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WITHOUT WORDS: RELATIONAL NEUROPSYCHOLOGY AND CREATIVE
ARTS THERAPIES WITH PEOPLE MANAGING APHASIA

A Dissertation

Submitted to McAnulty Graduate School of Liberal Arts

Duquesne University

In partial fulfillment of the requirements for
the degree of Doctor of Philosophy

By

Autumn Marie Chilcote

August 2021

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Autumn Marie Chilcote

2021

WITHOUT WORDS: RELATIONAL NEUROPSYCHOLOGY AND CREATIVE
ARTS THERAPIES FOR PEOPLE MANAGING APHASIA

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ABSTRACT

WITHOUT WORDS: RELATIONAL NEUROPSYCHOLOGY AND CREATIVE ARTS THERAPIES WITH PEOPLE MANAGING APHASIA

By

Autumn Marie Chilcote

August 2021

Dissertation supervised by Dr. Alexander Kranjec

Aphasia describes the broad experience of disrupted language production or comprehension acquired after structural changes in the brain. These changes, usually associated with stroke, tumor, or cortical degeneration, are often co-occurring with other symptoms, such as emotional dysregulation, partial paralysis, and difficult social, occupational, and community relationships. Common approaches to research and rehabilitation with persons managing aphasia highlight conversation and semantic retrieval, with a lack in literature considering the diversity of symptoms and responses. Questions arise as to the ways that psychotherapies, typically language-centered, can be adapted to collaborative, low-verbal approaches that attend to the range of individual symptoms and expressions experienced after stroke or other brain incident. This research considered the question: How does participating in a creative arts psychotherapy program

influence cognitive and clinical therapeutic outcomes for a person with aphasia? Using quantitative and qualitative methods guided by an integrative, relational neuropsychology, this research explored the complexity of experiences accompanying language loss and neurorehabilitation through two case studies where participants engaged in a 5-6 session creative arts psychotherapy program. Cognitive outcomes evidenced clinically significant changes in perceptual-motor, executive function, and memory tasks, and limited differences in language production. Clinical therapeutic outcomes included improved mood, engagement, and relational experiences for both participants, evidenced through clinical observations and participant self-report at both the session and program levels. An integrative approach to psychotherapy with people managing aphasia is discussed, contributing to the research in clinical neuropsychology, relational theory, and creative arts therapy.

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This dissertation is for and about my mom, who bravely navigated corticobasal syndrome with humor and dignity and creativity. Because of you, I am me.

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Chapter One- Introduction

Aphasia, broadly defined, is a disruption in language fluency, understanding, and expression usually experienced as a result of stroke, head injury, or cortical degeneration (Sabsevitz & Hammeke, 2014; Ward, 2015). Well-designed rehabilitative and therapeutic interventions for individuals managing aphasia aim toward improving semantic retrieval, communication abilities, and use of augmentative and alternative strategies, such as gesture or assistive technologies, as the importance of verbal communication in the lived experience cannot be overstated (Ogden, 2005; Tanner, 2003). The experience of aphasia is anything but unified. The complex neural network associated with language is also entangled with action, perception, memory, and executive brain functions, with “no single behavioral presentation” (Sabsevitz & Hammeke, 2014, p. 411). Further, the internal and social aspects of exchanging expressions is associated with emotional and social health and well-being, the loss of which is described by Ogden (2005) as “devastating for the patient and distressing for everyone with whom the patient tries to communicate” (p. 97).

Emerging research in clinical neuropsychology highlights the applicability of multi-modal, interdisciplinary approaches to symptom-clustered conditions such as aphasia. A primary example is illustrated by trauma-informed interpersonal neuropsychology. This approach centers the inquiry: “What is the connection between the mind and the brain?” (Siegel, 2012, p. xx), aiming to integrate the subjective experience of awareness, functional neuroanatomy, and the “emergent process” (p. 1-6) of a relational and embodied life. A trauma-informed interpersonal neuropsychology integrates the experiences of the unexpected and distressing life-changing event of an acquired neurological disorder (e.g., aphasia) with the unpredictability, grief, or personal transformation that may result from a neurobiological incident (Lanius et al., 2006;

Siegel, 2012). This holistic orientation heeds the biological, social, and psychological elements of experience, such as agency, creativity, and resilience, while organizing a sound theoretical orientation in exploring non-linguistic therapies for low-verbal clients and patients (see Dillman Taylor & Wheeler, 2018; Van Lith et al., 2018).

Creative arts therapies provide an innovative low-verbal path toward an effective interpersonal neuropsychology when applied to the complexity of aphasia. Creative arts therapies have proven useful when working with children and youth without full linguistic capabilities in narrating psychological experiences (Gantt & Tripp, 2016) as well as adults who have had a disrupted narrative experience due to the severity of trauma (Hass-Cohen & Findlay, 2015) or other neurological disruption (Elkis-Abuhoff & Gaydos, 2016). Further, studies indicate that creative arts therapies support the development of a therapeutic alliance in a setting where shared language is not available between therapist and patient (Lazar et al., 2018; Mohacsy, 1995; Van Lith et al., 2018).

While a creative arts therapy approach, through an interpersonal neuropsychological framework, shows promise in working with a person managing a nonlinguistic communication style due to neurological disorder such as aphasia, these concepts are all but missing from the literature. The complexity of the disruption of language, possible obstruction of cognition, functional structure of the brain, and the accompanied behavioral and life changes deserve an inventive exploration that integrates medical and social sciences (see also Kaimal, 2018; Spitzley et al., n.d).

Motivation, Purpose, and Research Question

My personal interest in this topic is in part due to my role as a clinical therapist, educator, and researcher with an interest in interpersonal neuropsychology and arts in health. As my

professional history has included development and application of creative arts therapies toward reducing symptoms of complex developmental trauma (see Chilcote, 2014; Chilcote, 2017; Woolnough & Chilcote, 2017), in these pages I highlight the utility of nonverbal therapies in interdisciplinary and medical settings, especially neuropsychology. The purpose of this study was to contribute to outcomes research applying creative arts therapy in clinical neuropsychology, specifically in regard to psychotherapy patients who also experience aphasia.

The research question guiding this study was: **How does participating in a creative arts psychotherapy program influence cognitive and clinical therapeutic outcomes for a person with aphasia?** A creative arts-based, clinical psychotherapy based in an interpersonal neuropsychological frame of reference expanded the lens of meaning-making of disrupted language and communication, inviting exploration of circumstances of recovery and therapeutic outcomes (Elkis-Abuhoff & Gaydos, 2016; Fancourt, 2017; Kaimal, 2018). I believed that individuals with aphasia participating in a brief creative arts psychotherapy would show clinically relevant improvement in tasks evaluating functions across neurocognitive domains. I anticipated that this study would expand current research supporting creative arts participation as positively correlated with psychological well-being (see Hacking et al., 2008). Further, I anticipated improved performance on language tasks, lending evidence to support a whole-brain, functional-systems approach to clinical neuropsychology (see Bressler & Menon, 2010; Brownsett et al., 2013)

Approach Considerations

While this research represents a program drawing on medical models of disorder, it also contains a relational psychotherapy representative of my professional training. I centered this research on evidence that an effective psychotherapy results from what has been historically

referred to in psychology and psychiatry as “common factors” (Rosenzweig, 1936, p. 412; Wampold, 2015, p. 270). The common factors foreground the therapeutic relationship: alliance between therapist and client-patient, empathy, and collaboration (Jordan, 2017; Norcross & Wampold, 2011; Wampold, 2015). The common factors inform the conceptual model for trauma-informed interpersonal neuropsychology, where relationships and relational safety- with self, others, and the broader social world- form the contextual environment that results in order and disorder. While I was interested in the range of cognitive outcomes associated with aphasia, specific participant goals described in Chapter Four also influenced the individual relational psychotherapy encounters.

This program included a mixed methodology to address the complexity of the research. The quantitative tools selected for this program are widely researched and validated in the field of neuropsychology and speech-language pathology, described in detail in Chapter Two. The qualitative methods of clinical observation, narrative analysis, and consideration of art product and process are a long-held tradition in psychology and creative arts therapies as well as in complex programs of research such as this one.

The conceptual and theoretical models here were selected to address the constellation of experiences of a person managing aphasia. A trauma-informed interpersonal neuropsychology centered the diversity of a client’s experience of an extraordinary event- that of the neurological incident resulting in aphasia- where a crowding of cognitive, affective, behavioral, and relational symptoms have followed. Through a creative arts therapy approach a nonlinguistic embodied construction exploring specific client aims was considered. Further description of the specific research and therapeutic approach considerations, as well as my aims toward rigor in this research, is detailed in Chapter Three.

Summary of Chapter One and Overview of Dissertation

Chapter One provided an overview of the relevance of this program of research in clinical psychology, including the significant gaps in literature exploring low-verbal approaches to therapy with people experiencing a disruptive neurological disorder. I presented my organizing framework, influenced by trauma-informed interpersonal neuropsychology and creative arts therapies, and the relevance of these ideas in clinical, qualitative, and quantitative research methods research with participants managing aphasia.

Chapter Two includes a review of literature describing aphasia therapies toward addressing cognitive, linguistic, affective, and relational concerns. A discussion of literature in interpersonal neuropsychology defines this conceptual model in the discipline. The application of creative arts therapies follows. A particular focus on the application of concepts for people who are low-verbal or have language disorders is highlighted in this section, followed by literature integrating creative arts therapies and interpersonal neuropsychology.

Chapter Three details my approach to this integrative program. With reference to the purpose of this study, theoretical concepts, and methodologies intended for this program, Chapter Three integrates my clinical position, a description of a program of assessment and psychotherapy for the population of interest, and a deeper description of the intended research process. Also included is a discussion on the rigor of the methods proposed, and protection from harm for research participants.

Chapter Four presents the outcomes of the research in regard to the purpose and methods of the study. Two case summaries introduce the participants, followed by a description of the clinical, qualitative, and quantitative outcomes based on the methodology detailed in Chapter Three.

Discussion and implications of the findings of this research is offered in Chapter Five. In this concluding chapter, I consider the research question: How did participating in a creative arts psychotherapy program influence cognitive and clinical therapeutic outcomes for the two participants with aphasia? I also discuss implications of the findings toward expanding holistic approaches to clinical psychology, and advances in psychotherapeutic options and outcomes for clients with aphasia.

Chapter Two- Literature Review

In this Chapter, I begin with an exploration of current directions in research with people managing aphasia, particularly of psychotherapeutic interest. Next, I provide a brief summary of recent research exploring interpersonal neuropsychology, followed by emerging areas of interest in creative arts therapies. I pay special attention here to both areas of interest as well as case-study design, considering my program of research applied a creative arts therapy as an interpersonal neuropsychological approach with a person managing aphasia.

Aphasia

Aphasia is an umbrella term for an acquired language disorder, where language comprehension, formulation, fluency, and/or production is disrupted after a functional change in neuroanatomy. Aphasia is typically described on a spectrum, from mild to severe, and based on which specific features of language are impaired and which are intact for the individual (Ogden, 2005; Sabsevitz & Hammeke, 2014; Ward, 2015).

Aphasia is a topic of broad interest across many different health and social sciences. A brief review of *Aphasiology* highlights current themes of interest across the wide-ranging fields of communication disorder and disruption. The complexity of aphasia as a diagnostic category, including co-occurring difficulties and diverse therapeutic strategies, as well as interventions and mechanisms of change, present a common topic (Ablinger et al, 2018; Caplan et al, 2018; Glize et al., 2018; Northcott et al., 2018; Purdy et al., 2018). Strengths-based and multi-modal therapies also prove popular among research within this theme (Ablinger et al, 2018; Brown et al., 2018; Schlaug, 2018). Notably, some creative approaches are included in recent literature, including music (Kershenbaum et al., 2017; Merrett et al., 2018), story-telling (Plourde et al., 2018), and digital interventions (Baier et al., 2017; Lavoie et al., 2016; Stark & Warburton,

2018). The focus within these therapies highlights enhancing language retrieval strategies and improved communication.

A second rising theme includes interest in regional, neuroanatomical, and sensorimotor experiences influencing different types of language difficulties. A commonly held hypothesis of aphasia suggests disruptions to left hemisphere brain regions related to semantic and grammatical rules, using neurological imaging of atrophied brain regions to support this common hypothesis (Kershenbaum et al.; Pillay et al., 2018; Schlaug, 2018; Zimmerer et al., 2018). The focus on left hemisphere regions has heavily influenced approaches to aphasia therapies. However, contemporary and emerging research highlights the range of cognitive functions that influence speech language and communication. Sensorimotor domains influence experiences of rhythm, pitch, patterns, and muscle control (Aichert et al., 2016; Kershenbaum et al., 2017; Simonyan et al., 2016). Perception and executive function domains relate to prediction, planning, and social cognition, inherent relational aspects of communication (Argyropoulos, 2016). Attention and memory also mediate language. This emerging research amplifies the importance of considering cognitive systems as holistically contributing to language functions (Cahana-Amitay & Albert, 2014; Poeppel et al., 2012; Schlaug, 2018; Tremblay & Dick, 2016).

Another common theme among recent papers is that of interpersonal communication and relationships. While spouses, family, and friends present primary relationships in the literature (Baier et al., 2017; Cruice et al., 2018; Horton & Pound, 2018; Plourde et al., 2018;), also present are that of helping professionals such as nursing and therapeutic staff (Cruice et al., 2018; Lawton et al., 2018; Pound & Jensen, 2018; Simmons-Mackie et al., 2018).

Apraxia of speech. Apraxia describes impairment in ability to form and deliver language, although the cognitive desire and command is present. Apraxia results from a

neurological disruption, typically in the left hemisphere of the brain, and often co-occurring with aphasia resulting from stroke (West et al., 2002), and represents a presenting concern for a participant in this study

Hemiparesis and other motor disruptions. Hemiparesis- weakness, difficulty moving, or inability to move one side of the body- is a common symptom accompanying aphasia. Specific presentation of this type of motor impairment is based on the location and severity of the initial brain injury, and can influence motor movement in the arms, legs, hands, and face (NSA, 2018). Other motor disruptions resulting from hemiparesis include difficulty walking, impaired fine motor skills such as those found in grasping, reduced balance or coordination, and muscle fatigue. Therapeutic approaches commonly address improving strength and movement in the affected areas, and occupational and assistive therapies aimed toward adaptive, confident mobility (McIntyre et al., 2012; Stewart et al., 2006; Richards et al., 2008). Improving sensation and perception feedback in the affected areas represents a body-brain approach to therapy (Geiger et al., 2001; Glanz et al., 1996). Movement visualization through the use of mirrors stimulates movement in the affected region with visual cues from the unaffected side of the body. This type of integrative body-brain therapy has been an approach with hemiparesis for decades (Dohle et al., 2009; Ramachandran & Altschuler, 2009). Emerging research continues to development utility of movement visualization (Adamovich et al., 2009; Lange et al., 2010; Pompeu et al., 2014). These therapies aim to enhance sensory and kinesthetic awareness in affected brain regions, and surrounding functional areas; activities also made possible through the relational, sensory, and cognitive interactions of creative arts therapies.

Interpersonal Neuropsychology

In 2017, the *Journal of Mental Health Counseling* introduced a new section titled “Neurocounseling” to address trends toward an integrative approach to mental health therapies (Beeson & Field, 2017; Navalta et al., 2018). While psychology was founded in an integrative history of medical humanities and philosophy (Fancourt, 2017), the subfields of psychology prove difficult to intertwine at times (Beeson & Field, 2017; Perez-Alvarez, 2018). This is in some part due to the nature of academic discourse, training orientations and organization, the range of taxonomies within and across the subfields, and differing methodologies (Aboelela, et al., 2007; Lattuca, 2001).

An interpersonal neuropsychology is indeed ambitious, where Siegel (2012) described this undertaking as “creating collaboration and synthesis across a wide range of ways of knowing about our human condition” (p. xix) that was both “embodied and embedded” (p. xxv) in neuroanatomy, relational psychology, psychiatry, and anthropology. This holistic approach to health and healing is perceived as an increasingly effective approach to psychotherapy, with a growing body of research in working through an interpersonal neuropsychological model, particularly with difficult and pervasive client concerns such as complex trauma, traumatic brain injury, dissociative and personality disorders, and somatic disorders (Beckerman & Wozniak, 2018; Courtois & Ford, 2012; Cronin et al., 2014; Devlin, 2018; Finney, 2018; Ford, 2015; Ford & Courtois, 2014; Miller, 2018; Tarocchi et al., 2013).

Complex concerns such as these, that affect psychological, physiological, cognitive, and relational experiences, require an integrative approach such as that found in interpersonal neuropsychology. Research is emerging exploring sensory, physiological, and neural correlates of change with this relational approach to therapy across settings including hospital, residential

home, school, inpatient and outpatient (Lucas et al., 2018; McCraty & Zayas, 2014; Necka & Atlas, 2018; Peterson et al., 2015; Pillay et al., 2018; Ulanov et al., 2018; Zampieri & Tognola, 2018).

Aligned with the common factors, and a theme within aphasia research, improved communication and relationships presents a primary motive in literature exploring interpersonal neuropsychology. Enhanced language, attunement, and what Siegel (2012) described as a relational sensibility, highlight the focus on improved communication. Families including members with special health and communication needs have been supported through this conceptual model (Burton et al., 2018; Nussbaum, 2013; Parnas & Isobel, 2018), which has also shown to enhance psychosocial health for therapy participants (McCraty & Zayas, 2014). An interpersonal neuropsychology orientation has also proven effective in improving therapeutic alliance (Cronin et al., 2014).

There is substantial research on the influence of interpersonal neuropsychology, communication, and relationships in children and youth in relation to development of healthy attachment relationships predictive of health in later life (see Oliveira & Costa, 2009; Pietromonaco et al., 2013). Research integrating interpersonal neuropsychology and healthy communicative relationships with mid- and late- adult participants is remarkably lacking. Nussbaum (2013), through the lens of interpersonal neuropsychology, suggests that neuroscientists expand their view of the cognitive tasks of language, including more focus on adults as a “scientific study of wisdom...enacted in our changing communication and language behaviors across the lifespan” (p. 243). This lifespan view of communication highlights the demand for creative approaches to communication for intergenerational relationships as a predictor of health (see also Montepare et al., 2014; Pitts & Harwood, 2015).

Interpersonal neuropsychology proves conceptually useful for creative therapies as the presentation is embodied, imaginative, and relational in gesture. This orientation has been explored in play therapies (Dillman Taylor & Wheeler, 2018; Seymour, 2018), mindfulness-based approaches (Baldini et al., 2014; Lucas et al., 2018; Rose et al., 2018), story-telling (Mullet et al., 2013), and arts-based therapies (Hass-Cohen et al., 2014). Hass-Cohen described her interpersonal neuropsychological approach through creative arts therapies as a “functional entrainment and synchronization of bodily systems- nervous, immune, endocrine, sensory, visual, and motor” (cited in Kaplan, 2015, p. xix). The current emerging literature suggests interpersonal neuropsychology offers an important contribution to developing projects in creative arts therapies, and is well-suited to the complexity of experience of a psychotherapy for individuals managing aphasia.

Creative Arts Therapy

Psychotherapy carries a long tradition as talk therapy, holding the notion that shared problem-solving occurs through conversation with a nonjudgmental and supportive other. However, there are many ways of communicating relationally, beyond language.

In terms of adult patients, psychotherapy has been called the *talking cure*, betraying a short-sighted emphasis on the verbal dialogue that takes place. In light of what we now know about the body’s silent language- the articulate power of the messages, as well as our deeply rooted reliance on nonverbal communication- it seems foolhardy to deny the nonverbal dialogue a place in the therapy session...gestures, postures, and large movements of a patient...thoughts and feelings that might lie hidden behind the spoken word (Mohacsy, 1995, p. 35).

Creative arts therapies, through materials, music, and movement, offer a fully embodied approach to communication beyond the linguistic (Stevenson & Orr, 2013). Creative arts therapies have been shown to be particularly well-suited for pervasive and difficult health concerns. Gantt & Tinnin (2009) hypothesized that with extremely troubled or constricted bodily states, such as people experiencing paralysis, chronic pain/illness, neurocognitive disorders, and trauma, a “deficit in interhemispheric communication” (p. 150) results in the inability to fully narrate an experience. This results in difficulty, not only in verbalizing experience in the present, but also disrupted memory “without temporal narrative organization” (p. 150).

Creative arts therapies have been indicated toward reducing pain (Shella, 2018), reducing the distress of emotional disturbances such as depression and anxiety (Cohen et al., 1995; Fancourt, 2017; Shella, 2018), and improved immune function (Fancourt, 2017). The United Kingdom, in a recent All-Party Parliamentary Report, reported that after 2 years of population-level evidence gathering and feasibility studies, the Ministry of Health would begin funding a national strategy centering arts for individual and public health and wellbeing (APPG, 2017). In the United States, The Cleveland Clinic, Shands Health, and Boston Children’s Hospital, among other agencies, include arts in medicine programs that include bedside creative arts therapies experiences (NOAH, 2017).

Creative arts therapies are prevalent in hospitals and residential facilities supporting individuals and families managing pervasive, difficult illnesses that affect a person beyond their physical health (see NOAH, 2017). This includes cancer (Lo Fo Wong et al., 2014), heart diseases (Princip et al., 2015; Reynolds et al., 2007), cerebral palsy (Chong et al., 2013), brain injury (Jones et al., 2016; Jones et al., 2017), and Cushing’s syndrome (Alcalar et al., 2013; Tiemensma et al., 2012). Parkinsonian syndromes, stroke, and dementia are also described in the

literature in effective application of creative arts therapies (Ahessy, 2017; Kindell et al., 2018; Lyons et al., 2018; Melhuish et al., 2017; Novy, 2018). As these are neurocognitive disorders, the publications in these areas are of particular interest to this proposed research due to some similarity of symptom presentation and therapeutic intervention for individuals with aphasia.

The neuroanatomy of creative arts therapies is emergent, however there are a few studies exploring this area. For instance, electroencephalograms of non-clinical participants showed that drawing had an effect on alpha rhythms, which are associated with memory, emotion regulation, visual perception, and creativity (Belkofer et al., 2014). A second study showed art-making resulted in lower cortisol levels for participants in a creative therapies program, validating the participants' positive narrative evaluation of the experience (Fancourt, 2017). While the neuroanatomy of creative arts therapies is unfolding, theorists surmise that the sensorimotor activity, accompanied by the creative arts activity and the participatory witness of the therapist, likely result in "neural concomitants" (Lusebrink, 2014, p. 87) resulting in improved health and functioning.

As indicated in the introduction to this research, there exists a gap in studies exploring creative arts therapies when working with individuals managing aphasia. There are notable creative communication modalities detailed in research (see Farias et al., 2006; Horovitz, 2006; Kinney et al., 2020; Sacchett, 2002; Tomaino, 2012) that have been inspirational for the development of this research program. However, these programs are organized toward improving language retrieval, semantic memory, and use of a non-verbal communication modality. Lacking is exploration of the interpersonal, psychological, and relational aspects that a holistic, integrative, interpersonal neuropsychological study can inform (see Ellis-Hill et al., 2015; Reynolds, 2012).

Case Study Design

Many of the research programs reviewed for this dissertation employed a case study design. *Neurocase* is a journal that solely publishes case studies related to neuropsychology. An informal survey of this publication showed a range of areas of interest for a case study exploring aphasia experiences, including therapeutic interventions (see Lavoie et al., 2016; Manenti et al., 2015) and exploration of both strengths and co-occurring difficulties (see Leemann et al., 2007; Slevc et al., 2016). *Clinical Case Studies* has a similar aim, where many of those described herein have experienced persistent and pervasive concerns with psychological health that are not well-suited to quantitative studies, such as those present in complex and developmental traumas (Miller, 2018; Tarocchi et al., 2013). This brief review of research with participants with aphasia, considering an interpersonal neuropsychological theoretical orientation and creative arts modalities, supported a case study design for this program of research.

Summary of Chapter Two

Chapter Two introduced recent research with individuals managing aphasia. A specific focus toward the research question integrating interpersonal neuropsychology and creative arts therapies with this unique population was evaluated, noting the significant gap in research in this area. Literature describing interpersonal neuropsychology and relevant applications has also been summarized here, as well as those describing creative therapies working through this conceptual model. Finally, research design was considered in this summary, specifically those that are organized as a case study. The current literature validated the interest and approach of this research exploring the psychological and language outcomes for two participants managing aphasia after participating in a creative arts therapy program.

Chapter Three- Approach

Aphasia proved of particular interest in considering relational neuropsychology, as typically a language exchange provides the primary vehicle of psychotherapy. Researchers have raised concerns about centering language as limiting to an inclusive psychotherapy (see Guina & Guina, 2018; Van Lith et al., 2018) and I share those concerns.

In this Chapter, I describe my conceptual approach to this program of research. I begin by describing the neuroanatomy of language with particular regard to aphasia. Next, I describe my approach in relation to the functional anatomy of aphasia and the theoretical models of interpersonal neuropsychology and creative arts therapies. I then describe the specific cognitive domains of interest, and pre- and post- therapy program assessment instruments in relation to this research. The interview, psychotherapy sessions, and final summary session are also discussed herein. Collection of clinical, qualitative, and quantitative data, and data analysis methods, are briefly illustrated. The Chapter closes with clarifying the rigor of this research program and a Chapter summary.

Neuroanatomy of Aphasia

The neuroanatomy of the language network involves interacting systems including word-meaning, relationships among words, sentence structure, declarative knowledge, information processing, and sound and vocal perception (Cahana-Amitay & Albert, 2015; Sabsevitz & Hammeke, 2014). This network is widely distributed throughout the brain and nervous system, however the basic model for approaching aphasia symptoms and diagnoses focus on major left hemisphere regions for most people. As described in the previous chapter, emerging literature supports consideration of a multifunctional, multiregional approach to aphasia therapies to account for the complex cognitive systems involved in language tasks.

Interpersonal Neuropsychology and Creative Arts Therapies

My approach to this research was influenced by previous studies integrating neurobiology and relational, trauma-informed psychotherapy. It has been well-documented that after exposure to extreme stress, both life-altering and life-threatening, individuals express an inability to narrate their experience and feelings (Drevits, 2001; Fancourt, 2017; Lanius et al., 2010; Resick et al., 2012; Shin et al., 1997). Known as *alexithymia*, this inability to retrieve emotion-descriptive words represents a common result of trauma (Gantt & Tinnin, 2009; King & Mallinckrodt, 2000; Zlotnick et al., 2001), and is predictive of chronic health difficulties to the extent that identifying and labeling emotions is the core of many evidence-based trauma-informed therapies (Gantt & Tripp, 2016; Herman, 2005). Other common verbal disruptions after the experience of trauma include disrupted coherent narrative, perceptual disturbances of sound, and difficulty relating spoken words to their underlying meaning (Haskell, 2003; Herman, 2005; Lanius et al., 2010; Shin et al., 1997; Soloman & Siegel, 2003). Many researchers are now considering the neurobiological and neuroanatomical correlates of this interpersonal experience, recognizing the complexity of the experiences of language, communication, extreme stress, and social world.

Trauma-informed creative arts therapies- *low-verbal* psychotherapies- have grown in use due in-part to this disruption of language experienced after trauma, as an approach toward a domain-integrative psychotherapy (Chapman, 2014; Chilcote, 2014; Chilcote, 2017; Malchiodi, 2012; Talwar, 2007). Creative arts materials, process, and product invite a multi-sensory perceptual experience that have resulted in improvements where language is disrupted, including enhancing narrative coherence with individuals managing trauma responses (Hinz, 2009; King, 2016; Masterson et al., 2008). The trauma-informed clinical approach was framed in relational-

cultural theory, where therapeutic change includes enactment of zest, creativity, and relational risk-taking leading to growth-in-connection (Jordan, 2017; Lenz, 2016). In considering emerging research in the functional interaction across neurocognitive domains, as described in the previous chapter, this project applies creative arts therapies toward the complex language disruption present in aphasia.

Assessment Domains

This program of research follows the tradition of a structural-dynamic approach to neuropsychology, considering the interplay of neuroanatomical brain function and that of the socio-cultural environment (Christensen et al., 2009; Luria, 1962/2012). Speaking, understanding others, writing, and literacy present primary concerns of the participants in this research program. Thus, a neuropsychological domain of interest was *Language*. Language outcomes, especially those related to semantic retrieval and expression, are common indicators of change within this cognitive area. Previous research with drawing has shown mixed outcomes with language retrieval for individuals with aphasia. For example, drawing has been explored as a way to enhance verbal communication, and as an augmentive strategy for people with difficulty with word-generation (Farias et al., 2006; Kinney et al., 2020; Sacchett et al., 1999). While this research maintained an interest in semantic retrieval and use-language domain outcomes- this program of research includes integration of other functional domains such as affect, sensory, and interpersonal aspects of language toward improved assessment domain outcomes. A multi-modal approach to communication has been theoretically supported by others (Rose, 2006; Schlaug, 2018), although there are gaps in research and clinical practice. In this research, the domain of language is of interest in relation to the overall research question, in consideration of

the ways a creative arts therapy influenced naming and semantic task performance for the participants.

The social and systemic situatedness of language within other neuropsychological domains influenced this exploration of a creative arts approach to therapy with people with language impairments. *Affect* (e.g., depression, interpersonal sensitivity, quality of life) is the neurocognitive domain most often associated with psychotherapy. Previous research has indicated that individuals participating in interpersonal and creative arts therapies express a dynamic affective experience across sessions. Additionally, participants in creative arts therapies have shown improved emotion naming, indicating an under-explored connection between the domains of affect and language (Chilcote, 2014; Chilcote, 2017; Elkis-Abuhoff & Gaydos, 2016; Fancourt, 2017; Gantt & Tripp, 2016). Specifically, how does a creative arts therapy influence clinical outcomes, as well as expression of emotion, interpersonal sensitivity, and quality of life- defining characteristics of the cognitive domain of affect- for the participants?

Engagement in creative arts therapies requires flexibility of thinking, planning, and creativity for participants (Hinz, 2009). These characteristics are generally associated with the neuropsychological domain *Executive Function*. Executive function has been closely tied to domains of language and affect named previously, as well as attention, inhibition, and learning. Researchers have suggested that the complex control necessary for evaluating, reflecting on, and selectively responding to information results in both linguistic and affective behaviors, indicators that executive function influences language and affect outcomes (Cahana-Amitay & Albert, 2015; see also Hungerford & Gonyo, 2007, Im-Bolter et al., 2006). Others have posited an alternate directionality, where language and affect influence executive function outcomes, as these domains comprise what Goerlich (2018) described as abstract, reflective, “externally

oriented” thoughts and behaviors (p. 1614) (see also Samur et al., 2013; Van der Velde et al., 2013). While questions remain about directionality of influence, a notable confound is that most neuropsychological measures of executive function require sound linguistic function in order for the patient or client to complete the assessment (APA, 2017; Fujii, 2017; Walker, 2016). Thus, there are considerable gaps in assessment and intervention approaches for executive function for adults managing aphasia.

In the present low-verbal approach to psychotherapy, I considered the questions about interfunctionality of the domain of executive function, as well as the difficult confound of low-verbal assessment and intervention tools. Herein I have included clinical, qualitative, and quantitative outcome evaluations of complex memory, planning, and reflective task management, some of the defining characteristics of the cognitive domain of executive function. Exploration within this domain supported the research question with consideration of the ways that participation in this research influenced cognitive measures of executive function.

Perceptual-Motor Function, which encompasses gross and fine motor skills and visual-perceptual integration, was an additional neuropsychological domain of interest. Gross and fine motor skills are often impaired as a result of stroke, as described in the previous chapter. Often partnered with speech-language therapies, occupational therapies include small movements, such as grasping with the fingers and hands, and large movements of arms and legs toward therapy of perceptual motor function (Rose, 2006; Schneider et al., 2007), cognitive domains often lacking in psychotherapeutic interventions. As creative arts therapies aim to engage an integrated neurophysiological system, this research adds to the dialogue of the ways perceptual-motor domains are affected by participation in a creative arts therapy series (Harrington et al., 2006; Hinz, 2009; Schneider et al., 2007). A creative arts therapy offered practice of hand-eye

coordination, purposeful movement, and image assembly- defining characteristics of the cognitive domain of perceptual-motor function- supporting the overall research question for this project by considering the clinical and quantitative question: how does a creative arts therapy influence perceptual-motor function for participants?

Disruptions in these domains result in a diagnostic category of Neurocognitive Disorder (APA, 2013). A creative arts therapy reduces the severity of disruption in these domains of interest for other populations. While this program was provided in a speech-language-hearing clinic- thus indirectly revolving around aphasia disruptions- creative arts psychotherapies in this program aimed toward decreasing the severity in disruption across neurocognitive domains and beyond language.

Materials & Methods

The materials, methods, and clinical, qualitative, and quantitative evaluation described below are integrative of the neurocognitive domains of interest detailed in the previous section.

Table 1 summarizes the tools, collected data, and connection to the research aims.

Table 1 Assessments, Time, Data, & Research Aims

	Estimated Time	Data	Research Aims
Pre- and Post-Program Interview (Appendix B)	15-20 minutes	Aims of psychotherapy; narrative confirmation/contradiction of strengths and difficulties; introduce/establish therapeutic rapport. Qualitative/clinical observations of language and behavior.	Gathering general psychological data at baseline and after psychotherapy program; committing to participate; gathering language and behavioral evaluation toward question: How does participating in a creative arts psychotherapy influence clinical and cognitive outcomes?

Burden of Stroke Scale Questionnaire	15-20 minutes Pre (intake) and post (summary) program	Structured interview measure of psychological, cognitive, and physical experiences resulting from stroke pre-therapy program. Qualitative narrative reflection of baseline assessment at post- program.	Generating comparative data toward evaluating social, occupational, and psychological symptoms outcomes toward question: How does participating in a creative arts psychotherapy influence clinical outcomes and cognitive outcomes as described in the BOSS?
Rey Complex Figure Task	10-15 minutes Pre (intake) and post (summary) program	Quantitative measure of visuospatial, psychomotor, executive function, and memory domains. Qualitative observation of psychomotor, attention, and executive function psychological domains.	Producing comparative quantitative and qualitative data toward evaluating cognitive domains of interest toward question: How does participating in a creative arts psychotherapy influence cognitive outcomes as measured in the Rey?
Western Aphasia Battery-R Aphasia Quotient	40 minutes	Quantitative measure of word retrieval, fluency, and auditory comprehension. Clinical observation of attention. Comparative results with previous available testing.	Collecting post-program quantitative data toward evaluating psychological and language domains. Providing qualitative data for discussion of differential results and clinical observations with speech-language pathologist toward question: How does participating in a creative arts psychotherapy influence clinical and cognitive outcomes related to language as measured by the WAB-R AQ?

Individual Psychotherapy Session Notes (Appendix D ¹)	Session clinical observations, including session transcripts and video review	Qualitative clinical observation of behaviors across cognitive psychological domains. Includes behavioral observations of expression, gesture, and discourse, and clinical judgment related to session outcomes and treatment aims.	Providing continuous assessment data related to cognitive and psychological domains of interest, including quantity and quality of discourse, comportment, and attention toward creative and therapeutic process conventional in outpatient psychotherapy toward question: How does participating in a creative arts psychotherapy influence clinical and cognitive outcomes at a session level?
Individual Session Evaluation Questionnaire	< 5 minutes	Verbal measure of quality of individual session and social interaction between therapist and participant. Cross-cutting evaluation with behavioral observation. “How do you feel about doing art today?” (pre)/ “How did it feel to make art today?” (post)	Offering comparative data across session toward evaluating experience with therapy process and content. Including comparative data related to desirability and feasibility of tools for a successful psychotherapy session toward question: How does participating in a creative arts psychotherapy influence clinical and cognitive outcomes at a session level?
Post- therapy Program Evaluation (Appendix E)	10-15 minutes Summary session only	Quantitative (rating scale) and qualitative (narrative) measures considering the entire program of research across sessions. Cross-cutting clinical observations and individual session feedback.	Summarizing reflection on process and content of creative arts therapies interventions with these two participants, relative to research question and program design toward question: How does participating in a creative arts psychotherapy influence clinical and cognitive outcomes at a program level?

¹ A sample outline is provided in the appendix. Clinical notes have been stored according to health privacy policies and procedures.

Participants. Two participants were recruited for this research from the Duquesne Speech-Language-Hearing Clinic. Research participants were recruited by referral from their respective speech-language pathologists. Interested individuals contacted a member of the research team and then I provided a brief description of the program. In addition to free clinical psychotherapy sessions, participants were given a \$20 Amazon gift card.

Informed Consent. This program was exempt from ethics review due to the Revised Common Rule (D. Delmonico, personal communication, Mar 22, 2019). Consent was discussed and agreed upon at the initial intake session. Informed Consent for Psychotherapy Services (Appendix A) was discussed with participants, in specific regard to limits to confidentiality in psychotherapy.

During the informed consent process, the research methods and procedures was fully described to the participants. The participants were presented with written consent forms, which were discussed during the pre-therapy session, and both agreed to participate. As the nature of aphasia creates difficulties with explaining consent, additional time, documentation, drawing, and sample tools were provided to ensure comprehension. Confirming comprehension included evaluating comportment such as gesture, facial expression, writing, drawing, and other verbal and nonverbal expression. Participants were invited to ask follow-up questions before completing consent forms.

Intake session. The intake session was a pre-therapy program session that included a brief interview followed by assessment procedures. The intake session lasted 1½ hours. Breaks were offered every 30 minutes, but neither participant opted for a rest period. Intake sessions occurred at the Duquesne University Speech-Language-Hearing Clinic. The aims of the intake

session were to describe and discuss the psychotherapy program with participants, and to collect baseline quantitative and qualitative measures of neuropsychological domains of interest using common neuropsychological testing tools. This interview also included a collaborative discussion of participant goals for psychotherapy, consistent with a relational clinical practice. The assessments are described below.

Intake Interview. The intake interview (Appendix B) was a modified standard intake interview for outpatient psychotherapy used in the Duquesne University Psychology Clinic. An outpatient intake interview is used to gather information on client demographics, strengths and interests, clinical observations of client comportment, and explore client aims for psychotherapy (Fischer, 1995; Jordan, 2017). The standard intake interview was modified to include specific aims of this research, including questions as to whether the participant had any experience with arts-based therapies that are not part of the typical intake interview. The intake interview was conducted through an individualized, collaborative model toward beginning a therapeutic alliance, while also gathering information regarding client comportment, qualitative behavioral data, and client participant aims for this psychotherapy (Fischer, 1994; Fischer, 2006; Jordan, 2017). The intake interview also provided 80 to 90 minutes of language and communication data, such as spoken words, gestures, facial communication, and behaviors.

Burden of Stroke Scale Questionnaire. The Burden of Stroke Scale Questionnaire (BOSS) (Doyle et al., 2004) is a standardized, comprehensive self-report assessment targeting the psychological, physical, and cognitive concerns for people after they have experienced a stroke. Standardized administration includes patient or client rating of post-stroke difficulties on a scale of 1 (not at all, no difficulty) to 5 (cannot do, very difficult) related to mobility, self-care activities of daily living, communication, cognition (including memory), swallowing, energy and

sleep, and social relationships. When individuals rate any of these subscale areas at 2 (a little difficult) or greater, a second series of questions is prompted concerning the presence of anxiety, happiness, and life satisfaction related to the identified post-stroke difficulty. The BOSS also includes a 1 (never) to 5 (always) rating scale of positive and negative feelings such as loneliness, confidence, and optimism about the future.

Due to the presentation and severity of aphasia for both participants in this research program, this tool was used to guide a collaborative interview, drifting from standardization: where standard administration indicates that the client would complete this survey, either individually or with interviewer support, by marking his rating for each item, I used the BOSS in this research as an oral interview guide, reading the questions aloud while pointing to each specific question. I offered individual rating scales as indicated by individual participants, also inviting additional feedback on the individual subscales in a qualitative interview style outside of standardization. As participants responded with narrative, I indicated brief notes on their survey where they could read along any notes that I created.

Rey Complex Figure Task. The Rey Complex Figure task(Knight & Kaplan, 2003) includes visuospatial, psychomotor, memory, and executive function domains. Following standardized administration, participants were first asked to copy the complex figure quickly and accurately. The *Copy Task* evaluated visuospatial, psychomotor, and executive function domains, measured by comparative normed percentage scores for accuracy of copy and time-to-copy, and offers clinical evaluation of executive function related to planning, problem solving, emotion regulation, and overall planning of the completion of a complicated timed task while under observation. After the *Copy Task*, participants completed other activities- in this case, continuing to respond to interview questions described above. After a 3 to 5 minute interval,

participants were directed to complete the *Recall Task*, drawing the complex figure from memory. As above, this task offered clinical observation data across cognitive domains of interest, as well as recall memory, offering both quantitative and qualitative data. In a final memory component, a *Recognition Task*, participants were asked to recognize different component parts of the copied figure. Previous research shows that this tool supports a comprehensive battery, with assessment outcomes correlating with neuroimaging for individuals with aphasia (Gorno-Tempini et al., 2004). Further, this tool offered qualitative data of interest related to gross and fine motor movement and visual construction, in addition to introducing a drawing activity early in the therapeutic relationship. The Rey tasks were also useful for this research program as there are no documented learning effects after 4 weeks of administration, allowing The Rey Complex Figure Task to be used for the post-therapy program summary evaluation considering post-program outcomes (Strauss et al., 2006).

Western Aphasia Battery-Revised- Aphasia Quotient. As part of their participation in speech-language therapy, both participants had previously completed the Aphasia Quotient section of the Western Aphasia Battery-Revised (WAB-R-AQ) (Kertesz, 2006). The WAB-R-AQ is a standardized language skills assessment based on normed, numbered scores reflecting severity of language impairment (e.g. 26-50, Severe; 51-75, Moderate). Research with individuals after stroke has shown the WAB-R-AQ to be sensitive to performance changes over time, with the Aphasia Quotient including both conversational questions and a picture description activity. Six conversational questions, such as “How are you today?” and “Why are you here?” assess language fluency, information content, and grammatical competence, with points earned for each question answered completely and correctly. For the picture stimulus task, the participants were asked to describe a line-drawing picture, and generate names of different

animals. Quantitative scores result from spontaneous speech outcomes that are both conversational and informational, considering whether the linguistic responses are complete and correct as related to the picture description (Barford, 2013; Kertesz, 2006). The participant's WAB-R AQ scores prior to beginning this intervention were discussed as part of an interdisciplinary case consultation with a speech-language graduate student and are referenced in Chapter Four.

The tools described here have been used in previous research and clinical neuropsychology with individuals managing aphasia and other neurocognitive disorders. Further, some of the described tools have a population-normed sample, offering a description of the participant's functioning relative to a non-clinical sample, as well as the scope and severity of neurocognitive disruption for the purpose of an informed psychotherapy. These instruments also share the benefit of measuring multiple domains simultaneously when considered collaboratively and qualitatively. I selected these tools to decrease the time necessary for the participant to complete baseline measures while also gathering information across neuropsychological domains.

Psychotherapy Sessions. Research participants completed five to six weekly creative arts psychotherapy sessions. A complete description of sessions, including the range of art materials used, can be found in Appendix F. Sessions averaged 75 minutes. Breaks were available throughout the session but were not taken. Sessions were held at the Duquesne University Speech-Language-Hearing Clinic, with the exception of the final two psychotherapy sessions and feedback session for the second participant, which were held at the participant's home. Psychotherapy sessions were facilitated by a Masters-level (Counselling Psychology; Clinical Psychology) psychotherapist holding a certificate in Trauma-Informed Art Therapy.

Clinical supervision was provided by a Licensed Psychologist once per week at the Duquesne University Psychology Clinic in accordance with the American Psychological Association accrediting guidelines (DU, 2016), with specialized consultation provided by a licensed speech-language pathologist and a cognitive neuropsychologist. Clinical session notes were taken at the conclusion of each session as is standard for clinical psychotherapy.

An additional focus within clinical notes for this program included process-based observations of the creative product. These observations were made in consideration of the Expressive Therapies Continuum (ETC) (Hinz, 2009), a developmental strategy in creative arts therapies referencing all of the domains of interest for this program. The Expressive Therapies Continuum domains and descriptions in relation to the research domains of interest is indicated in Table 2. In addition to these standard methods for clinical psychotherapy note-taking, both participants rated their current mood on a scale of 1 (very poor) to 5 (very good) and were asked, “How do you feel about making art today?” at the start of each session. These questions were also asked at the end of the session to gain narrative feedback on the process of psychotherapy, as well as outcomes data related to the research question.

Table 2 Expressive Therapies Continuum (ETC) Levels Description and Research Domains of Interest

ETC Level	ETC Description	Research Domain of Interest
Kinesthetic/Sensory	Physiological action, sensory exploration, motor movement and physiological feedback response, intentional movement.	Perceptual-Motor Executive Function
Perceptual/Affective	Form expression, form integration, shape mixture and variation, detail, use of space, use of color, affectively expressive forms, response to abstraction	Perceptual-Motor Affect Executive Function
Cognitive/Symbolic	Concept formation, problem solving, planning, self-reflection, symbolic meaning, relationships between forms, subjective meaning, word inclusion	Affect Executive Function Language

Post-Program Summary. I conducted an 80 to 90 minute summary session with each participant a week after the final psychotherapy session. The summary session included a debrief discussion, highlighting the aims of the research and the participant goals, and a review of the creative products made during the psychotherapy program. In addition, participants revisited their pre-program BOSS responses, and completed a post-therapy program evaluation (Appendix E). The Rey Complex Figure Task was also re-administered. Then, a speech-language pathology graduate student re-administered the WAB-R AQ section. Analysis and integration of these outcomes in reference to the research question is described below.

Data Analysis.

Clinical Session Notes. My approach to psychotherapy is grounded in relational-cultural theory (Jordan, 2017; Lenz, 2016), where my role as therapist includes mutual engagement,

collaborative inquiry, and co-construction of the meaning of symptoms and responses. A short-term psychotherapy, as delivered in this program, thus emphasized the centrality of therapeutic alliance and engagement, and lead the data analysis for clinical process and reflection. Where this psychotherapy strategized a creative arts approach, I observed preferences and engagement with novel materials through attention and compoment, and responses to encouragement and redirection. The art directive for each psychotherapy session was formulated developmentally in consideration of cognitive aspects of neuropsychological domains and aligned with the Expressive Therapies Continuum described above (Hinz, 2009). The creative process and product outcomes provided behavioral and descriptive data, both in *how* the participant created the product (perceptual-motor, affect, executive function behaviors) and the complexity of the outcome.

Where aims of relational-cultural psychotherapy highlight increased comfort in interpersonal relationships, enhanced problem-solving, and contextual flexibility (Lenz, 2016), observation of these process-oriented characteristics provided rich data about neurocognitive domains described in previous paragraphs, and is reflected in Chapter Four. Psychotherapy session notes, including behavioral observations, consideration of communication strategies, and participant evaluation of individual sessions are described in the next chapter, and comprise clinical session data.

Pre- and Post- Program Comparative Analysis. As part of a summary session, participants were invited to consider their scaled ratings on the BOSS Questionnaire pre-program, and to collaboratively reflect on their initial responses with the question, “Has this changed for you as a result of participating in this creative arts psychotherapy?” in consideration

of the research question exploring how creative arts therapies influence clinical and cognitive outcomes, especially those specifically identified in the BOSS.

Participants were also asked to rate the overall psychotherapy program on a scale of 1 (very poor) to 5 (very good), and offer constructive feedback related to different aspects of the program (Appendix E), with feedback considered in relation to overall outcomes of the program and to gain any additional information about clinical and cognitive domains of interest, or process-related feedback, from the participants. These two post-program measures provided data outcomes including the social, occupational, and psychological aspects of the program, as well as the quality and desirability of a creative arts psychotherapy for these participants. This data was analyzed toward the research question considering how creative arts therapies influence clinical therapeutic and cognitive outcomes for a person managing aphasia.

I re-administered the Rey Complex Figure Task to obtain quantitative and qualitative outcome comparison from pre-program participation. This task provided a standardized neuropsychological basis of comparison of change pre- program and post- program for memory, motor, visuospatial, and planning characteristics for both participants, with research indicating no learning effects for this tool after 4 weeks of administration (Strauss et al., 2006).

Linguistic Analysis. The post-program WAB-R AQ was analyzed for comparative data in consideration of the research question. In addition to this speech-language therapy assessment tool, transcript data² from psychotherapy sessions was analyzed through computer software. Linguistic Inquiry and Word Count (LIWC) (Boyd, 2017; Tausczik & Pennebaker, 2010) is a computer program that analyzes text for overall language output and complexity, such as the

² Psychotherapy sessions were transcribed by undergraduate research assistants. Transcripts were then quality checked first by an alternate assistant. I conducted a final quality review by watching the video session and monitoring the transcript data.

number of words-per-sentence and the use of six-letter words in conversation. LIWC software also evaluates text across psychological and social domains, through categorical terms defined within the software, programmed in consultation with clinical psychologists. Transcripts were uploaded to LIWC and coded by linguistic category according to the LIWC software dictionary (Pennebaker et al., 2015). Data for this research focused on LIWC categories related to the domains of interest for the research question in this psychotherapy program (Table 3).

LIWC data outcomes included percentage of usage of semantic categories of interest. Pre- and post- program language use was evaluated for both participants from the narrative content (i.e., picture description) of the WAB-R AQ, as well as language use across the psychotherapy sessions. No research has been published to date on the use of LIWC analysis with people with aphasia, either in conversation or in psychotherapy. Therefore the participants in this study provide their own baseline (pre-program) and continuous assessment (see Kazdin, 2019). Analysis outcomes are detailed in Chapter Four.

Data from the pre- and post- program sessions, assessment and interview tools, and clinical psychotherapy sessions above are described in Chapter Four.

Table 3 LIWC Semantic Category Descriptors

LIWC Category	Domain of interest	Description
Language Variables	Language	Words-per-sentence and use of six-letter words (or greater) indicate complexity of verbal language. Nonfluencies ³ (e.g., er, hm, umm, and sound or word repetition) indicate difficulties with language, as do the use of fillers (e.g., I mean, you know, like).
Affect	Executive Function, Psychological	Dynamic emotional expression, includes verbalization of positive and negative emotions, anxiety, anger, and sadness.
Cognitive Processes	Executive Function, Psychological, Perceptual	Complex attention, learning, planning, and flexibility in thinking. Verbalization of these concepts, including insight, causation, reward, and risk.
Time Perspective	Perceptual, Executive Function, Psychological	Verbalization of a balanced time perspective that includes past, present, and future (vs. past-present), correlated with executive function, positive mood, and general quality of life (Mooney et al., 2017).

Research Rigor and Soundness

As the research described here represents a case-study design, the work does not intend to be broadly generalizable across populations. Rather, rigor in this case study is indicated through reliability, validity, and soundness in design and description. Tate and others (2008) described key concerns with case study design in neuropsychological studies. Table 4 below includes my approach to these concerns.

³ *Nonfluency* is used throughout this text as this is the semantic variable definition used by LIWC software developers. *Disfluency* is the commonly-used clinical term to describe this type of language, as this term more closely represents the action of disrupted or different language use.

Table 4 Key concerns and responses in case study research

Key problems	Approach considerations
Understanding of the problem issue/target behavior	Operational definitions of research terms, through literature search and expert consultation/supervision; Clearly describe therapy interventions and materials; Clearly detail theoretical orientation in relation to assessment methods.
Treatment efficacy	Pre- and post- assessment tools; Consultation with research participant in-session and through individual session evaluation prompts; Normed neuropsychological assessment tools.
Inter-rater reliability	Clinical consultation and supervision, including use of video review with clinical supervisor in accordance with professional standards (APA, 2014); Confirmation of clinical observations through disciplinary literature; Transcription confirmation through second review.
Replicability	Sound research design; Clear documentation of methods; Two participants with same design, reflexive person-centered approach.

Summary of Chapter Three

In the previous pages, I have described the clinical, qualitative, and quantitative design of this case study research, providing a sound approach toward evaluating this creative arts psychotherapy, delivered through an interpersonal neuropsychological framework, with participants experiencing aphasia. Herein I have clearly outlined the assessment domains of interest, methods of collecting clinical, qualitative, and quantitative data, and the analysis strategy in reference to an interpersonal neuropsychological lens. This chapter represents a

concise outline of my approach consideration exploring the research question: How does participating in a creative arts psychotherapy program influence cognitive and clinical therapeutic outcomes for a person with aphasia?

Chapter Four- Findings

The findings below consider the research question: How does participating in a creative arts psychotherapy program influence cognitive and clinical therapeutic outcomes for a person with aphasia? The following pages begin with a detailed description of two research participants in this case study. An account of respective psychotherapy sessions, clinical and behavioral observations, outcomes resulting from assessment testing and language analysis, and a comparative review of outcomes offers a comprehensive exploration of this creative arts psychotherapy. Individual findings for each participant is described in turn, followed by a discussion comparing each participant's results related to the research methods.

Case Summary 1- Mr. Smiley⁴

Background

Mr. Smiley is a 64-year-old white male, married, who has children, grandchildren, and a dog. Mr. Smiley retired from a position in financial management, a professional position he occupied for 40 years. Shortly after his retirement in January 2018, Mr. Smiley experienced a stroke as a result of a planned cardioversion to treat atrial fibrillation. He was immediately hospitalized for left middle cerebral artery stroke in the temporal parietal region. He participated in occupational and speech-language therapies immediately following the stroke as part of his rehabilitation, and has attended follow-up appointments every 3 to 6 months according to the care plan of his health team (primary care, cardiology, and rehabilitation). Mr. Smiley attended individual and group speech-language therapy at the Duquesne University Speech-Language-Hearing Clinic to address communication impairments related to mild conduction aphasia. Mr.

⁴ Pseudonym chosen by the participant.

Smiley reported that he had not received any psychotherapy, counseling, or clinical therapy in the past.

Mr. Smiley described himself as friendly, “easy”, and genuinely curious about people and the world. He said he enjoyed playing board games, watched sports of all kinds, and liked spending time with his family and friends. He has travelled regularly, most recently to a cabin for fishing, hiking, and enjoying a bonfire. Mr. Smiley said he had no previous experience with art- making, although he has enjoyed music by attending concerts and casual dancing.

Mr. Smiley reported that he regularly participates in research studies indicating that he is curious about research, speech-language pathology, and the clinical students. He said that research is important because it “helps all people,” adding that “we are a team” and the more that is learned about speech-language therapy, the better for all clients. Beyond the aims of research, Mr. Smiley said that he hoped the psychotherapy would help him to “remember how he used to be,” that he would “learn again” some of the things about himself that he felt he had lost as a result of the stroke. Mr. Smiley said, “I’m curious about me. Maybe I’ll be different” as a result of participating.

Intake Interview

Mr. Smiley arrived at his intake session on time, having driven himself. He was well-groomed, clean, and dressed appropriately for the weather. He was oriented to time, place, and activity, expressing curiosity and conscientiousness to the intake assessment materials and surveys. Mr. Smiley’s affect was somewhat constricted. For example, Mr. Smiley’s facial expressions, gestures, and voice tone remained the same when responding to both concrete questions such as birthday and address, and to those questions regarding difficult social and emotional experiences resulting from his stroke, evidencing little fluidity in affect. Mr. Smiley

did not report any difficulties with hearing. His vision is corrected with glasses, which he wears daily. He did not indicate any other sensory disruptions. His motor skills and gait, observed during the intake, appeared normal. He had a normal pencil grasp; his handwriting was mostly legible. Mr. Smiley participated in occupational and physical therapies for limb extremity numbness following the stroke, a condition which he indicated was no longer a problem. Mr. Smiley appeared to fully understand the conditions and reasoning of this research project, and independently negotiated his calendar, with the help of a mobile device, for future sessions. Along with the interview, described below, Mr. Smiley completed the Rey Complex Figure Task; the results are described later in this chapter.

Burden of Stroke Scale Questionnaire⁵. Mr. Smiley said he had no difficulty with mobility at present, although directly after his stroke he had difficulty moving his legs. While this is no longer a problem for him he said he sometimes experienced numbness in his hands and feet, and that this sometimes caused him to feel anxiety.

Mr. Smiley indicated no difficulties on scales related to self-care, energy and sleep, or swallowing.

Mr. Smiley reported difficulties across areas on the communication subscale, especially being understood by others. This caused him to sometimes feel anxious, unhappy, and dissatisfied with his life, and sometimes prevented him from doing things that are important to him.

The cognition subscale includes questions regarding concentration, problem solving, and learning new things. Mr. Smiley indicated a little difficulty concentrating, solving problems, and remembering what people say. He indicated it was moderately-to-very difficult to learn new

⁵ Due to the nature of cognitive and linguistic disruptions, the Burden of Stroke Scale was used as a framework for a collaborative interview, rather than standardized administration, as described in Chapter Three.

things, adding that he is trying to improve in this area by participating in speech-language therapies, as well as volunteering for this psychotherapy research. Mr. Smiley said that these difficulties sometimes cause him to feel anxious, unhappy, and dissatisfied with his life.

Within the social relationships subscale, Mr. Smiley said that it is moderately difficult for him to enjoy leisure activities with friends, keep old friendships going, and maintain his role as a friend. He added that this was particularly true for people he used to work with, and added that it caused him to feel sad, an emotion state that is not offered on the BOSS scale⁶. While he did not feel that these difficulties prevented him from doing things that are important to him, they caused him to feel very dissatisfied in his life.

The positive and negative feelings subscale of the BOSS asks respondents to rate how often they feel different pleasant and unpleasant emotions since the experience of a stroke. Mr. Smiley endorsed that he often feels sadness and loneliness. He endorsed rarely feeling confident, while also often feeling happy and optimistic about the future.

Psychotherapy Program Summary

Mr. Smiley attended a total of six creative arts psychotherapy sessions. In addition to a range of art interventions, each psychotherapy session included a session evaluation question at the beginning and end of the session. Mr. Smiley consistently indicated that he was feeling “good” and “excited” about making art at the start each session. A description of individual session art directives and selected outcomes can be found in Appendix I.

Mr. Smiley described himself as generally feeling warm and happy. However, clinical observations of Mr. Smiley’s affect in our first two sessions of psychotherapy indicated some constriction of emotional expression. Expressive constriction was evidenced through facial

⁶ “Unhappy” is offered as an option, however is physiologically and qualitatively different than *sadness* named by Mr. Smiley according to research in cognition and emotion constructs (see Wierzbicka, 1992).

expression, gesture, and verbalization beyond statements such as “I feel good.” For example, in one art directive, Mr. Smiley was invited to describe, using words, gestures, and images, different cards illustrating emotional expression (Figure 1) (Feeleez, n.d.). Mr. Smiley had difficulty naming different emotion states, although he indicated that he “liked it” for cards expressing positive emotions and “not good” for those expressing emotions commonly considered unpleasant.

Figure 1 Feeleez Emotion Naming Cards- Mr. Smiley



Across progressive sessions, Mr. Smiley showed an increased use of facial expression and bodily gesture to indicate positive emotions. For example, Mr. Smiley would sway his body and hands in a small dance, sometimes paired with humming sounds, to express that he was feeling excited or intently oriented toward the art directive. Mr. Smiley did not indicate the same affective expression for neutral or unpleasant moods. These clinical observations indicate some change in affective expression for pleasant or positive emotion and mood states across the psychotherapy program. He showed similar affective expression changes in response to the session evaluation question. For example, while Mr. Smiley expressed his feelings at the start of the session with single words or brief statements, his response at the close of the session proved more reflective and explanatory. In his first session, he said he was “excited...it’s gonna be

different” to describe his feelings at the start of the session. When asked how he felt about doing art at the end of the session, he responded

I'm real-, I really like it...I wouldn't think to me that I would. But right now, it feels good. It feels right, good right here, you know what I mean...the painting I did, it's beautiful. You know, like when I see anything like that I would say...wow that's really nice or it's really cool or something, something generally I would- wouldn't do that most of the time you know. I would normally do stuff like base- basketball or sports or something like that. But I think it's, I think everything, I loved just, you know how we've done, how we've just...you learn stuff. On getting painting and stuff like that...I think wow, something. I keep looking at the [art] over here, which I can't believe but anyway. So yeah, as far as us doing this today, I really enjoyed it. I had a good- I liked it. You know, and for all the other people, for people like me for stroke thing and stuff like that, how [you] could help something around that kind of people [who had aphasia].

Mr. Smiley was consistent within sessions with this pattern, responding to the individual session evaluation briefly at the start of the session, and with more affective and reflective language at the close of the session. Mr. Smiley's sentiment in regards to creative arts therapies and helping others who experienced aphasia was also repeated throughout the therapy.

In early sessions, Mr. Smiley showed difficulty attending to multiple instructions given simultaneously. For example, in our second session, Mr. Smiley was directed through verbal instruction and physical gesture to hold a paintbrush in his non-dominant (left) hand, using the brush to trace his dominant hand (Figure 2). In response to this direction, Mr. Smiley held both hands up as though he did not understand the next step. I demonstrated with my own brush that he was to hold the brush in his left hand. After beginning to paint, Mr. Smiley required repeated

reminders to hold the brush in his left hand, twice beginning with his left but moving the brush to his right hand. These behaviors may reflect impairments in working memory or perceptual-motor feedback.

Figure 2 Bilateral Hand Tracing with Paint- Mr. Smiley



Difficulty with multi-step instructions was expressed again in our third session. Mr. Smiley was unable to complete a task directive when two instructions were given simultaneously: “dip the towel in the water, then squeeze the wet towel over the paper.” The instructions were given both verbally, and through visual demonstration. In this instance, Mr. Smiley squeezed the *dry* towel over the paper, needing to be redirected three times for this task. Further, he did not appear to understand that he was not following the instructions, although he recognized that his outcome- dry paper- looked different than mine- wet paper. Over progressive sessions, Mr. Smiley showed the ability to attend to increasingly complex instructions requiring working memory and perceptual-motor feedback. For example, Mr. Smiley was able to create a small shape with clay, position the piece in relation to other pieces, and connect the pieces using water as a sealant in later sessions (Figure 3). This activity represented an enactment of complex working memory, as well as planning and judgment with increasingly abstract projects. When

compared to previous experiences described in this chapter of Mr. Smiley’s difficulty responding to instructions in his first sessions, this indicates an increasing capacity for flexible thinking and self-evaluation, all components of executive function.

Figure 3 Collaborative Clay Sculpture- Mr. Smiley



Post- Program Summary Session

In a collaborative interview at the conclusion of this psychotherapy program, Mr. Smiley and I reviewed his responses to BOSS questions from the initial interview. Mr. Smiley looked at his previous responses and considered the question, “Has this changed for you as a result of participating in this program?”

While Mr. Smiley did not indicate any difficulties in participation in self-care and everyday activities before the program, during our summary session Mr. Smiley said that he felt he had improved in this area, especially increased participation in everyday activities as the result of this psychotherapy. In this area, he added that he is “thinking about things more, like we talked about going to the art festival sometimes.”

Pre-program, Mr. Smiley discussed difficulties on the communication subscale, especially being understood by others. In the post- program summary session, Mr. Smiley indicated a reduction of difficulty- from very difficult to “a little” difficult. He added “[I] feel

like I can be more communication [sic], more say who I am and about myself. I know myself better and I can talk myself better [sic].”

With the cognition subscale questions, pre- program Mr. Smiley expressed moderate difficulties learning new things, specifically referencing this research and in consideration of creative arts processes. At the post-program session, Mr. Smiley indicated no difficulty with learning new things, saying “I didn’t think I could do the things, the art things, to learn new things. But I made the art, and...I could do the song.”

Mr. Smiley indicated difficulties in social relationships before participating in this program as a result of the stroke, especially in maintaining relationships. During the summary session, Mr. Smiley indicated an improvement in this area, saying that he had been making art at home with his wife and his grandchildren, something that he had not done prior to this program. He also shared that he had posted art that he had completed on social media platforms and had received positive feedback from family and friends, including former co-workers, an area that he had discussed in the intake session as being difficult.

On the positive and negative feelings subscale, Mr. Smiley indicated a decrease in feelings of loneliness and sadness. While he indicated before the program that he often felt happy and optimistic, in the summary session he said he felt these feelings were more present, and that his overall mood had improved.

Post-Therapy Program Evaluation. Mr. Smiley completed a final brief survey evaluating this psychotherapy program (Appendix E). On a scale of 1 (very poor, unhelpful) to 5 (excellent, very helpful), Mr. Smiley rated this creative arts psychotherapy program overall as a 5 (excellent). He rated his mood as a result of this program a 5 (excellent). When asked if he would participate in this program again if it was offered, Mr. Smiley indicated that he would,

adding “thank God I said yes to this.” Mr. Smiley shared that he found painting to be the most difficult activity as it was hard for him to imagine the outcome when we started the art directive. He also shared that the music session was the most meaningful to him, and that he also enjoyed the collaborative clay sculpture, feeling that it “belongs in the arts festival.” As a final consideration, Mr. Smiley was asked to reflect on his initial therapeutic aims for the program: to learn about himself, to better communicate, and to feel less pained by the changes resulting from aphasia. Mr. Smiley summarized that while he had been uncertain what to expect when he started the program, he learned that he could make new things if he would give it a try and “make a mess,” and that he was considering continuing pursuing art and music after our sessions ended.

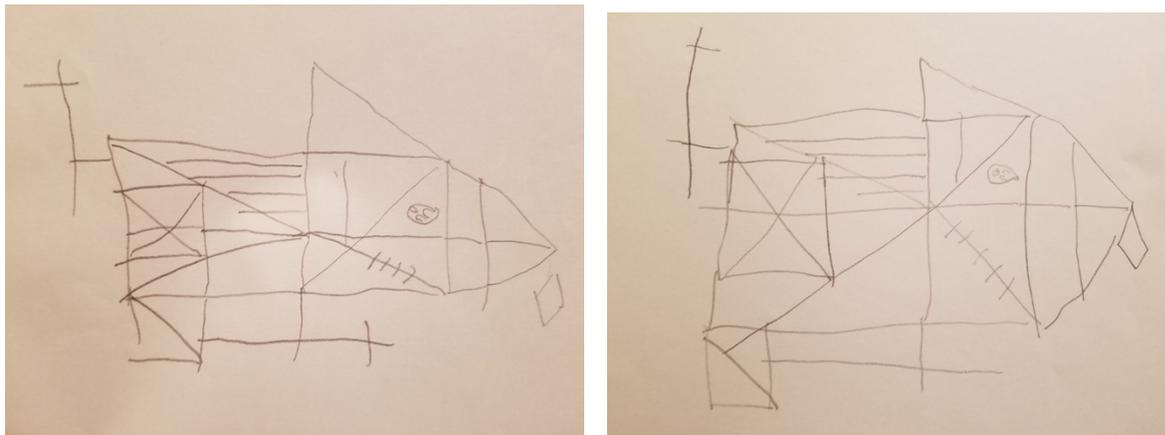
Quantitative Outcomes

Rey Complex Figure Task. Mr. Smiley completed the Rey Complex Figure Task during his intake interview (pre-program) and after the completion of the psychotherapy sessions (post-program). This included a *Copy Task*, a 3-minute delayed *Recall Task*, and an item *Recognition Task*. Behavioral and clinical observations of planning, task management, working memory, and impulse control provided evidence of Mr. Smiley’s executive function, and are recounted below.

Copy Task. At pre-program, Mr. Smiley completed the copy drawing by beginning with three small detailed features and expanding fine features into gross construction. This resulted in planning and task management difficulties that he recognized later in the task such as, “I should have made it bigger so [I] would have more room” and “I probably should have started somewhere different.” Over 10 minutes were required for Mr. Smiley’s completion of the copy task at pre-program, resulting in a time score of <1% (severely impaired) compared to standardized norms. The visuo-spatial construction included a number of omissions and copy

errors, resulting in a figure copy score in the 11th percentile (below average). Post-program, Mr. Smiley showed improved planning in copy construction, beginning with larger gross construction, followed by a more systematic approach to specific quadrants in the image. This resulted in a more efficient copy time of just under 4 minutes, with an improved score for time to copy >16% (average) (Figure 4) (Table 5).

Figure 4 Rey Copy Task Pre- (left) and Post- (right) Program- Mr. Smiley



Recall and Recognition Tasks. After a 3-minute delay, Mr. Smiley was asked to reproduce the Rey Complex Figure from memory. Mr. Smiley's recall construction at pre-program resulted in a score of 42% (below average). Mr. Smiley's recall construction post-program showed fewer errors in construction, resulting in a score of 54% (average) (Figure 5). Mr. Smiley was asked to recognize gross and fine elements of the Rey Complex Figure in a recognition memory task. Mr. Smiley's recognition memory at pre-program resulted in a score of <1% (severely impaired). Mr. Smiley's recognition memory post-program resulted in a score of 42% (below average) (Table 5).

Figure 5 Rey Recall Task Pre- (left) and Post- (right) Program- Mr. Smiley

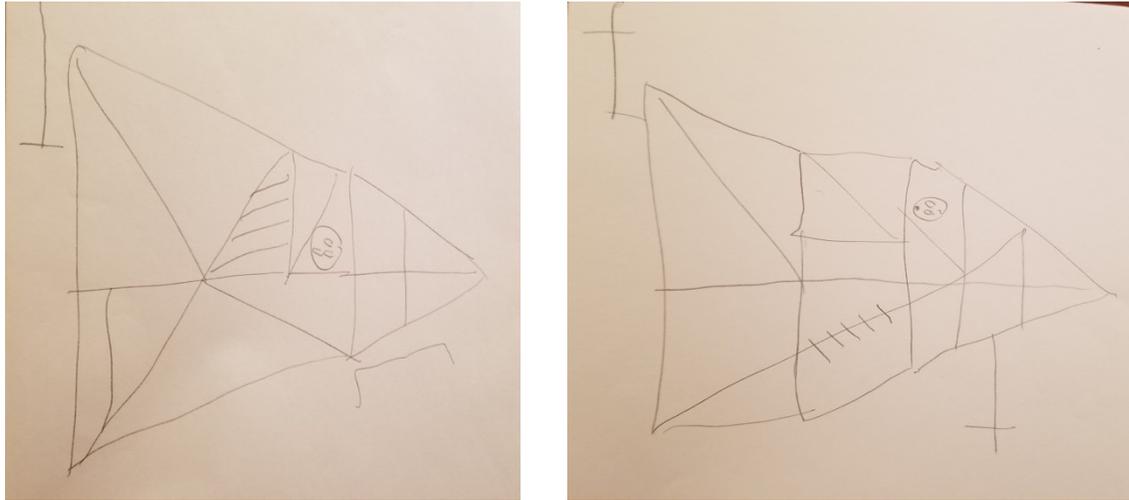


Table 5 Rey Complex Figure Task Scores Pre- and Post- Program- Mr. Smiley

	Pre-Program	Post-Program
Time to copy	<1% (Severely Impaired)	>16% (Average)
Figure copy	11% (Below Average)	>16% (Average)
Immediate recall	42% (Below Average)	54% (Average)
Recognition	<1% (Severely Impaired)	42% (Below Average)

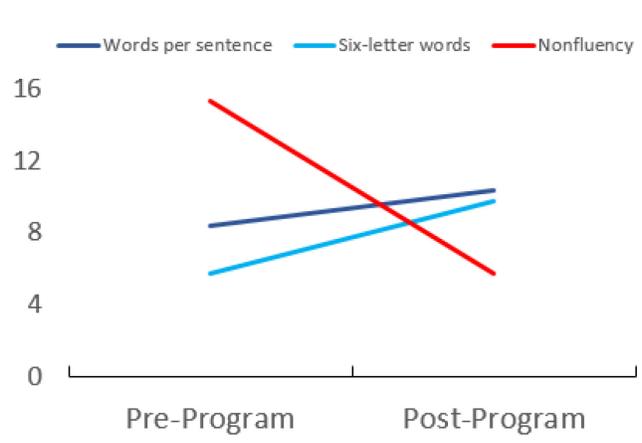
Western Aphasia Battery Revised, Aphasia Quotient (WAB-R-AQ). Mr. Smiley scored 80.6/100 on the WAB-R-AQ 10-months prior to his participation in this research (pre-program). His post-program score on this assessment was 78.9/100, indicating no change of clinical interest on this linguistic assessment.

Linguistic Inquiry and Word Count. Transcripts of assessment and psychotherapy sessions provided the data for the cognitive and clinical domains of interest described below. As discussed previously, session transcripts were evaluated using LIWC software with specific reference to domains of interest within this research.

Western Aphasia Battery Revised, Aphasia Quotient. Mr. Smiley's response to the picture description task on the WAB-R-AQ was evaluated using LIWC software for semantic

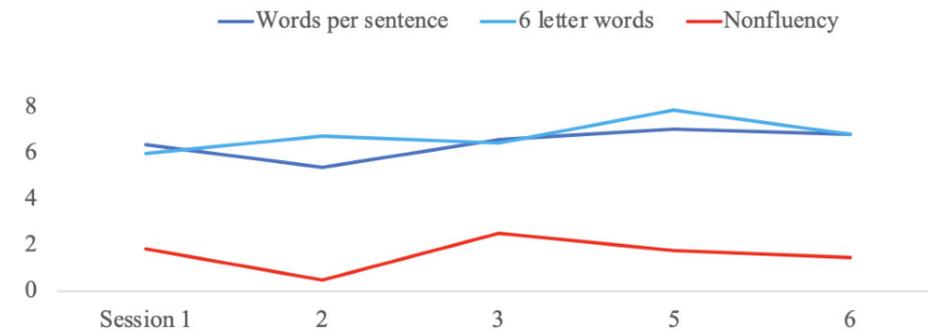
variables. According to LIWC analysis, Mr. Smiley’s semantic complexity showed an increase in words-per-sentence and six-letter words, and a decrease in expression of nonfluencies (Figure 6) from pre- and post-program comparisons.

Figure 6 WAB-R-AQ Picture Description LIWC Analysis Pre- and Post- Program- Mr. Smiley



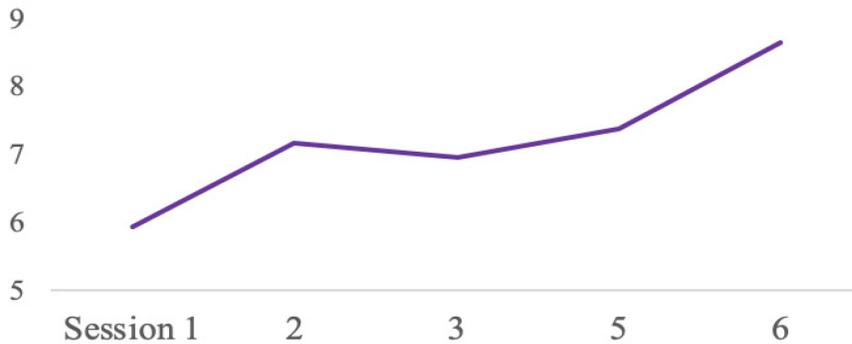
Semantic Outcomes Across Sessions. Transcripts of Mr. Smiley’s individual sessions were evaluated for the same semantic variables of complexity and difficulty with spoken language. LIWC analysis across sessions shows little change in complexity of semantics (< 1%) and little change in number of nonfluencies (< 1%) (Figure 7).

Figure 7 LIWC Analysis Number of Semantic Variables Across Psychotherapy Sessions- Mr. Smiley



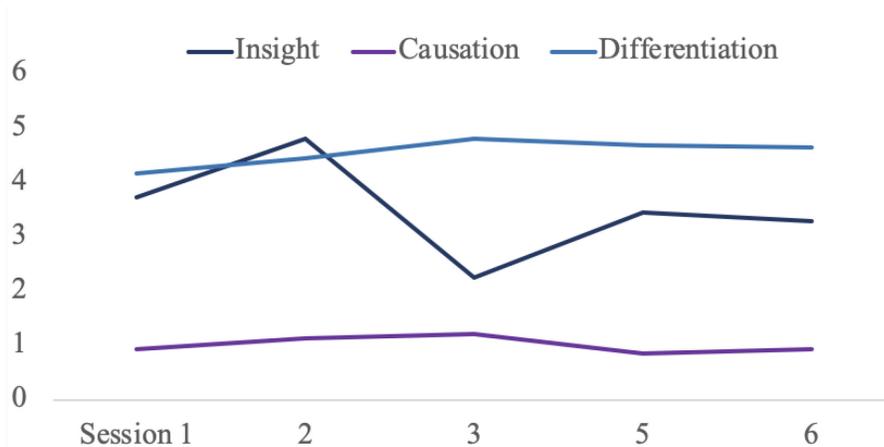
Affective Language Across Sessions. Mr. Smiley showed an increase in percentage use of affective terms across psychotherapy sessions (Figure 8).

Figure 8 LIWC Analysis Percentage Use Affective Language- Mr. Smiley



Executive Function Language Across Sessions. Executive function includes planning, reflecting, and flexible thinking in relation to tasks and self-awareness. Transcript analysis indicated little change in semantic outcomes related to word usage associated with insight, causation, and differentiation for Mr. Smiley across sessions (Figure 9).

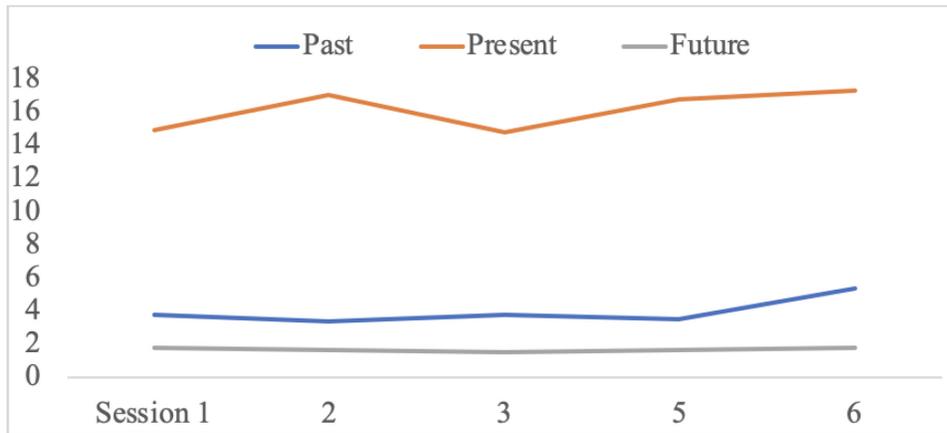
Figure 9 LIWC Analysis Percentage Use Executive Function Language- Mr. Smiley



Time perspective- that is, verbal differentiation between past, present, and future- is also a linguistic indication of executive function. Time perspective is an indication of perspective-taking and a coherent self-narrative. Figure 10 indicates verbalization of time perspectives

across sessions for Mr. Smiley, with small changes across time in semantic use of language terms related to past (1.5%) and present (2%), and little change in future-oriented language (<1%).

Figure 10 LIWC Analysis Percentage Use Executive Function Time Language Mr. Smiley



Analysis Summary

Mr. Smiley participated in all scheduled pre- program, psychotherapy, and post-program creative arts therapy sessions for this program of research. Clinical therapeutic outcomes described above by observation and Mr. Smiley’s self-report indicate benefits to mood, self-reflection, self-knowledge, and relationships with others. Mr. Smiley also indicated that he learned about himself, and that this improved his ability to express himself to others. Cognitive outcomes described above include clinical observations, pre- and post- program assessment, and transcript analysis and indicate a mixed influence- minimal change in some areas, and influence in other areas- of creative arts psychotherapy on perceptual-motor, affect, executive function, and language cognitive domains.

Case Summary 2- Mr. Sharp⁷

Background

Mr. Sharp is a 60-year-old white male. He has never been married and has no children. He has four siblings, and is very close with one of his brothers, with whom he used to work on the family farm. Mr. Sharp and his family have been livestock farmers in Western Pennsylvania for a number of generations. Mr. Sharp lived on the family farm until 15 years ago, when he experienced a stroke in his left hemisphere, that resulted in right-side hemiplegia, moderate nonfluent aphasia, and apraxia of speech. A description of Mr. Sharp's rehabilitative care after his stroke, as well as a more specific description of incident type and lesion site, were unavailable. Mr. Sharp said that he had never attended psychotherapy, counseling, or mental health services in the past.

Mr. Sharp described himself primarily through gesture and the use of a small notebook that included a number of brief notes and drawings that he indicated he also used to communicate with friends and neighbors. At the time of this study he worked as a skilled laborer, and has previous employment experiences in the lumber industry and other skilled manufacturing. His hobbies before the stroke included snowmobiling, quad-racing, and golfing-often traveling to pursue these interests. Mr. Sharp said he no longer participates in these hobbies due to hemiparesis. Mr. Sharp also said that he painted landscapes in the past as a hobby. His paintings were lost in a recent fire at his home. Mr. Sharp's current interests include listening to country music, bowling, and spending time at the Veterans of Foreign Wars with his neighbors. Mr. Sharp laughingly said that his hobbies are "Bud Light" and "Captain Morgan" at present. Mr. Sharp knows his neighbors well, living in a small and tight-knit community that regularly

⁷ Pseudonym chosen by participant.

hosts events such as bingo and cornhole competitions, in which he participates. His neighbors help him work in his yard, which he evidenced by showing me a planting of hostas that were thriving in his front garden during a home visit.

Mr. Sharp has been a regular participant in research. When asked to participate in this research, he sighed loudly and nodded, saying “Ok,” in a gesture that was difficult to interpret. In discussing this research program, Mr. Sharp said that he was interested as he had made art before, but had not tried since the stroke. He indicated that he was very proud of his achievements while adapting to the use of his left arm from his right dominant arm and hand. He evidenced this pride by explaining that he can bowl a score of 176 left-handed in his current condition.

Access to Mr. Sharp’s medical history, including details of his stroke and rehabilitation program are limited. According to Mr. Sharp, a stroke, followed by aphasia and apraxia of speech, was experienced approximately 15 years ago, when Mr. Sharp was 45 years old. Upon request, his primary care physician shared his most recent physical examination results, dated 2 years before this research. Mr. Sharp’s physician noted that Mr. Sharp reported concerns with “hearing voices and noises.” This ongoing complaint was also confirmed by the staff at the Duquesne Speech-Language-Hearing Clinic. The physician described Mr. Sharp’s concerns as tinnitus; there are no indications that any further neuropsychological or physiological evaluation occurred to confirm or rule out tinnitus.

Mr. Sharp indicated that anger and frustration had presented problems for him from early adulthood (before the stroke) through the present. He expressed an interest in thinking about these concerns during sessions. Mr. Sharp explained that he becomes angry very quickly and is “mean” without intending to be, often influencing his relationships, including with other

participants in group speech-language therapy. Mr. Sharp said he participated in this research in part due to its proximity to his other therapies, with the option to schedule his sessions on the same days as other therapies. At the start of the third session, Mr. Sharp indicated that due to a break in his speech-language therapies he was no longer interested in participating in this research. At the conclusion of that same session, when we discussed his ending this research, Mr. Sharp clarified that he enjoyed the sessions and wanted to continue, but he found driving difficult. Thus, the final three sessions (two therapy sessions and one feedback session) were conducted at Mr. Sharp's home.

Intake Interview

Mr. Sharp arrived at his intake session on time, having driven himself. He was dressed appropriately for the weather. Mr. Sharp showed yellowing of nails and skin on both hands, with the possibility of clubbing of the nails, which could be representative of his history of cigarette smoking or indication of other cardiovascular impairment. He was oriented to time, place, and activity. Mr. Sharp expressed some frustration with the intake surveys and assessment materials, evidenced through facial expression, sighing, and brief verbalizations. For example, Mr. Sharp repeated "my mind is sharp, but can't-" and made a pulling motion from his mouth to indicate speech. He confirmed my interpretation that he felt able to respond to the interview and questionnaire material, but felt annoyed that he could not respond verbally. Thus, we used a combination of brief verbal exchanges, written exchanges, and gestures to conduct the intake interview and assessments.

Mr. Sharp's affect was fluid and appropriate to the context. He used gestures, facial expressions, and written notes along with brief (two to three word) verbalizations to express his mood and emotion with congruency. Mr. Sharp had difficulty with vision in his right-eye,

corrected with glasses, which he wore during every session. He also reported difficulties hearing with his left ear, an auditory disruption in addition to the tinnitus described previously. Mr. Sharp manages right-side hemiplegia. His right leg is braced with an orthotic; he does not use any additional assistive device for walking. He expressed some pain in his right hip and right knee, adding that this is typical and “we’re good.” Mr. Sharp has been completing all tasks of daily living with his left (previously non-dominant) hand for 15 years. He has a normal pencil grasp and legible writing with his left hand. His fine motor skills of his left hand appeared intact based on observation. Mr. Sharp managed his schedule and time for each session, and was prepared for each scheduled session. Along with the interview, described below, Mr. Sharp completed the Rey Complex Figure Task; the results are described later in this chapter.

Burden of Stroke Scale Questionnaire⁸. Mr. Sharp endorsed difficulty with mobility scales, indicating with a gesture to his right leg, which is constrained in an orthotic, and lifting his right arm and letting it fall to indicate the extent of his paralysis. While these concerns presented difficulties, Mr. Sharp indicated that it did not cause him to feel unhappy, anxious, or dissatisfied with life, adding that his stroke occurred “a long time ago,” and that he has developed many adaptive mobility skills.

Mr. Sharp indicated no difficulty on the self-care subscale, adding that he cooks for himself and keeps his house clean “with just one arm.” He indicated no difficulty on the swallowing subscale. He indicated no difficulties with energy and sleep.

On the communication subscale, Mr. Sharp indicated that it was very difficult being understood by others, and that this caused him to feel anxious, unhappy, and frustrated often, and sometimes prevented him from doing things in life that are important to him.

⁸ As with the previous participant, the Burden of Stroke Scale Questionnaire framed a collaborative interview and was not administered according to standardization

On the cognition subscale, Mr. Sharp indicated difficulty remembering what people say, and with concentrating, and that this caused him “a little” anxiety, but did not cause life dissatisfaction, nor prevent him from doing things in life that are important to him.

Mr. Sharp indicated that social relationships, especially leisure activities, were very difficult, and resulted in his feeling frustrated and lonely. He verbally added “that’s important to me,” and his eyes filled with tears during this question.

Mr. Sharp indicated on the positive and negative feelings subscales that since the stroke he sometimes feels lonely, anxious, angry, and sad. He endorsed that he often feels happy and optimistic about the future, sometimes feeling confident and calm.

Psychotherapy Program Summary

Mr. Sharp participated in five arts-based psychotherapy sessions. Each psychotherapy session introduced a different art modality and creative product outcome (Appendix F). Due to the severity of Mr. Sharp’s speech and language impairments, a modified brief pre- and post-session evaluation was used. Mr. Sharp rated, by pointing, on a scale of 1 (being the worst) to 5 (being the best) his current mood, and how he felt about doing art at the start of the session on a scale of 1 (no interest) to 5 (very interested). He completed these ratings again at the end of the session. Mr. Sharp consistently rated his mood as “four, five,” adding a nod, smile, and waving hand gesture indicating somewhere between four and five. I confirmed his rating by saying, “Four or five, so your mood is very good today?” and he would validate his previous statement, sometimes adding “we’re good.” Mr. Sharp consistently rated his feelings about art-making at the start of each session at 4 (some interest). Additional description of Mr. Sharp’s session evaluation is indicated below, and a description of his individual session directives and selected outcomes can be found in Appendix I.

At the start of the research study, Mr. Sharp noted he enjoyed being around people and was sociable, but experienced extreme shifts in affective states that resulted in anger. These two presentations- his sociability and shift to anger- were evidenced in every psychotherapy session. Clinical observations of Mr. Sharp's affect indicated a generally positive presentation, with smiling, laughing, and humming. However, he showed extremely rapid shifts to what he described as "frustrating, me", also expressed through a withdrawn posture, pinched facial expression, looking down, growling, and cursing. In our first session, I confirmed that he said "frustrating," adding, "it can't feel good. It looks like you feel angry." He responded slowly and carefully

Yeah, because that hurts. It [gestures to mouth] gone forever. And don't care, keep on.

But why? Why? I don't know, but keep going...Different for me. I'm mean [makes angry face and points repeatedly around the room, referencing imaginary others in the room].

So I'm mean you, you, you. I mean good, but bad myself. I'm fine but I'm mean or mad or something. Every day stop and go. I mean, this [gestures to mouth]. Every day sit and talk. That important to me. So keep on. For years, a long time ago.

In this first session, Mr. Sharp was describing how he experienced this shift in affect with others, often people in his aphasia therapy group. During his psychotherapy sessions, he showed this behavioral affect toward himself in relation to the project with which he was working, and often related to his difficulties performing to his own high expectations. For example, our fourth session was a clay-based art directive that included experimenting with a one-handed pinch-pot (Figure 11), where Mr. Sharp successfully negotiated the clay into an appropriate shape.

However, Mr. Sharp gestured toward the object, indicating that it was not as smooth as he would

like, and rejected the object by pushing it away. He began again with a second piece of clay, deciding instead to create a horseshoe (Figure 12).

Figure 11: Single-Handed Clay Pinch Pot- Mr. Sharp



Figure 12: Self-Directed Clay Horseshoe- Mr. Sharp



During this affective episode, Mr. Sharp seemed to orient inward, appearing dissociated when attempts were made to assist, distract, or otherwise regulate the extreme emotion state. These rapid episodes, lasting 5 minutes or less, ended with Mr. Sharp apologizing and becoming tearful, explaining that it was hard for him and repeatedly asking, “But why?” Mr. Sharp expressed at least one rapid-cycling affective dynamic across sessions, with no evidence of decreased dysregulation resulting from common psychotherapeutic interventions such as

emotion naming, reflective listening, or attempts to reorient to time and task. Mr. Sharp expressed regret at the outward expressions of extreme anger across all episodes. Figure 13 is a creation that Mr. Sharp self-directed after an incident as described, where he used gesture toward his body, his facial expression, and single word descriptors to indicate that he has a very big heart, and that it is difficult to manage all of his feelings.

Figure 13 Self-Directed Clay Heart- Mr. Sharp



Beyond these rapid cycling incidents, Mr. Sharp's moods were mainly pleasant, with his expressing curiosity, a sense of humor, and interest in art materials and tasks. Mr. Sharp took the lead in some art directives, relationally engaging, and at times making comments or actions meant to influence my mood or experience. For example, in the second session Mr. Sharp took the lead on a watercolor, where I was instructed to follow his movement on my own painting. He playfully made shapes, quickly shifted directions so I would 'catch up', and expressed laughter and playfulness through giggling, humming, and affirmation sounds. This session also included Mr. Sharp's offering advice on my use of a better brush, and more consistent brush strokes when working with watercolor for a more controlled line, sharing with drawing, writing, and brief verbalizations that he is an experienced painter.

Mr. Sharp expressed discomfort experimenting with materials without a specified outcome, making clear his desire for a concrete goal or endpoint, a tendency that persisted across art directives. This seemed to limit Mr. Sharp in experimenting with different materials and colors, behavioral outcomes associated with perceptual-motor, executive function, and affective domains. Mr. Sharp's demand for concrete instructions toward concrete outcomes do not indicate a cognitive deficit per se, but rather limited his activities and so limited behavioral observations in these areas. In a notable exception, when Mr. Sharp was invited to experiment with materials not commonly associated with art-making - in this case, cooking foil and finger paints- Mr. Sharp exhibited playfulness and experimentation, resulting in a final product that he named as one of his favorite creations.

Figure 14 Tempera Paint-by-Hand on Foil 1 and 2- Mr. Sharp



Mr. Sharp rated his mood at the start of each session as “four, five” and feelings about making art as 4 (somewhat interested) at the start of every session. At the conclusion of every session, Mr. Sharp rated his mood as 5 (excellent) and his feelings about making art as 5 (excellent). Often Mr. Sharp would amplify the number 5 on the rating sheet, by circling it multiple times, drawing a “+ + +” or “*” next to the 5, and once by laughingly saying “seven.” I confirmed by asking “your mood is better than when you came in?” and he responded “yes” at every session. Mr. Sharp appreciated his final products, sitting back in his chair, smiling, and

shaking his head, saying “not bad at all.” In a notable reflection on an art piece from session three, Mr. Sharp carefully verbalized

This [pointing to painting], I like it. I really. I mean this. God. Oh godammit the best.

Yep. Oh good, very good. This, I mean a little but a lot. And different. But not bad at all.

Post- Program Summary Session

In a collaborative interview at the conclusion of this psychotherapy program, Mr. Sharp and I reviewed his responses to BOSS questions from the pre-program interview. Mr. Sharp was asked to look at his previous responses and consider the question, “Has this changed for you as a result of participating in this program?”

Before the program, Mr. Sharp indicated difficulties across questions related to communication. In the summary session, Mr. Sharp indicated that he felt reduced difficulty in being understood by *me* as we continued with our sessions, endorsing this change through gesture and pointing at the difference on the BOSS scales from “very difficult” to “a little difficult”. He did not indicate changes with communication with others.

Mr. Sharp shared a similar response to cognition subscales. Where pre- program Mr. Sharp indicated moderate difficulty remembering what people say and concentrating, Mr. Sharp endorsed a lessening of difficulty specific to the arts-based projects, indicating an improvement in this area specific to the tasks of the therapy.

Social relationships were also indicated as difficult for Mr. Sharp in his pre- program session, especially interacting with friends and meeting new people, with leisure activities being endorsed as very difficult in this subscale. In the post-program summary session, Mr. Sharp reported enjoying the art activities as a new and different leisure practice. He also indicated that he had shared his art experiences with his neighbors, demonstrating some novel social

experiences. While Mr. Sharp did not reference a scaled change, he expressed qualitative changes in this area.

Mr. Sharp indicated no change on the mobility and self-care subscales as a result of this program participation.

During the pre-program intake session, Mr. Sharp indicated no difficulty with energy and sleep. While this was not a problem area for him at pre-program, Mr. Sharp indicated at post-program that he experienced improvements in this area, especially the prompt “having enough energy to think clearly.” He also indicated reduced experiences of loneliness, anger, and sadness and enhanced feelings of happiness by pointing to these subscales in reference to the question “Has this changed for you as a result of this psychotherapy program?”

Post-Therapy Program Evaluation. Mr. Sharp completed a final brief survey evaluating this psychotherapy program (Appendix E). On a scale of 1 (very poor, unhelpful) to 5 (excellent, very helpful), Mr. Sharp rated this creative arts psychotherapy overall as a 5 (excellent). He rated his mood as a result of this program a 5 (excellent). When asked if he would participate in this program again if it was offered, Mr. Sharp indicated uncertainty. He added that working with art materials was difficult due to the partial paralysis, and that he found working with clay specifically to feel very frustrating.

Toward Mr. Sharp’s initial therapy aims: to try art-making activities, returning to something he enjoyed before the stroke, Mr. Sharp expressed his frustration at the difficulty of adapting to a different style and product of art-making across the sessions. He expressed demands on himself toward an artistic product, rather than considering the process experience, often resulting in negative self-judgment. However, when Mr. Sharp appreciated his finished products, such as the red and gold clay bowl resulting from a previous incident of frustration

(Figure 15), Mr. Sharp expressed pride at his achievement, indicating joy through smiling, nodding, inspecting, and displaying the finished product.

Figure 15 Single-Handed Clay Pinch Pot Painted- Mr. Sharp



Mr. Sharp also requested to frame and display two of his finished pieces in a place of pride in his living room, and gifted a third finished piece to me at the conclusion of our therapy.

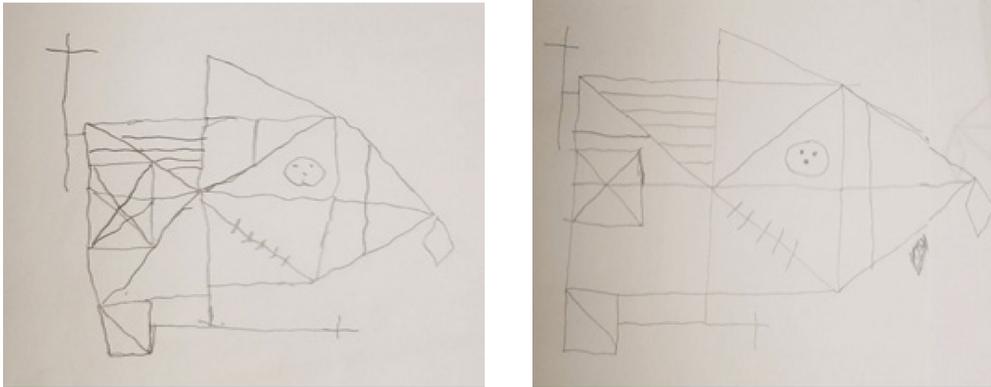
Quantitative Outcomes

Rey Complex Figure Task. Mr. Sharp completed the Rey Complex Figure Task during the intake interview (pre-program) and after the completion of the psychotherapy sessions (post-program). This included the Copy Task, delayed Recall Task, and Recognition Task described in previous sections. Clinical observations of Mr. Sharp's executive function abilities included those behaviors indicating planning, task management, working memory, and impulse control, indicated throughout these descriptions.

Copy Task. At pre-program assessment, Mr. Sharp showed systematic planning of the execution of the complex drawing, beginning with the outer frame and moving inward to the smaller details. Mr. Sharp showed few omissions and copy errors, and scored within average ranges. Post-program, Mr. Sharp used similar strategies of planning and organization, with

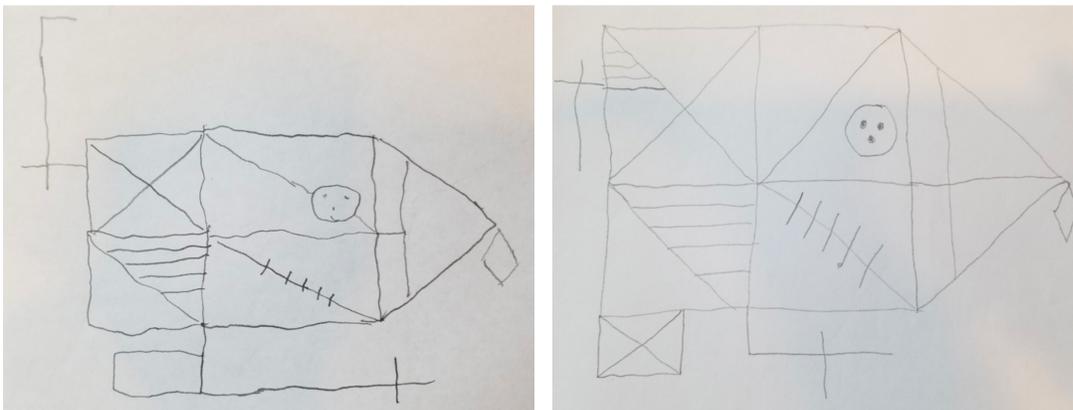
clinical observations confirming impulse control and task management for this copy task. Visual inspection of Mr. Sharp's pre- and post- program copy images also indicated improved control in line creation, displaying improvement in visual motor construction, a perceptual-motor function (Figure 16).

Figure 16 Rey Copy Task Pre- (left) and Post- (right) Program- Mr. Sharp



Recall and Recognition Tasks. After a 3-minute delay, Mr. Sharp was asked to reproduce the Rey Complex Figure from memory. Mr. Sharp's recall construction at pre-program resulted in a score of 50% (average). Mr. Sharp's recall construction post-program showed fewer errors in construction and omissions, resulting in a score of 88% (high average) (Figure 17).

Figure 17 Rey Recall Task Pre- (left) and Post- (right) Program- Mr. Sharp



Mr. Sharp was asked to recognize gross and fine elements of the Rey Complex Figure in a recognition memory task. Mr. Sharp’s recognition memory at pre-program resulted in a score of 82% (high average). Mr. Sharp’s recognition memory post-program resulted in a score of 95% (superior). While Mr. Sharp scored within acceptable ranges on the Rey, he evidenced clinically significant improvement in recall and recognition memory from pre- to post- program (Table 6).

Table 6 Rey Complex Figure Task Scores Pre- (left) and Post- (right) Program- Mr. Sharp

	Pre-Program	Post-Program
Time to copy	>16% (Average)	>16% (Average)
Figure copy	>16% (Average)	>16% (Average)
Immediate recall	50% (Average)	88% (High Average)
Recognition	82% (High Average)	95% (Superior)

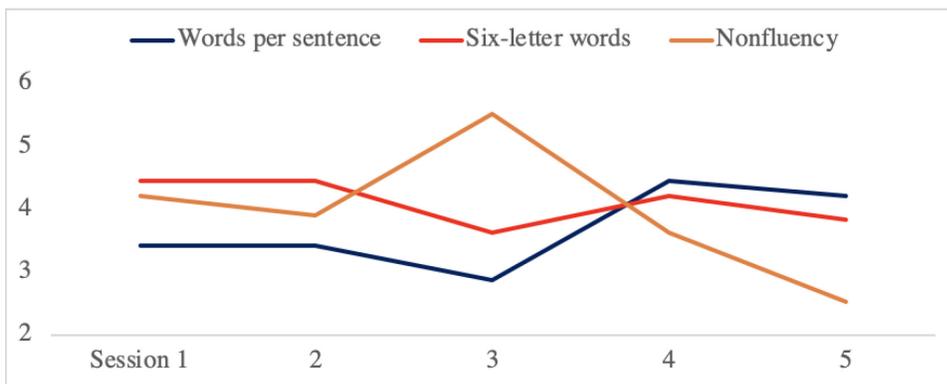
Western Aphasia Battery Revised, Aphasia Quotient (WAB-R-AQ). Mr. Sharp scored 61.5/100 on the WAB-R-AQ 18-months prior to his participation in this research (pre-program). His post-program score on this assessment was 65.1/100, indicating no change of clinical significance on this linguistic assessment.

Linguistic Inquiry and Word Count. Transcripts of assessment and psychotherapy sessions provided the data for the cognitive and clinical domains of interest described below. As discussed previously, session transcripts were evaluated using LIWC software with specific reference to domains of interest within this research.

Western Aphasia Battery Revised, Aphasia Quotient. According to LIWC analysis, Mr. Sharp’s semantic complexity showed no change from pre-program WAB-R AQ data and post-program. Due to the severity of his aphasia and apraxia of speech, data was unavailable for nonfluencies.

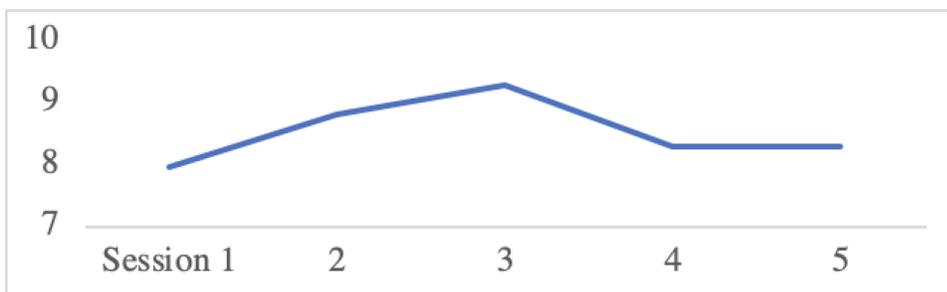
Semantic Outcomes Across Sessions. Transcripts of Mr. Sharp’s individual sessions were evaluated toward the same semantic variables of complexity and difficulty with spoken language. LIWC analysis across sessions shows a slight increase in words per sentence, a decrease in nonfluencies, and little change in the use of six-letter words (Figure 17). Notably, an increase in use of nonfluencies coincides with a decrease in semantic complexity in general, but an increase in percentage use of affect language, described in the following paragraphs.

Figure 18: LIWC Analysis Number of Semantic Variables Across Psychotherapy Sessions- Mr. Sharp



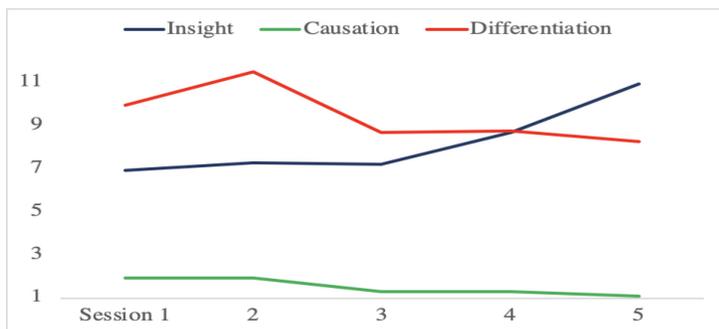
Affective Language Across Sessions. Mr. Sharp showed little change (1%) in affective language across sessions (Figure 19). As noted above, Mr. Sharp showed a relative spike in percentage use of affective language in Session 3, coinciding with a similar percentage increase in nonfluencies. This observation is discussed further in Chapter Five.

Figure 19: LIWC Analysis Percentage Use Affective Language- Mr. Sharp



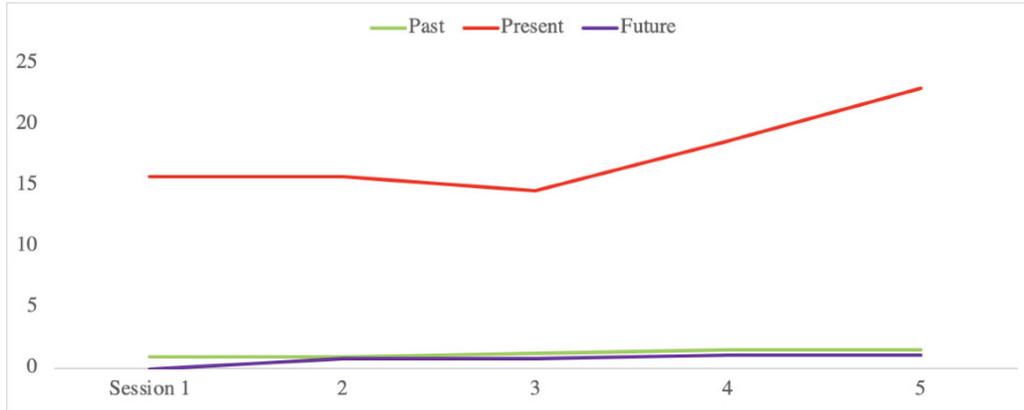
Executive Function Language Across Sessions. Executive functions include planning, reflecting, and flexible thinking in relation to tasks and self-awareness. Transcript analysis indicates a notable mix of language production outcomes related to word usage describing terms defining insight, causation, and differentiation for Mr. Sharp across sessions (Figure 20). Where Mr. Sharp showed an increase in insight-related terms across sessions (for example, *think* and *know*), he showed a decrease in language related to causation (for example, *because* or *effect*) and differentiation (*has/ has not*). These terms are descriptors of cognitive processes associated with executive function. A decrease in the use of these terms could be related to the aid of nonverbal and low-verbal communication tools; more discussion on these outcomes is considered in Chapter 5.

Figure 20 LIWC Analysis Percentage Use Executive Function Language- Mr. Sharp



Time perspective also offers cognitive evidence of executive function, specifically related to perspective-taking and a coherent self-narrative, influencing behaviors such as self-regulation, decision-making, and planning. Figure 21 indicates percentage use of language production categorized as time perspective across sessions for Mr. Sharp, with an increase in language focused on the present (7%), a slight increase in language oriented to the future (1.5%), and minimal change in language associated with the past (<1%).

Figure 21 LIWC Analysis Percentage Use Executive Function Time Language- Mr. Sharp



Analysis Summary

Mr. Sharp participated in all scheduled pre- program, psychotherapy, and post-program creative arts therapy sessions for this program of research. Clinical therapeutic outcomes described above indicate a continued dynamic affective experience for Mr. Sharp. While Mr. Sharp expressed feelings such as frustration and anger, behaviorally withdrawing when he was critical of his individual work, he showed joy, playfulness, and good humor when working relationally and collaboratively. Mr. Sharp indicated an improved mood at the end of every psychotherapy session. He confirmed this beneficial experience in the post-program evaluation, although he was uncertain whether he would participate in creative arts therapies in the future. Cognitive outcomes described above include clinical observations, pre- and post- program assessments, and transcript analysis and point to a mixed influence of creative arts psychotherapy on perceptual-motor, affect, executive function, and language cognitive domains.

Comparative Analysis

Mr. Smiley and Mr. Sharp provided two comprehensive case studies, successfully completing a low-verbal, creative arts psychotherapy program toward addressing their respective clinical therapeutic questions, and exploring the influence of creative arts psychotherapy on

cognitive outcomes. Clinical observations during the course of these psychotherapies, with directives designed toward therapeutic and domain-related outcomes, provided mixed illustrations of domain change, described in detail in previous paragraphs. Both participants evaluated the overall program positively, indicating through individual session feedback and final program evaluation that they found this creative arts therapy positively influenced their mood and some BOSS subscale areas. Both participants offered reflections on their respective beneficial experiences with art-making as psychotherapy. Mr. Sharp, of the two participants, experienced more severe aphasia along with hemiplegia, indicated uncertainty in whether he would participate in the program again due to the frustrations he experienced with the motor movement involved in art creation.

Both participants indicated clinically significant improvements in quantitative performance on the Copy, Recall, and Recognition Tasks of the Rey Complex Figure assessment from pre-program. This tool provided standardized neuropsychological evaluation of visuospatial, psychomotor, memory, and executive function domains of cognition.

There was no change in either participant scores on the WAB-R-AQ, a standardized measure of language retrieval, fluency, and comprehension. Expanded language analysis through the use of LIWC software of the WAB-R AQ picture description showed notable interaction for Mr. Smiley pre- and post- program, with an increase in language complexity and decrease in nonfluencies, however this pattern was not evident across psychotherapy sessions. Enhanced linguistic analysis of psychotherapy session transcripts across the program through the use of LIWC software show mixed results for both participants in other domains, with the most dynamic linguistic category being affect. The differential comparative outcomes of language

production, especially in relation to the unique experiences of aphasia for both participants, is discussed in greater detail in Chapter Five.

Summary of Chapter Four

This chapter represented a description of findings related to this program of research. Two case summaries describing the unique case participants, followed by descriptions of their respective psychotherapy programs, and clinical and behavioral observations provided data toward clinical therapeutic and cognitive outcomes. Standardized assessment tools and linguistic analysis, including the use of LIWC language analysis software of psychotherapy sessions, offered further data in consideration of both individual and comparative outcomes for this research. Interpretations and implications of this data is offered in Chapter Five.

Chapter Five- Discussion

The purpose of this psychotherapy case study was to explore the influence of low-verbal creative arts therapies on clinical and cognitive outcomes in the domains of language, perceptual-motor function, memory, executive function, and affect for two participants with aphasia across five to six psychotherapy sessions. Both participants expressed benefits to overall mood, and mood related specifically to participating in the therapy. Participants expressed a beneficial influence at the individual session level, and evaluation of the overall program. Clinical observations of the participants included enhanced behavioral and relational expressions, as well as notable changes related to visual-perceptual, affective, and executive function domains described in the previous chapter. Cognitive improvements on the Rey Complex Figure Copy, Recall Memory, and Recognition Memory Tasks, supported the clinical observations of change in visual-perceptual and executive function domains. Neither participant showed significant change in performance on the Western Aphasia Battery-Aphasia Quotient. Evaluation of session transcripts showed little change in performance in linguistic categories with the exception of the domain of affect. These outcomes suggest that creative arts therapies for individuals with aphasia provide a feasible, low-verbal approach to psychotherapy with potential clinical and cognitive benefits, even with limited change in linguistic outcomes. This chapter includes an interpretation of these key findings as they relate to the literature. Limitations of this program of research are also summarized, followed by implications for enhancing inclusive therapies in clinical neuropsychology practice and research.

Interpersonal Neuropsychology

Interpersonal neuropsychology and relational-cultural theory provided a comprehensive, trauma-informed orientation for this psychotherapy research. This orientation expanded the

routine scope of intervention to include the complex social-emotional, physiological, and cognitive after-effects of stroke. While a common early intervention immediately following stroke includes prophylactic antidepressants and monitoring for depression and anxiety (Cahana-Amitay & Albert, 2015; Hackett & Pickles, 2014; Yen et al, 2007), these diagnostic considerations do little to address the significant relational changes co-occurring with aphasia, apraxia, and/or paralysis, symptoms shared by the participants in this research.

An interpersonal neuropsychological interpretation of stroke as complex trauma, however, accounts for the relational identity experiences after stroke, better explaining symptoms of depression and anxiety that may arise. For example, there are a number of significant changes and losses that occur *beyond* the primary event of stroke that influence safety, self-governance, and sense of identity such as the ability to attend to activities of daily life, or to participate in occupational or social interests from before the stroke. This was described by both Mr. Smiley and Mr. Sharp, detailed in the previous chapter. These experiences have been identified previously in qualitative research. Psychological concerns such as shock, guilt, and intense fear of another stroke, coupled with the lack of emotion-focused, positive, or resilience-affirming interventions indicate gaps in therapeutic practices (Baker et al., 2020; Kneebone, 2016; Neumann, 2013; Pantalone et al., 2019; Sherratt & Worrall, 2020).

Interpersonal neuropsychology invites such a holistic consideration for a range of symptom presentations in the aftermath of stroke, including resilience. Resilience is the biopsychosocial response to trauma that includes physiological healing and pain management, flexible coping and emotion regulation in response to stressors, and relational interactions that are growth-fostering (Feder et al., 2019; Graham, 2013; Herman, 2005; Sherratt & Worrall, 2020; Siegel, 2012). Beneficial outcomes of resilience initiatives have implicated mechanisms

of relationship, creativity, and imagination (Feder et al., 2019; Seligman, 2018; Sherratt & Worrall, 2020; Stockholm Resilience Centre, 2020), characteristics consistent with this program of research. As noted in these pages, Mr. Smiley and Mr. Sharp both expressed positive experiences and showed beneficial outcomes from participating in this interpersonal neuropsychological program. Through an intentional focus on the interactive factors of the neurobiological impact of stroke, growth-fostering therapeutic relationship, and the emergent process of participating in creative arts therapies, this program proved successful as an approach to an integrative, interpersonal neuropsychotherapy.

Creative Arts Therapies

Creative arts therapies provided a modality inclusive of both a low-verbal psychotherapy and comprehensive neuropsychological engagement. The Expressive Therapies Continuum (Hinz, 2009) provided a useful framework for this research program, considering physiological, formative, and conceptual actions of art-making. The Expressive Therapies Continuum also provided a developmental framework for each individual session. For example, each session began with a kinesthetic/sensory warm-up activity to engage motor and sensory exploration and introduce the art-making process. Novel materials also invited affective consideration. Color and shape were at times evocative of symbolic memory and emotional experiences and, in some cases, resulted in unique word-generation from participation in an unusual activity. The Expressive Therapies Continuum supported the intentional planning of structure and complexity for both art materials and directives, moving from perceptual-motor domains toward increasing abstraction, integrating affect and executive function for the participants. Both Mr. Smiley and Mr. Sharp expressed elements of surprise and pride with their respective art products, and both participants showed increasing levels of comfort with creativity and abstraction. The

developmental strategy of the Expressive Therapies Continuum proved useful in scaffolding cognitive skills, related to both the art materials and specific or unique individual physical abilities and affective sensibilities. This often resulted in increasing agency and confidence in creating a final product.

The arts materials invited Mr. Smiley and Mr. Sharp toward self-awareness and self-reflection, but also provided a unique relational interaction with me, the psychotherapist. Art-making with others, whether in a health setting or community setting, has proved beneficial for health outcomes and relationship (Fancourt, 2017) and this work adds to that literature. I observed that these shared art interactions enhanced the therapeutic relationship through mirroring and attunement, both important facets of clinical relationships (Wampold, 2015; Woolnough & Chilcote, 2017). The ability to attune with others has also proved an effective intervention for reducing arousal and stress related to complex trauma, at interpersonal and neuropsychological levels (Cohen et al., 1995; Courtois & Ford, 2012; Haas-Cohen & Findlay, 2015). Physiological attunement, such as pantomime, gesture, and facial movements are described as the *praxis* of interpersonal communication by Cahana-Amitay and Albert (2015). These complex biomechanics are important neuropsychological communicative interactions for a person managing aphasia. Attuned art-making involves relational praxis toward purposefully skilled communicative gestures (Cahana-Amitay & Albery, 2015; Siegel, 2012). The added demands of manipulating art materials include shared object recognition and tool use (Pyers et al., 2016; Rose, 2006). Creative arts therapies thus represent an intricate communicative demand, with both participants expressing difficulties as well as growth. Mr. Smiley verbally indicated that he felt some worry that he was not “doing it right,” but through watching my playfulness and risk-taking, he felt more comfortable; Mr. Sharp expressed, through smiling and increased

attention, that he enjoyed the mirroring activities, especially when we took turns leading. Creative arts therapies, intentionally designed within the Expressive Therapies Continuum, provided a neuropsychologically-informed structure to establish a cognitive scaffold with necessary interpersonal flexibility.

Inclusive Psychotherapy

Gaps in psychology research with older adults, and with people managing aphasia are substantial. While research indicates that these populations benefit from participating in psychological interventions (Cloosterman et al., 2013; Hillman & Stricker, 2002), older adults are less likely than younger adults to seek outpatient mental health services for a variety of reasons. Coordinated care through co-location or integration of psychological services reduces some logistic and ideological barriers for those who might not typically consider these services (Funderburk & Shepardson, 2015; Hillman & Stricker, 2002; Kent et al., 2012). In this research, co-location of psychotherapy in a speech-language-hearing clinical setting provided an important bridge for participants. Importantly, both of the men in this study indicated that they had not received- or considered- counselling or psychotherapy in the past. Both participants evidenced psychological and cognitive benefits, and expressed pleasant surprise at the ways the program improved their mood at the individual session level and overall. This program points to systems-level benefits of integrated, collaborative care, and the need for continued research and practice across allied health services.

The approaches described in this program were also individualized for the unique physiological and cognitive differences of the participants. While manualized programs represent the greatest research focus in clinical psychology, a review of research indicates a lack of representation for clients and patients with physical and cognitive differences in evaluations of

such programs (Levant, 2005; Man & Kangas, 2019; Olkin, 2017). The creative arts therapies applied in this case study aimed to de-center language, acknowledging the many ways that each participants' self-expression and relational interaction can differ. More work is needed toward considering difference- *affirming therapies and significant life-changes* that influence a person's present and imagined future.

Visuospatial Construction and Memory

Both Mr. Smiley and Mr. Sharp showed clinically significant improvements in the Rey Complex Figure Copy, Recall Memory, and Recognition Memory assessment activities after participating in the creative arts therapies. As described previously, these tasks evaluate visuospatial, psychomotor, executive function, recall, and recognition memory (Knight & Kaplan, 2003). These cognitive functions were of interest in this program as they relate to psychological health, overall cognitive function, and specific functions associated with language.

Visuospatial construction is not often a primary target of stroke rehabilitation (Lo et al., 2019). Visuospatial disruption after stroke is not as apparent as language and physical impairments, especially in people with left hemisphere damage, although unnoticed deficits in spatial attention and visual memory could influence daily activities such as driving a motor vehicle. Pre-program, Mr. Smiley performed in the <1% range on Rey construction activities. Observationally, Mr. Smiley also showed difficulties in shifting spatial attention between his hands, the art-making tools, and the tasks each was directed toward. Mr. Smiley showed a significant improvement in visuospatial construction after participating in the creative arts activities. These observations suggest Mr. Smiley may have been a good candidate for visuospatial rehabilitation activities directly following his stroke. Mr. Sharp also showed improvements in visuospatial construction post-program, although he scored within the average

normed range for visuospatial construction at pre-program. These outcomes support findings from previous research connecting visual arts activities to generalized improvements in spatial cognition and construction (Fancourt, 2017; Lo et al., 2019).

Improvement in recall and recognition memory for both participants was also observed. It bears repeating that although participants were asked to draw the Rey figures multiple times, previous validation research with the Rey tasks found no learning effects after 4 weeks of administration (Strauss et al., 2006). While there are studies documenting the influence of drawing on memory, previous studies typically measure memory encoding of that which was drawn. For instance, Fernandes and colleagues (2018) found that nursing home residents with differing stages of dementia were able to recall a word list with items that they had drawn, but were unable to recall words that they had not drawn, an experiment that has been replicated in healthy adult populations (Barron et al., 2020; Meade et al., 2019). These authors highlight the valuable mechanisms of drawing and memory, such as the influence of aesthetic elaboration, imagination, and motor skills. However previous research has not explored in detail the connection between these skills with generalized memory benefits, as found in the present study.

The co-occurring conditions of engagement, therapeutic relationship, the pleasant nature of art-making, and the reward of the final product have been implicated in research exploring improvements in attention and executive function as a result of art-making; skills associated with improved performance on the Rey noted here (Fancourt 2017; Haas-Cohen & Findlay, 2015). Previous research suggests that these characteristics of art-making represent rewards that contribute to sustained attention, positive mood, and creative problem-solving. The engagement and reward experiences were clearly observed in the participants' behaviors and responses to the arts activities, both at the individual session and the program levels. The

creative arts interventions directed in the study also demand sustained attention, visual discrimination, working memory, and cognitive flexibility. I propose that the practice of these cognitive skills, with the visual and interpersonal rewards of creative *making*, may have resulted in generalized improvements in executive function and memory, as reflected in improved scores on the Rey. Further benefits of creative arts interventions, include the invitation toward the imagined outcome, and the aesthetic communication of the imagined outcome- a practice in problem solving. Problem solving is a measure of executive function, requiring both complex memory and agency (Ady, 2020; Bell & Zurilla, 2009). Arts-based interventions deserve further examination as a practice in sustained memory, sustained attention, and executive function.

Creative Arts Therapies and Language

Creative arts therapies in this research was used in part to explore the efficacy of a low-verbal psychotherapy for participants with communication disorders, aiming to de-center language as the primary modality of psychotherapy. However, improvements to language production and communication were of interest, as language has been implicated in trauma-informed care. Although there was no change evidenced in either participant's WAB-AQ scores, behavioral differences in communication were observed, described in the previous chapter and also noted by the participants in their respective summary sessions. There was also a qualitative difference in the WAB-AQ assessment for Mr. Smiley from pre- to post- test. That is, Mr. Smiley responded to conversational questions in the WAB-AQ by discussing the art projects that he was involved with, a novel activity that provided a new communicative interaction. The differential outcomes between the quantitative language assessment and the qualitative outcomes within this research highlight the importance of using multiple tools of language assessment.

This is a clinical challenge of language assessment that has been identified by others (Armstrong et al., 2011; Bryant et al., 2016; Cahana-Amitay & Albert, 2015).

Both participants in this study shared a specific difficulty with emotion-naming beyond simple expressions (e.g. “I like it”; “we’re good”). Both participants also exhibited affective disruption, with Mr. Smiley expressing a flat affect initially, and Mr. Sharp a fast-cycling arousal. Clinically defined as alexithymia, a linguistic symptom associated with complex trauma, this presents as a difficulty with emotion word-finding and difficulty relating emotion and affect words to their underlying meaning. Clinical research suggests that these difficulties influence a person’s ability to monitor and regulate emotional experiences (Haskell, 2003; Herman, 2005; Lanius et al., 2010). Alexithymia is also connected to poorer memory and executive function outcomes for older adults (Correro et al., 2019; Vermeulen, 2019), reaffirming the supposition held throughout this project of widely distributed and multifunctional neural networks of language (Cahana-Amitay & Albert, 2015; Poeppel et al., 2012; Tremblay & Dick, 2016). While it is uncertain from this research whether the difficulty with emotion word-finding and concurrent expression of emotion was a result of language loss due to aphasia or due to the traumatic disruption of stroke, evidence of richer emotional expression is provided by the clinical observations, affective dimension of LIWC analysis, and feedback from the participants described in the previous chapter. The observed expansion in emotional expression may be related to the experience of psychotherapy, a space that is culturally acknowledged as one of emotional exploration and expression, or the unique relational and social transaction of art-making that is meant to evoke a range of psychological and cognitive experiences. This is notable because, emerging research that specifically targets emotion vocabulary coupled with emotion awareness has shown promise in reducing the disruption of alexithymia after brain

injury (Neumann et al., 2016), with creative arts therapies offering low- and non-verbal alternatives that maintain the social communication aspect of emotional expression and regulation (Fancourt, 2017).

Computerized Language Analysis- LIWC

Linguistic Inquiry Word Count (LIWC) software is designed specifically to analyze psychological and relational uses of language (Bryant et al., 2016; Tausczik & Pennebaker, 2010), and this research represents one of the very few studies using computer-based text analysis for people managing aphasia (see Bonder et al., 2005). Further, this research is unique in exploring the use of language during a creative arts psychotherapy. LIWC provided a depth of analysis of linguistic domains as they relate to cognitive domains, raising questions about interactions between language and the relational participation of this arts-based psychotherapy.

The exploration of language through LIWC evaluation The LIWC word category for Affect includes processes of emotional, such as happy and cried, as well as positive and negative emotions and mood (e.g., love, nice, hurt, worried, sad), aligned in this research with the affect cognitive domain. As described in previous sections, the expression of emotionality predicts well-being and health outcomes, and is a primary area of intervention in psychotherapies reducing symptoms associated with trauma and other persistent, pervasive psychological health concerns (Gantt & Tripp, 2016; Haskell, 2003; Herman, 2005; Neumann et al., 2016).

According to LIWC analysis, Mr. Smiley showed a consistent increase in the use of affective language expressions across psychotherapy sessions, as described and illustrated in Chapter Four (Figure 8), despite relatively little change in general semantic production across sessions. While no baseline exists for affective language for a person with aphasia, nor a normative sample for psychotherapy or arts-based therapies, the interdependence of affect and other cognitive domains

is an area of research that deserves future investigation. Participating in this psychotherapy program had an observable influence on Mr Smiley's use of affective language, independent of other semantic categories. Mr. Smiley's self-report confirmed that he felt more able to communicate his experiences. This suggests that, in relation to the research question, Mr. Smiley experienced an increase in affective language use *in particular* by participating in this creative arts psychotherapy. This supports emerging research exploring the utility of emotion-focused interventions for individuals with alexithymia resulting from brain injury (Neumann et al., 2016), and the use of creative arts therapies to explore affective experiences for individuals having experienced medical trauma (Elkis-Abuhoff & Gaydos, 2016; Hinz, 2009).

Mr. Sharp showed a similar, but less pronounced, increase in affective language usage over the course of this psychotherapy. Interestingly, LIWC analysis showed that Mr. Sharp expressed more affective language in Session 3, coinciding with the use of more nonfluencies (e.g., er, um, stuttering), further described and illustrated in Chapter 4. This raises questions about the connection between emotion *language* and emotional *experience* for Mr. Sharp. Cahana-Amitay and Albert (2015) describe an affect-based *attentional control model* of language that offers one explanation for Mr. Sharp's observed behavior. These researchers suggest that an intense unpleasant emotional experience results in difficulties shifting attention from the distressing mood, influencing the ability to access semantic content or retrieve words. They go on to describe the experience of being trapped in unpleasant mood states as *linguistic anxiety*:

Persons with aphasia remain hyperfocused on the potential for language breakdown while engaged in a language task, and this concern is reinforced by an increased psychophysiological stress response...it consumes some of the attention resources that

would otherwise be allocated to supporting the performance of the language task at hand...the attention resources that aphasic persons exert to suppress their anxiety compete with the resources necessary for processing task-relevant information, thus impairing their language performance. (p. 162)

Consideration of an attentional control model and linguistic anxiety in light of Mr. Sharp's experience supports the proposition that therapies for aphasia resulting from stroke should take into account complex trauma symptoms and interventions designed to address emotional arousal while also encouraging a coherent affective narrative. Mr. Sharp's experiences in this psychotherapy- based on outcomes of the linguistic analysis, clinical observations, and his self-report suggesting both an appreciation of the program despite his struggling with its physical and linguistic demands- provides an important critique of therapies in light of physical and cognitive difference. Ironically, the focus on language production as a necessary component for rehabilitation and relationship may be cause for significant psychological distress, perpetuating the loss and change associated with the stroke event and perhaps disrupting possibilities for healing and resilience.

Limitations

The outcomes described here, while addressing the research questions posed, share limitations common to this methodological and theoretical approach. A case study methodology is limited in scope simply due to the unique individual nature of the qualitative relationships between the researcher and the participants, a well-researched variable that influences the analysis (Kazdin, 2019; Tate et al, 2008). As researcher, my clinical training has included creative approaches to psychotherapy and neuropsychology, with practice in the dynamics of relational-cultural theory described in previous chapters. The participants for this study represent

a sample bias that could influence interpretation of the outcomes. First, both participants were regular volunteers for research, with motivation to participate that is not always present in a strictly clinical intervention (see Stunkel & Grady, 2010). Both participants expressed an interest in participating in an arts-based program, and this interest may have influenced the research outcomes in a way that would be skewed for a person who had little to no interest in arts-based psychotherapies. The participants were both men, and gender-disaggregated data related to stroke and biopsychosocial experiences has indicated differential outcomes related to psychological and cognitive domains (Reeves et al., 2008). The unique individual variables presented by researcher and participants influenced outcomes, and these variables are not replicable.

The established quantitative and qualitative traditions of clinical research adopted here also present unique limitations when applied with individuals living with aphasia, a challenge that has been documented in previous research (Manning et al., 2019; Simmons-Mackie & Lynch, 2013). While efforts have been made by myself and presumably by the participants to provide sound data, the methods and assessment tools herein represent some reliance on verbal conversation, nonlinguistic communication, and subjective interpretations. Further, as there are no standard norms for outcome variables for LIWC data for people with aphasia, visual analysis of change provided the outcomes data for this variable, and is subject to bias of case-study design (Kazdin, 2019; Tate et al, 2008).

Finally, while this research aimed to improve clinical interventions through low-verbal methods, the research question and design were developed upon a framework of neuropsychological research and practice with significant gaps in literature and practice for both mid- and late- adult participants and those managing physiological and cognitive difference

resulting from neurological incident. While this research aimed to address some of those gaps as they relate to my clinical training, questions remain about ability-affirming therapies and lifespan development, and the role of the arts in amplifying those questions of meaning-making (see Perez-Alvarez, 2018; Poeppel et al., 2012).

Implications

As noted throughout these pages, there is a significant gap in clinical training and outcomes research for psychologists toward providing psychotherapies for individuals with speech-language differences, and possibly more concerning gaps in interdisciplinary training that would allow for comprehensive, relational, rehabilitative care for individuals in allied and medical settings. Although the American Psychological Association has indicated interdisciplinary and interprofessional skills as a core competency (Smith, 2015), some authors caution that interdisciplinary training interferes with the specific theoretical ethic of care within the psychology discipline (Heesacker, 2005), or cite the challenge of expanding the current mass of training in clinical psychology to include interdisciplinary and integrated health services (Combs et al., 2014). Notwithstanding these challenges, this research implicates clinical psychologists as an important collaborative partner in speech-language rehabilitation, where clinical neuropsychology as a discipline offers unique insights integrating the cognitive and psychological impact and meaning-making on life changes related to stroke. Poeppel and co-authors (2012) described this gap as a “troubling disconnect” (p. 14127) between the abstraction of language production, neurological correlates of motor and language function, and the relational import of language. Expanded training and clinical residencies toward these aims deserve the attention from psychology as a broader discipline.

Additional clinical implications include continued exploration of creative arts therapies as an integrative, neuropsychological approach. While in some locales art and music therapy are protected professional designations, integrated arts into health and medical settings has a historied tradition as a community- and culture- centered, flexible approach that disrupts some of the limited boundaries of other standardized or manualized approaches, with research reviews consistently indicating beneficial results for adults (Fancourt, 2017; Regev & Cohen-Yatziv, 2018).

Finally, continued research is necessary into the ever-expanding understanding of language, and critical consideration of language assessment and rehabilitation approaches. Many authors cited in this research have raised concerns about over-simplifying lesion-specific approaches that “dramatically underestimate the number and distribution of brain regions known to play a critical role in language” (Poeppel et al., 2012, p. 14126; see also Cahana-Amitay & Albert, 2015; Manning et al., 2019; Simmons-Mackie & Lynch, 2013). The use of psychologically-based computer analysis, such as LIWC, expands ways of approaching functional and attentional language across domains, and neuropsychology and allied health providers and clients could benefit from continued exploration in this area.

Conclusion

This case study provides initial support for the beneficial clinical and cognitive influence of relational creative arts therapies, a novel approach to clinical and neuropsychological intervention for people with aphasia. This case study also expanded inclusive tools for low-verbal psychotherapy, and raised questions for reflection and research on the integration of creative arts therapies, clinical neuropsychology, and cognitive rehabilitation. In conclusion, this study provided a contribution to clinical psychology, specifically the efficacy and effectiveness

of creative arts therapies for individuals managing aphasia after stroke.

Further case studies should be designed to center the unique, individualized, and specific needs of the individual to continue expanding the research on creative approaches to clinical neuropsychology and efforts toward holistic and interdisciplinary approaches to cognitive rehabilitation.

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Appendix A Consent Materials

CONSENT TO PARTICIPATE IN A RESEARCH STUDY

TITLE: Without Words: Relational Neuropsychology and Creative Arts Therapies for People Managing Aphasia

INVESTIGATOR: Autumn Marie Chilcote, MEd, MA, McAnulty College and Graduate School of Liberal Arts chilcotea@duq.edu

ADVISOR: Alexander Kranjec, PhD, Associate Professor, Psychology, McAnulty College and Graduate School of Liberal Arts kranjeca@duq.edu 412-396-1613

Sarah E. Wallace, PhD, CCC-SLP, Associate Professor, Speech-Language Pathology, Rangos School of Health Sciences wallaces@duq.edu 412-396-4219

SOURCE OF SUPPORT:

This study is being performed as partial fulfillment of the requirements for the doctoral degree in Clinical Psychology at Duquesne University.

PURPOSE:

You are being asked to participate in a research project that seeks to investigate the effects of creative arts therapies on the physical and psychological effects of aphasia.

In order to qualify for participation, you must be 18-85 years old and diagnosed with aphasia resulting from stroke.

Decisions about your participation in this research will in no way affect other services that you receive at Duquesne University.

PARTICIPANT PROCEDURES:

To participate in this study, you will be asked to complete an intake session, which will include a mental and physical health interview and three short activities that are used in psychology to evaluate memory, attention, language, motor function, and general mental health. You will then be asked to participate in six to eight video-taped arts-based therapy sessions, during which I will invite you to do arts and craft-type activities and ask you to reflect on your experiences. No arts experience is necessary to participate. You will be asked to use different arts-based materials such as paints, clay, and crayons, musical instruments, blocks, and collage materials. We will then have one final session where you will be asked to complete the short activities from the start of our time together to see if there are any differences in your experiences before and after the art-making sessions.

The creative arts therapies sessions will be video recorded and transcribed. Each session will last about 1-½ hours. We will have one introduction session, up to eight arts-making sessions, and one summary session, for a total of up to ten meetings. The meetings will take place either at the Duquesne Speech-Language-Hearing Clinic or at your home. All of the material will be provided by the researcher.

These are the only requests that will be made of you.

RISKS AND BENEFITS:

Potential benefits of the study. You will receive arts-based psychotherapy from an experienced clinician at no cost to you. Additional benefits might include self-awareness, enjoyment of creative activities, and therapeutic relationship. You will also be contributing to knowledge on the use of creative therapies for individuals managing aphasia. We cannot guarantee, however, that you will receive additional benefits from this study.

Potential risks of the study. There are minimal risks associated with participating in this study. You are being asked to reflect on your thoughts, feelings, and experiences as part of this study, and may feel some discomfort in considering these topics. You may withdraw from the study at any time before or during your participation. In addition, you will be provided with community resources where counseling and health services are available to you.

COMPENSATION:

You will receive a \$20 Amazon gift card as a thank you for volunteering for this study.

Participation in this project will require no monetary cost to you. All arts materials will be provided by the researcher.

CONFIDENTIALITY:

Your participation in this study and any personal information that you provide will be kept confidential at all times and to every extent possible.

Your name will never appear on any survey or research instruments. All written and electronic forms and study materials will be kept secure. Your response(s) will only appear in statistical data summaries. Any study materials with personal identifying information will be maintained for six years according to HIPAA guidelines, after which the research data will be destroyed.

If you give us your permission by signing this document, the responses that you provide will be used to write about and present on this topic. All identifying information will be removed or censored to protect your privacy. To further protect your privacy, a false name will be used to identify your responses on all future documents. **Therapy sessions will be video recorded.** The video recording will be transcribed (typed), with identifying information being censored in order to protect your privacy and the privacy of your family. The video recording will be a password-protected, encrypted file, kept in locked storage at Duquesne University until the completion of the project, after which time it will be destroyed.

HIPAA AUTHORIZATION:

You understand that by participating in this study, you are giving us permission to use your personal health information in your medical record and information that can identify you. The health information procedures in this study are HIPAA compliant. Any health protected information obtained will be stored by the research for six years after the completion of the study.

RIGHT TO WITHDRAW:

You are under no obligation to participate in this study. You are free to withdraw your consent to participate at any time by informing any member of the research team. Data collected will maintain part of the research protocol.

SUMMARY OF RESULTS:

A summary of the results of this research will be supplied to you, at no cost, upon request.

VOLUNTARY CONSENT:

I have read the above statements and understand what is being requested of me. I also understand that my participation is voluntary and that I am free to withdraw my consent at any time, for any reason. On these terms, I certify that I am willing to participate in this research project.

I understand that should I have any further questions about my participation in this study, I may call Autumn Chilcote at 412-396-6562 or Alexander Kranjec at 412-396-1613. Should I have any questions regarding protection of human subject issues, I may contact Dr. David Delmonico, Chair of the Duquesne University Institutional Review Board, at 412-396-1886.

Participant's Signature

Date

Researcher's Signature

Date

Appendix B: Pre- Program Interview

Date: _____ Identifier: _____

Are there communication tools that you use/prefer?

Confidentiality and informed consent explained?

Gender: _____ Date of Birth: _____

Contact: _____

Cultural description: _____

Cultural/spiritual traditions in your daily life?

Counseling/Psychotherapy History?

Are you currently seeing a psychiatrist?
[Who/Where and current medications including supplement]

SAFE-T Assessment Modified (SAMHSA, 2009)

Risk Level	Risk/Protective Factor	Suicidality	Interventions
High	Psychiatric disorder with severe symptoms; Acute precipitating event; Key symptoms present; Family history; Change in treatment; Access to firearms <i>Protective factors not relevant</i>	Persistent ideation with strong intent; Suicidal rehearsal; Potentially lethal previous attempt	Suicide precautions; Admission indicated *End interview.
Moderate	Multiple risk factors; Difficulty coping with stress, frustration tolerance; Responsibility to children or pets; Therapeutic relations; Social support	Ideation with plan but no intent or behavior	Develop crisis plan; Give emergency/crisis numbers; Admission may be necessary depending on risk *Supervision

Low	Modifiable risk factors; Strong protective factors	Thoughts of death, no plan, no intent, no behavior.	Symptom reduction; Referral; Give emergency/crisis numbers.
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Therapy Aims. What are 1-2 hopes or questions that you would have for this therapy? (Why are you interested in this study?)

Family/Relationship History:

Education/Occupation History:

Personal Interests/Hobbies:

Other client feedback/questions:

Appendix D: Psychotherapy Notes Sample Outline

Duquesne University Psychology Clinic

This outline is intended only as a guide and is not a required format for session notes. Comment on what was most salient and what you would like to recall in supervision.

- I.A. Topics/content of discussion (client discoveries, accomplishments, and progress toward goals)
 - B. Client's presentation/comportment and dynamics (including those between client and therapist); symptom presentation related to diagnoses or presenting concerns

- II. Interventions/ Interpretations and client's response/outcomes

- III. Plans for future sessions

- IV. Red Flags

Appendix E: Post-Therapy Program Evaluation

Overall, how would you rate this creative arts psychotherapy program that you have completed?

1 2 3 4 5
(very poor, unhelpful) (ok, somewhat worthwhile) (excellent)

Overall, how would you rate your mood as a result of participating *in this program*?

1 2 3 4 5
(very poor, unhelpful) (ok, somewhat worthwhile) (excellent)

Would you participate in this program again if it was offered? (Y/N)

What was the most effective part of this program?

What part of this program did you find the least effective?

Do you feel you addressed your aims from the start of the program?

Appendix F: Session Descriptions and Selected Outcomes

Table 7 Mr. Smiley Session Descriptions

Session Number	Art directives	Materials
1 Figure 22	Scribble chase [warm up] Find images, show and name Complete the image	Crayons, white paper roll, markers, cutter, document frame
2 Figure 23	Trace your hands [warm up] Color the mood Create the mood 1 and 2	Tempera paint, brushes, large media paper, marker, Feeleez cards
3 Figure 24	Tap with metronome [warm up] Play along, egg → frog → bell Make a rattle Play along percussion, instrument choice Play along radio song	Metronome, percussion frog, bell, egg shaker, small bottles, noodles, beads, glitter
4 Figure 25	Playful/mindful watercolor [warm up] Pastel with watercolor Cut/tear, build a canvas	Watercolor paint, paper, paper towels, oil pastels
5 Figure 26	Make a ball [warm up] Make a shape Build a sculpture with alternating shapes Make a ball- self dry clay Collaborative/Alternating sculpture	Play-dough, Self-drying white clay
6 Figure 27	Describe the sculpture, move the sculpture, move around the sculpture, naming [warm up] Collaborative/Alternating painting	Collaborative sculpture from S5, silver and gold paint, multi-sized brushes

Figure 22 Mr. Smiley Session 1 Samples



Figure 23 Mr. Smiley Session 2 Samples

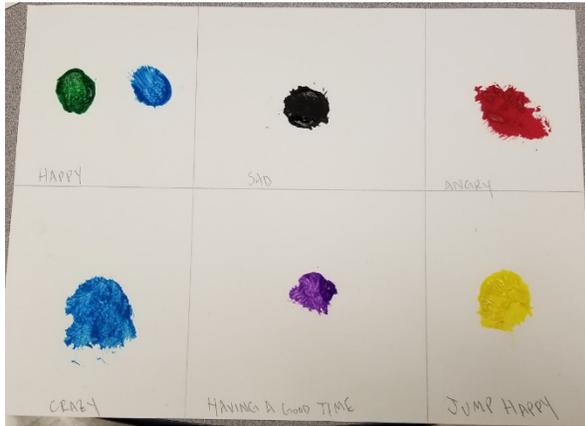


Figure 24 Mr. Smiley Session 3 Sample



Figure 25 Mr. Smiley Session 4 Sample



Figure 26 Mr. Smiley Session 5 Sample



Figure 27 Mr. Smiley Session 6 Sample



Table 8 Mr. Sharp Session Descriptions

Session Number	Art directives	Materials
1 Figure 28	Circle drawing/draw the breath [warm up] Scribble chase Find images, show and name Complete the image	Crayons, media paper, cutter, frame
2 Figure 29	Circle drawing/draw the breath [warm up] Paint with pencils Water wash	Watercolor pencils, water, brushes
3 Figure 30	Circle painting [warm up] Puddle painting Puddle painting on foil Making imprints	Finger paints, large media paper, foil
4 Figure 31	Make a ball [warm up] Make a shape Make a “flat stone” with white clay Pinch pot with white clay	Play-dough, Self-drying white clay
5 Figure 32	Circle painting on flat stone [warm up] Free painting on horseshoe Painting pinch pot Free painting on flat stone	Dried sculptures from S4, tempera paints, multi-sized brushes

Figure 28 Mr. Sharp Session 1 Samples

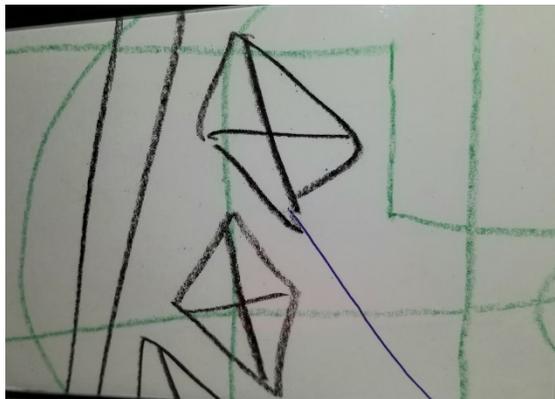
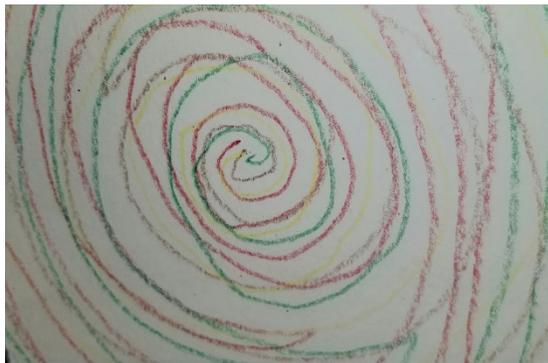


Figure 29 Mr. Sharp Session 2 Samples



Mr. Sharp 30 Session 3 Samples



Figure 31 Mr. Sharp Session 4 Samples



Figure 32 Mr. Sharp Session 5 Sample

