The ETC can assist art therapists in understanding their clients' level of processing by noting their preference in media choice and use within the assessment phase (Hinz, 2008; Hinz, 2009). In these arts- based assessments, formal elements of the clients' visual creation are considered in understanding their cognitive and emotional functioning. This allows the art therapist to evaluate their strengths, challenges, and progress throughout therapy (Hinz, 2008; Hinz, 2009). This evaluation is supported by the ETC assessment scale, which allows the clinician to observe the client's art making process to assist in evaluating their creative patterns, preferences and aversions of material, preferred medium, manner of interaction with medium, stylistic or expressive elements of final art product, verbal comments, and behavioural observations through the progression of art therapy sessions. Clients' artwork is processed on bipolar spectrums from the cognitive and symbolic level, the perceptual and affective level, and the kinesthetic and sensory level (Hinz, 2009; Hinz et al., 2017). Formal qualities evaluated include qualities such as shape, line quality and pressure, placement of elements on page/base of artwork, use of space, inclusion or lack of details, integration or lack of integration of certain qualities or subject matter, degree of disorganization, presence or absence of inanimate objects, movement, and word inclusion (Hinz, 2008; Hinz, 2015). These assessments guide art therapists to the best choice of intervention for the client's needs throughout the course of therapy. By

gradually building on their preferences and aversions of creating in art therapy, it encourages them to reclaim affect left out of life, to express feelings and needs kept hidden within themselves, to unveil or address personal obstacles from other perspectives, to deconstruct or resolve problems, and to forge spiritual connections (Hinz, 2008; Hinz, 2015). Inevitably, the choices, directives, and reflections within the art-making process can assist individuals in gaining awareness of elements within themselves (Hinz, 2008).

Levels of ETC and Neuroscience

The Expressive Therapies (ETC) model gives clinicians the ability to understand the therapeutic qualities of art materials and creative process' ability to evoke behavioural, emotional and cognitive content within an individual's exploration of presenting life issues. The ETC organizes media interactions in a developmental sequence of information retrieved from the creation process, material use and type (on the spectrum of fluid to resistive materials), and image formation (Hinz, 2009; Hinz et al., 2017; Lusebrink, 2010). The first three levels are based on the bipolar levels components including the spectrums from the cognitive and symbolic level, the perceptual and affective levels, and the kinesthetic and sensory levels; the combination of all levels results in the use of all brain structures. The fourth level is the creative level, a single level; it represents a simple interaction with art media or experiential activity that has the capacity to integrate all levels of functioning on the ETC model (Hinz, 2009; Hinz et al., 2017).

The first level, the kinesthetic/sensory level, is based on information processing on a preverbal level to kinesthetic/motor and sensory/tactile connection with the interaction of art media. In the kinesthetic element, the motor action and movement can be modified through aesthetic elements, such as lines, which is recognized within the visual cortex (Lusebrink & Alto, 2004). The sensory element involves the haptic sense and spatial relationship within the textural connection when creating imagery. Pathways of the motor association cortex and somatosensory cortex can bridge personal association where the transcortical pathways were not able to previously connect. This encourages conscious introspection, emotional awareness, and visual processing (Lusebrink & Alto, 2004; Lusebrink, 2010).

In the perceptual/affective level, the perceptual component focuses on gaining insight within the aesthetic details of the drawing. Information processing may or may not require words. The affective component is commonly explored when emotional processing can be evoked through the creative use of the material, such as dynamic forms, colours, and aesthetic

elements, with less emphasis on the final form (Hinz, 2009; Lusebrink, 2010). The affect will reflect in the emotional processing within the amygdala and influence the ventral visual stream (Lusebrink, 2010). The perceptual component encourages clients to immerse themselves in and reflect on new thought patterns and behaviours surrounding present life and containment of past traumas (Hinz, 2009). The perceptual element focuses on the individual's concentration on formal qualities in relation to their personal meaning derived from their visual expression (Hinz, 2009 Hinz et al., 2017; Lusebrink, 2010). The perceptual component uses the ventral stream of visual formation to create meaning with the forms, shapes, figures, and background of imagery.

The cognitive/symbolic level involves complex and sophisticated planning, problem solving, cognitive action, intuitive recognition, and self-discovery through the creative process. Both levels encourage the possibility for individuals to verbally express their connection to their imagery (Hinz, 2009; Hinz et al., 2017). The symbolic function uses complex cognitive operations when unveiling personal meaning, identification, defenses, life connections, and figure/ground connection within multi-dimensional symbols (Hinz, 2009; Hinz, 2008). This can build on memory and emotional connections. This may appear within the top-down processing within the orthitofrontal cortex, which retrieves autobiographical and conscious information (Hinz, 2009). The cognitive component uses complex cognitive operations in planning, creating (including line and form, categorization, problem solving, spatial use), and processing objective and abstract imagery within the concept of artwork. This component is influenced by the prefrontal cortex, especially the dorsal, and anterior part of cingulate cortex (Lusebrink, 2010).

Art Therapy Creation Process and Neuroscience

Lusebrink (2010) states that mental imagery can be associated with individuals' psychophysiological responses to presenting stimuli. Images stemming from the imagination involve multi-layer information processing, which is impacted by the individual's perception, formation, art material and use in developing the image. Art Therapy can be considered to be an action-orientated therapy, in which the movements in artmaking are processed within the motor association cortex and somatosensory cortex (Lusebrink, 2010).

The motor information processing in artmaking is primarily directed from the basal ganglia to the premotor cortex and supplementary motor areas within certain nuclei in the thalamus. The basal ganglia and thalamus develop pathways between the motor association cortex and somatosensory cortex (Lusebrink & Alto, 2004). Somatosensory information

processing within artmaking relates to the touch and haptic sense, and in the ability of the active amygdala receiving systems to process movement and associated emotions (Lusebrink & Alto, 2004). In relation, art therapy connects the visual and somatosensory information within the material use of imagery. This process provokes connections with emotional experience, which affect the thoughts and behaviours of the individual (Lusebrink & Alto, 2004). Memory is provoked within the artmaking process due to the interaction of mental images. Mental images are formulated as three-dimensional forms within the dorsal stream and frontal lobes. During the creation process, the ventral stream of the inferior temporal cortex is activated in recognizing and processing the formation of external stimuli (Lusebrink & Alto, 2004).

Visual processing occurs primarily in the occipital lobe and the striate cortex that analyze colour, lattices, spatial room, orientation, and movement (Lusebrink, 2010). This visual information processing takes place within the lower or ventral stream, and responds to features, shapes, forms and colours; the dorsal or upper visual stream, responds to stimuli as objects or spatial location. The hippocampus, right inferior temporal lobe and frontal cortex respond to representational colour stimuli and abstract colour stimuli (Lusebrink, 2010; Lusebrink & Alto, 2004).

Emotion processing in artmaking primarily takes place in the amygdala, which directly connects to the prefrontal cortex, within the limbic system, and indirectly connects to the right orbitofrontal cortex through the thalamus (Lusebrink, 2010). The thalamus is located within the posterior of the brain that "inputs all sensory information, the hippocampus is involved in forming long-term memories, the anterior part of the cingulate cortex moderates emotional self-control and focused problem solving; and the posterior cingulate cortex responds to emotional words" (Lusebrink, 2010, p. 169). The left amygdala processes conscious emotional information and the right amygdala processes nonconscious information. The right frontal cortex region is involved with emotional procession of reflective awareness, depression, and withdrawal whereas the left frontal region is responsible for alert reactions and processing (Lusebrink & Alto, 2004). The integration, interpretation, and regulation of complex emotions are stored within the orbitofrontal cortex, and are associated with the right hemisphere functions (Lusebrink, 2010).

Chapter 3: Methodology

Research Question

How can the ETC be used to understand the influence of art-making on ANS responses present in moments of stress?

Heuristic Inquiry

Heuristic is a type of phenomenological qualitative inquiry that focuses on the human experience that is deeply rooted in the tacit knowledge that guides the subjective and creative connection between research and phenomena (Djuraskovic & Arthur, 2010; Moustakas, 1990). A distinct element of this process is the use of self-awareness to deeply engage with new, in-depth meaning surrounding the phenomena being explored (Kapitan, 2010; Moustakas, 1990). The focus is on the internal frame, in which the researcher is navigating their perceptions, beliefs, judgements, and sense of being through their phenomenological investigation (Kapitan, 2010). Heuristic inquiry is considered to be a learning path due to its self-directed, self-motivated nature; it is open to spontaneity in the process and does not have a formal hypothesis, but explores the phenomena in question (Frick, 1990; Djuraskovic & Arthur, 2010; Moustakas, 1990). In heuristic methodology, the researcher is able to maintain the validity of this qualitative research project by maintaining clarity of their procedure, careful consideration of topic choice, and by creating a detailed, sound design (Kapitan, 2010).

This method is appropriate for answering this question since I will be exploring the lived experience of the parasympathetic and sympathetic autonomic nervous system within the artmaking process. It will directly examine various physical sensations and the correlation to anxious feelings surrounding daily living. It follows a process of translating conscious and subconscious content through the intention/witness writing process to gather insight within the creation of imagery (Allen, 1995). Inevitably, it allows the researcher to use the art making process to explore the dialogue of the body, mind, and social/cultural influences within their environment. In exploring this phenomenon using heuristic methodology, researchers are able to gather the personable reality of working through ANS responses in artmaking and writing together to see how it can be applied in coping with everyday stresses.

The heuristic inquiry utilized Moustakas' six-step process of Heuristic discovery: initial engagement, immersion, incubation, illumination, explication, and creative synthesis (Kapitan, 2010; Moustakas, 1990). Firstly, the initial engagement phase is the intense interest or passion

that lures the researchers, which may have social and personal meaning or compelling implications that can ignite the inquiry (Djuraskovic & Arthur, 2010; Kapitan, 2010; Moustakas, 1990). This inspires the research question or focal concern derived from the researcher's self-dialogue through which they reach inward to unveil subliminal or tacit awareness (Kapitan, 2010; Moustakas, 1990). Secondly, in the immersion phase, the researcher becomes one with the topic and question. This is the process of "living the question" (Kapitan, 2010, p. 146), where everything in life seems to revolve around the question on an intimate level for the researcher. Thirdly, the incubation stage, is a point when the question is set aside; the researcher feels the need to retreat from focusing on the question so intensely. This allows space for everyday living to inform the exploration, which can be deeper than conscious awareness (Kapitan, 2010; Moustakas, 1990). The illumination phase is the sudden connection, the "aha" moment (Kapitan, 2010, p.146), when the researcher is at a relaxed state to receive the emerging conscious answer. This dimension allows information to unfold freely through tacit knowledge and level of reflection to develop a new awareness, to alter present understanding, and engage with a new discovery of the experience that was not previously apparent to the researcher (Djuraskovic, & Arthur, 2010; Kapitan, 2010; Moustakas, 1990). The explication phase deepens their exploration of central themes, qualities, and components of the question by critically examining their found meaning. The researcher gains new views, alternative explanations, and patterns to complete the overall final result of the phenomena (Djuraskovic, & Arthur, 2010; Kapitan, 2010; Moustakas, 1990). The final stage of creative synthesis, of compiling all elements of the experience into a whole, conceptualizes the journey, which is externalized and expressed through a holistic understanding to share with others (Djuraskovic, & Arthur, 2010; Moustakas, 1990).

In the initial engagement phase, I was interested in understanding how to process and regulate sympathetic nervous responses within the artmaking process. I wanted to know how art therapists can guide clients in balancing parasympathetic and sympathetic nervous response by using art materials to safely guide individuals through present and past perceived stress. This ignited my desire to work with my personal experiences to see how it feels to mindfully use art to explore layers within their present stressful feelings and if there are changes in how I cope within these experiences over time. In the immersion phase, I explored working in an artist book, allowing flexibility in creation format, and have a written reflection book that I will carry with

me throughout my everyday life. I processed my visceral sympathetic nervous system responses by creating artwork and writing my reflections to access layers of this experience. Naturally, the moments in my life experiences directed my learning. In the incubation stage, I did not consistently bring my artist and reflection books with me, which will give me space to question the value of the project without being actively engaged in the persistent process. I explored other methods of coping with these feelings, retreated back into the book or created other types of artwork. The incubation did lead into an illumination phase where I was able to put pieces together that I had not previously connected. Though, due to the limitations of completing this research within a degree program, I needed to intentionally move into a process of connecting the dots rather than waiting an unspecified amount of time for an "aha" moment. In the explication phase, I critically examined themes, qualities, and components of my discovered response to the research. This shifted my perception, explanation, and organization of the explored ANS response sensations in art. In the final stage of creative synthesis, I conceptualized the entire experience to bridge the connection of artmaking in therapy and ANS responses within a final paper while presenting final artwork to Creative Arts Therapists.

Arts-Based Research

The visual arts genre of arts-based research relies on visual images that have the capacity to provoke, evoke, and express nonverbal or preverbal knowledge. Artmaking has a resistive and transformative capability, in which visual artwork presents an opportunity for individuals to understand topics from a new perspective (Leavy, 2010). An arts-based inquiry builds on "thinking, problem solving and investigation of direct perception evidence that, as in all research, lays the groundwork for concept formation" (Kapitan, 2010, p. 162). Key features of an arts-based inquiry includes (a) reflexivity (ability to use medium in expressing self, yet able to globally view the artwork to gain a new perspective), (b) all at one-ness (artwork's capacity to hold the practitioner's knowledge and express it holistically to the public), (c) sensory, emotional and intellectual attention (information gained in the process), (d) holistic communication, (e) canonical generalization (why and how a study of one person's life can affect many others), (f) new ways of seeing something, and (g) advocacy and activism (present impact or awareness to others) (Kapitan, 2010). This arts-based inquiry focuses on the art form and its importance to the research question and the creative process in order to fully gain meaning (Kapitan, 2010).

Data analysis involves transformation (insight gained throughout the creation process), construction (integrating theory and practice for new awareness), conceptualization (knowledge from artmaking connected to personal, cognitive, and cultural systems), and contextualization (developing connections through personal, social, and cultural perspectives) (Kapitan, 2010). Therefore, the arts-based research element will reflect ANS responses of the creator's experience, which will explore the importance of artmaking to process physical sensations and thought processes within stressful life experiences. The final imagery, as data, allows the formulation of connections between the therapeutic value of artmaking and its ability to assist various individuals working through stressful moments.

Data Collection Process

Pat Allen's Intention/Witness Writing

The intention/witness writing process is a means by which the artist writes an intention statement based on inner issues or questions to guide the process of gaining inner knowledge within the artmaking process. This was completed in twenty-six sessions within a three-month period. The hour-long creative process began with writing the intention statement, then going into a meditative state and after, going into the artmaking process (Allen, 1995). After completing this portion, I observed my artwork and wrote down key information. The written information was to first describe the physical, aesthetic qualities of the object, then the creation processing steps, thoughts and feelings in the present moment, and allow information to be derived from inner knowledge when viewing the final image. Lastly, I reread the original intention statement and built connections to further gain insight of subject exploration (Allen, 1995). The intention/witness writing process brings credibility to the immersion, illumination, and explication phases of the heuristic research format. This is due to having a distinct record of personal connections to the artwork, in which I systematically wrote my immediate observations of the image such as intention statement, formal elements, creation process, present feelings, and response from the completed image (Allen, 1995). In the immersion phase, it allowed me to fully understand layers of personal reactions projected within the image. This was explored within the span of three months and created when feeling ANS responses in stressful moments. This provided direct data when broaching new reflections brought from the process within the illumination phase. In the explication phase, I analyzed statements surrounding my physical, emotional, and mental perception, in which I found patterns surrounding positive and negative

thoughts, present- and future-oriented thoughts, visceral feelings, and connections to symbolic imagery. I summarized the written and visual artwork by analyzing my progressive ability to mindfully deconstruct thoughts and feelings in response to the images created in moments of perceived stress.

I measured my ability to use the creative process of making art and intention/witness writing processes to release, observe, and reflect on reactions to cope with stressful moments. The structure of the artmaking process provides reliability to this project through the use of consistent steps in processing information throughout the creation process. This section will provide written data in relation to creation elements, using the Expressive Therapies Continuum assessment, to provide layers of conscious and arising subconscious information within the lived artmaking experience.

Expressive Therapies Continuum

The Expressive Therapies Continuum (ETC) is composed of four levels of increasingly complex information processing, in which the first three levels are based on the bipolar levels components that indicate process with an increase of one side and decrease of the other side (Hinz, 2009; Hinz, Nan, Riccardi & Gotshall, 2017) (see Figure 1). The kinesthetic/sensory level is concerned with movement and sensation within the creation process. The next level, the perceptual/affective level, is where the affective focuses on the expression of emotion and the perceptual element focuses on containment within the artmaking experience (Hinz, 2009; Hinz et al., 2017). In the cognitive/symbolic level, the cognitive level engages in the interplay within language-oriented, linear, and analytic thought whereas the symbolic component integrates holistic, intuitive, and spiritual processing within artmaking. The final, creative level, is the integration of all components, in which the individual may experience great satisfaction and moments of joy (Hinz, 2009; Hinz et al., 2017).

The ETC assessment is based on two rating scales: ETC Reflection and Art Therapist Self-Rating Scale and the Preference and Aversion for the Artistic Practice Scale, which are conducted within each session. The ETC Reflection and Art Therapist Self-Rating Scale lists all components including kinesthetic, sensory, perceptual, affective, cognitive and symbolic. These components are defined on ETC Reflection and Art Therapist Self-Rating Scale from 1 - 5, from least to most integrated components within the artmaking session (see Figure 2). The Preference and Aversion for the Artistic Practice Scale rates the art therapist's connection to the properties

of the art media, media preference, artistic process and satisfaction with final art product (see Figure 3). This assessment form includes areas to comment on the individual's art making process including: preferred medium, manner of interaction with medium, stylistic or expressive elements of final art product, verbal comments, and behavioural observations (Hinz & Riccardi, 2016). The ETC assessment allows the clinician to observe the client's art making process, this allows the clinician to notice their preferences and aversions of materials, and assist in evaluating their creative patterns through the progression of art therapy sessions. Therefore, the ETC scales provide a distinct measuring tool with a multi-layered understanding of the creation process. The research project's reliability and validity are increased through the use of this credible assessment tool within art therapy practices. This provides details on the materials' influences on information processing and analyzing the experience of final products.

Assumptions, Biases, Ethical Considerations, and Conclusions of Research

My assumption is that the creation process will allow a safe avenue for me to express anxious feelings. Additionally, the intention/witness writing will provide an outlet for recognizing and deconstructing thought processes related to sympathetic nervous system responses. I believe this will provide me with clarity as to how the cognitive, psychological, behavioural, and physical aspects of myself influence each other when undergoing sympathetic nervous responses. My bias is that that I am art therapist coming to this research with the expectation and belief that Pat Allen's Intention/Witness writing process can provide me with meaningful data. I have a preference for using fine-tip pens and Japanese paper within my artmaking process. This results in the prominent perceptual and symbolic ETC processing components in the artmaking process. An important ethical consideration is the well-being of myself, the researcher; I will have the support of my supervisor so that I can distance myself from the project if overwhelmed with vulnerable feelings during the process. Additionally, I respectfully will write about stressful experiences to build on a dialogue that connects with various individuals and their relation to this research. The conclusions drawn from my research will be based on how the artmaking process —such as material choice and use, and reflection of final products —assists in coping with autonomic nervous system responses, which will lead to greater quality of life.

Chapter 4: Findings

This heuristic, arts-based research study explored: How can the ETC be used to understand the influence of art-making on ANS responses present in moments of stress? In the course of three months I developed 26 artworks: 23 drawings (ranging from the use of pencil crayon, conté and willow charcoal, soft pastel, pencil, pen and ink, and exactoknife cut outs on 8.5 x 5.5 sized pages in a chosen sketchbook), and 3 Japanese paper sculptures (using wheat paste gluestick and scissors). This study focused on creating artwork during moments of stress during triggered autonomic nervous system responses.

ETC Assessment

In the beginning of the heuristic study, I was experimenting with more resistive materials such as pencil crayon, charcoal, conté, and soft pastel. This allowed me to explore the various sensory uses of materials and to gain an affective response within the creation process. I was able to use the materials to release emotional affect corresponding to visceral reactions within perceived stressful moments. I gravitated consistently toward developing a quick sketch outline of an image, drawing in pen and ink details, and using an exacto knife to cut out areas. The focus of the perceptual artmaking process is the use of lines, space, and shape of my symbolic imagery assisted in my understanding of the connections between emotional, physiological, behavioural, and cognitive aspects of myself. I preferred to develop symbolic imagery since I was able to gain insight of past experiences and emotional response patterns through the imagery. When creating paper sculptures, I focused on perceptual elements such as symmetrical shapes, lines, and space. These creations were symbolic formations, two moths and one ballerina dress, which personally represent transformation from past experiences and moving toward the present self (see Figures 21, 24, & 27). In conclusion, I learned that my preference focused primarily on the perceptual and symbolic spectrums of the ETC and allowed time and space to gain awareness of self and connection to ANS responses during moments of perceived stress.

Cognitive

The majority of my artmaking process included the use of resistive materials where I naturally gravitated to creating within the perceptual and symbolic components of the ETC model. I was able to slow down and recognize my thought processes surrounding present stressful moments through the development of shape and form of the art imagery. The prominent depiction of symbolic imagery embodied memories, personal needs, defensive patterns, and

developing connections to personal relationships within the creation and exploration of the final imagery. This unveiled conscious and unconscious personal information that I could further expand on through the intention/witness writing process. The intention/witness statements were written as synthesized thoughts related to stress feelings experienced within the present moment. The majority of statements relate to how I perceive myself in balancing roles, splitting within myself, grief, unconditional love, trust, childhood, and future expectations. In the personal responses gained from dialoging with the image writing portion, I found I was able to develop strength-based statements that acknowledged personal transformation and vulnerability within current experience. I noticed that the majority of my intention/witness statements were influenced by past events and built on uncertainty for my future, and how negative thoughts made it harder for me to accept visceral bodily reactions. I noticed a shift within myself when I observed how I was writing in response to the imagery and its impact on my ability to safely alleviate feelings of stress. I could recognize and accept negative thoughts, yet allow positive and global perception of situations to guide my ability to resolve stress feelings.

Emotional

In the beginning of the creative sessions, it was common for me to elicit feelings of helplessness, which presented as sadness, frustration, and emotional numbing. Commonly, I would feel a lack of control within the perceived stress, which would result in one or a combination of those emotional responses. The affective component was engaged and released through the development of this imagery. I felt the most emotional when drawing a quick, pen drawn outline of the artwork and would begin to ground myself through the pen and ink drawing or folding within the paper sculptures. In relation to the symbolic element, the creation of subject matter that included linking character imagery and personal narratives gave me a third space to project unconscious and conscious inner subject matter. The development of symbolic imagery assisted in navigating, sitting with, and releasing difficult emotions through fictional characters and their relation to my life experiences. I would allow myself to fully embrace these feelings and gain further insight through the writing process. I found that the longer time I spent on the details within the pen and ink drawings, the more I was able to process multilayered feelings, from sadness and frustration, and build connections to my thought processes. The three paper sculpture artworks—*Ephemeral, Moth veins, and My ballerina dress* (see Figures 21, 24, & 27) — were developed through symmetrical measurement and in repetitive shapes, and glued into

layers of Japanese paper. This creation process allowed me to gradually process complex feelings and ease into a relaxed state. I could recognize emotional reaction patterns and their connection to physical sensations, negative thought patterns and past memories.

Behavioural

The creation and intention/witness writing process altered how I reacted to certain stressful situations. Prior to the heuristic study, I would automatically look for answers and ruminate over the details of current issues. By engaging with the art development process, I found that I was able to take a step back to understand what was happening within myself before reacting to perceived stress. When my body began to feel visceral reactions, I would observe my breath, sit still, and then observe my thoughts and emotions. This built a longer window of tolerance in working through stress responses while creating art. I find my connection to resistive materials, such as pencil and pen within a sketchbook, has enabled me to explore ANS responses at any given moment. The engagement of perceptual and symbolic elements assisted in lowering my ANS responses and comfortably guided me through emotional layers within a visual narrative-based journey.

Physiological

In the beginning of the heuristic study, I would have ANS responses such as strong chest pains, difficulty concentrating, and digestive issues when engaging with perceived stress. In the kinesthetic component, I found that I would quickly draw imagery and focus on the use of the material. I found that this would allow some release of physical tension. I switched to developing with pen and ink imagery and Japanese paper sculpture since I was able to use the quick drawing to develop the outline of the artwork while releasing pent-up visceral affects and then gradually form the end product to understand the impact on my self-concept. This helped me to lower the visceral reactions by fully immersing myself within a consistent creative plan.

My consistent approach to the artmaking and intention/witness process built on my inner ability to be mindful of my cognitive, emotional, behavioural, and physiological impacts when responding to perceived stress.

Chapter 5: Discussion

Connections to Myself and Trauma Responses

Through the progression of creating artwork and writing personal reflections in the intention/witness writing process, I was able to link certain thought patterns, feelings, memories,

and perceptions that were feeding into visceral responses during moments of perceived stress. I became most connected to the perceptual process of creating and depicting symbolic imagery (see Figures 10, 11, 12, 13, 14, 15, 16,17, 18, 19, 20, 22, 23, 25, 26, 28, & 29). The symbolic function is able to integrate somatic, emotional, and reflective thinking processes through the memory process. It can hold the complexity of one's experience in its form, evoking possible unconscious and conscious material, and continuously evolves through the creative process and ongoing artwork (Huss, Nuttman-Shwartze, & Altman, 2012; Spermon, Gibney, & Darlington, 2009). This was relevant in my development of fine details and reflection within the symbolic imagery since it felt that it could safely contain complex emotions and it enabled me to learn to observe and process cognitive patterns related to presenting obstacles. I was able to link current stress feelings to past events and to the fear of unfavorable future outcomes. By the end of the artmaking process, I was able to observe and accept these thoughts within my created symbols and thereby to live in the present moment.

I was able to acknowledge impacts of past memories and present grief by processing through a perceived split of self and dissociative moments in the artmaking process. Huss et al. (2012) state that processing emergent symbols can facilitate the expression of traumatic experience achieved through gradual reconnections with dissociative thoughts and emotions and subsequently blending the feeling of the splitting self into the reconstruction of biographical information (Eisenbach, Snir, & Regrev, 2015; Huss et al. 2012; Miller, 2007). I used the intention/witness writing to discover the reasoning behind desired and rejected elements of myself and how to stay with difficult feelings to gain further insight within the images.

Art Therapy Relational Neuroscience Approach (ATRN)

The symbol component became the primary outlet to safely explore memories, emotions, and the attachment style influencing my present moments of stress. The engagement of the affective and perceptual component was safely processed through the containing symbolic imagery. In relation, the art therapy relational neuroscience approach (ATRN) states that the use of verbal and visual artmaking has positive effects in accessing autobiographical and semantic memory within traumatic experiences (Hass- Cohen, 2016; Spermon et al., 2009). Traumatic memories can be activated through memory recall, accomplished by nerve synapses in the lateral amygdala and hippocampus, these being areas where fear and memories are stored in the brain. The activation of traumatic memories, through the reconsolidation memory process, could cause

stress-associated neuro-chemicals that enhance or impair memory (Hass- Cohen, 2016; Spermon et al., 2009). Trauma memories can be safely retrieved through creative embodiment, relational resonation, expressive communication, adaptive responding, transformation integration, and emphasizing compassion in imagery within art therapy (Hass-Cohen, 2016). My continuous use of symbolic imagery assisted in gradually integrating layers of social and experiential influences on my present stress response. The affective/perceptual level was engaged when depicting personal fears presented within the imagery. Therefore, symbolic function can allow individuals to develop a stronger awareness of the origin of their ANS responses.

Mindfulness Art Therapy

In my heuristic study, I was able to build a greater stress tolerance when recognizing my thought patterns in the development of symbolic imagery. I began to notice similar themes in intention statements, connection to either past or present thought orientation, negative emotions, and somatic experiences within the artmaking process. I felt a growth in my mind-body connection within the artmaking process — connecting to the use of mindfulness-based practices in art therapy. The integration of mindfulness-based practices in art therapy can assist in observing thoughts (including past, present, and future orientation), expand on personal responses, tolerate stress (Including increased flexibility and the ability to return to a balanced state), and build compassion for self and others when processing trauma (Kalmanowitz & Ho, 2016). In relation to art therapy, individuals can use the cathartic act of art making to discharge strong emotions and then observe and learn from the awareness that emerges during the expression of the event (Kalmanowitz & Ho, 2016). The symbols created in art, when analyzed, contain layers of meaning and can mirror feelings that lead to an overall connection to the self (Kalmanowitz & Ho, 2016). The development of symbols was based on the perceptual element since I could link formal qualities of the image with personal meaning (see Figures 15,12, 17, 21, 27). I engaged in the affective component when creating symbolic imagery that related to past and present attachment figures (see Figures 7, 8, 9, 14, & 28). Throughout the heuristic study, I recognized the emotive and thought processes correlating with my somatic experience when developing artwork (see Figures 16, 19, 24, 26, & 29). I gained a deeper sense of compassion and acceptance, which lowered the consistency of ANS responses and enhanced my ability to cope with these sensations.

Limitations

The heuristic arts-based study findings may be applicable for individuals who prefer to develop and explore symbolic imagery to work through ANS responses. I have a preference in art material, creation, development, and reflection process, which I feel assists in releasing and processing autonomic stress responses. This process may be worked through differently depending on the client's preferences and aversions within the artmaking process, the use of material, and the ability to build on introspective elements when reflecting on the final product. Although this study focuses on safely unraveling personal information within the development and reflection of symbols, it could have been altered with the support of a client-therapist relationship to acknowledge and work through defensive patterns during perceived stressful moments while using art media. This study is based on my use of art materials to explore ANS responses, which would need to be replicated in case studies or group designs to build on a strong generalization for its application in art therapy sessions. I used Pat Allen's intention/witness writing process to structure each session, yet clients may experience different approaches to safely navigating ANS responses in art therapy sessions. Additionally, clients may have a non-linear growth in processing ANS response and navigating trauma. This may require more guidance in acknowledging their somatic experience and tactics of working through stressful moments within and outside of the art therapy sessions.

Chapter 6: Recommendations

The ETC assessment and interventions can be customized based on the client's choice of media, art directive, goals in treatment of alleviating ANS responses and exploring potential trauma experiences (Lusebrink & Hinz, 2016). The ETC models permits information processing on both sides (see Figure 1): The right-side permits exposure to activated ANS responses through the affective and symbolic whereas the left-side provides containment and restructuring of negative thoughts through the perceptual and cognitive functions (Lusebrink & Hinz, 2016). The client may have ANS responses related to past trauma. The integration both left- and right-sides of the ETC model permits client space to be exposed to "trauma triggers and affective response and balance with withdrawal and containment" (Lusebrink & Hinz, 2016, p. 57). Therefore, the use of both sides of the ETC model can differently assist in accessing, activating, and gaining comfort in expressing themselves through art materials and within the therapeutic alliance (Lusebrink & Hinz, 2016). The importance of therapy is that it enables the client to become

mindful of the sensations within their mind and body, which they then deconstruct and work through to find the meaning behind moments of physiological arousal. In this model, the client works through safely unraveling elements of themselves during present and past moments to gain further insight through their artmaking and final product. Inevitably, the client's ability to understand layers of arousal within their body and gain meaning from their experiences can assist in their ability to cope with present stress.

The ETC levels can assist in engaging within the bottom-up and top-down processing of trauma experiences (Lusebrink & Hinz, 2016). The bottom-up information processing generally proceeds through the kinesthetic/sensory level to engage with the sensory–motor responses to form an affective response, and internalize of personal information through the cognitive/symbolic component (Lusebrink & Hinz, 2016). The top-down information processing begins with the cognitive/symbolic level, which is gradually further expanding through the form, affect, and sensory-motor based information within the perceptual/affective and kinesthetic/sensory components (Lusebrink & Hinz, 2016). My engagement in processing ANS responses was primarily top-down processing of information since I found it beneficial to allow the symbolic imagery to safely guide through layers of personal meaning in thoughts, feelings, attachment figures, and sense of self within embedded memory.

The symbolic component can be informed by the art therapy relational neuroscience approach (ATRN). Hass-Cohen (2016) explores trauma and traumatic memories, such as autobiographical memories, based on resiliency-oriented and neurobiological informed trauma treatment. When working with autobiographical memories of complex trauma, it is important to avoid activation by navigating this process through non-threatening forms or information, such as creation and reflection of artwork in art therapy (Hass-Cohen, 2016). Artmaking can build on a sense of mastery, pairing with positive emotions, and reducing vulnerability when exploring these memories (Hass-Cohen, 2016). Therefore, the client could be guided through different art material, creation, and reflection when in sympathetic activation with the accompaniment of an art therapist. The client can strengthen the sympathetic and parasympathetic systems, learn thought patterns, exert energy through material use, and form and reflect on images to gradually build on self-identity beyond trauma memories and their link to present sympathetic arousals during stressful periods. The development of personal symbols can assist in a client's reflections within perceived stress; they can then continue to record drawings in an art journal to see how

personal symbols evolve in meaning over time. The creation and written reflection process may be a third space for individuals to safely unveil components of themselves. Therefore, this can strengthen one's connection to their sense of self, learn to embrace and honour feelings, recognize memories connecting to this experience, and become a self-care tool in their daily life.

Choice in material can assist with processing or containing the ANS responses related to trauma (Lusebrink & Hinz, 2016). Fluid media, such as watercolour paint, can evoke emotional expression and sensory media, such as clay, can guide the client to the affective components of their trauma memories (Lusebrink & Hinz, 2016). Both fluid and sensory materials can develop abstract or concrete forms that can be interpreted as personal, symbolic imagery (Lusebrink & Hinz, 2016). Resistive materials, such as pencil crayon, require more effort in manipulating, engaging in the kinesthetic level, and the process of defining and differentiating forms engages in the perceptual component (Lusebrink & Hinz, 2016). Media, such as collage or sculpture, require multiple steps in developing structure that will elicit a cognitive component connection (Lusebrink & Hinz, 2016). I chose the use of resistive drawing materials and development of sculptural formation, through which I could experience affective/perceptual level of meaning throughout and in completion the final product. This assisted in gradually engaging and identifying with thought patterns that effect my emotional and somatic reactions to external influences. The completion of this task allowed me to acknowledge my needs, regain self-confidence, and understand triggers of ANS responses. I believe that the client will gain personal growth from the artmaking experience when allowing themselves space to have affective responses and feeling contained their experience. I recommend further art therapy studies on the use of bottom-up information processing through the engagement of sensory and fluid material.

Chapter 7: Conclusion

Shore (2013) states that early trauma can contribute to the disruption of an individual's right hemispheric development, which is the section of the brain that is able to regulate emotion, process pain, and maintain attention span. Trauma is associated with memory deficit, and art making can assist in safely reconnecting with implicit memories related to personal trauma through the sensory-motor aspects development of imagery (Lusebrink & Hinz, 2016). Art therapists can assist clients in approaching cognitive integrating of their experiences through their art creation and reflection of their trauma narrative (Lusebrink & Hinz, 2016). The integration of artmaking can assist individuals in building a window of tolerance against

perceived stress that activates the autonomic nervous system and assists in exploring the contributing influences of one's past trauma experience.

This arts-based heuristic study explored primarily the use of the perceptual and symbolic components within the Expressive Therapies Continuum (ETC). According to the ETC model, the interaction of materials within the creation process and final art product can mirror response, processing, integration, and expression of thoughts, emotions, and behaviour in other aspects in one's life (Hinz, 2009). The left and right sides of the ETC model represent different functioning systems of information processing that allow individuals to access and activate their ability to work through trauma (Lusebrink & Hinz, 2016). The ETC levels that were prominently engaged within this study were the symbolic component, the development and exploration of images, and the perceptual component, which focuses on the development of line, form, and shape when drawing with fine tip pens. The drawing process can effectively contain the gradual release of negative affect and raise awareness of positive affect (Northcott & Frein, 2017). EEG studies show the presence of alpha waves when clients are drawing images within art therapy; this indicates that art therapy promotes relaxation and self-regulation in working through perceived stress (Belkofer, Van Hecke, & Konopka, 2014). The symbolic component, alongside the affective component, permits information processing related to accessing trauma experience or memories whereas the perceptual component, alongside the cognitive component, provides containment and shift in personal insight within the development of the art composition (Lusebrink & Hinz, 2016). The symbolic/cognitive level of the ETC can assist in activating top-down information processing, yet is followed by the perceptual/affective and kinesthetic/sensory levels (Lusebrink & Hinz, 2016).

I primarily engaged in the perceptual component to contain thoughts and feelings within my experience of the visceral autonomic nervous system responses. I found the focus of developing symbolic imagery assisted in safely holding and unveiling memory and experiences when reflecting on the final product. The overall creation and writing process encouraged a greater exploration of my thought patterns, emotions, and visceral sensations during moments of perceived stress. In the course of art making and viewing this experience through the lens of the ETC, I gained a greater connection to how body and mind activate in moments of perceived stress; I consequently felt a shift in my window of tolerance and the lowering of visceral ANS responses. This arts-based heuristic study outlined the need to observe the cognitive, emotional,

and behavioural elements of oneself during the artmaking process to gradually reconnect to one's core self.

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Appendix

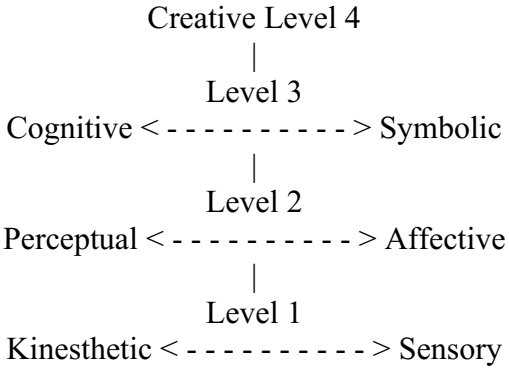

Figure 2. Expressive Therapies Continuum (ETC)

Hinz, L. D. (2009). *Expressive Therapies Continuum: A framework for using art in therapy*. New York, NY: Routledge.

ETC Reflection and Art Therapist Self-Rating Scale

Kinesthetic (Movement/Release of Energy)

1	2	3	4	5
Limited Movement/No Release of Energy				Movement fully Describes Experience

Sensory (Involvement with Sensation)

1	2	3	4	5
Limited Sensation Involvement				Sensation fully Describes Experience

Perceptual (Involvement with Formal Elements of Artistic Expression)

1	2	3	4	5
Form is not prevalent				Form, Line, Pattern Describes Experience

Affective (Assessed and/or Expressed Emotion)

1	2	3	4	5
Emotion is not prevalent				Emotional Experience Describes Experience

Cognitive (Effortful Thought was involved)

1	2	3	4	5
Conscious Thought was not prevalent				Deliberate analysis Describes Experience

Symbolic (Symbolic Content was important)

1	2	3	4	5
Creative Distance Describes Experience				Full immersion in creation Describes Experience

Figure 2. ETC Reflection and Art Therapist Self-Rating Scale

Hinz, L. D., Nan, J. K.M., Riccardi, M., & Gotshall, K. (2017) *Artistic traditions and neuroscience traditions: The expressive therapies continuum articulates the art of science of expressive therapies* [Class handout]. Krakow, Poland: 14th European Arts Therapies Conference.

Preference and Aversion for the Artistic Practice Scale

Kinesthetic (Movement/Release of Energy)

1	2	3	4	5
Aversion to Process (I want to stop)				Preference for the Process (I could do it for hours)

Sensory (Involvement with Sensation)

1	2	3	4	5
Aversion to Process (I want to stop)				Preference for the Process (I could do it for hours)

Perceptual (Involvement with Formal Elements of Artistic Expression)

1	2	3	4	5
Aversion to Process (I want to stop)				Preference for the Process (I could do it for hours)

Affective (Assessed and/or Expressed Emotion)

1	2	3	4	5
Aversion to Process (I want to stop)				Preference for the Process (I could do it for hours)

Cognitive (Effortful Thought was involved)

1	2	3	4	5
Aversion to Process (I want to stop)				Preference for the Process (I could do it for hours)

Symbolic (Symbolic Content was important)

1	2	3	4	5
Aversion to Process (I want to stop)				Preference for the Process (I could do it for hours)

Figure 3. ETC Reflection and Art Therapist Self-Rating Scale

Hinz, L. D., Nan, J. K.M., Riccardi, M., & Gotshall, K. (2017) *Artistic traditions and neuroscience traditions: The expressive therapies continuum articulates the art of science of expressive therapies* [Class handout]. Krakow, Poland: 14th European Arts Therapies Conference.

Figure 4. Three ravens, heart, and nature. 8.5” x 5.5”. Pencil crayon on paper

Figure 5. Two ravens, spines, and nature. 8.5” x 5.5”. Pencil crayon on paper.

Figure 6. Woman seeing spirits. 8.5” x 5.5”. Willow charcoal on paper.

Figure 7. Weeping ballerina. 8.5” x 5.5”. Soft pastel on paper.

Figure 8. Momma Roza's funeral. 8.5" x 5.5". Pencil crayon on paper.

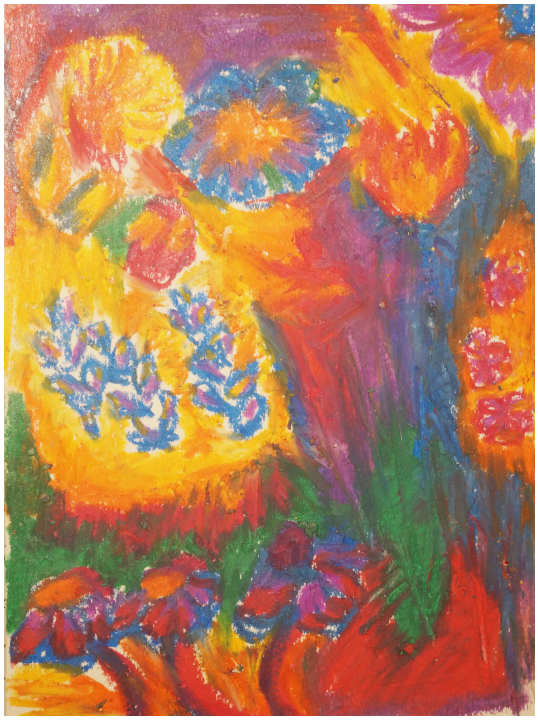

Figure 9. Momma Roza's garden. 8.5" x 5.5". Oil pastel on paper.

Figure 10. Call of the raven. 8.5” x 5.5”. Pen and ink on paper.

Figure 11. Mourning bride. 8.5” x 5.5”. Pen and ink on paper.

Figure 12. Heart. 8.5” x 5.5”. Pen and ink on paper.

Figure 13. Penguins united. 8.5” x 5.5”. Pen and ink on paper.

Figure 14. Zebra mom and baby. 8.5” x 5.5”. Pen and ink on paper.

Figure 15. Spider ballet show. 8.5” x 5.5”. Pen and ink on paper.

Figure 16. Raven's cathedral. 8.5" x 5.5". Pen and ink on paper.

Figure 17. Life, death, and meaning. 8.5" x 5.5". Pen and ink on paper.

Figure 18. Breath. 8.5” x 5.5”. Pen and ink on paper.

Figure 19. Raven’s crystal haven. 8.5” x 5.5”. Pen and ink on paper.

Figure 20. Alert and rest. 8.5” x 5.5”. Pen and ink on paper.

Figure 21. Ephemeral. Various dimensions. Japanese paper.

Figure 22. Crystal. 8.5” x 5.5”. Pen and ink on paper.

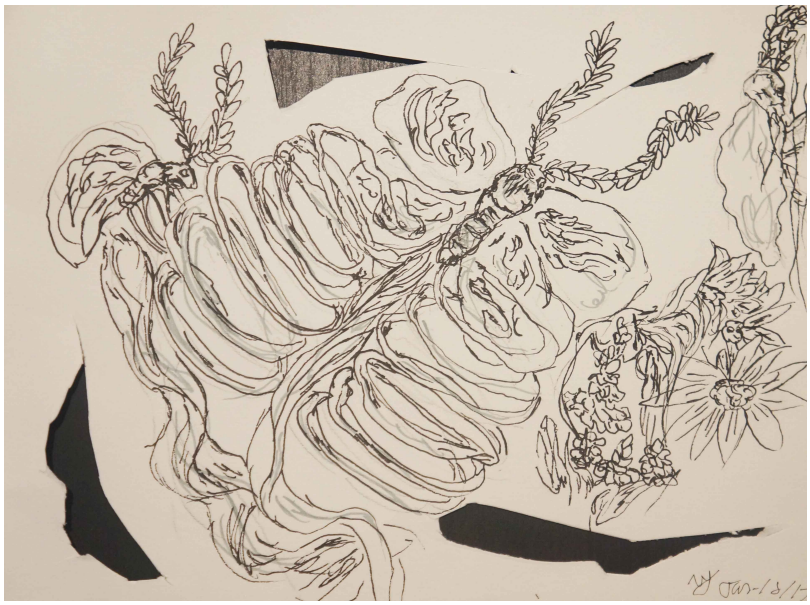

Figure 23. Moth infested lungs. 8.5” x 5.5”. Pen and ink on paper.

Figure 24. Moth veins. Various dimensions. Japanese paper.

Figure 25. Dissociative nightmare. 8.5” x 5.5”. Pen and ink on paper.

Figure 26. Sunflower vibes. 8.5” x 5.5”. Pen and ink on paper.

Figure 27. My ballerina dress. Various dimensions. Japanese paper.

Figure 28. Swan swims through hope. 8.5” x 5.5”. Pen and ink on paper.

Figure 29. Ballerina dreams. 8.5” x 5.5”. Pen and ink on paper.