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Art Therapy and Neuroscience: A Model for Wellness

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Art Therapy and Neuroscience: A Model for Wellness

by

Ceccily J. Bednash

A research project presented to the

Faculty of the Department of Marriage and Family Therapy with Specialized Training in

Clinical Art Therapy

Loyola Marymount University

In partial fulfillment of the Requirements for the Degree of

Master of Arts in Marriage and Family Therapy

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Abstract

This research aimed to illuminate the connections between art therapy and neuroscience by using qualitative research methods. Two art therapists and a psychologist with neuroscience backgrounds were interviewed. Analyzing artwork made by the researcher and results of the interviews allowed for themes to emerge: connection, perspective, desire for understanding and being trapped in time. The researcher's further inquiry into these emergent themes allowed for the idea of the creative spirit to present itself as a basic human need which has existed since the beginning of time. Using this newfound perspective the researcher has embraced the importance of creating an art therapy model that focuses on a holistic approach to life-long wellness which uses creative expression as a means for understanding, connection, and healing.

Disclaimer

I hereby declare that this research paper is my own original work and has not been submitted before to any institution for assessment purposes. This paper does not reflect the views of Loyola Marymount University, nor the Department of Marital and Family Therapy. I have acknowledged all sources used and have cited these in the reference section.

Dedication

I dedicate this research to those who suffer in silence. To the souls who have lost their way. May you reignite your creative spirit and reconnect to the human experience through the power of creation.

Acknowledgements

Thank you to Paige Asawa for being my tour guide on this journey that has led me to discover my true passion in life. I have undying gratitude for your commitment to education, your expertise and unwavering support. Thank you to my friends and family for walking by my side and believing that anything is possible.

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Introduction

The Study Topic

As art therapists we know that something transformative happens when our clients make art in our presence. There is a mind/body connection that is illuminated through the process of making art which allows a space for reflection and exploration. What actually happens to our mind and body in art therapy that elicits awareness and growth? Neurobiology is constantly changing and interpreting information which allows for new connections and pathways to be established. How can art therapy actually change the way our neurochemistry functions? Interpersonal Neurobiology suggests that humans develop within a social world which creates pathways in the brain that develop our way of interacting in the world. Therefore, I used interpersonal neurobiology as a framework to illustrate the interrelationship of making art and sharing it with others as a component to the establishment and maintenance of overall health. By making the connections between art therapy and neuroscience, I hope to illustrate the validity of making art as a method for creating and maintaining life-long wellness.

This study aims to explore the connections between art therapy, interpersonal neurobiology and overall health. In order to illuminate the similarities between the therapeutic art making process and the integration of new neural pathways in the brain, I will explore existing research as well as interview seasoned art therapists and psychologists who have experience with neuroscience and the art making process.

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Significance of the Study

In recent years there has been more emphasis on how neuroscience can inform the field of art therapy. As art therapists we are beginning to place more of an emphasis within the field on how making art changes the brains neurochemistry over a life span. Understanding the connection between art and science has always been somewhat of a mystery. The process of making art has now become a way for scientists to measure brain activity as it pertains to health. Art is now informing science. By making comparisons between art therapy and neuroscience we may have a better understanding of the therapeutic process and how change may occur for the client. By understanding how making art creates changes in the brain we are able to have a better sense of treatment and what may be beneficial to the client. By comparing art therapy, neuroscience and the therapeutic relationship, I hope to begin a conversation of how change occurs. It is important to focus on what is effective treatment in order to create an art therapy model for wellness, as opposed to just a model for treatment. By creating a wellness model we can begin to be proactive instead of reactive within the field of mental health. We would lessen the need for diagnosis and treatment and be able to prevent and heal allowing people to become more resilient to mental health problems.

I believe that by creating a model for wellness rather than treatment we would begin to lessen the stigma that comes with a mental health diagnosis. Through this research I hope to gain a better understanding of how the art making process can heal our brain, mind and relationships throughout our lifespan.

Background of the Study Topic

Carr (2014) suggests “the key issue regarding the use of neuroscience in art therapy research is that it compels us to cross intellectual borders and engage in a scientific language that is foreign to many of us” (p. 66). Therefore, implications exist for art therapy training including practice and research methodology. Kapitan (2014) human beings have always turned to art to regain losses of emotional connection caused by trauma and attachment disruption which supports the premise that art therapy is particularly valuable. Malchiodi (2015) states that science will be essential to understanding how art therapy is a powerful therapeutic modality and how change occurs for the client. Schore (2014) conferred that it is clear that art therapy allows access to affective interpersonal states and opportunities for genuine creative expressions and self-representations.

Hass-Cohen (2015) believes that “we can draw from clinical neuroscience to describe and enhance therapeutic advantages of the arts in action and further illuminate the unique contributions of art therapy to well-being and health” (p, 21). Terry (2008) explains that that traditional wellness means the harmonious connection between mental, emotional, physical, and spiritual well-being. If a shift to well-being is to represent something more than a recycling of traditional ideas about holistic health, empirical evidence is necessary. Creating changes in the brain helps to improve overall health and using interpersonal sensory based art therapy interventions may prove to be the way (Terry, 2008).

Literature Review

Art therapy and neuroscience are two ever changing fields of study that inform each other through the ongoing research within the art therapy field. By understanding how the brains neurochemistry is affected by the art therapy process, I will begin to illuminate how clinical neuroscience can inform art therapy. Next, I will discuss art therapist's perspectives who use a neuroscientific lens to understand how making art effects the neurochemistry of the brain. Interpersonal neurobiology helps us to understand the lifelong affects our relationships have on brain development. This perspective in turn, illustrates the importance of the therapeutic relationship. It is relevant to discuss how our connection to others affects the therapeutic outcome as it relates to the making and sharing of art and ourselves. In order to understand the origins of the therapeutic relationship we must look at attachment theory as a reflection of how all of our relationships develop over our lifespan. Finally, culturally we have embraced the wellness movement as a holistic approach to over-all health. Art therapy may be a framework for the healing power of creativity and self-expression which contribute to overall wellbeing. Lastly, I will discuss how art therapy is a model for life long well-being and is directly related to integration as a means for change and growth.

Clinical Neuroscience and Art Therapy

“Clinical neuroscience is the application of the science of neurobiology to human psychology” (Hass-Cohen, 2015, p.1). Siegel (2006) believes that by the client's and therapist brains vibrating and orchestrating each other, empathic relational resonance occurs as the brains and nervous systems of the client and therapist mirror each other. This illustrates that a human's

nervous system is wired for empathetic connectivity. Siegel (2006) reinforces the idea of promoting integration through therapeutic experiences which moves an individual toward well-being. Deviations from this integrated flow caused by rigidity and/or chaos create symptomatic conditions that may be experienced as inflexible, maladaptive, incoherent, deflated, and unstable (Siegel, 2006). Schore (2014) states a common goal of attempting to improve emotional self-regulatory processes is shared through all models of therapeutic interventions across a span of psychopathologies. Clients may thus improve by facilitating therapy to improve the intrinsic plasticity of the right brain through neurobiologically informed relational infant, child, adolescent, and adult psychotherapy (Schore, 2014). Hass Cohen (2015) believes the key to the developing nervous system and to resiliency is the capacity for attunement as well as the caregiver's warm support of an infant. The deeper therapeutic exploration which facilitates growth of the relational– emotional unconscious creates growth and mind plasticity which can be induced in both the cortical and subcortical systems of the patient's right brain (Hass-Cohen, 2015). Hass-Cohen (2015) further explains:

This increased connectivity in turn generates more complex development of the right-lateralized biological substrate of the human unconscious, including alterations of the patient's nonconscious internal working model that encodes more effective coping strategies of implicit affect regulation and thereby adaptive, flexible switching of self-states in different relational contexts. (p. 86)

Hass-Cohen (2015) also believes that early brain linkages which form the foundation for lifelong interpersonal affect regulation skills are formed by the social and emotional attachment relationship with the caregiver. Siegel (2006) states:

Patterns of energy pass through our neural circuits and are shared in our relationships with one another. Signals received by others are perceived by our nervous system, assessed by our mirror neuron regions and relayed downward from these cortical areas through the insula to the limbic, brainstem, and bodily regions below. (p. 19-7)

Therefore the psychotherapeutic change processes are informed by the right brain which is activated on both sides of the therapeutic alliance (Schore, 2014). The inner world of the patient and therapist are communicated by right brain interactions which are nonverbally communicated and essential nonconscious bodily based affective relational information (Schore, 2014).

Art Therapy and the Neurochemistry of the Brain

Kapitan (2014) believes that art therapy is particularly valuable for rebalancing brain functions that have been compromised by trauma, attachment disruption, and other losses of emotional connection for which human beings have always turned to art to regain. Malchiodi (2015) states that defining how art therapy actually works and why it is a powerful therapeutic modality will be understood through science. Schore (2014) agrees that it is clear that art therapy affords access to affective interpersonal states and opportunities for genuine and creative expressions and self-representations. “Art therapists are skilled at encouraging spontaneous, relational, and creative engagement, which are functions that are closely associated with the right hemisphere of the brain” (p 94). In order to promote the integration of both brain hemispheres art therapists facilitate attention, focus, communication, and logical understanding through the art making process. “Imagery can be generated through sensory, perceptual, emotional and cognitive processing and contributes to the integrated subcortical and cortical functions which allows inner experiences to be consciously expressed as a source of creativity” (Hass-Cohen, 2015, p.21). The

interpersonal self emerges in the space between the nonverbal art making and the verbalization of its meaning (Hass-Cohen, 2015). Through the art making process neurons are activated which can create structural changes through the turning on of genes. This process strengthens neurons in the brain which is known as neuroplasticity (Siegel, 2006). Siegel (2006) also states:

Neural connections set up early in life create the foundation for how the brain will participate in information processing as the child grows. Ongoing stimulation of neural firing continue to mold the interconnected architecture of the individual throughout the lifespan. (p. 8-3)

Hass-Cohen and Loya (20015) believe that art therapy is an action-oriented therapy that involves movement of the hand when using art media. The primary motor cortex, premotor cortex, and prefrontal cortex process this activity. The basal ganglia is also an important brain structure involved in processing movement which is located in the forebrain (Hass-Cohen & Loya, 2008). Two areas that are also connected through the thalamus and the basal ganglia are the motor association cortex and the somatosensory cortex which are a pathways between the processing of movement involved in an art activity (Carlson, 2001). “Art therapy is used to promote bilateral brain integration; right hemisphere stimulation is promoted through sensory art experientials while the left hemisphere is activated through verbal discussion. Balancing verbal and nonverbal processes supports neural integration and stress reduction” (Hass-Cohen, 2015, p 331). Chapman (2014) agrees that art therapy is a bilateral process which taps into the subconscious and uses verbal dialogue to help the client explore what they have expressed in the art. Chapman also states that cognitive performance and perception of cognitive ability in older adults has improved through art making which may be a therapeutic method to help rewire areas of the brain related to executive functions and an important experience related to neuroplasticity.

Art Therapy and Interpersonal Neurobiology

Siegel (2006) defines “Interpersonal neurobiology as a field of study that explores the way in which relationships and the brain interact in order to shape our mental lives” (p. A1-420). Siegel believes that through the integration of the mind, brain and relationships well-being is developed. Hass-Cohen (2016) agrees that “Edith Kramer’s concept of the art therapist as the clients third hand, exemplifies our modern-day interpersonal neurobiology paradigms of attunement and empathy” (p. 3). Malchiodi (2012) believes that internal feelings of mastery and control are concrete representations of mind-body connectivity which are developed through the art making process. Hass-Cohen and Loya (2015) state that “Visual integration is influenced by intrapersonal affects, interpersonal demands and relational support” (p. 92). Therefore flexible, adaptive, coherent, energized and stable states of mind are created by connecting with the others mind which are the therapeutic goals of interpersonal neurobiology (Siegel, 2006). Similarly Hass-Cohen (2015) states that the “art therapy approach highlights a mind-body practice that can help organize, integrate and enhance the complexity of intrapersonal and interpersonal interactions” (p. 38).

Kapitan (2015) believes as we learn more about how artistic expression helps individuals with emotional distress and physical illness, we will know why images and image making are central to enhancing health and well-being. This will be further enhanced as research on neuropsychology and the mind-body paradigms emerge. Siegel (2006) has already discovered that “within interpersonal neurobiology we see well-being emerging from the process of integration in which differentiated elements of a system are linked to enable harmonious and adaptive functioning to unfold” (p. 37).

Art Therapy and Therapeutic Relationship

Lusebrink (2010) states that the “three main criteria that differentiate art therapy from verbal therapies: the use of art media as a means of expression and communication, the multileveled meaning present in visual expressions, and the therapeutic effects of the creative process” (p. 166). Corem, Snir and Regev, (2015) have seen that patients are able to use art materials in a way which raises unconscious content, expresses feelings, and discovers competencies through self-exploration in the presence of the therapist in art therapy. When the patient’s self-exploration takes place through art materials, additional space is given as opposed to psychotherapy that is conducted just using words (Corem, et al, 2015).

A new world is created during the creative process which the patient invents and creates with his two own hands (Corem, et al, 2015). Hass-Cohen (2015) states that “collaborative and coherent art therapy relationships can increase experiences of positive affect and help disengage from negative feelings. The client-art therapist relationship is infused with implicit mentalizing, decision making and actions” (p. 302). Wadeson, (2010) suggests that the therapeutic relationship is one of “commitment, nurturance and support, enabling the client to experiment with new ways of being” (p. 40). Similarly Hass Cohen (2015) concurs that social exchanges in art therapy and how they are interpreted in the brain have the “potential to activate and mend attachment ruptures, stabilize affect regulation, update biographical memories and contribute to earned attachment” (p.67). Hass-Cohen (2015) also contends that making art and then sharing the art in the presence of others is what contributes to therapeutic change. Similarly, Kapitan (2014) conveys that our human experience and our desire to communicate it are the foundation for the practice of art therapy. Art has much to tell us about how the complex beauty of the human brain actually works (Kapitan, 2014).

Attachment

Siegel (2006) states that “the brain is a social organ and our relationships with one another are not a luxury but an essential nutrient for our survival” (p. 211). Marchard (2015) describes the therapeutic relationship as an emotional, psychological, spiritual and physical state of presence with another person that we can feel in our bodies. There is a mind body connection that develops through the therapeutic process. “The mutual psychobiological mechanisms that underlie any clinical encounter are present regardless of whatever the verbal content may be” (Marchard, 2015, p. 225). Lyons-Ruth (2000) expresses that “implicit relational knowledge” within the therapeutic alliance is interpreted at an implicit level of cueing and response that occurs too rapidly for verbal transaction and conscious reflection. Geller and Porges (2014) agree that the therapist and client share a state of relational therapeutic presence by being grounded, connected and allowing for space with the intention of being with and for the client. The creation of a therapeutic and relational presence that allows for a safe correctional experience both in and out of session is imperative in order to promote the social engagement that leads to real and lasting change (Geller & Porges, 2014). The therapeutic relationship may mimic that of an early relational attachment as expressed in Bowlby’s theory of attachment (Mikulincer, Shaver, & Berant, 2013). Bowlby proposed that:

Human infants are born with intrinsic attachment behaviors which include: vigilance, crying, and clinging which were created by evolution to ensure proximity to supportive others in times of need. These psychological and behavioral responses increase the chances of being protected from physical and psychological threats and they encourage

the development of coping skills related to emotion regulation and healthy exploration of the physical and social environment. (Mikulincer et al, p.606)

Bowlby states that any person is better able to cope with the world as long as the attachment behavior attaining or maintaining proximity to a clearly identified individual is established and maintained (Mikulincer et al., 2013). In order to have a secure and positive attachment Mikulincer et al. (2013) believe infants must experience available, sensitive, and responsive attachment figures in times of need. “These experiences promote a steady sense of attachment security which allows the child to safely and effectively explore the environment and engage effectively with other people” (Mikulincer et al., 2013, p. 159).

Carl Rogers (1992) has indicated that this attachment may be replicated in the therapist and client relationship. Rogers idea of unconditional positive regard for the client and an “empathic understanding of the client’s internal frame of reference” (p. 96) are key elements of the therapeutic process. “Attuned therapeutic relationships and communication promotes stable internal and flexible psychobiological states and interpersonal interactions.” Mallinckrodt (2010) states:

The attachment aspects of the psychotherapy relationship are nearly always in a state of dynamic change rather than static equilibrium. Either the client or the counselor – and more often both simultaneously – work actively to change the attachment dynamics. This is especially true of the interpersonal therapies that view the psychotherapy relationship itself as a catalyst for change. (p. 266)

Wellness

Halbert Dunn defines wellness as, “An integrated method of functioning that is oriented towards maximizing the potential of which the individual is capable within the environment in

which he is functioning” (Beatty, 1961). Wilcox (2015) states the integration of the whole person allows the person to flourish as opposed to just healing from one illness. The integration permits a person to define optimal health and wellness for themselves. Halbert Dunn, the founding father of the wellness movement stated that, “the essence of the task ahead might well be to build a rational bridge between the biological nature of man and the spirit of man—the spirit being that intangible something that transcends physiology and psychology” (Dunn, 1959). Miller (2005) summarized that Dunn believed that “high-level wellness” required harmony between mind, body and spirit and the recognition that each impinged on the other. Indeed, Dunn questioned whether any of the three could be dealt with in isolation (Miller, 2005). “If self-integration deteriorates, it impedes the flow of energy and sets up resistance and crosscurrents which interfere with efficient functioning and can ultimately become destructive to body tissues, thus leading to psychosomatic or mental illness and death” (Dunn, 1959, p. 450). Dunn also states that there is no optimum level but that:

Wellness is a direction in progress toward an ever higher potential of functioning within an ever changing environment. The three components include: direction in progress forward and upward towards a higher potential of functioning, an open-ended and ever-expanding tomorrow with its challenge to live at a fuller potential and the integration of the whole being of the total individual including mind, body and spirit. (1959, p. 450)

Psychologists also played a major part in Dunn’s definition of wellness as stated by Miller (1961), “theory of personality emphasized the importance of self-esteem and a realistic sense of self in the development of the mature individual—which provided the basis for emotional security and warm emotional ties with others. For Dunn, in turn, these were basic building blocks of mental wellness—what he referred to as “maturity in wholeness” (1961 pp. 143-150).

Approach

“Qualitative researchers lean toward qualitative work because they are drawn to the fluid, evolving, and dynamic nature of this approach in contrast to the more rigid and structured format of quantitative methods” (Corbin, 2008, p. 4). This qualitative approach is similar to the way the therapeutic process develops which requires, “an intuitive sense of what is going on in the data; trust in the self and the research process; and the ability to remain creative, flexible, and true to the data all at the same time” (Corbin, 2008). A qualitative study approach is suitable in order to develop a clear conceptualization of how clinicians and clients experience the therapeutic relationship through an art therapy and interpersonal neurobiological lens. By directly interviewing clinicians the researcher is able to gather information regarding personal experiences with regards to their therapeutic relationships as an art therapist. Semi-structured interviews are used to collect data in order to conduct a grounded theory analysis. A semi-structured interview allows for openness and fluidity which is essential to qualitative exploration of a topic. According to Kapitan (2010), qualitative studies are conducted for the purpose of “understanding a phenomenon rather than testing it” (p. 212). The interview develops freely which brings forth the topics and thoughts that are relevant to the participants and creates a deeper and more meaningful understanding (Cresswell, 2013). The process is flexible and allows participants to describe personal experiences that have impacted their clinical work. This provides the researcher with authentic responses and thoughts which are transcribed and organized by theme. “Only after considering all possible meanings and examining the context carefully is the researcher ready to put interpretive conceptual labels on the data” (Corbin, 2008).

Methods

Introduction to Methods

This section of the paper provides an overview of the components of the research process beginning with lists of terms specific to this research project. A list of definitions is included in this section which is vital to the reader in understanding the background and significance of this research project. The researcher has also included information regarding the design of this particular study which describes the participant recruitment process as well as the approach to data collection.

Definition of terms

Attachment: lasting psychological connectedness between human beings (Bowlby, 1969, p. 194).

Art Therapy: Art Therapy is a mental health profession in which clients, facilitated by the art therapist, use art media, the creative process, and the resulting artwork to explore their feelings, reconcile emotional conflicts, foster self-awareness, manage behavior and addictions, develop social skills, improve reality orientation, reduce anxiety, and increase self-esteem. AATA <http://www.arttherapy.org/upload/whatisarttherapy.pdf>

High Level Wellness: An integrated method of functioning that is oriented towards maximizing the potential of which the individual is capable within the environment in which he is functioning. (Mosby, 2009)

Interpersonal Neurobiology: A consilient field that embraces all branches of science as it seeks the common universal findings across independent ways of knowing in order to expand our understanding of the mind and well-being (Siegel, 2012, p. A1-42)

Neuroplasticity: the overall process with which brain connections are changed by experience, including the way we pay attention (Siegel, 2012 p. A1-57).

Neural pathways: The functional linkage of neural circuits (Siegel, 2012, p. A1-56).

Mirror neurons: A set of neurons that is distributed in various regions of the brain and that has both motor and perceptual functions (Siegel, 2012, p. A1-52).

Design of the Study

1. Sampling:

Subjects were chosen based on their past or current contributions to the exploration of art therapy and neuroscience and their willingness to participate and availability. Subjects were chosen by myself and Paige Asawa LMFT ATR-BC, PhD the research mentor. Subjects were art therapists and psychologists who are 18 years and older who have a depth of understanding of the therapeutic relationship, art therapy and neuroscience. Subjects were both male and female adults with a knowledge base of neuroscience and art therapy and will be interviewed via telephone, email or in person. Subjects will be informed that the interview process will take 30-45 minutes and that the interview will be semi-structured and conducted by myself. There may be possible follow up via email or telephone after the initial interview.

Gathering of Data:

Subjects were contacted by Ceccily Bednash MFT/ATR trainee or Paige Asawa LMFT ATR-BC, PhD. via phone or email to be asked to participate. Then Ceccily Bednash MFT/ATR trainee provided information regarding the research project, interview process and conduct the semi structured interview.

Semi Structured Interview Process:

1. The PI will administered consent form prior to data collection and provide the subject bill of rights.
2. The PI will meet individually with the interview participants for approximately 30-45 minutes.
3. The interviews were recorded and transcribed.
4. The artwork was photographed.

2. *Analysis of Data*

The researcher will transcribed each interview and then reviewed and edited each transcript for accuracy. The transcribed narratives were organized into overarching themes and categories by using the grounded theory process of open coding. A visual picture was created by connecting categories to each other according to similarities and by organizing how these themes are related. The thematic connections which resulted from this analysis assisted the researcher in constructing a framework for understanding how art therapy and interpersonal neurobiology are related within the context of the therapeutic relationship.

Results

Presentation of Data

Interview #1 “Lisa”

The interview with Lisa was conducted over the telephone Monday morning at 10am. The researcher had previously contacted Lisa via email to set up a date and time that worked best for her and her schedule. The interview began by the researcher asking Lisa about her personal relationship with art throughout her life. Lisa stated that she had started out having an interest in more traditional crafts such as weaving and then became interested in photography. Lisa never made art for a career but became increasingly interested in both psychology and art and began taking formal art classes. Lisa emphasized the importance of the equal influences of art and psychology that drove her to become an art therapist. Lisa described making art as “calming, relaxing and soothing.” She also stated how art can remove you from “place, time and causality” which allows for healing.

The researcher was interested in how art therapists would define mental health as a means to further explore their relationship to overall wellbeing. Lisa stated that love and work are the two essential components to being mentally healthy. “Loving relationships and satisfying work that you feel like you are enjoying or at least contributing in some way are fundamental things to me.” The researcher then asked Lisa what she believed was the connection between making art and overall health. Lisa said that she was someone that believed in the mind/body connection and making art is really beneficial both physically and emotionally.

The researcher asked Lisa about her experience with neuroscience and how it influenced her work as a clinician. Lisa stated that she had been studying neuroscience for over fifteen years and that it had been the basis for her practice as a clinician. Lisa stated that art is an “intersubjective space where you can recreate experiences in real time rather than just talking about them.” In other words Lisa stated that “people have a relationship with a therapist instead of talking about a relationship. I don’t think that happens in many models of treatment.” The researcher then asked Lisa if she thought that practicing art therapy could prevent the onset of mental illness. Lisa was very passionate about expressing that she believed “that creativity is lacking in our culture.” Lisa stated “if you look around at cities and communities and you look at the graffiti everywhere and all the ways that people are trying to express, I think our culture is literally starved for beauty, for grace, for ways to express, for ways to connect up with each other besides violence.” Lisa believes “that we don’t really see the full spectrum of what arts can do for healing” because we think of art as a frill in education and that “it is something more like entertainment than being necessary for a healthy life.”

Lisa went on to describe her model for early intervention and preventative care. In Lisa’s model she stated that she would give every new mother \$50,000 when they have their baby so that they could stay at home and take care of their baby. Lisa stated that as a culture we need to realize that “being a mother is not a side job.” Lisa stated that mental health all boils down to the early years of child development. Lisa states that not getting what you need in the early years of life could lead to autoimmune

disorders and overall health as an adult is traced back to what you received in those first years from your primary care giver.

Lisa's final statement was powerful in that she suggested, "that if we would be way more focused on mother's having support we would have none of the social problems and violence because it boils down to those early years." The researcher ended the interview by thanking Lisa for her time and letting her know how that she would inform her how research evolved and what the findings would be. The researcher then decided to make her own art that would help her to reflect the meaning of the conversation that she had with Lisa. The researcher was intrigued by Lisa's mention of graffiti and began researching graffiti artist on the computer. The researcher decided to try her hand at graffiti creating letters that depicted the words "art saves" on an 8 1/2x 11 piece of white cardstock using permanent markers, paint pens and gel ink pens. The words emerged as a theme from Lisa's interview as a way to represent how art can save us from ourselves and our own negative thoughts and emotions.



Figure 1. Researcher's reflective drawing.

Interview #2 Jackie

The researcher contacted Jackie through email and set up an appointment for a phone interview for Tuesday at 12pm. The researcher called Jackie at the designated time. Jackie asked the researcher about what kind of study she was conducting. The researcher explained that she was conducting qualitative research to explore the connections between art therapy and neuroscience and how a model for wellness could be created. The researcher began the interview by asking how art has played a role in Jackie's life. Jackie explained that she grew up in a very creative family that art production and expression are very close to home. Jackie explained that she found value in creative expression but was never able to articulate why that was. This

curiosity is what lead her to art therapy as a profession. Jackie described a time when a friend of her mother's saw a drawing that she had made hung on the refrigerator. Her mother's friend described her artwork as "very dark" which was contradictory to Jackie's personality. Jackie realized that her artwork was "representing another part of her that went beyond her persona." The researcher asked Jackie if making art was an emotional outlet for her. Jackie explained that her writing has become a visual art for her and that it is very much a cathartic experience. Jackie explained that she now uses art as a way of helping her understand things. She further described her process of switching back and forth from writing to making art as a way to better understand, process information and a way to integrate ideas.

Jackie's description of her creative process lead the researcher to ask her about the connection between making art and overall health. Jackie explained that she has looked at creativity as a tertiary process and how physiology is affected by the creative process. Jackie discussed research which "looks at things called flow and immune response, stress levels and how cortisol levels may fluctuate pre, post and during the art making process." Jackie explained that "we all know art therapy works but that it is difficult to set a value based on our belief system. She stated that art therapists are "chipping away" at empirical evidence but are also being influenced by neuro aesthetics and the aesthetics of beauty."

The researcher then asked Jackie about interpersonal neurobiology and the therapeutic relationship. Jackie stated that we are "just beginning to understand the scientific background to what has otherwise been completely ambiguous as to the dynamics that go into human relationships." Jackie states that all the tenants of art

therapy which include that “the creative process is health and life enhancing, the materials and methods that we use generate different kinds of responses and that the therapeutic relationship is ultimately the most healing part.” From Jackie’s response the interviewer began to wonder if art could inform science.

Jackie responded in an astounding “Yes!” and continued to explain an example about imagination and Alzheimer’s disease. Jackie explained that imagination is one of the last things to go as the disease progresses. “Imagination, imagery, the ability to stay connected through artistic expression, poetry, visual arts, music, dance all hold great potential not just in the treatment of Alzheimer’s disease but perhaps potentially understanding where Alzheimer’s disease comes from.” This response led the researcher to ask Jackie how she thought art therapy may prevent the onset of mental illness.

Jackie replied that this was a hard question to answer. After some thought Jackie stated that through the art making process art therapists have the ability to see more and faster. This expedited process allows for more preemptive insight. Jackie explained that we have more insight into not only the process but the product. Jackie emphasized the importance of having an art therapist as part of a treatment team because art therapists have a creative way of looking at treatment. Finally the researcher asked Jackie how her clinical experience has changes the way she thinks about mental health.

Jackie responded by saying that her perspective has totally changed and that she has developed more empathy over the years. Jackie’s explanation of how trauma informs her understanding of diagnosis has also developed over the years. “Society

has caught up in understanding of how trauma relates to personality shifts, defense mechanisms, physiological changes, and brain function.” Jackie emphasized the importance of understanding what is going on holistically with people and how neuroscience has helped her see through an extra set of glasses. Jackie explained that “brainwaves are the most natural and unbiased expression that we have and therefore that is huge in understanding mental health and illness.” The researcher thanked Jackie for her time and concluded the interview. The researcher then made a piece of art on an 8 1/2x11 piece of white cardstock. Using a dry brush painting method of the researcher painted several brush strokes with magenta acrylic paint. She then began outlining the brush strokes with markers and paint pens illustrating the connection between each stroke. This process helped the researcher to process information and make visual connections between the information she had just heard. Using paint pens she stippled small dots which created waves which connected the images together.

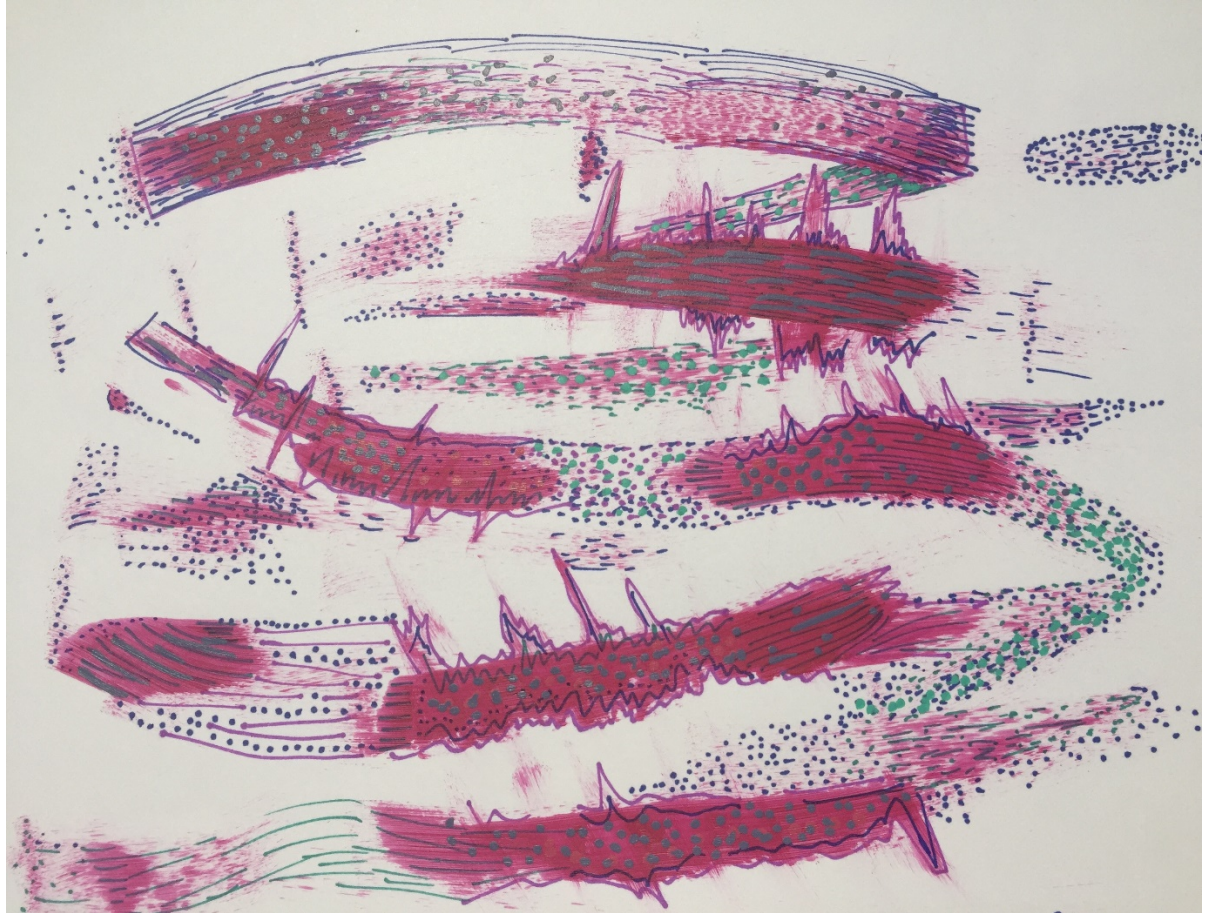


Figure 2. Researcher's reflective drawing.

Interview #3 "George"

The researcher was introduced to George's research via a television program on PBS. George was one of the guests and was discussing his research on the art making and process and emotional reactivity. After watching the program the researcher searched for George's information over the internet and was able to contact him via email. George agreed to do the interview over the phone which was scheduled for a Tuesday at 10am. George contacted the interviewer and explained that his research was developed to help understand how depression and anxiety affect the brain and how

they can stay in the moment. George is interested in finding out how the process of art is able to help people and decided that artists were a logical population to study.

The researcher was interested in how art had been a part of George's life in order to see if George had a personal connection to the art making process. George explained that he had a very positive association because his family would play music together. George stated that, "art and music have always been a way to express myself when words don't cut it." George also stated that art is known for generating emotion and in science we don't always know how to generate emotion therefore through art we are able to learn more about how emotions are generated. George studied the brain activity of artists while they were making art in order to see what emotions were generated. He had previously looked at their brain activity before they were making art as a platform for how their brains reacted to positive and negative thoughts. George concluded that even though one artist was painting about very negative things including war his brain activity showed very positive emotions. George explained that he was curious about why this was and when he asked the artist what happened he explained that he started to like what he was painting and was not thinking about the content but enjoying the process. This lead the researcher to think about the process of making art verses the product which is often a debate in art therapy. The researcher then asked George what he believed was the connection between making art and mental health.

George explained that "increasingly in mental health we are relying on interventions that help to route people in the present." George believes that art and music are able to help keep people in the moment. George also expressed that

emotional suppression is probably maladaptive for people most of the time. “Art and music give people a vehicle to express themselves even when it may not be socially appropriate to talk about negative feelings.” George expressed that he has looked at areas in the brain that are responsible for emotional regulation.

Disorders like depression are often characterized by a lot of activity in the brain areas that are responsible for emotion and a relative lack of activity in areas that are responsible for control like emotion regulation.

We believe that a lot of treatment for depression works by helping people to reactivate the areas of the brain that are responsible for control and emotional regulation. Art is the dialogue between control and the lack of it interfacing which that in and of itself, can be therapeutic.”

The researcher then asked George how making art may affect early intervention of mental health disorders. George explained that if his intuition is correct that people who had very little way to express themselves now have art. People who don't know how to access their emotions or know that they are even having an emotion may be able to see that they are having an emotion through making art. George explained that he has witnessed artist working on very passionate art but they are used to exerting some level of control over their motions even amidst high levels of passion. George discussed that being able to develop this level of control even amidst high levels of emotion could be really useful. George said that “as a culture we are rarely encouraged to talk about the things that are extremely emotional to us. The things that are most scary, the things that are the most upsetting. But I have seen that kids will tell any art teacher what they are drawing or painting and often even if it's disturbing.

Maybe that's a good thing." The researcher thanked George for his time and sharing his experience. The researcher then made art as a way to reflect on the interview and integrate information in a visual way. The researcher decided to use an 8 ½ x 11 sheet of cardstock and used markers and paint pens to create and illustration. The image depicts the idea of emotional regulation with a swirling tornado of negative emotions in blue and grey and the connection between self-control which is depicted by the dots in between.

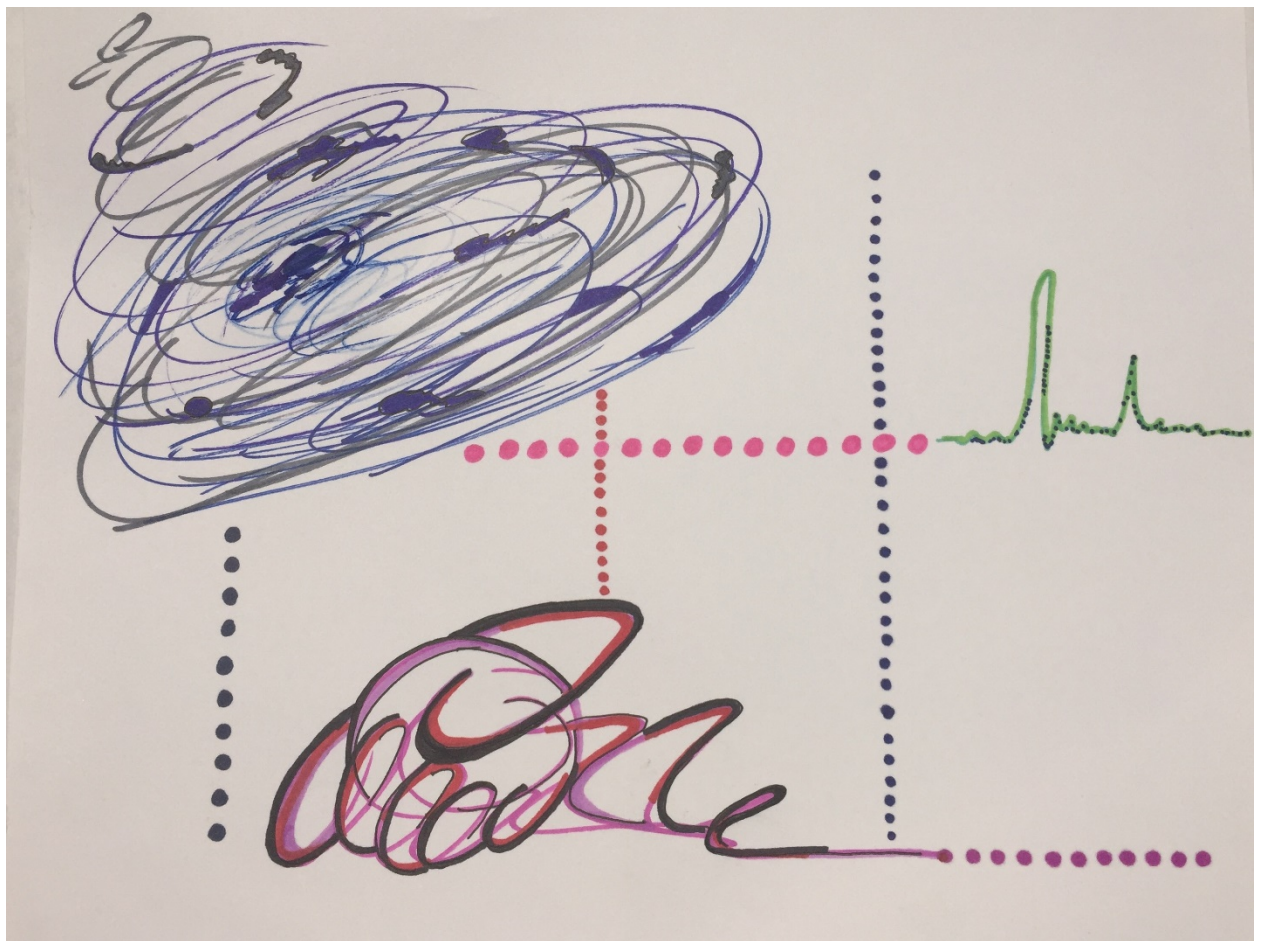


Figure 3. Researcher's reflective drawing.

Analysis of Data

After recording and transcribing all three interviews the researcher read each transcription several times. The researcher then began to underline key concepts as well as emergent connections between all three transcriptions. Using an axial coding system the researcher began to dissect the information in order to create concise and accurate themes that reflect the interviewees conveyed message. Four themes emerged to the researcher which include: connection, desire for understanding, perspective, and being suspended in time. These themes emerged as the researcher read the transcriptions and viewed the art that she had made simultaneously. It became apparent to the researcher that each interviewee answered the questions through their own cultural lens which was informed by their life experience and perspective. The perspectives that emerged were a cultural/societal lens, a neuroscientific/medical lens and an emotional lens. Although each person's individual lens may have directed their perspective, the overarching theme of creative expression as a means to regulate our physical and emotional wellbeing were seen thorough all three data sets.

Themes

Connection

Connection emerged as a theme on many different levels through-out the data analysis process. All three interviewees discussed their connection to their families as well as the creative process. Self-expression became a way they connected with

others both in and outside of their immediate families. Lisa stated that, “our culture is literally starved for beauty, for grace, for ways to express, for ways to connect up with each other besides violence.” Lisa’s cultural perspective enabled the researcher to see how society lacks human connection and specifically named graffiti as a way for people to express themselves and be seen by others. Graffiti becomes a way of creating a self-symbol or tag which can be viewed by others and allows the artist to claim that public space. The researcher’s artwork that depicted graffiti created a physical connection between each letter of the words “art saves.” The second image that the researcher created also depicted connection between each brush stroke through the marks that were made. Greg stated that “music gives people the opportunity to interact socially even though they might not be able to do that so easily with words.” Looking for a way to connect beyond words, Jackie concurred that by creating her own artwork she “realized that her art was a connection to a part of herself that was separate from her persona” which created an intrapersonal connection between her thoughts and emotions.

Lisa discussed connection in its most fundamental form between a mother and her newborn baby. Lisa stated that, “neuroscience is and all sciences are saying that autoimmune disorders and overall physical health are being traced back to those early years and not being with your primary caregiver and not getting your needs met in those early first years.” Lisa believes that the connection between a mother and her infant child determines not only the physical outcome of a child but also the psychological one. The researcher conferred that human connection is an indicator of possible life-long outcomes for physical and psychological wellbeing. The concept of

interpersonal neurobiology further supports the importance of life long human connection and brain development. Creativity and art making therefore emerge as a fundamental catalyst for a healthy mind/body connection. Jackie described how Alzheimer's and dementia patients "stay connected through artistic expression, poetry, visual arts, music and dance" and these creative outlets are now being viewed as a form of treatment and a way to understand where the disease comes from and how we may prolong patients interaction with others even after verbal communication is lost.

This example further illustrates the connection between art and science and how they inform each other in the treatment of mental illness. Jackie discussed how trauma relates to changes in brain function and physiological changes. She stated that "we are now looking at things called 'flow' and immune response, looking at how stress levels and cortisol levels are affected pre, post and during art making." The physical act of making art cannot happen without affecting brain function which further illustrates the mind/body connection. This was illustrated in the artwork created in response to Jackie's interview which could be seen as a visual representation of brain connectivity and the mind body connection. Making the artwork helped the researcher to process information and find deeper meaning.

Desire for Understanding

The emergent theme of a "desire for understanding" came out of all three interviewees describing their relationship with creative expression. Jackie stated that "her art has become a way of helping her understand things." She goes back and forth from her computer where she writes and interprets information to her art studio where

creative expression becomes a way to have a deeper understanding. This was also helpful to the researcher when making her own artwork after conducting each interview. The artmaking process was calming and meditative but also helped the researcher to subconsciously explore meaning and understanding. Each image that was created is an example of a desire for understanding by which the researcher processed her feelings and emotions about what the interviewees had said. Similarly, Greg is using art as a way of understanding how people regulate their emotions. Greg stated that “in science we don’t always know how to generate emotion, through art we learn more about the emotion generation process.” By mapping artist’s brain activity as they are making art, Greg has been able to see how the art making process affects certain areas of the brain. Greg believes that treatments for depression work by helping people to reactivate areas of the brain that are responsible for control, like emotion regulation. By making art we are able to create control over our emotions by expressing them in a healthy way

Art therapists in general have a desire for understanding especially when working with our clients. Jackie stated that with the tools that art therapists have “we are able to see more, faster through the process of our clients making art and we have the ability to see beyond what is reported with words which leads to preemptive insight.” Jackie stated that early in her life she found the value in creative expression but never really understood why it was valuable. This desire for understanding is what drove her to study art therapy.

Perspective

Lisa used a cultural lens to describe her perspective of how our society views art making. She states “that we don’t really see the full spectrum of what the arts can do for healing. We don’t recognize that art is fundamentally how we learn how to treat people and animals and yet it is seen as a frill in education.” Jackie states that from her experience working in the department of medicine “that it is a very useful tool to have an artistic perspective as part of the treatment team because we come to the table with a different way of looking at things as we possibly can.” Art therapy becomes its own lens into the understanding of a client.

Jackie also discussed how art therapy allows us to see more, faster through the art making process within the context of the therapeutic relationship. “We have an ability to see beyond what is reported just through words and tap into the subconscious content of the person which helps us to have a clearer picture of what might be happening with them.” This allows the client to go beyond their defenses and gain perspective into their own intrapersonal world. This perspective is what allows for awareness and growth which changes how the brain functions.

The researcher’s perspective was altered over the course of analyzing data and making art allowed the researcher to explore her own perspective from an artistic lens. Without having made the art the researcher would have only had one perspective to view the data which would have been only through language. Having multiple lenses is essential to a holistic approach to treatment where we are looking at the client through many different lenses.

Suspended in time

The theme of being suspended in time came out of the idea that time was referenced through out every interview in a different way. The act of making art may suspend the client in time where time seems to stand still or be lost. Lisa believes that making art gets you away from “time, place and causality.” Lisa also states that art therapy allows the client to recreate experiences in real time rather than just talking about it.” These real time interactions serve as an intersubjective space between the art therapist and the client. The researcher felt a sense of being lost in time while making her own art and couldn’t tell whether ten minutes or one hour had passed. It felt as if time doesn’t matter anymore when you are making art and your mind and body are in perfect rhythm. In some cultures “time being suspended” refers to someone being incarcerated. The world keeps moving on and the incarcerated person is stuck in time.

This also seems to happen when clients “get stuck” and can’t move forward or ruminate in one emotion or on one thought. Greg stated that when he had a “difficult emotional time, he could always go to music and it would put him back in a space that was possibly more adaptive.” Greg also believes that art and music “root him in the moment and get him out of his rumative head.” Because art allows for time to stop the client is able to rest their mind and get away from the thoughts that may be ruling their conscious state. Making art is a meditative experience which calms the mind and body. This space in between time allows for healing as the brain is given time to readjust and the client is able to gain new perspective.

The researcher aimed to answer question of how art therapy actually changes the way our neurochemistry works. The answer revealed itself within the context of each theme. Connection to others changes the chemicals in our brain which could ultimately create a domino effect of positive feelings. As we follow our desire for knowledge we are able to learn more about ourselves and our perceived world. This gained insight creates new neural pathways which create new ways of thinking. While we are making art, time seems to stop. This allows the brain to slow down and have time to reboot which can help to heal rigid patterns.

The researcher also wanted to know what allows for awareness and growth which changes how the brain functions. Ultimately the client is able to go beyond their defenses and gain perspective into their own intrapersonal world while making art. This is when change is able to occur for the client. The client sees the subconscious material reveal itself and is faced with the intrapersonal workings of their mind. As the therapist leads the client to explore their new found perspective the brain re-categorizes stored information in a new way.

Findings:

After reflecting on the data that has emerged through the qualitative process it has become clear to the researcher that creative expression is not only a tenant for overall wellness but a foundational component that makes us human. Art is now informing science because art is just as important to understanding what it means to be human as science is to understanding how our minds and bodies function. This was reflected in the researchers theme of “connection” and how our mind and body are connected

through the art making process. In Halbert Dunn's theory of high level wellness he describes creative expression as the "bridge between the biological nature of man and the spirit of man." This link can be defined as our creative spirit which Dunn eloquently described as "an expression of self, adventuring into the unknown in search for universal truth" (1958, p.6). This also emerged in the researchers theme of "desire for understanding" which is a manifestation of our creative spirit. When we deny our creative spirit we deny a part of ourselves that is the essence of being human. Art therapy recreates the connection to ourselves, our connection to others and what it means to be human. As Schore (2014), was referenced early in the literature it is clear that art therapy creates opportunities for genuine and creative expressions, self-representations and access to affective interpersonal states.

It is not surprising that the themes of connection, desire for understanding, perspective and being suspended in time emerged because all of these themes are all related to our creative spirit. The effectiveness of art therapy as a treatment modality is beginning to be widely culturally accepted but if we only look at art therapy as a treatment then we are missing out on an opportunity of using art therapy as a model for creating life-long wellness. The theme of "perspective" further illustrates that our view of creativity is skewed by our contemporary cultural perspective of art and creativity.

Humans have been expressing themselves in creative ways since the beginning of time. Through cave paintings, pottery, weaving, carvings and building massive temples we have always found ways to express ourselves in a visual form. These are just a few examples of how creative expression has always been a part of being

human. The theme of “suspended in time” allows us to see that art making and creative expression are timeless. When we are engaged in the art making process we are suspended in time and connected to all humans who are and have expressed themselves creatively.

Science may help us to understand how art therapy works but if we look back at the history of human existence we already know why art therapy works. Dunn (1957) further illustrates that “creative expression and love of one’s fellows satisfy deep psychological and emotional needs in our inner world and simultaneously are radiated outward to bring us to the fullness of life of which man is capable (p. 6). This statement further illustrates how art therapy with its ability to create connection to others and cultivate self-expression can manifest a realization of what it means to be human.

Conclusion

I began the process of this research with a desire to explore how neuroscience could help me to understand how art therapy affects our neurochemistry and physiology. I believed by gaining more understanding I would be able to validate how art therapy could be seen as a model for life long wellness. Through the process of collecting and analyzing data it became apparent to me that while science may afford us more insight into how art therapy works it may be more important to understand how the creative process is a fundamental part of being human. The more beneficial perspective may be to look towards historical anthropology to understand how humans have used creative expression to cultivate a “high level of wellness” throughout time. Halbert Dunn’s explanation of high level wellness became essential to me in understanding the power of art therapy. Dunn (1957) states that “harmony will result when the fact is faced that man is a physical, mental and spiritual unity, a unity which is constantly undergoing a process of growth and adjustment within a continually changing physical, biological, social and cultural environment” (p. 6). We must have a holistic approach to well-being which covers all areas of human experience including creative expression. All people regardless of their socio economic status should have to the right and the means to express themselves creatively.

Our focus within the art therapy field should be on early intervention, prevention and integration of creative expression into daily life rather than treatment. We should be looking at how creative expression is a fundamental part of being human, not a treatment modality or extracurricular activity. Further research and attention should be placed on this perspective within the art therapy field and the medical field. We

should assess for levels of creative expression just as we assess for healthy eating, exercise and emotional well-being as indicators of overall health. Unfortunately, we are often looking to a medical model for answers as I was at the beginning of this research rather than looking at the spirit of man and the components that make us truly human. My eyes have been opened to the possibilities of changing the way society thinks about creativity and how creative expression is an essential component to a healthy human existence.

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