Creating Wellness: Expressive Therapies for Creativity Enhancement and Cognitive Development in Older Adults

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CREATING WELLNESS: EXPRESSIVE THERAPIES FOR CREATIVITY ENHANCEMENT AND COGNITIVE DEVELOPMENT IN OLDER ADULTS

A DISSERTATION

submitted by

LAUREN PARMELEE MURPHY

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

LESLEY UNIVERSITY
May 18, 2013
DISSERTATION APPROVAL FORM

Lesley University
Graduate School of Arts & Social Sciences
Ph.D. in Expressive Therapies Program

DISSERTATION APPROVAL FORM

Student's Name: Laura Murphy

Dissertation Title: Creating Wellness: Expressive Therapy for Creativity Enhancement and Cognitive Development in Older Adults

APPROVALS

In the judgment of the following signatories, this dissertation meets the academic standards that have been established for the Doctor of Philosophy degree.

Dissertation Committee Chairperson: Michael Kenne 4/3/13

Internal Committee Member: Perugia Ruff 4/3/13

External Committee Member: Debarden 4/3/13

Director of the Ph.D. Program/External Examiner: Deena T. Sam 4/3/13

Final approval and acceptance of this dissertation is contingent upon the candidate's submission of the final copy of the dissertation to the Graduate School of Arts and Social Sciences.

I hereby certify that I have read this dissertation prepared under my direction and recommend that it be accepted as fulfilling the dissertation requirement:

[Signature]
Dissertation Director

I hereby accept the recommendation of the Dissertation Committee and its Chairperson:

[Signature]
Dean, Graduate School of Arts and Social Sciences
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ABSTRACT

This research investigated the efficacy of psycho-educational expressive arts therapy groups in equipping and empowering adults over the age of 55 for optimal functioning. Postulating that creative explorations of thought, action, and perception might enhance cognition, strengthen self-efficacy, and stimulate engagement, the researcher targeted 24 aptitudes associated with creativity and cognitive health. These are fluency, flexibility, originality, elaboration, abstracting, openness, emotional awareness, synthesis, proprioception, visualization, contextualizing, curiosity, investigating, confidence, extending, optimism, fantasy, humor, collaboration, decentrism, perception, critical thinking, metaphoric understanding, and metacognition. Participants (N=119) at five locations in the greater New York area were solicited from the public through senior center newsletters. Data was culled from those with perfect or near-perfect attendance (N=42) and a control group from the same population (N=40). The exercises combined movement/dance, visualization, improvisation, music-making, psychodrama, storytelling, breathing techniques, critical thinking, sensory enhancement, collaborative problem-solving, positive psychology, and creative immersion within an atmosphere of socialization and support. Structured as the “Five A’s of Creating Wellness,” the intervention targeted each aptitude (e.g., flexibility) and its associated attitude (“what if”), through application (consider alternatives) of an activity (imagining and repurposing), for a resultant outcome action (mental dexterity). Assessments were the Torrance Test of Creative Thinking, the General Self-Efficacy Scale, the Flourishing Scale, and the Life Engagement Indicator Scale. Results indicated a significant difference in pre and post scores for creativity measures (p<0.0001), but no significant
difference for wellness measures ($p=0.99$). The researcher primarily attributed this to a
temporal lag between cognitive gain and perceived self-efficacy or proactive
engagement.
CHAPTER 1

Introduction

The purpose of this research was to investigate the efficacy of expressive arts exercises, formulated to promote wellness across the lifespan, by strengthening aptitudes and attitudes associated with creativity and cognitive health. The researcher postulated that psycho-educational expressive arts therapy groups using creative explorations of thought, action, and perception might help older adults by enhancing cognition, strengthening self-efficacy, and stimulating engagement.

The population of older adult citizens in the United States is increasing dramatically due to longer life expectancy and the aging of the baby boomers (National Institute on Aging, 2013; U.S. Census Bureau, 2013). Research has suggested that decline and disengagement do not have to be inevitable consequences of aging (Fernández-Ballesteros, 2005; Lang, Moore, Harris, & Anderson, 2005). Healthy functioning can be nurtured through wellness programs (Nussbaum, 2009; Tilly, 2010; Wilson, 2011). The degree to which one engages intentionally and proactively in life has been theorized to depend upon one’s cognitive, psychological and physical wellness and one’s perception of self in relation to the world (Bandura, 1997).

Psychology has traditionally focused on removing disabling conditions. This approach was about creating enabling conditions to enhance wellness. “While during the 20th century elder care focused on the negative changes of aging, this century has brought more attention to the potential to alter these possibilities and to view the later years of life as ones of continued potential and growth” (Malchiodi, 2012, p. 275).
This expressive therapies wellness approach was about equipping and empowering an individual for optimal functioning by targeting 24 aptitudes which are associated with creativity and cognitive health. The intervention was designed in accordance with research findings, with each exercise having intended outcome objectives.

Exercises that combined movement/dance, visualization, and improvisation were utilized for mind and body wellness. Physical exercise generates neurons (Kempermann, Fabel, Ehninger, Babu, & Leal-Galicia, 2010), increases strength and vigor (Aichberger et al., 2010), and boosts mood (Dunn, Trivedi, Kampert, Clark, & Chambliss, 2005). Improvisation involves contemporaneous constructing and reconstructing. This process is a key factor in adaptation and resiliency (Millar, 2010). Visualization has been indicated for strengthening imagination (Runco, 2007) which helps individuals conceptualize solutions to unforeseen challenges.

Investigative and aesthetic exercises were utilized for enhancing cognition. Artists, inventors, and scientists perceive and analyze the world in a similar, very effective manner which can be strengthened through practice (Beveridge, 1957; Eisner, 2002). Useful problem-solving strategies that boost self-efficacy can also be learned through practice (deBono, 1992), and therefore were incorporated. Because acute discrimination activities can sharpen perceptual awareness (Gelb, 2004), sensory discernment exercises were utilized. Research indicates that optimism can be strengthened through intentionality and practice (Diener & Biswas-Diener, 2008; Seligman, 2011). The intervention applied positive psychology strategies to help individuals see possibilities rather than limitations.
A group format can provide the opportunity for socialization and support (Corey, 2005), helping individuals to “get outside of themselves and into contact with other people and things in order to access the resources that lie within themselves” (McNiff, 2009, p. 117). A psycho-educational expressive arts therapy group is uniquely suited to helping individuals receive, reflect, adapt, and create wellness (Knill, 2005; Riley & Carr, 1989).

Creative thinking helps a person to negotiate everyday challenges (Runco, 2007). On a larger scale, unpredictable and rapidly changing global issues point to the value of creative solutions. Despite the importance of creativity for human endeavors and research suggesting that creative thinking may be developed and enhanced, (Runco, 2007; Torrance & Safter, 2009) creativity has not been systematically nurtured by public schools, social service agencies, or health care facilities in the United States (Eisner, 2002; Makel, 2009; Sternberg, 2009). Numerous studies indicating the value of creativity for enabling individuals to thrive (Millar, 2010; Torrance & Safter, 2009) suggest that creativity is important on both a global and an individual scale. Research on wellness points to the value of promoting creativity as a signature strength (Seligman, 2011). Creative immersion has alternately been called “flow” by Csikszentmihalyi (1996, 1997), the “stream brainset” by Carson (2010) or the “magic synthesis” by Arieti (1976). Regardless of the terms used, engaging in creative activities without fear of judgment is a joyful pursuit (Csikszentmihalyi, 1996; Runco, 2007). Self-expression in an atmosphere of encouragement can boost confidence and stimulate enthusiasm for living (Patterson & Perlstein, 2011). Creativity through the expressive arts is a particularly powerful agent of wellness (McNiff, 1992, 2009).
As the population of older adults increases at an unprecedented rate, there is a rising interest in wellness strategies for aging adults (Patterson & Perlstein, 2011). This dissertation was intended to investigate the efficacy of expressive therapies for creativity enhancement and cognitive development as a wellness strategy. In the present study, the researcher examined a protocol of physical movement, thinking games, exploration, expression, and social bonding activities. The researcher postulated that the intervention would impact the creativity, self-perception, and cognitive skills of participants, improving self-efficacy and increasing engagement.

This research was intended to contribute to the understanding of how the expressive arts may be utilized to nurture lifespan wellness as part of an expanded mental health matrix. Assessing the efficacy of inviting individuals to move, think, explore, interact, and play was the focus of this study. To the researcher’s knowledge, this was a first attempt to utilize a protocol of expressive therapies to strengthen these 24 wellness aptitudes in adults over the age of 55. There are a multitude of published studies that indicate the effectiveness of expressive therapies as wellness protocols for this age group but the researcher found none that utilized expressive arts to increase wellness through creativity enhancement and cognitive development.
CHAPTER 2

Literature Review

This review examines the topic of creativity in relation to wellness across the lifespan to suggest the value of utilizing expressive therapies for facilitating optimal functioning in older adults. This chapter explores historical context, examines theoretical foundations, and investigates empirical evidence to frame the reader’s understanding of creativity, self-efficacy, wellness, and life engagement.

Creativity in Context

Defining the Construct

Create

1: to bring into existence
2a: to invest with a new form, office, or rank
   b: to produce or bring about by a course of action or behavior
3: CAUSE, OCCASION
4a: to produce through imaginative skill
   b: DESIGN (Merriam-Webster, 2012, p. 293)

Creativity

1: the quality of being creative
2: the ability to create (Merriam-Webster, 2012, p. 293)

Creativity is a complex phenomenon that has received considerable attention and yet remains elusive. Dictionaries categorize creativity as a noun but this orientation may be confining or misleading. The core of ‘creativity’ lies at the very perimeter of ‘noun’ (a thing, a quality, or an action). Despite extensive research regarding the nature of creativity, there remains a considerable amount of controversy regarding what constitutes
creative behavior, how it manifests, and how it may be nurtured. This has been attributed to the complexity of the synergistic creative process (Cropley & Cropley, 2008; Csikszentmihalyi, 1999; Kleiman, 2008) and indications that various behaviors are valued unequally in different contexts (Hakkarainen, 2008; Runco, 2007; Sternberg, Lubart, Kaufman, & Pretz, 2005). Using metaphors to capture the essence of this construct, creativity has been called a complex, a syndrome, a symphony, and a “magic” synthesis (Arieti, 1976). The term creative is applied interchangeably to behavior, ideas, process, innovation and invention. There exists not a single definition but a commonality across several definitions.

For the purpose of analyzing creative activities, Cropley and Cropley (2008) mapped into phases the four Ps of creativity, which they defined as person, process, product, and press. Their diagnostic approach was intended to facilitate an understanding of the creative person, the stages of thinking used in creativity, the creative outcome, and the contextual environment. Each of these four strands stands independently, but intrinsically they almost always operate as a synthesis. Glăveanu (2012) suggested the five A’s framework: actor, action, artifact, audience, and affordances, in order to reflect the sociocultural context for creativity assessment. Others point out the fallacy of social judgment regarding an individuals’ work.

The relationship of individuals to groups has been central, and problematic, to the construct of creativity since it emerged in the 19th and early 20th centuries. Psychological research has often used the idea of creativity to differentiate and/or advocate constructs of the individual as creator, but has used a sociocultural criterion - eminence - to assure validity. Researchers and creative practitioners are
then caught in a contradiction in psychology’s own terms: using extrinsic outcomes at the level of culture as the starting point to conceptualize individual activities characterized by intrinsic motivation (Hanson, 2012).

In spite of the complexity of this construct, there is general agreement among researchers that creativity involves notions of novelty and originality combined with notions of utility and value (Gardner, 1993; Kleiman, 2008). Creativity can be considered a form of human capital that contributes to innovation and is expressed within various cultures in unique and idiosyncratic ways (Gardner, 2008; Runco, 2007).

**Manifestations of Creative Expression**

Scholars in the field of creativity have agreed that creativity can manifest in diverse domains such as technology, art, philosophy, or science and that these expressions of creativity involve combinations of cognitive operations (Csikszentmihalyi, 1999; Gardner, 2008; Runco, 2004; Sternberg, Grigorenko, & Singer, 2004). Specialized expertise is often required in order to pioneer advancements within a specific domain because procedural tactics depend upon a thorough understanding of the field. However, creativity is distinct from expertise, intelligence, skill, or giftedness (Gardner, 1993; Torrance & Safter, 2009). According to theorists, individuals who are considered eminently creative have initiated progress and their creative accomplishments have helped to improve human civilization. This is considered ‘big-c’ creativity and is exemplified by Albert Einstein’s Theory of Relativity or Martha Graham’s choreographic innovations. In contrast, everyday creative behavior is considered ‘little-c’ creativity and is exemplified by a chef experimenting with recipes or a floral designer arranging a bouquet (Beghetto, Kaufman, & Baxter, 2011; Gardner, 1993). Existential psychologist,
Rollo May (1975) declared that creative courage is the discovery of new forms, new symbols, and new patterns upon which society can build. Little-c creativity is the focus of this discourse as it manifests in everyday life and gives rise to big-c progress (Gardner, 1993; Runco, 2007).

**Differing Theories on the Dynamics of Creative Process**

Psychologists, therapists, cognitive researchers, and theorists have examined the dynamics of the mind in relation to the creative processes. Differing perceptions arise by focusing on different aspects of the process. Max Wertheimer and the Gestalt psychologists have described creativity as the flash of insight when a solution is holistically grasped (Arieti, 1976). This suggests that creativity arises at the intersection of conscious thought and unconscious activity as a ‘Eureka’ illumination experience.

German physicist Hermann Ludwig Ferdinand von Helmholtz described three stages of creativity: *preparation* or conscious work on a creative problem, *incubation* or disengagement from the problem while internal subconsciously processing occurs, and *illumination* or the gestalt ‘aha’ experience (Arieti, 1976). Graham Wallas (1926), the British sociologist and political scientist added a fourth stage: *verification* or working out the details and checking that the insight is valid. Henri Poincare (1908/1952), the leading mathematician and scientist of his time published his classic essay *Mathematical Creation*, in which he explained his understanding of the creative processes in mathematical work. While it is broadly consistent with the Wallas model, Poincare stated that in the subconscious, the useful combinations are the most beautiful, calling our attention to them and giving them occasion to become conscious. Eminent achievers have similarly noted intuitive aesthetic sensibilities as critical to the creative process.
Visionary designer, R. Buckminster “Bucky” Fuller explained how aesthetics had, on occasion, entirely changed the course of his work. Functionality and economy of resources were at the forefront of his thoughts, but his subconscious was somehow driven by beauty. If a design did not “feel” beautiful, he knew immediately that it was somehow flawed. At times he would visualize the finished design before even knowing how to build it (Fuller, 1975). Thus, the solution to certain problems is intuitively guided or affirmed through aesthetics. Harvard University scholar, Leonid Perlovsky expanded upon this concept, attributing aesthetic emotions to the heretofore unrecognized knowledge instinct in the hierarchy of the mind. He suggested that because early states of perception are vaguer, less conscious, and mixed with emotional content, it is the satisfaction of instinct that helps an individual to recognize useful patterns (Perlovsky, 2010).

Theories that attempt to explain the dynamics of creative cognition and the manifestation of creativity are varied and numerous. Stage theories delineate a step-by-step thought progression while componential theories allow for interactions but do not require the same kind of linear progression (Amibale, 1996; Ponomarev, 2008; Runco, 2007). The research of Thrash, Cassidy, Fryer, and Ryan (2010) emphasizes the importance of inspiration as the mediating force which propels creative thought toward creative behavior. Studying a group of undergraduate university students, they explored the relationship of ideation, motivation and creative output with a writing assignment. They designed self-assessment questionnaires to measure the student’s within-person effort, between-person effort, within-person inspiration, between-person inspiration, and behavior when an idea arises; comparing the findings with judges’ ratings regarding
novelty and creativity of content. Based upon their findings, they conceptualized inspiration as a response to creative ideas, rather than their source. Howard Gruber (2001) proposed a developmental, evolving systems model of understanding creativity after in-depth study of Charles Darwin’s knowledge, purpose, and affect through the creative process.

It should be evident that the course of creative work is nondeterministic. It is not a clockwork mechanism. Each part process has a tempo and mode of its own. These components are only loosely coupled. As a result, every occasion of their interaction has the potential of leading to a novel result (Gruber & Wallace, 2001, p. 348).

John Dewey (1916/1944) stated that the function of knowledge is to make one phenomenological experience freely available to other experiences. In other words, he theorized that isolated experiences are not disconnected singular events, but are connected with other events, allowing for creative intersections and combinations. Csikszentmihalyi’s (1988) model of understanding creativity highlights the interaction of the individual, the domain, and the field. Investigating the relationship between creativity and happiness, this psychologist and researcher has suggested that creative innovation is rarely the result of a single ‘aha’ experience but rather is a complex synergistic process involving multiple individuals and circumstantial factors. Vygotsky (1926/1997) described a similar dynamic process of constructing personal meaning and formulating ideas through experiencing the world in a sociocultural context. Thus, creative thinking is mediated through related operatives.
Based upon the suppositions of these seminal thinkers, various processing models have been proposed for the purpose of enhancing or increasing creative cognitions. These processing models present ways to view materials in a new light, encourage practices that help individuals to access subconscious knowledge, and offer strategies for making patterns and associations between segments of information. Regardless of the dynamics involved, researchers have repeatedly pointed to the value of creativity enhancement practices to increase and improve creativity in cognition (Allam, 2008; Beghetto & Kaufman, 2009; Garcia-Cepero, 2008; Gardner, 2008; Makel, 2009; Sternberg, 2009; Torrance & Safter, 2009).

**Creativity Research**

Researchers have explored creativity with a variety of approaches, including the use of case studies, historical records, laboratory experiments, and assessment tools such as personality inventories or divergent thinking tests. The complexity of this construct leads to multiple investigation approaches and ever-evolving perspectives.

Creativity has frequently been categorized in two ways: everyday creativity or ‘little-c’, which is found universally and eminent creativity or ‘big-c’ (Beghetto, Kaufman, & Baxter, 2011; Gardner, 1993). Researchers Kaufman and Beghetto (2009) have proposed an updated model that includes ‘mini-c’ creativity involved in learning processes and ‘pro-c’ or developmental progression into professional-level expertise in a creative domain. The need for deeper inquiry into the nature of creativity is stated as their rationale for adding these two additional categories. Kaufman and Beghetto suggested that these distinctions will help resolve the ongoing debate regarding whether creativity is domain specific or domain general and will also facilitate the measurement of everyday
creativity. Understanding the genesis and development of creative cognition is necessary in order to nurture creative thinking.

Research has suggested that experiential inquiry enables creative potential to manifest as creative behavior (Fasko, 2001; Gardner, 2008; Greenleaf & Katz, 2004; Ivcevic, 2009). Ivcevic has particularly highlighted the critical role of social environment in determining whether creativity is expressed and how it is expressed. Based upon her research using inventories of college students and professional adults, she delineated five types of individuals: the conventional person, the everyday creative person, the artist, the scholar, and the renaissance person. Assessing situational or social factors along with the manifestation of creative behaviors in these individuals, she proposed the use of a creativity map to delineate how creative potential and creative behavior are situated within social contexts.

A new metaphor, “intellectual estuary” (Beghetto & Kaufman, 2009, p. 296), illustrates research results that demonstrate how learning can thrive when creative and academic streams converge. Taking into account the vast body of research in creativity and pedagogy, they have postulated that within the context of social interactions, which encourage creative insight, and personally meaningful interpretations of academic content, students are best able to construct meaning and develop their own ideas. This meaning making is “mediated by skilled others (e.g. teachers, parents, more advanced peers) and sociocultural tools (e.g. books, the internet, language, symbol systems)” (Beghetto & Kaufman, 2009, p. 303). Their model aligns with the Vygotskian (1926/1997) concept of cognition; that all individuals have creative potential which
begins with a transformation and reorganization of incoming information within a sociocultural context.

Pedagogical influence on creative behaviors has repeatedly been explored by researchers and theorists. Beghetto, Kaufman, and Baxter (2011) conducted two studies with third through sixth-grade students in the northwestern region of the United States. Comparing creative self-efficacy (CSE) beliefs, as indicated by a paper-and-pencil student survey (i.e., ‘I am good at coming up with new ideas’) and teacher-ratings of students’ expression of creative ideas during science and math instruction (i.e., expressing ideas that are novel and appropriate for the given task). Likert-type surveys were completed in the fall of each academic school year and again in the spring. Students’ CSE beliefs tended to decline by grade level while teachers did not tend to rate creativity differently by grade level, thus raising concerns about education’s possibly dampening effect on creative thinking. Some teachers believe that creativity is related to intelligence while others think that it is a personality trait but classroom practices have not traditionally fostered creativity (Craft, 2008; Howard-Jones, Winfield, & Crimmins, 2008; Makel, 2009).

Exploring the relationship between classroom creativity enhancement and risk, Haargreaves (2008) proposed that creative learning and teaching strategies involve student-centeredness, skill, and courage. She suggested that teachers ought to offer supervision and guidance while allowing students “the freedom to learn in their own way” (p. 230). This aligns with the humanistic orientation of theorists Montessori (Mouchiroud & Lubart, 2006) and Rogers (1980). There is agreement among multiple researchers that academic conditions which encourage creative behaviors include a
reduced focus on memorization, an emphasis on experiential and exploratory curricula, flexible and receptive teachers who view errors as learning opportunities, and an institutional climate that encourages autonomy and freedom of expression (Eckhoff & Urbach, 2008; Fasko, 2001; Gardner, 2008; Hargreaves, 2008; Runco, 2004; Sternberg, 2009).

Ivcevic (2009) investigated domain-specific creative potential with regards to situational context. She suggested the critical role of school environment and teacher attitude in supporting or stifling creativity, stating that creativity is “a product of creative potential in personality and cognition, which interact with the immediate situation and an implicit situation or larger culture” (p. 20). Niu and Liu (2009) demonstrated the positive effects of creativity instruction on artistic and literary tasks. Their research with 180 Chinese high school students compared the effect of facilitating creativity with motivation versus the effect of facilitating creativity with heuristic instruction. A randomly assigned control group was simply presented with a collage design task and a storytelling task, one experimental group was motivated by prompting them to ‘be creative with these tasks,’ and another experimental group was instructed in creative strategies such as innovative manipulations of collage materials and the unusual treatment of story characters. The researchers had expected to find the lowest creativity scores among participants in the control group, higher scores among participants in the experimental group who had been motivated to be creative, and the highest creativity scores among those who had been instructed in creative strategies. However, multivariate analysis of likert-type creativity scores by independent judges showed no significant difference between the control group and the motivated group (mean
difference = .119, \( p > .1 \)); and significantly higher creativity scores for those who had learned creative strategies than for both of the other groups (mean difference = .498, \( p = .014 \) between the control group and the instructed group and mean difference = .617, \( p < .001 \) between the motivated group and the instructed group). These results suggest that creativity instruction is effective while motivation is not effective for facilitating creativity. Although these findings may be confounded by cross-cultural influences, they do support the practice of creativity enhancement.

Interior space is another avenue of exploration. The use of C-spaces (creative spaces) was investigated by Jankowska and Atlay (2008). These spaces are furnished with collaborative tools such as grouped seating, whiteboard walls, and technology which can capture anonymous individual responses. Instructors are conceptualized as facilitators and co-learners in a lifelong learning process. Initial responses to these C-spaces, gathered through surveys and interviews, have suggested that active participation is the key to their appeal. Landmark human developmental specialists John Dewey, Maria Montessori, Lev Vygotsky, Rudolph Steiner, E. Paul Torrance, J. P. Guilford, and Howard Gardner have inspired alternative schools where active participation is emphasized and creativity is esteemed and nurtured. Although there is a dearth of longitudinal research on the lifetime performance of graduates, there are numerous short-term studies supporting creativity enhancement in these settings (Allam, 2008; Craft, 2006; Fasko, 2001; Gardner, 2008; Ivcevic, 2009; Sternberg et al., 2004).

Jaussi, Randel, and Dionne (2007) assessed creative personal identity in 179 professional senior managers from a large insurance organization in conjunction with creative performance at work. Using likert-type scales to measure four aspects of the
individual’s creative self-identity and seven creative behaviors from the viewpoint of a close coworker, the researchers gathered data through online, confidential surveys. The self-assessment items were: “My creativity is an important part of my self-image, My creativity is an important part of who I am, My ability to be creative is an important reflection of who I am” (p. 252). The researchers included one reverse coded item, “My creativity has little to do with how I feel about myself” (p. 252). A coworker was asked to rate the person regarding performance indicators which included exhibiting creative job performance, being a source of creative ideas, suggesting new strategies, finding creative problem solutions, encouraging others to think in new ways, having innovative ideas, and demonstrating originality (p. 253). The findings of this study suggested that heightened creative personal identity is associated with creativity at work. Although such subjective measures are open to scrutiny, these results do point to the value of nurturing creative thinking aptitudes.

Kleiman (2008) distilled five qualitatively different ways of understanding creativity in the context of learning. He conducted interviews with 12 university professors from a variety of domains in order to discover how they conceptualize and experience creativity. What emerged were five descriptions of creativity: a constraint-focused experience, a process-focused experience, a product-focused experience, a transformation-focused experience, and a fulfillment-focused experience. He suggested that pedagogic structures reduce the focus on following established protocols and allow for freedom to take risks, thus giving educators and students latitude for individuality as agents of their own creativity. “Engaging in creative process, and producing creative outcomes is very much about personal transformation and professional fulfillment and
escaping from, or at least resisting, the constraints and frustrations of daily academic life” (Kleinman, 2008, p. 216). This aligns with Maslow’s theory that every individual has a strong desire to self-actualize or realize his/her full potential.

The balance between conformity and autonomy with regards to the manifestation of creative behaviors was also explored by Zhou, Shin, Brass, Choi, and Zhang (2009). They investigated a group of 151 employees and their 17 supervisors in a high-technology company in China. Using a 13-item likert-type scale for the supervisors to evaluate creative behaviors of the focal person and a social networking questionnaire for that person to measure strength of ties with other company employees, the researchers were investigating a possible relationship between conformity and creativity. They found a correlation between individual creativity and intermediate levels of connectedness within the company’s social network, and a reverse correlation between individual creativity and strong social ties within the company. These findings may suggest that environmental conditions, which favor conformity, are counter-productive to the manifestation of creative behaviors.

Cognitive researcher Margaret Boden’s work with artificial intelligence highlights the importance of polar operational modes for maximizing the manifestation of creativity. Drawing upon computer technology to explain how creativity occurs, she has suggested that everyday creativity is related to eminent creativity in that it is an emergent result of cognitive devices within favorable conditions. Boden (1992) suggested that individuals who produced historically significant creative works have simultaneously been more free to explore and more respectful of constraints than the general population. She recommended establishing constraints to maintain order while providing a fresh and free-
flowing way of viewing task-domain. This suggests striking a balance between following established, prescribed, well-defined protocols and encouraging exploratory thinking.

Current research on creativity suggests the central importance of cognitive dexterity for shifting with ease between processing modes (Helie & Sun, 2010; Horan, 2009). A general theory of explicit-implicit interaction (EII) was proposed by Helie and Sun, which integrates Wallas’s creative problem solving theory with a more complex process-based theory of intuitive insight and analytical thinking. According to Wallas (1926), the four stages of problem solving are preparation, incubation, illumination, and verification. Helie and Sun have suggested a continuous cognitive shifting between implicit and explicit modes with each of these two processes informing and shaping the other. Iterative, redundant, and potentially bidirectional processing was theorized to occur continuously.

Zabelina and Robinson (2010a) proposed the importance of attitude in the manifestation of creative behaviors. They studied the effect of a childlike mindset upon creativity in a study of 76 undergraduate students at a large Midwestern university. A control group wrote about what they might do on a day when school was cancelled. An experimental group wrote about what they might do under the same circumstances, the only difference being that they were instructed to imagine themselves as seven-year-olds. This study suggested that “creative originality can be manipulated in a short-term state-dependent manner” (p. 57) because participants in the experimental group received higher scores on an abbreviated form of the Torrance Test of Creative Thinking (TTCT). Zabelina and Robinson (2010a; 2010b) have theorized that creative individuals are deliberately able to modulate the functioning of cognitive control processes in the service
of creativity, simply by formulating a playful mindset. Although it can be argued that there are creative benefits to having a playful mindset, indeed, Picasso and Einstein asserted this (Gardner, 1993), but this research design has obvious shortcomings. The constraints of existing responsibilities will naturally incline a control group’s responses in a non-creative manner. Furthermore, the TTCT was designed to assess the individual’s persistent traits rather than the transient state and this abbreviated version provides only a snapshot view of the individual’s creativity.

Due to the development of new imaging equipment, which allows for in vivo study, researchers are advancing in their understanding of brain function. Andreasen’s (2005, n.d.) neuroanatomical and genetic research has indicated that creative thinking utilizes circuits and interactions of cells and regions, depending upon interactions among systems and subsystems. She has proposed that, due to enriched connections between certain areas of the brain, highly creative individuals are able to readily tap into the unconscious mind more easily than most. This aligns with Jung’s theory regarding the role of the unconscious mind in the human psyche. Historically creative individuals such as Kekule and Poincare described arriving at profound insight during a hypnogogic state of reverie (Boden, 1992). Horan (2009) also explored the neurocognitive connection between deep relaxation and creativity, suggesting that the practice of meditation enhances intentional transcendence over limiting perceptions and facilitates the encoding of new information that emerges from unconscious thought process.

Using proton magnetic resonance spectroscopy as an imaging technique that allows for the analysis of neurochemistry in vivo, Jung et al. (2009) assessed the relationship between brain chemistry and creative cognition, as measured during
divergent thinking and fluency performance tasks. Their 56 participants, who ranged in age from 18 to 39 years, were assessed across four areas: divergent thinking, verbal fluency, intellectual functioning, and personality. They were instructed to draw as many unique designs as they could in a period of 5 minutes, draw designs constrained in type during 4 minutes, generate novel uses for a common object in 1 minute, and generate words that begin with a given letter of the alphabet in three, 1 minute trials. They were administered the Wechsler Abbreviated Scale of Intelligence and the NEO Five-Factor Inventory. This inventory measures neuroticism, extraversion, openness, agreeableness, and conscientiousness. Their findings have provided neurobiological support for a critical threshold regarding the relationship between intelligence and creativity, showing that individuals with high and low IQs appear to use their brains differently while engaged in creative behaviors.

The work of Haller and Courvoisier (2010) which explored domain specificity, heuristic thinking and algorithmic thinking turned up consistently conflicting attributes in creative individuals. Participants of their study were visual art students and music students from the Universities of the Arts in Zurich and Bern, Switzerland and psychology students from the University of Bern. They used a 60-item likert-type scale inventory to measure neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness along with a 30-item likert-type scale inventory to assess algorithmic and heuristic thinking styles. When all of these personality and thinking styles were considered together using MANOVA, they differed significantly across type of study major ($p < .001$). The visual art students showed the greatest inconsistencies, both within the individual and between individuals. Visual art students are more complex
and unique in their approach, for example switching back and forth between being very conscientious in some instances and being haphazard or careless in other instances. Haller and Courvoisier have suggested that complexity be recognized as a consistent dimension of the creative personality.

The present investigation is a first attempt to investigate complexity in an empirical way. Therefore, the present results have to be looked at with caution. However, it can be assumed that there is one overall complexity that can be a new dimension of personality with different facets of complexity (p.157).

Cropley and Cropley (2008) have similarly pointed to the complexity of the creative personality, calling attention to the paradoxical polarities that have been measured in creative persons. These include an intuitive and flexible approach versus an analytical or critical approach and constraint-focused behavior versus passionate or rebellious behavior (p. 359). The creative person tends to be dynamic rather than static (Runco, 2007). Isaac Newton described the creative person as being “never at rest” (Westfall, 1980). Csikszentmihalyi (1988, 1999) proposed the explanation that creativity manifests through different cognitive stages with different cognitive functions operational during each phase.

Seeking a broad view of neuroimaging findings regarding creativity and insight, Dietrich and Kanso (2010) analyzed the results of 72 recent experiments which measured electrical brain activity by utilizing procedures that included event-related potential (ERP), electroencephalography (EEG), functional magnetic resonance imaging (fMRI), single photon emission computed tomography (SPECT), magnetic resonance imaging (MRI), Positron emission tomography (PET), or Near-Infrared Spectroscopy (NIRS).
Searching the Web of Science, PubMed, PsycINFO, and other databases with the Boolean keywords: “creative, creativity, insight, innovation, drawing, music, designing, divergent thinking, art, and problem solving along with EEG, ERP, fMRI, SPECT, MRI, PET, NIRS, and imaging” (p. 824) yielded 1,910 articles. Of these, they selected the neuroimaging studies which mentioned creativity, creative thinking, hypothesis generation, aha effect, Eureka experience, novel ideas, original ideas, innovation, insight problem-solving, or insight in the title. Their findings turned out to be extremely varied and contradictory but yielded four broad conclusions:

First, both EEG and neuroimaging experiments fail to support the notion that divergent thinking, and by extension creativity, is linked to the right brain—or to the left brain…Second, the data simply do not support a special role of any anatomical locus in divergent thinking (with the exception of the prefrontal cortices). Third, a similar conclusion emerges for theories based on specific mental processes, such as low arousal or defocused attention…Fourth, the data do permit the conclusion that the prefrontal cortex plays a key role in divergent thinking [but] we cannot identify the areas of the prefrontal cortex that are involved, and we do not know the functional role each may play in the generation and evaluation of ideational combinations.…The validity and reliability of divergent thinking tasks must be focused on directly, especially in the context of neuroscientific studies (p. 845).

Stepping back for an overall view, in order to make sense of their data, Dietrich and Kanso have suggested that these findings may indicate how people are creative in individualistic ways, utilizing brain function in broadly distributed patterns. The main
consistency of their findings has nothing to do with right-brain/left-brain function but rather involves the prefrontal cortex. This region of the brain modulates shifts in processing between the defocused attention/low arousal state and the alertness/concentration state, which supports theories that emphasize the importance of cognitive flexibility between the intuitive and critical thinking processing states in the manifestation of creative behaviors. Indeed, there is a great deal of variability in creativity research but the literature repeatedly points to the critical role of aptitudes and attitudes; the importance of participatory, exploratory, and experiential opportunities; and social support for encouraging self-expression.

In Pursuit of Wellness

Defining the Parameters of Wellness

Wellness has been a topic of inquiry for philosophers, psychologists and social researchers throughout history. Aristotle argued that realizing human potential is the ultimate human goal (Aristotle, trans. 2011). Jung (1933) believed that central to human experience is the drive to individuate or fulfill human potential. Dewey (1916/1944) stated that the development of a person’s abilities to the fullest extent was a primary goal of responsible citizenship. Rogers (1947, 1980) believed that the innate tendency towards wellness is developed through validation and encouragement. Social researcher Maslow (1968, 1998) created the hierarchy of needs diagram to illustrate how human beings can self-actualize or realize full potential. To these theorists, wellness is a proactive and lifelong process.

The work of the National Wellness Institute (Hettler, 1976) defines six dimensions of wellness: The “wellness wheel” includes physical, intellectual, social,
emotional, occupational, and spiritual wellness. Myers and Sweeny (2007) developed
the Indivisible Self Model of Wellness (IS-Wel), a counseling model of wellness. With
self at the core, five factors help individuals make choices that move them toward
wellness; creative, coping, social, essential, and physical. Mental health researchers
Huppert and So (2009) have suggested that positive emotion, engagement, and meaning
are the three core facets of human flourishing. Research psychologist, Martin Seligman
theorized that well-being has five components: positive emotion, engagement,
relationships, meaning, and accomplishment; abbreviated as the acronym PERMA
(Seligman, 2011, p. 16). Quality of life researcher, Ed Diener has stated that common
to most theories of wellness is the notion of a proactive interest in life.

Psychological wealth includes life satisfaction, the feeling that life is full of
meaning, a sense of engagement in interesting activities, the pursuit of important
goals, the experience of positive emotional feelings, and a sense of spirituality
that connects people to things larger than themselves. (Diener & Biswas-Diener,
2008, p. 6).

The World Health Organization (2004) defines quality of life (QOL) as a broad
construct that encompasses medical, psychological, and sociological aspects; therefore
Martin, Schneider, Eicher, and Moor (2012) suggested using the functional quality of
life (fQOL) assessment model as the outcome indicator for wellness interventions. This
model combines self-assessed measures of an individual’s situation with external
quality of life indicators. Wellness literature consistently points to the importance of
attitudes, relationships, and proactive engagement in meaningful activities.
Wellness across the Lifespan

Psychologist and social researcher, Albert Bandura (1997) has theorized that cognitive efficacy, self-concept, and interests are developed through experience rather than being fixed at a certain age. Perceptual dynamics is a continuous process of assimilating new ideas and discarding old ideas throughout the lifespan (Bandura, 1997; Rogers 1980). Psychotherapy is basically a process of altering the ways that individuals see themselves in relation to the world. Proactive engagement can be enhanced by developing competencies that equip and empower the individual (Patterson, & Perlstein, 2011). Perceived efficacy determines if a person thinks erratically or strategically, how much effort they will invest into various endeavors and their resiliency following adversity (Seligman, 2011). According to Bandura, (1997) self-efficacy has potential for development and actualization across the life span. The architecture of self-concept involves a recursive feedback process of behavior, consequence, and perception. Human self-concept can thus be considered an autopoietic, self-regulating system with lived experience shaping its course. The researcher postulates that an intervention which may increase creative thinking, has the potential to increase perceived self-efficacy and that improved self-efficacy concept may potentially increase engagement behaviors. The ideal manifestation of this process is conceptualized as an upward spiraling trajectory of wellness, as illustrated in Figure 1. The expressive therapies intervention in the present study incorporates physical movement, thinking games, exploration, expression, and social bonding. The activities are intended to impact the mind-body connection, self-perception, and cognitive skills of the individual with the intended outcome of increased proactive engagement.
The Quest to Fulfill Human Potential

A musician must make music, an artist must paint, a poet must write, if he is to be ultimately at peace with himself. What a man can be, he must be. This is the need we may call self-actualization...It refers to man's desire for fulfillment, namely to the tendency for him to become actualized in what he is potentially: to become everything that one is capable of becoming.... (Maslow, 1998, p. 3).

Self-actualization is the quest to fully develop one’s potential in order to be the best that one can be. The term was coined by psychologist Abraham Maslow to describe the ongoing process of optimizing healthy psychological development. Maslow (1968)
postulated that creative energy is released during a peak experience or episode of rapt engagement in an absorbing, productive, and fulfilling activity. This type of experience is theorized to have an empowering effect upon the individual and to help build a scaffold for self-actualization. Csikszentmihalyi (1996) described peak experience as flow, theorizing that creativity provides a powerful source of meaning in our lives and suggesting that when we are involved in it we feel that we are living most fully. Humanistic theorists have suggested that most individuals participate in creative acts, albeit the little-c variety, that creative cognition is a higher order thinking skill, and that everyone has creative potential that may be nurtured to its fullest potential. These theorists posit that creativity strengthens and develops one’s core being (Eisner, 2002, 2005; Fasko, 2001; Gardner, 2008; Rogers, 1980; Runco, 2004; Steiner, 1923/1964).

**The Hierarchy of Learning**

Instructional planning describes a picture of the learner after instruction. This is stated in terms of behavioral and cognitive outcome objectives within classified taxonomy levels or domains. A learning taxonomy structures the levels of learning into a hierarchy. The most widely used of these is Bloom’s Taxonomy (Anderson, 2005; Asim, 2011) which was proposed by Bloom in 1956. Subsequent research in creativity and cognitive processing has resulted in a revision of the hierarchy. Anderson, a former student of Bloom, worked with a group of cognitive psychologists and curriculum specialists to formulate a revised Bloom’s taxonomy in 2001. They placed creating at the top of the cognitive hierarchy (Asim, 2011), to reflect current understanding, as shown in Table 1. This development highlights the critical importance of creativity.
Table 1

*Bloom’s Revised Taxonomy of Learning*

<table>
<thead>
<tr>
<th>Original Domain</th>
<th>Revised Domain</th>
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</thead>
<tbody>
<tr>
<td>Evaluation</td>
<td>Creating</td>
</tr>
<tr>
<td>Synthesis</td>
<td>Evaluating</td>
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<tr>
<td>Analysis</td>
<td>Analyzing</td>
</tr>
<tr>
<td>Application</td>
<td>Applying</td>
</tr>
<tr>
<td>Comprehension</td>
<td>Understanding</td>
</tr>
<tr>
<td>Knowledge</td>
<td>Remembering</td>
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**Creativity Enhancement Methods**

Guilford (1950) was the first modern psychologist to highlight the importance of defining and nurturing creative cognitive aptitudes. His research on creativity focused upon the identification and analysis of primary abilities that facilitate creative cognition. By identifying factors, Guilford hoped to improve them and to increase their utilization. He suggested that originality, divergent thinking, fluency, synthesis, flexibility, and elaboration are essential cognitive aptitudes involved in creative thought processing (Guilford & Hoepfner, 1971). Torrance later substantiated and expanded upon these findings, creating the Torrance Test of Creative Thinking (TTCT) which today remains
one of the most well-respected and widely used assessment tools (Kim, 2011; Runco, 2007; Torrance, 2008; Treffinger, 2009).

Creativity reinforcement models that utilize cognitive processing mechanisms include Joseph Renzulli’s Enrichment Triad Model (ETM) which implements learning strategies that promote self-confidence and creativity in the classroom (Garcia-Cepero, 2008); Bob Eberle’s (2010) SCAMPER which comprises seven techniques for solving a problem by changing functions in a system; and TRIZ or the theory of inventive problem solving, a method developed by Altshuller (1999) who studied over 1,000,000 patents to define the process of inventive solutions. These creativity enhancement methods have been used widely to boost creative output in industry with encouraging results (Allam, 2008; Altshuller Institute, 2013; Barak, 2009; Gardner, 2008). Teaching metacognition or thinking skills such as Edward de Bono’s (1992) Six Thinking Hats, which prompts alternate ways to approach an issue, has shown to be effective in gifted education programs (Makel, 2009; McAleer, 2007).

The research of Horan (2007) has suggested that yoga and meditation may enhance mindfulness and facilitate access to unconscious information, thus giving rise to ‘aha’ moments of insight. His EEG studies of intra-hemispheric synchronization of low-alpha, delta, gamma, and theta spectral bands found that brain activity measured during yoga and meditation states corresponded to that which was measured during periods of creative output.

Creativity researchers point out that games, puzzles, and toys which have been designed for the purpose of practicing divergent thinking, imaginary play, and related cognitive operational skills are more likely to stimulate creativity than those which leave
less to the imagination (Runco, 2007). It is preferable, for example, to provide a doll that requires improvisational interaction rather than a doll with automated actions.

Lim and Smith (2008) explored the relationship between parental attitudes and creativity, using teacher, family, and self-reports to measure parental leniency, parental acceptance, and creative behavior in their children. Their findings suggested that less rigid parenting styles are highly correlated (.67 for lenient parenting; .73 for accepting parenting) with creative behaviors in their children and that homes where “independent, unconventional, curious, unique, open-minded, insightful, inventive, and imaginative behaviors and reactions are valued” (p. 416) stimulate the development of a creative personality. Parenting practices that support questioning, curiosity, playfulness, and the freedom to explore and make mistakes, while limiting passive pursuits such as television viewing, have been correlated with creative behaviors in their children (Runco, 2007).

On the other hand, research has also suggested the creativity-enhancing effects of challenging or threatening states. Goertzel, Goertzel, Goertzel, and Hansen (2004) linked a surprising number of big C innovations to childhood difficulties in the landmark book *Cradles of Eminence: Childhoods of More Than 700 Famous Men and Women*. They cited frustration, deprivation, or trauma as motivational forces for instigating creative behaviors. Mayer and Mussweiler (2011) found a correlation between distrust and creativity, also suggesting that the need to problem-solve increases cognitive flexibility. “In situations of potential danger a problem must be solved on the spot, often in an unusual or novel way. Creativity as a means of problem solving might be especially important in such situations” (Mayer and Mussweiler, 2011, p. 1273). It may be postulated that using creative problem solving to cope with difficulties strengthens
creative cognitive skills or it may be that the human psyche seeks healing through creative endeavors (Malchiodi, 2007, 2012; McNiff, 1992) or this correlation may involve the interplay of more complex factors.

In order to design effective creativity enhancement protocols, researchers must be capable of measuring it. A multitude of assessment tools have been developed by researchers to measure creativity. The Torrance Test of Creative Thinking (TTCT) is the most widely accepted appraisal tool (Kim, 2011; Runco, 2007) but it fails to measure mechanisms underlying the development of creativity (Csikszentmihalyi, 1988; Silvia et al., 2008) and it relies upon measurements that are restricted to narrow domains (Baer, 2011). Researchers Baer and Kaufman (2005) proposed using their Amusement Park Theoretical Model to refine the TTCT by sorting out differences regarding domain specificity, although this approach was refuted as meaningless by Kim (2008) because the TTCT gives very specific information about an individual’s innovative and adaptive strengths and weaknesses. The TTCT has been widely and successfully used in public schools to screen for potential gifted enrichment program participants (Millar, 2010) and it is used in creativity research to assess creativity enhancement protocols (Millar, 2010).

The importance of instructional climate in the development of creativity has been suggested in numerous studies on creativity. Teacher attitudes, beliefs, and classroom practices are deemed to be of crucial influence in nurturing creativity (Barak, 2009; Gardner, 2008; Sternberg et al., 2004). A classroom is both a social and an academic environment in which peer-to-peer and teacher-student interactions take place and students construct meaning (Evertson & Weinstein, 2006; Van der Veer & Valsiner, 1995; Vygotsky, 1926/1997). An environment that supports unusual ideas, incorporates
experiential learning, and provides freedom of choice, facilitates creative behavior. This applies to learning environments throughout the lifespan (Jaussi et al., 2007; Runco, 2007; Steiner, 1964).

Although there is increased awareness of the importance of creativity and educational curricula include the study of eminently creative individuals, they exclude broad-based systematic attempts to nurture creativity. Educators may understand neurocognitive processes and environmental influences involved in creativity, but few academic institutions favor this approach because of the heavy emphasis that is placed upon standardized testing (Barak, 2009; Hargreaves, 2008; Makel, 2009). Sternberg (2009) has suggested using the Wisdom, Intelligence, and Creativity Synthesized (WICS) model for instruction and assessment purposes. This former president of the American Psychological Association has emphasized the importance of developing individual potential in a full sense, highlighting the value of creativity enhancement methodology across the lifespan.

**The Dynamics of Self-Perception in the Elder Population**

Efficacy in dealing with one’s environment is not a fixed capacity. Motivation and behavior are continuously mediated through flexible self-percepts of efficacy (Bandura, 1982). According to Bandura’s social learning theory, there are four pathways in self-efficacy formation. These pathways are experiencing personal success, vicariously observing as others succeed, receiving persuasive encouragement or discouragement, and experiencing physiological stress (Bandura, 1982). Although Vancouver (2005) criticized the organization of the hierarchy of control theories and suggested that Bandura’s social learning theory is more aptly labeled an expectancy-
value theory or self-regulation theory, he agreed with the inherent operatives. As an individual monitors the four pathways, self-efficacy concept is formulated, modified, and reformulated in a recursive process. “People’s self-esteem, self-concepts, behaviors, and social conditions are embedded in cycles in which each element influences and constrains the other elements in profound ways” (Swann, Chang-Schneider, & McClarty, 2007).

Belief in one’s own ability to manage situations, whether it’s accurate or inaccurate, influences engagement. People are motivated to do that which they feel able to do. “Factors that lead to an internal perceived locus of causality enhance feelings of self-determination, which in turn enhance intrinsic motivation” (Vallerand & O’Connor, 1989). As individuals age, they generally experience a reduction in physical and cognitive abilities along with declining perceptions of efficacy. While becoming older may cause efficacy expectancies to decline (Eizenman, Nesselroade, Featherman, & Rowe, 1997), there is evidence linking higher control beliefs with higher performance (Neupert & Allaire, 2012) and higher feelings of well-being (Lang & Heckhausen, 2001).

The findings of Weiss and Freund (2012) indicate that older adults have a tendency to perceive themselves as younger than their chronological age. They suggest that this is a protective mechanism, operating to preserve self-efficacy perceptions. Sargent-Cox, Anstey, and Luszcz (2012) suggest that self-perceptions of aging (SPA) become a self-fulfilling prophecy and therefore, a more positive SPA may protect against decline in older adults. Intervention programs for SPA combat aging myths and develop a positive outlook on growing older.

Bandura theorized “expectations of personal efficacy determine whether coping behavior will be initiated, how much effort will be expended, and how long it will be
sustained in the face of obstacles” (Bandura, 1977, p. 191). Using multilevel modeling of subjective identity structure, Vignoles, Regalia, Manzi, Golledge, and Scabini (2006) found that higher percepts of self-esteem and efficacy correlate significantly with positive affect. These findings point to the value of an intervention that couples mastery experiences with positive encouragement. The research of West and Hastings (2011) used a multivariate growth curve model to assess memory training-related gains. They found higher gains in memory function when memory training was coupled with self-efficacy enhancing strategies and lower gains when memory training was provided alone.

Research by Jackson, Hill, Payne, Roberts, and Stine-Morrow (2012) on plasticity of personality in adults between the ages of 60 to 94, suggests that teaching thinking skills increases openness to experience. Openness, which enables an individual to defer judgment and explore possibilities, is one of the five purest aptitudes of creativity as indicated by E. Paul Torrance (Millar, 2010). Sustained engagement and enjoyment of cognitive exercises is increased through openness to experience (McCrae & Sutin, 2009). By making participants feel challenged but not overwhelmed, intellectual engagement was significantly improved through a 16-week intervention of inductive reasoning training (Jackson et al., 2012). Hogan, Staff, Bunting, Deary, and Whalley (2012) have also linked higher openness in 64 to 68- year-olds to increased reading skills, memory, and inductive reasoning. These findings point to the value of intervention strategies that are designed to strengthen thinking skills and increase openness.

Chronological age need not be the sole determinant of biological aging. Intervention programs can empower older adults by strengthening their cognitive and physical reserves. Fernández-Ballesteros (2005) investigated the impact of the
preventative “Vital Aging” program for older Europeans. His findings suggest that teaching exercise, positive thinking, self-responsibility, and coping skills can forestall the effects of aging. Moore, Mitchell, Beets, and Bartholomew (2012) developed the Physical Self-Descriptive Questionnaire (PSDQ) for understanding the relationships among physical activity, self-perceptions, and self-esteem. Their findings highlight the importance of exercise for physical and psychological benefits along with increases in self-perceived competencies. The benefits include fitness, flexibility, improved bone density, improved cognitive functioning, improved mood regulation, and increased confidence. Research suggests that self-efficacy may be increased through interventions that utilize movement (Moore et al., 2012), validation experiences (Wulf, Chiviacowsky & Lewthwaite, 2012), and psycho-educational content (Fernández-Ballesteros, 2005).

**Neuroplasticity and Physical Activity**

Researchers who investigate extrinsic and intrinsic factors that impact cognitive wellness in older adults have uncovered pertinent findings in the regulation of adult neurogenesis and maintenance (Wang et al., 2009). Individuals with depression have been shown to have decreased hippocampal and prefrontal cortex volumes (Castren, Voikar, & Rantamaki, 2007) and decreases in adult neurogenesis have been connected with neuropsychiatric disorders such as dementia or depression (Kempermann, Krebs, & Fabel, 2008). Many studies have shown that voluntary physical exercise, when used as a treatment intervention, increases cognitive abilities and decreases depression, especially in aging populations (Duman, Schlesinger, Russell, & Duman, 2008; Dunn et al., 2005; van Praag, 2008). “Research in humans and animals has shown that exercise improves mood and cognition. Physical activity also causes a robust increase in neurogenesis in the
dentate gyrus of the hippocampus, a brain area important for learning and memory” (van Praag, 2008, p. 128). Findings of Rossi et al. (2006) suggest that neurogenesis may be stimulated by a short-term intervention of environmental enrichment, physical exercise, cognitive stimulation, and social interaction. Testing for brain-derived neurotrophic factor, they found that mice that were provided with exercise wheels, learning opportunities, and the company of other mice showed a two-fold increase in hippocampal neurogenesis compared to a control group without these provisions. Investigating the connection between physical activity and neuroplasticity, Brandt, Maass, Kempermann, and Storch (2010) found that voluntary wheel running promotes precursor cell proliferation and cell survival in mice. Researchers at the Salk Institute for Biological Studies found similar results when they used the Morris water maze to compare learning in mice that had access to exercises wheels and those that did not (van Praag, Shubert, Zhao, & Gage, 2005). Kempermann’s (2008) studies on adult neurogenesis support the prescription of physical exercise followed by mental stimulation for boosting the neurogenic reserve that retains an individual’s cognitive dexterity. Wilson’s (2011) research linked hippocampal and neocortical brain reserve increases with complex, challenging activities such as juggling or volunteering in an urban elementary school. Kempermann et al. (2010) conducted research at the Center for Regenerative Therapies in Dresden, Germany to determine the therapeutic effects of exercise followed by cognitive enrichment. Their research suggested that locomotion stimulates the precursor cells, from which adult neurogenesis originates and cognitive stimulation promotes the survival of immature neurons. In addition, Kerr and Swain (2011) suggested that exercise facilitates cognitive health by stimulating both the rapid genesis of new neuronal
cells and the apoptosis of aging cells. In other words, exercise simultaneously ushers in new neuronal cells while it clears out old neuronal cells. These findings point to the value of dance and movement interventions for cognitive development in older adults.

**Defining Expressive Therapies**

Expressive therapy integrates a variety of verbal and non-verbal artistic modalities to foster human growth. The expressive therapist is trained in both psychotherapy and the expressive arts. Music, drama, poetry, art, dance, storytelling, and writing are used as part of an expanded mental health matrix that includes wellness strategies for optimal functioning. Each modality offers a unique pathway to transformation. Knill, Barba, and Fuchs (2004) observe that music is a powerful agent for eliciting emotions or for developing group cohesion through co-created sound, that dance/movement nurtures socialization, and that imagery is uniquely suited to non-verbal expression of subconscious material. Utilizing a non-verbal pathway facilitates getting in touch with thoughts and feelings that may be inaccessible through language (Malchiodi, 2007; McNiff, 1992). The artistic process has been described as “the chance to encounter dimensions of our inner being and to discover deep, rewarding patterns of meaning” (London, 1989, p. 7). Carl Jung (1964) wrote in *Man and His Symbols*:

> In our civilized life, we have stripped so many ideas of their emotional energy, we do not really respond to them anymore. We use such ideas in our speech and we show a conventional reaction when others use them, but they do not make a very deep impression on us. Something more is needed to bring certain things home to us effectively enough to make us change our attitude and our behavior. (p. 33)
Expressive therapy provides that vehicle for change. Each art form elicits distinct sensory responses that vary from person to person but central to each are active participation, self-expression, and mind-body connections (Malchiodi, 2007).

**Rationale for Expressive Therapies Intervention**

According to gerontologist Michael Patterson and National Center for Creative Aging (NCCA) founder Susan Perlstein, short term multi-modal intervention can enhance cognitive function, stimulate engagement, and protect against decline (Patterson & Perlstein, 2011). They point to evidence-based research including Kempermann’s (2008) neurogenic studies, Cohen’s multisite longitudinal study on creativity and aging (Cohen et al., 2006); and Noice, Noice, and Staines’ (2004) short-term expressive arts wellness interventions. Cohen’s findings suggest a reduction in sleep disorders, increased optimism, and improved cognitive functioning. Noice et al. (2004) found significant gains in word recall, problem solving, memory, self-esteem and psychological wellness after four weeks of theater arts and visual arts interventions. Based upon these and other findings, Patterson and Perlstein have offered 10 suggestions for designing wellness interventions:

1. Physical activity and movement
2. Mental challenge and stimulation
3. Social interaction, bonding, and support
4. The need to acquire and refine new skills
5. Activities that are multi-modal and combinatorial
6. Enriched and stimulating environments
7. The room to fail and the wisdom to learn from failure
8. Sufficient challenge to create mild (beneficial) stress

9. Pleasure, fun, and challenging play

10. Reward (Patterson & Perlstein, 2011, p. 35)

Integrating the literature related to gerontology, expressive arts, cognitive development and wellness; the researcher designed a protocol of transformation-focused and process-oriented expressive therapy exercises. This intervention exploits the properties and purposes of each expressive art within a group format. Each modality utilizes a unique auditory, visual, tactile, or proprioceptive pathway. The arts are uniquely powerful agents of expression, reflection, and integration. Because they operate through the sensory channels, expressive arts facilitate mind-body connections (Malchiodi, 2005). A therapy group can flexibly lend itself to a didactic whole-group format, a sub-group collaborative task, a dyadic encounter, or an individual psychodynamic exploration. Expressive therapy groups offer multiple format options to accommodate a wide variety of intervention designs (Malchiodi, 2007).

Music-listening and music-making are powerful agents for creativity enhancement and cognitive development. Processing a musical experience leads to insight and understanding (Forinash, 2007). Spontaneous emotional rhythms may be used to facilitate self-perception while forging connectedness and group resonance.

If rhythm is out of sync with the group, one has immediate feedback of how one is fitting in with the collective. In compensating for the dissonance and changing one’s rhythm to match the group improvisation, one in essence learns about connection and how to be a part of the community (McClary, 2007, p. 158).
Music-listening can sharpen the senses through content or structure analysis; e.g., distinguishing the melody from the bass or identifying musical instruments. Music therapy has shown efficacy for mood elevation and stress reduction (McKinney, Antoni, Kumar, Tims, & McCabe, 1997; Nayak, Wheeler, Shiflett, & Agostinelli, 2000). Music may be utilized in simulated synesthesia exercises to strengthen an individual’s aptitude for synthesizing concepts. It may be used to augment or “set the stage” for a guided visualization and movement exercise. The language of music is universally understood. As Leo Tolstoy said “Music is the shorthand of emotion” (Merritt, 1996, p. 133).

Dance/movement therapy is a unique form of psychotherapy that uses both structured and spontaneous physical movement to promote change (Loman, 2007). According to the National Coalition of Creative Arts Therapies Associations (2013), and the American Dance Therapy Association (2013), dance/movement therapy integrates physical, emotional, and cognitive aspects of self through the mind/body connection. Proprioception is defined as the reception of stimuli produced within the organism (Merriam-Webster, 2012, p. 997). This information is conveyed to the brain from proprioceptors located throughout the body (Jones, 2005). Dance and movement activities strengthen proprioception and the cognitive awareness of body position and movement through space. Research has attempted to pinpoint the mechanics of proprioception. Riley, Shaw, and Pagano (2005) attribute proprioception to sensory awareness of a limb’s axis of rotation. Langenberg, Kingma, and Beek (2008) proposed a center of mass theory. Some consider proprioception to be a sixth sense (Bio-Medicine, n.d.; Jones, 2005). Regardless of the dynamics involved, proprioceptive training can help older adults guard against falls (Moore et al., 2012).
Improvisational fluid dance has been shown to increase fluency of thought (Slepian & Ambady, 2012), which is one of the five purest aptitudes of creativity as indicated by E. Paul Torrance (Millar, 2010). Fluency has been likened to water logic as opposed to rock logic (deBono, 1992) in strategic problem-solving. Dance therapist Norma Canner explored making sounds with musical instruments and the voice in response to spontaneous movements (McNiff, 1992). Recontextualizing across modalities deepens insight and understanding (McNiff, 1992; Steiner, 1923/1964).

Dance/movement therapy may be used to nurture decentrism by imaginatively indwelling another being. The Aboriginal people utilize this pathway of understanding by imitating sounds and movements of a hunted animal in order to better understand its behaviors (Gallas, 1994). Dance/movement therapy can apply psychoneuroimmunology strategies, which may incorporate breath control (Elliott, 2005) or transformational imagery (Brigham, Davis, & Cameron-Sampey, 1994) for healing the psyche.

The human psyche constructs meaning, in large part, through metaphoric understanding, whereby one thing is likened to another unrelated thing. Ricoeur (1977, 1983) wrote extensively about the power of the metaphor to clarify a concept that was inaccessible through descriptive language. In his speech to the American Educational Research Association, Stanford University professor, Elliot Eisner summed up the value of holistic knowing with a metaphor “To know a rose by its Latin name and yet to miss its fragrance is to miss much of the rose’s meaning. Artistic approaches to research are very much interested in helping people experience the fragrance” (Eisner, 1980, p. 9). By crossing boundaries, understanding is directly illuminated. There is a growing body of evidence-based research indicating the efficacy of a mind-body connection that utilizes
metaphor to impart conceptual understanding (Landau, Meier, & Keefer, 2010; Slepian & Ambady, 2012; Williams, Huang, & Bargh, 2009). Expressive therapy exercises can be used to strengthen the mind-body connection and increase metaphoric understanding.

Imagery taps into the unconscious, offering insight, which is beyond the scope of language (McNiff, 1992). It has been said that a picture is worth a thousand words. Art therapy uses pictures to “reconcile emotional conflicts, foster self-awareness, manage behavior and addictions, develop social skills, improve reality orientation, reduce anxiety, and increase self-esteem” (American Art Therapy Association, 2013, p. 1). The immediacy of communicating through imagery is reinforced in our visual culture. Because imagery is a powerful pathway to understanding, art therapy is particularly useful for individual psychodynamic exploration within a group setting. Furthermore, art-making fosters originality and elaboration, two of the five purest aptitudes of creativity as indicated by E. Paul Torrance (Millar, 2010).

In drama therapy, the participant assumes a fictional identity in order to stand outside of himself. This allows individuals to give voice to unspoken issues, to explore contradictions, or to integrate fragmented parts of the self (Landy, 2007). Drama is another pathway to decentrism or the empathic understanding of another being (Millar, 2010). Drama is an excellent instrument for assimilating new knowledge or practicing new skills, such as deBono’s (1992) lateral thinking or six thinking hats. According to the North American Drama Therapy Association (2013), drama facilitates problem solving and increases insight. Psychodrama is a highly effective, highly adaptable agent of change within the group setting (Landy, 2005).
A psycho-educational group helps mentally healthy people deal effectively with life’s stresses. The group format is ideal for developing insight and growth (Day, 2007). Feldler and Weiss (1991) assert that relationship is the context within which individuals learn and grow. They define psychopathology as the diminished capacity for experience and they regard experiential therapy as the ideal pathway to wellness. An expressive therapy group for older adults offers experiential interaction, self-expression, and support (Malchiodi, 2007). “To therapists who work with groups of older adults, this style [expressive therapies] can make an important contribution to meeting the psychological needs of the elderly” (Riley & Carr, 1989, p. 371). “Research shows that even during old age the brain is still in a state of development and can be stimulated by engagement in activities; one of these activities is involvement in the arts” (Malchiodi, 2012, p. 275). Viewing issues through an artistic lens helps individuals abstract the essence or “get to the heart” of a matter. “Genius is an ability to see through to the essential. A genius has a special way of seeing things – all at once, all together, and all the way to the core” (Aleinkov, 2002, p. 64). Expressive arts require abstracting, which is one of the five purest aptitudes of creativity as indicated by E. Paul Torrance (Millar, 2010). Indeed, there are multiple evidence-based researchers and experienced therapists pointing to the value of expressive therapies for older adults (Aichberger et al., 2010; Aizpurua & Koutstaal, 2010; Cohen et al., 2006; Day, 2007; Fernández-Ballesteros et al., 2012; Hogan, Staff, Bunting, Deary, & Whalley, 2012; Jackson et al., 2012; Kempermann et al., 2010; Knill et al., 2004; Landy, 2007; Loman, 2007; Malchiodi, 2007; McClary, 2007; McKinney et al., 1997; McNiff, 1992; Merritt, 1996; Moore et al., 2012; Noice et al.,
2004; Patterson & Perlstein, 2011; Riley & Carr, 1989; Slepian & Ambady, 2012; Wilson, 2011).
CHAPTER 3

Method

This chapter discusses the design and implementation of the research. It gives an overview of the expressive therapies intervention and format, provides a detailed description of sample activities, and explains the sampling and measurement procedures.

Creating Wellness through Expressive Therapies

Intervention Overview: Move, Think, Explore, Interact, and Play

This research intervention used person-centered, psychodynamic expressive arts to equip and empower older adults for optimal functioning. The researcher led participants through activities in a psycho-educational small-group setting. Creative expression of the mind and body was purposed for exploring ideas, developing insights, identifying strengths, and actualizing competencies.

Five separate groups met once a week for eight weeks. Each group received identical treatment. Every session was 90 minutes in length and followed the same four-segment format, although the specific exercises were unique to each session. After greeting participants and circulating the sign-in sheet, the researcher began the first segment, which consisted of leading participants through a visualization and movement exercise that was set to music. The second segment involved a thinking exercise that challenged their cognitive operations. Experiential learning occurred during the third segment. The fourth segment concluded each session with a collaborative task.

The therapeutic activities included storytelling, dance and movement, conversation, poetry, sounds and music, drama, sculpture, writing, laughter and noncompetitive play, transformational visualization, drawing, collage, performance,
mixed-media assemblage, expressive games, improvisation, instruction, exploration, observation, synergy, and self-expression. Targeting aptitudes and attitudes, the activities were designed to strengthen these through application for the purpose of resultant action outcome behaviors. The researcher devised a Five A’s acronym to summarize this strategic approach for enhancing wellness through the expressive therapies.

Participants shared their thoughts and expressions as they were guided through activities in a game-like setting. The intended atmosphere was one of playfulness, encouragement, and respect. No response was ever considered wrong. If it did not fit the sensibilities of the group, it was viewed as a portal to further exploration and possible discovery. Always, the emphasis was on providing a positive experience for every individual.

**Intervention Design**

Components of the *Five A’s of Creating Wellness* are illustrated in Table 2. Each targeted aptitude or strength is shown in the first column. The intended attitudinal manifestation of each strength is shown as an “I message” in the second column. Proficiency in a particular aptitude may empower the type of thought that is expressed beside it, in the attitude column. Attitudes manifest through self-perception which is shaped by experience, as explained previously. An applied strategy for strengthening each aptitude is shown in the third column; the application column. An associated intervention activity is shown in the fourth column; the activity column. Rather than including the entire intervention protocol, the application column and the activity column
contain examples. The fifth column shows the desired action outcome for each aptitude. These action outcomes are proposed by the researcher to enhance wellness.

Table 2

*The Five A’s of Creating Wellness*

<table>
<thead>
<tr>
<th>Aptitude</th>
<th>Attitude</th>
<th>Application</th>
<th>Activity</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluency</td>
<td>“I’ve got an idea.”</td>
<td>Generate multiple ideas</td>
<td>Writing Therapy: Alliteration fluency</td>
<td>Resourceful</td>
</tr>
<tr>
<td>Flexibility</td>
<td>“what if…”</td>
<td>Consider alternatives</td>
<td>Imagining possibilities: Repurposing items</td>
<td>Mental dexterity</td>
</tr>
<tr>
<td>Originality</td>
<td>“Let’s try something new.”</td>
<td>Create, devise</td>
<td>Drawing new inventions</td>
<td>Produce unique solutions</td>
</tr>
<tr>
<td>Elaboration</td>
<td>“Let’s enhance it.”</td>
<td>Embellish &amp; alter</td>
<td>Writing Therapy: Descriptives</td>
<td>Articulate</td>
</tr>
<tr>
<td>Abstracting</td>
<td>“Get to the heart of the matter.”</td>
<td>Simplify &amp; summarize</td>
<td>Art Therapy: Abstractions</td>
<td>Grasp the essence</td>
</tr>
<tr>
<td>Openness</td>
<td>“Or you could see it this way.”</td>
<td>Tolerate ambiguity &amp; defer judgment</td>
<td>Brainstorming: Janusian thinking &amp; brain teaser</td>
<td>Unrestricted freedom of thought</td>
</tr>
<tr>
<td>Emotional Awareness</td>
<td>“I feel…”</td>
<td>Express feelings</td>
<td>Art-Making, Music-Making, Authentic Movement</td>
<td>Sensitivity</td>
</tr>
<tr>
<td>Synthesis</td>
<td>“Combine these.”</td>
<td>Simulated synesthesia &amp; Semantic Links</td>
<td>Intermodal Therapy</td>
<td>Cross domains &amp; make connections</td>
</tr>
<tr>
<td>Proprioception</td>
<td>“I sense…”</td>
<td>Kinesthetics</td>
<td>Dance/Movement Therapy</td>
<td>Mind/body attunement</td>
</tr>
<tr>
<td>Visualization</td>
<td>“I have a dream.”</td>
<td>Possibility thinking</td>
<td>Transforming imagery</td>
<td>Conceptualize richly</td>
</tr>
<tr>
<td>Contextualizing</td>
<td>“Look at the big picture.”</td>
<td>Consider future consequences</td>
<td>Storytelling</td>
<td>See the large-scale implications</td>
</tr>
<tr>
<td><strong>Curiosity</strong></td>
<td>“I wonder…”</td>
<td>Ponder &amp; probe</td>
<td>Wondering: Worlds Of Wonder Why Oh Why?</td>
<td>Sense of wonder, Ask useful questions</td>
</tr>
<tr>
<td><strong>Investigating</strong></td>
<td>“What makes it tick?”</td>
<td>Experiment</td>
<td>Ecotherapy: Examining the natural world</td>
<td>Explorer of the world</td>
</tr>
<tr>
<td><strong>Confidence</strong></td>
<td>“I am able.”</td>
<td>Encouragement &amp; affirmation</td>
<td>Mastery experiences</td>
<td>Self-sufficiency</td>
</tr>
<tr>
<td><strong>Extending</strong></td>
<td>“Look beyond.”</td>
<td>Stretching &amp; expanding</td>
<td>Out-of-the-box exercise</td>
<td>Break boundaries</td>
</tr>
<tr>
<td><strong>Fantasy</strong></td>
<td>“Believe the impossible.”</td>
<td>Creative imagery formation</td>
<td>Transformed Imagery &amp; Imaginative projection</td>
<td>Vivid imagination</td>
</tr>
<tr>
<td><strong>Humor</strong></td>
<td>“How funny!”</td>
<td>Recognize incongruity</td>
<td>Laughter Therapy: Surrealistic montage</td>
<td>Clever</td>
</tr>
<tr>
<td><strong>Collaboration</strong></td>
<td>“Let’s cooperate.”</td>
<td>Teamwork &amp; social fun</td>
<td>Harmonizing &amp; co-constructing</td>
<td>Relational team player</td>
</tr>
<tr>
<td><strong>Decentrism</strong></td>
<td>“Consider their viewpoint.”</td>
<td>Empathize</td>
<td>Dance/Movement Therapy: Imaginative indwelling</td>
<td>Concerned for things outside of the self</td>
</tr>
<tr>
<td><strong>Perception</strong></td>
<td>“I noticed…”</td>
<td>Sharpen the five (six?) senses</td>
<td>Listening Therapy: Distinguish the melody from the bass</td>
<td>Aware &amp; observant</td>
</tr>
<tr>
<td><strong>Critical thinking</strong></td>
<td>“Take it step-by-step.”</td>
<td>Solve problems with applied logic</td>
<td>Psychodrama: Six Thinking Hats</td>
<td>Strategic thinking</td>
</tr>
<tr>
<td><strong>Metaphoric Understanding</strong></td>
<td>“It’s analogous to…”</td>
<td>Associate unlike things</td>
<td>Poetry Therapy</td>
<td>Holistic understanding</td>
</tr>
<tr>
<td><strong>Metacognition</strong></td>
<td>“My cognitive process…”</td>
<td>Gestalt perception, Belief systems, Pattern recognition</td>
<td>Psychodrama: Heuristics, debate right &amp; wrong</td>
<td>Insightfulness &amp; wisdom</td>
</tr>
</tbody>
</table>
**Intervention Format**

Each session contained four segments: visualization/movement, cognitive challenge, experiential learning, and collaborative task. Below is a description of each segment.

**Segment One: Visualization and Movement.** Each session began with 18 minutes of gentle aerobic movement, set to instrumental music and accompanied by a guided visualization. The researcher demonstrated the motions and narrated the visualization as participants followed along. Each session provided a different imaginary landscape, but each one was designed to cultivate mind and body wellness. The session that is described in Appendix A used a seaside sound and instrumental recording to imaginatively transport participants to the beach. The choreography followed the musical score, utilizing the unique power of music to “set the stage” for the visualization. For example, soaring pan flutes and Celtic harps created the backdrop for a seagull’s ascent. This segment targeted proprioception, fluency, flexibility, visualization, optimism, fantasy, decentrism, and metaphoric understanding as intended pathways to wellness. Additionally, the movement was intended to stimulate neurogenesis and increase physical fitness. Each week, the first segment consisted of similar 18-minute visualization and movement exercise, but the music and narrative was unique to each session.

**Segment Two: Cognitive Challenge.** Following the movement and visualization exercise, participants worked on a cognitive challenge for approximately 10 minutes. Each week a different sort of thinking challenge was presented. Examples of these are shown below. One week the challenge was brain teasers. The brain teaser displayed in
Figure 2 required participants to use distillation or retaining information based upon relevance.

Imagine that you are outdoors, working on a landscape painting. This method is called plein air painting. (If you were indoors it would be called studio painting.) First you will work on the sky. You tilt your head sideways so that your ear is nearly touching your shoulder and you contemplate the sky. This unusual perspective helps an artist to see the colors more clearly. The artist squeezes six colors onto the palette and removes four brushes from the case. The artist then uses these six colors to mix eight additional shades. Twelve minutes later the artist begins painting the sky.

How old is the artist?

Here is a clue: T.M.I. alert!!!
If you are confused it is because this puzzle gives you TOO MUCH INFORMATION!

Are you still confused?
OK. Your answer is in the first sentence of the puzzle!

Figure 2: Distillation Exercise
Figure 3 displays a brain teaser that required participants to resist an obvious solution.
Participants had to entertain alternative perspectives in order to make sense of the puzzle.

A daughter was expected to return home at ten o’clock. At eight minutes past ten her mother exclaimed "Thank goodness you are home! I have been worried sick about you!"

Why does this comment make perfect sense?

Hint: Was it morning or evening?

Why, of course! She was expected at 10 AM and it is now 10:08 PM.
Another week, participants were challenged with an elaboration activity. The exercise displayed in Figure 4 required participants to embellish a plain sentence with descriptive words.

WORDS THAT CARRY A VISUAL PICTURE

*A Christmas Carol* by Charles Dickens tells how spirits from the past, present and future influence the cold-hearted Ebenezer Scrooge and change his personality.

Most writers were using one or two descriptive adjectives. Here is the description of Scrooge: "squeezing, wrenching, grasping, scraping, clutching, covetous, old sinner".

"The cold within him froze his old features, nipped his pointed nose, shrivelled his cheek, stiffened his gait; made his eyes red, his thin lips blue.

"No wind that blew was bitterer than he; no falling snow was more intent upon its purpose, no pelting rain less open to entreaty."

Select a sentence below and transform it into a Charles Dickens type of sentence:

I woke up and saw twelve inches of snow outside.
There were many lovely flowers in the garden.
That dog growls at everyone.
The wind was blowing hard as I stood on the hilltop.
The food at that restaurant is not very good.

Example: At 5:00 AM Bella jumped onto my bed and woke me up.
At the break of dawn, Bella exuberantly catapulted onto my warm, peaceful, comfy, cozy, slumber cocoon, thus abruptly rousing me from delicious dreamland.

Figure 4: Elaboration Exercise
Another cognitive challenge asked participants to write alliteration sentences for letters in the alphabet. Figure 5 displays this fluency exercise.

![Figure 5: Fluency Exercise](image)

**Segment Three: Experiential Learning.** Participants explored many different activities during the 40 minute experiential segment of each session. What follows is a
tiny sampling of the exercises. A “box of possibilities” that was filled with everyday objects was placed upon the table, giving participants the opportunity to devise alternate uses for each item. Figure 6 displays one participant’s repurposing list for this flexibility exercise.

Figure 6: Flexibility Exercise

To increase awareness and attunement, participants used art-making and collaborative music-making as agents of change. Sculpting their emotions and co-creating a symphony of emotions with simple percussion instruments offered participants the opportunity to gain insight and increase group cohesion. Figure 7 and Figure 8 display examples of emotional awareness and collaboration items from this exercise.
Exploring semantic connections through language, participants designed mind maps that linked one word to another, in a radiating fashion. A mind map employs both flexibility and synthesis, and it may be utilized to examine options or investigate a topic of interest. The mind map displayed in Figure 9 situated the word *gold* at the hub of the wheel in order to explore various definitions.
In another exercise, participants synthesized music, imagery, and abstract doodles. Using the following musical recordings: Beethoven’s Piano Sonata in C, Coltrane’s Moment’s Notice, Tchaikovsky’s Dance of the Sugarplum Fairies, Copeland’s Billy the Kid, Schoenberg’s Pierrot Lunaire; Edwin Starr’s War, Grofe’s Grand Canyon Suite, and Anderson’s Syncopated Clock, with the doodles shown in Figure 10, and art posters from the New York Graphic Society.
Participants experienced parallel interpretations of the musical content but highly idiosyncratic interpretations of the imagery. This speaks to the powerful universality of the language of music. In the second row of doodles, for example, the round shape represented confinement, protection or focus, depending upon the individual, and the drips beside it represented violence (blood) or sadness (tears). Participants completed the intermodal synthesis with highly individualistic combinations.

An exercise that was formulated to encourage fantasy and visualization required participants to transform a famous piece of artwork by drawing on top of it, as shown in Figure 11.
Another fantasy and visualization exercise involved imaginative projection onto a random visual field such as the inkblot shown in figure 12.

Figure 11: Transformed Artwork, Fantasy and Visualization Exercise

Figure 12: Inkblot, Fantasy and Visualization Exercise
Participants learned metacognition which is “thinking about thinking.” The exercise displayed in Figure 13 demonstrated how pattern recognition and transfer of learning confounds thinking “outside of the box.” Solving the puzzle required participants to extend beyond their knowledge of language symbol systems and see the letters as curved and straight lines. The letter H is formed with straight lines and therefore belongs above the line.

Does the next letter belong above or below the line?

A E F
B C D G

Figure 13: Metacognition and Extending Exercise

Participants applied deliberate thinking strategies in order to extend beyond their learned perceptions. Cultivating an awareness of thinking was intended to help individuals focus it and control it. One of these strategies was the Six Thinking Hats (deBono, 1992). Like stepping stones across a river, to help thoughts progress from the problem to the solution, each thinking hat suggests looking at the problem from a different perspective. Through the vehicle of psychodrama, the group evaluated a food production idea offered by PETA: growing meat in a factory rather than on a farm. Participants deliberated on health issues, environmental issues, and economic issues; playing the roles of restaurant chef, vegetarian, farmer and self.
To exercise flexibility and originality, participants created clementine peel sculptures like those shown in Figure 14 and Figure 15.

![Figure 14: Tree on a Hill, Flexibility and Originality Exercise](image1)

Figure 14: *Tree on a Hill*, Flexibility and Originality Exercise

Another originality exercise required participants to improve an existing product, using a systematic checklist that industry designers might follow for product enhancement. It contained such suggestions as reverse it; rearrange it; combine it; magnify it, increasing frequency, size or strength; minify it, dividing it, slowing it, or decreasing the weight; and so forth. They sketched such things as jet-propelled walkers and self-making beds. The Segment Three activities addressed each one of the targeted aptitudes with tasks that were varied and numerous.
Segment Four: Collaborative Task. Each week, the intervention concluded with a 22-minute group project that was designed to further reinforce the targeted aptitudes. Participants formed self-selected groups of three or four individuals to complete the collaborative task. Figure 16 and Figure 17 display items that were constructed by two groups during a collaborative creativity challenge. The instructions for this shared task were as follows:

*Using the items contained in this bag, assemble an arrangement that communicates a message. Use all of the materials, including fragments. It’s OK to “hide” things under other parts. No trading of items between groups. Please give it a descriptive title.*

Each group received a bag that contained two chenille stems, two paper clips, two cotton balls, two pom poms, a piece of yarn, two Dixie cup spoons, a piece of glitter paper, a piece of cardstock, a piece of aluminum foil, one coffee filter, a Styrofoam tray, a plastic cup, one button, a round clothespin, two clip clothespins, a latex glove, some shredded paper, and a rubber band.

Figure 16: *Some Day My Prince Will Come*, Collaboration Exercise
At the close of each session, the researcher briefly described the activities that would be offered the following week. Participants often lingered to socialize and discuss things. Sometimes they would share their thoughts about how the expressive therapies intervention may have impacted their lives. Artistic explorations, inventive coping behaviors, positive thinking, and increased physical exercise were mentioned by participants.

**Research Protocol and Data Collection**

**Participant Solicitation Process**

The researcher contacted 78 senior activity centers and senior enrichment programs in the greater New York area, asking for permission to offer an expressive therapies intervention to their clients. Of these, 23 indicated an interest. Meeting with the directors of these centers yielded five locations for conducting the research.
Participants were solicited from the general public with newsletters and news releases sent out from these five locations. Individuals over the age of 55 were invited to sign up for a research group that would receive eight expressive therapy sessions of creativity enhancement and wellness intervention. A total of 119 individuals signed up for the intervention. There were 57 participants who completed the program. Of these, there were 42 participants with perfect attendance or only one absence. Figure 18 illustrates the flow of participants during this study. A control group of 40 participants was solicited, in person, from the same population.

These two groups were well-matched for gender, age, and baseline measures in wellness and creative thinking. The research and assessment were explained and each participant was provided with an informed consent form, which described the research protocol and provided contact information for the research supervisors. It was explained that they would be allowed to drop out at any time, for any reason without providing an explanation. The research was approved by the Lesley University Institutional Review Board.
Figure 18
Participant Flow from Solicitation to Analysis

Solicitation
Assessed senior activity centers for participation  \( n=78 \)
Met with directors of senior activity centers that responded to inquiry  \( n=23 \)
Senior activity center directors agreed to participate  \( n=5 \)

Enrollment
Experimental Group
Newsletters called for research volunteers  \( n=119 \)

Enrollment
Control Group
Researcher asked in person for volunteers  \( n=40 \)

Intervention
Each weekday at a different location

Monday
location: Participants signed up  \( n=21 \)
Participants completed intervention  \( n=13 \)

Tuesday
location: Participants signed up  \( n=25 \)
Participants completed intervention  \( n=10 \)

Wednesday
location: Participants signed up  \( n=22 \)
Participants completed intervention  \( n=8 \)

Thursday
location: Participants signed up  \( n=28 \)
Participants completed intervention  \( n=17 \)

Friday
location: Participants signed up  \( n=23 \)
Participants completed intervention  \( n=9 \)

Analysis
Experimental Group
Pool of Participants completing intervention  \( n=57 \)
Pool of Participants with high attendance  \( n=42 \)

Control Group
Participants  \( n=40 \)
**Intervention Schedule**

Research participants attended sessions once a week for 90 minutes during eight consecutive weeks. The schedule was occasionally interrupted for weather issues and holiday conflicts but all of the sessions took place during the fall of 2012. The researcher conducted the sessions. Creative thinking, self-efficacy, wellness, and life engagement indicators were assessed with pre-testing and post-testing in order to measure possible changes. A control group took the same tests at the same time interval in order to control for testing effect. Dual administration of a test impacts reliability of scores so a control is needed for internal validity.

Attrition can be problematical for older adults who must remember to attend and to arrive on time (Devlin, 2006). The researcher motivated attendance by describing to participants the next session’s activities, at the close of each session. Even so, more than half of the participants dropped out along the way \( (N=62) \). Most of the drop-outs occurred without explanation \( (N=57) \). Other individuals provided explanations which included health issues, transportation problems, and scheduling conflicts \( (N=5) \).

**Participant Demographics**

The research participants consisted of 82 older adults of both genders living in the greater New York area. These individuals participated in activities that were offered through senior programs in their area. A total of five locations were involved in this study. Ages of those in the control group ranged from 55 years to 92 years. The average age of control group participants was 71. The ages of those in the experimental group ranged from 56 years to 91 years. The average age of experimental group participants was 76 years.
The ethnicity of the participants was predominantly White. Most of them were retired from professional careers. The participants comprised a typical cross-section of those in the local upper-middle class population who, either living in private households or living independently in a senior housing complex, avail themselves of local senior enrichment activities. These social and cultural activities include such offerings as exercise classes, lectures, interest clubs, game groups, and various courses. None of the participants had any evident cognitive or behavioral impairment, although some had physical limitations. Two participants were legally blind. Four participants used a wheeled walker or walking cane. Many wore hearing aids.

**Measurement**

The pre-test and post-test assessment tools were the Torrance Test of Creative Thinking (TTCT), Figural Form A, the General Self-Efficacy Scale, the Flourishing Scale, and the Life Engagement Indicator Scale which were administered immediately prior to the first session and immediately following the final session. The researcher hypothesized that participation in the eight-week program of expressive therapies would have a measurable effect upon creativity and wellness indicators.

**Creative Thinking Assessments.**

Torrance created the first version of the TTCT in 1966. It has been expanded and validated repeatedly and today remains one of the most well-respected and widely used assessment tools for creative thinking (Kaufman & Baer, 2006; Kim, 2006; Kim, 2008; Millar, 2010; Runco, 2007; Torrance, 2008; Torrance & Safer, 2009; Treffinger, 2009). The test was administered in a carefully controlled environment, with attention to
ambient conditions and psychological factors, in an effort to gather the pre and post data under matching circumstances.

The TTCT assesses five norm-referenced measures and 13 criterion-referenced measures. The TTCT yields two pieces of information about the test taker: the sum of standard scores and the creativity index. The sum of standard scores indicates the strength of the five norm-referenced measures and was considered by Torrance to be the strongest pure indicator of creative aptitude. The creativity index combines the standard scores with bonus points for the 13 criterion-referenced measures, yielding a broader but less precise assessment of the test taker. An analogy for the two pieces of information yielded by the TTCT is as follows: The sum of standard scores may be compared to aiming a pair of binoculars directly at a focal point. The binoculars provide a clear view but this view is aimed only at the most essential portion of the scene (the norm-referenced measures). The viewer sees clearly that which is most important but may miss some peripheral information. The creativity index may be compared to viewing the scene through the binoculars and also looking with the naked eye. That which is seen with the naked eye provides a broader view of the entire expanse (includes criterion-referenced measures) but includes information that is not precise. This is explained below.

The five norm-referenced measures are fluency (the ability to produce relevant ideas), originality (the ability to produce unique responses), elaboration (the ability to develop ideas), abstractness of title (the ability to distill the essence of an image), and resistance to premature closure (the degree of psychological openness). Raw scores for each norm-referenced measure are converted into standard scores with means of 100 and standard deviations of 20. The standard scores for the norm-referenced measures are
ranged as follows: fluency, 40–154 points; originality, 40–160 points; elaboration, 40–160 points; abstractness of titles, 40–160 points; resistance to premature closure, 40–160 points. The standard scores for the five norm-referenced measures are added together for the sum of standard scores, with a total of 794 possible points. This overall measure was considered by Torrance to be the strongest pure indicator of creative aptitude (Millar, 2010; Torrance & Safter, 2009). Using the analogy above, the sum of standard scores provides a clear, precise, and targeted (binocular) view of the test taker.

The TTCT also measures 13 criterion-referenced measures which play a role in real life creativity. These include emotional expressiveness, storytelling articulateness, movement or action, expressiveness of titles, synthesis of incomplete figures, synthesis of lines, unusual visualization, internal visualization, extending or breaking boundaries, humor, richness of imagery, colorfulness of imagery, and fantasy. The criterion-referenced measures have a range of 0 to 26 and each measure is awarded 0, +, or ++ on the basis of the scoring guide. Each + counts as one bonus point which is added to the average standard score (the sum of the five standard scores divided by five) to yield a creativity index. Using the analogy above, the 13 criterion-referenced measures are viewed as through the naked eye. They provide a view which is wider in scope but less precise. They are scored as follows: not detected (0), detected in lower measure (+), or detected in higher measure (++) . The detection of any of the 13 criterion-referenced measures is regarded as a strength however the absence of any of these measures is not regarded as conclusive evidence of their non-existence in the test taker. “Users should not make unwarranted conclusions on the basis of an absence of the indicators included on the checklist” (Torrance, Ball & Safter, 2008, p. 15). In other words, it is possible to
gain a more complete understanding of the test taker by looking at both the norm-referenced measures and the criterion-referenced measures (which yield the creativity index) but the most precise information is provided with the norm-referenced measures alone (which yield the sum of standard scores).

Wellness Assessments.

The General Self-Efficacy Scale, the Flourishing Scale, and the Life Engagement Indicator Scale are likert-type scales, each of which yields a numeric score. The three scores for these wellness scales were combined to yield a composite wellness measure, the Summary of Wellness which yields a maximum score of 146 points.

The General Self-Efficacy Scale (GSE) by Ralf Schwarzer and Matthias Jerusalem was created to assess perceived self-efficacy in the general adult population. Perceived self-efficacy is an operative construct that reflects an optimistic belief in self-competency. Perceived self-efficacy facilitates goal-setting, effort investment, and resiliency in the face of difficulty. Examinees respond to items using a four-point likert-type scale that ranges from 1 (not at all true) to 4 (exactly true). The GSE is utilized for both clinical practice and research purposes. To yield a general psychological profile, it is suggested that the GSE be combined with other assessment measures. The German version was developed in 1979 by Matthias Jerusalem and Ralf Schwarzer, and later revised and translated into 26 other languages. The General Self-Efficacy Scale is in the public domain. The GSE yields a maximum score of 400 points.

The Flourishing Scale (FS) was developed by Diener and Biswas-Diener for the purpose of measuring psychological well-being. It summarizes important self-perceived aspects of human functioning including feelings of competence and self-esteem, having
meaning and purpose in life, and positive interpersonal relationships. Examinees respond to items using a seven-point likert-type scale that ranges from 1 (strongly disagree) to 7 (strongly agree). It is available in six language translations and is utilized primarily for research rather than for diagnostic purposes. The Flourishing Scale is in the public domain. The FS yields a maximum score of 56 points.

The Life Engagement Indicator Scale (LEIS) is a self-report questionnaire which was developed by the researcher for the purpose of measuring an individual’s proactive engagement with life. The operant construct Engagement is shaped by a cluster of beliefs and attitudes that drive engagement behavior (Patterson & Perlstein, 2011). Ten items are designed to measure this construct by assessing intentionality, locus of control perception, intrinsic motivation, and interest in life. Examinees respond to items using a five-point likert-type scale that ranges from 1 (strongly disagree) to 5 (strongly agree), with a potential score range of 10–50. Four of the questions are reverse coded for the purpose of improving internal consistency. An (R) indicates a reverse coded question. The LEIS yields a maximum score of 50 points.

Data Analysis

Two research monitors were approved by the doctoral committee to oversee the intervention and data collection process. The first monitor observed the pre-testing. Both monitors observed the intervention, visiting each sample and viewing each of the eight sessions. The second monitor observed the post-testing. To ensure that the evaluation was conducted blind, the second monitor hid all of the identifying information from the evaluator by rolling back the covers to staple them securely and then randomizing the order of the test booklets into a single stack that included all of the
control group pre-tests, control group post-tests, experimental group pre-tests, and experimental group post-tests. The entire stack was scored simultaneously, item-by-item. Every test was scored for fluency (the first norm-referenced measure), then every test was scored for originality (the second norm-referenced measure), and so forth. Each scoring sheet and its corresponding test booklet received a matching code: A to Z, AA to ZZ, @A to @Z, and so forth. At the conclusion of the scoring, the tests were unblinded, the score sheets were identified, and the entire stack of tests was sorted back into control group pre-tests, control group post-tests, experimental group pre-tests, and experimental group post-tests. The two groups were compared to ascertain if they were well-matched at baseline, then the change scores were compared to investigate the effect of the intervention.
CHAPTER 4

Results

Baseline Comparisons

In order to determine if the control group and the experimental group were a good match, the two groups were compared at baseline (i.e., the first assessment). The Summary of Wellness pre-test scores in the control group and the experimental group were compared using a two-sample $t$-test ($p=0.755$). Likewise for the TTCT Sum of Standard Scores pre-test scores ($p=0.088$) and the TTCT Creativity Index pre-test scores ($p=0.107$). The control and experimental groups were similar at baseline as indicated by there being no statistically significant differences between the two groups. The results are shown in Table 3.

<table>
<thead>
<tr>
<th></th>
<th>Control Group</th>
<th>Experimental Group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Summary of Wellness</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>121.5</td>
<td>122.2</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>10.72</td>
<td>10.04</td>
</tr>
<tr>
<td>Observations</td>
<td>40</td>
<td>42</td>
</tr>
<tr>
<td>t Stat</td>
<td>-0.312</td>
<td>0.755</td>
</tr>
<tr>
<td>$p$ two-tail</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sum of Standard Scores</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>458.1</td>
<td>435.4</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>61.20</td>
<td>57.79</td>
</tr>
<tr>
<td>Observations</td>
<td>40</td>
<td>42</td>
</tr>
<tr>
<td>t Stat</td>
<td>1.725</td>
<td></td>
</tr>
<tr>
<td>$p$ two-tail</td>
<td>0.088</td>
<td></td>
</tr>
</tbody>
</table>
### Creativity Index

<table>
<thead>
<tr>
<th></th>
<th>Control Group</th>
<th>Experimental Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>102.3</td>
<td>97.1</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>15.78</td>
<td>13.20</td>
</tr>
<tr>
<td>Observations</td>
<td>40</td>
<td>42</td>
</tr>
<tr>
<td>t Stat</td>
<td>1.630</td>
<td></td>
</tr>
<tr>
<td>p two-tail</td>
<td>0.107</td>
<td></td>
</tr>
</tbody>
</table>

#### Change Score Comparisons

To investigate the effect of the intervention, change scores for the control group and the experimental group were compared. The mean Summary of Wellness change score for the control group was 0.43 and the mean Summary of Wellness change score for the experimental group was 0.45. The results of the two-sample $t$-test, comparing the Summary of Wellness change scores showed no significant difference between the two groups ($p=0.99$). The mean change score for the control group in the TTCT Sum of Standard Scores was 6.25 and the mean change score for the experimental group in the TTCT Sum of Standard Scores was 75.52. The results of the two-sample $t$-test, comparing the change scores for TTCT Sum of Standard Scores showed a statistically significant difference between the two groups ($p<0.0001$). The mean TTCT Creativity Index change score for the control group was 0.7 and the mean TTCT Creativity Index change score for the experimental group was 21. The results of the two-sample $t$-test, comparing the change scores for TTCT Creativity Index showed a statistically significant difference between the two groups ($p<0.0001$). The change scores comparison for the Summary of Wellness is shown in Figure 19. The change scores comparison for the TTCT Sum of Standard Scores is shown in Figure 20. The change scores comparison for the TTCT Creativity Index is shown in Figure 21.
Figure 19
Change Score Comparison for Summary of Wellness

Scores

Control Group

Experimental Group

Figure 20
Change Scores Comparison for TTCT Sum of Standard Scores

Scores

Control Group

Experimental Group
These results indicated a statistically significant change in the experimental group for the creativity measures but not for the wellness measures. The control group showed no significant change in either area. These results support the hypothesized improvement in the creativity measures but do not support the hypothesized improvement in the wellness measures. In other words, the psycho-educational expressive therapies intervention shows promise in increasing creative behaviors in older adults but not in increasing wellness.
CHAPTER 5

Discussion

This study investigated the efficacy of expressive therapies for creativity enhancement and cognitive development as a wellness intervention for older adults. There were two main findings in this study. First, creative thinking, as measured by the Torrance Test of Creative Thinking was significantly improved in adults over the age of 55, after eight sessions of psycho-educational expressive therapy. Second, wellness, as measured by the combined scores on the General Self-Efficacy Scale, the Flourishing Scale, and the Life Engagement Indicator Scale did not show measurable improvement in adults over the age of 55, after eight sessions of psycho-educational expressive therapy. Based upon the supposition that creative thinking enables one to function more effectively and successfully, the researcher had postulated that both creative thinking and wellness assessments would show measurable improvements after the intervention. This study suggested that the intervention shows promise for boosting creative aptitudes and attitudes in older adults but not for improving self-efficacy, flourishing, or life engagement. Although it would appear that this is so, a more nuanced examination of the findings suggests alternate possibilities. “Research is a process of continuously refining knowledge and understanding by seeking information that does and does not confirm the researcher’s hypothesis or the theories they entertain” (Cruz & Berrol, 2012, p. 15). Creative thinking does have proximal and distal effects upon well-being but the research design may be flawed. The selected assessment tools may be inadequate for capturing essential wellness indicators, or the researcher may have failed to take into account
sequential causation or chronological delay factors. Furthermore, unusual stressors may have played a part in the obtained measures.

It is possible that longitudinal testing might reveal a temporal association between the intervention and the wellness assessments. Due to the enduring nature of self-perception, a lag may exist between the acquisition of an aptitude and the perceived aptitude. As in the classic Andersen (1959) tale, *The Ugly Duckling*, present perception is predicated upon past experience. The bird has trouble perceiving that the swan in the reflection is himself. In a similar manner, participants in the present study may not perceive changes that have occurred. The researcher suggests that the discrepancy between the hypothesis and the findings may be attributable to a perceptual lag.

It is also possible that powerfully destructive weather may be a confounding variable. Coping with the uncontrollable forces of Hurricane Sandy, a.k.a., Superstorm Sandy, midway through the intervention may have activated feelings of fear or helplessness. This storm, the second most destructive hurricane in United States history (National Hurricane Center, 2012), caused massive destruction in the greater New York area. Further inquiry might indicate the extent to which Sandy impacted locus of control percepts for older adults.

Perhaps the selected wellness assessments may be operationally inadequate. “Wellness” is a conceptual construct, based upon theory. To define wellness is to propose a way of thinking about wellness rather than to define it in terms of its intrinsic essence. The present research measured wellness by assessing the presence and strength of behaviors proposed by social science researchers to indicate well-being. Goal-setting, effort investment, and resiliency were measured by the General Self-
Efficacy Scale. Feelings of competency, meaning and purpose, and positive interpersonal relationships were measured by the Flourishing Scale. Proactive intentionality, locus of control perception, intrinsic motivation, and interest in life were measured by the Life Engagement Indicator Scale. A multivariate examination of wellness measures that investigate perceptions, beliefs, intentions, and behaviors may indicate the dynamics of more complex relationships.

Exploring the complexity of engagement might yield a deeper understanding of correlates in wellness and engagement. During young adulthood and middle-aged adulthood, an engaged lifestyle may reflect career or parenting responsibilities. For older adults, an engaged lifestyle may reflect more variability. Defining the parameters of engagement may place the daily bridge player and the solitary painter at odds, although both are engaged in meaningful actions.

Self-actualization measures may better capture the essence of wellness. Maslow’s hierarchy of needs places realization of potentiality at the very pinnacle of human experience. Although innate potential may be denied or suppressed by circumstances, it is ever-striving for actualization (Maslow, 1968). The person who is most fully well may be he who is most fully actualized. Identity integrity assessment is another avenue of investigation. Rogers (1980) and the humanistic psychologists proposed that a secure, non-defensive self-acceptance is intrinsic to wellness. Alternately, wellness may be assessed most accurately through positive psychology measures or life satisfaction measures (Seligman, 2011). Wellness is a complex construct with many avenues of possible exploration.
Role of the Researcher

All research is influenced by personal values and desired outcome. It is likely that the researcher’s perception of creativity is strongly biased by personal interests and experiences. Growing up in a household with a mother who was an artist and a father who was a patent attorney may have led the researcher to over-state the importance of creativity. “The personal-self becomes inseparable from the researcher-self” (Creswell, 2003, p. 182). This personal bias needs to be recognized by both the researcher and the audience. Yet, the value of creativity in human affairs is widely recognized.

Navigating life’s challenges depends upon the ability to conceptualize solutions. Furthermore, social science researchers and theorists have suggested that creativity is an integral facet of personal growth and wellness (Csikszentmihalyi, 1997; Eisner, 2002; Gardner, 2008; Maslow, 1968; Rogers, 1980; Steiner, 1923/1964; Sternberg, 2009). Recognizing the power of creativity to illuminate multiple perspectives on any given situation, and believing in the capacity of human beings to learn, grow, and improve when they are guided down experiential paths that they otherwise would not have explored; this researcher affirms the value of expressive therapies as a wellness intervention.

Limitations of the Findings

There are a number of methodological limitations to this study. A threat to external validity may occur as a result of the sampling technique. The participant sample is skewed toward those who have more advantaged circumstances. Volunteers were solicited for this study from a population of individuals who take advantage of offerings at senior activity centers. These individuals are likely to be more interested, able, and
proactively engaged in life than the general population. This confounds the ability to extrapolate results to the general population. Wellness assessments obtained from the general population may have shown different baseline measures and post-intervention measures. Furthermore, the 37-year age range may have constrained the ability to make assumptions that apply to the entire group. Subsequent research might detect age-related outcome differences.

Another limitation of this study is the reliance on self-reporting wellness indicators. There are complex elements of uncertainty arising from any self-reported measure (Denscombe, 2010). With such subjectivity, social pressures or wishful thinking may bias scores toward a more positive assessment. Indeed, this is why Martin and colleagues’ (2012) functional quality of life (fQOL) assessment model combines self-assessed measures with external quality-of-life indicators.

Although creativity indicators do not guarantee creative behavior any more than marathon training guarantees a running victory or a high I.Q. guarantees intelligent behavior, strengthening the aptitudes and attitudes associated with creative behavior does increase the probability that these behaviors will manifest. “A variety of intellectual and non-intellectual skills are necessary for the successful operation of creative problem-solving process and these are learned largely through practice with guidance usually necessary” (Torrance & Safter, 2009, p. 22). And, although this intervention did indicate an increase in creative thinking, there is no indication that it will contribute to self-efficacy, flourishing, or engagement. The participants did, however, share some observations and thoughts about the intervention, which may suggest that this avenue of investigation warrants further exploration. Tales of resourcefulness followed in the
destructive path of Sandy, the concurrent meteorological event that caused widespread regional power outages (e.g., baking a birthday cake in an outdoor barbeque grill). Other accounts described breaking free from maladaptive thoughts by practicing positive psychology exercises such as the WWW exercise (i.e., mentally reviewing what went well). There were reports that indicated improvements in self-efficacy. The six thinking hats (deBono, 1992), for example, helped one participant decide where to spend Thanksgiving without hurting family members’ feelings. Rehearsing creative problem solving strategies through psychodrama presumably increased interpersonal efficacy. These anecdotal reports are possible indicators of efficacy enhancement. The researcher suggests that creative thinking and self-efficacy do not operate independently of one another, but rather that there exist complex factors that the present study overlooked.

**Recommendations for Further Research**

The findings of this study suggest the value of research that is aimed at understanding the dynamic relationship between creativity, wellness, and engagement behaviors for older adults. This type of research might explore a revised conceptual upward spiral of wellness that incorporates more nuanced dynamics and employs alternate cognitive assessments or wellness assessments. There may be a need to step back for a broader view encompassing motivation and expectancy theory as driving forces behind engagement.

Additional testing might determine the optimal age for creativity enhancement or include longitudinal studies to assess the retention of benefits. Lifelong cognitive competency is a possible area of inquiry, with ongoing creativity fitness training. Research might explore the impact of daily stressors upon creativity and wellness or the
extent to which introversion and extraversion impact creativity, wellness, or participation in a psycho-educational intervention group. Further options include investigating the utilization of creative learning spaces (Jankowska & Atlay, 2008) or using computer games to strengthen cognitive aptitudes. Although it may seem contradictory to recommend the latter venue, there remains the possibility that using paracosms or virtual realities, which constitute a sort of playground of the mind, may effectively increase creative aptitude across the lifespan. And, while in vivo brain research has increased dramatically in recent years, the human brain remains a vastly unexplored wilderness. There are many avenues to explore in the quest to nurture creativity and to help individuals attain wellness across the lifespan. Current global demographic and environmental trends suggest the importance of investigating the dynamic associations among creative cognition, wellness, and engagement.
DEFINITIONS OF KEY TERMS

Aptitude: an innate or acquired discreet human ability

Attitude: a mental disposition or mental stance

Autopoiesis: continuously self-generating

Creativity: the ability to bring into existence something new and useful

Cognitive Dexterity: mental adroitness or skill

Cognitive Wellness: competency of perception, memory, judgment, and reasoning

Engagement: active participation in life

Expressive Arts: multimodal process utilizing art, dance, drama, music, or writing

Flourish: to thrive or prosper

Gerontology: the study of aging

Intentionality: proactive purposefulness

Learning spiral: a recursive process of feedback and behavioral adjustment

Lifespan: the duration of existence of an individual

Locus of Control Perception: expectancies of the source of control over outcomes

Psychological Wellness: a positive and stable psychological state (not contingent upon the absence of bodily disease or physical limitations)

Self-Efficacy Concept: a person's belief in his/her own competence
APPENDIX A

NARRATIVE FOR A VISUALIZATION AND MOVEMENT EXERCISE
Narrative for a Visualization and Movement Exercise

“Today we are going to the beach. Imagine yourself on a long, sandy stretch of shoreline. It’s early so there aren’t many people around. Maybe a jogger in the distance or someone, walking their dog. The beach feels as if it’s all yours. Fluffy white clouds drift across the bright blue sky. Seagulls dip and float on the breeze. The water sparkles and splashes at the pebbles beneath your feet. (Participants were situated in an imaginary landscape.) Reach your arms up, then sweep them open wide as you face the sunshine, drinking in its warmth. Bright oxygen fills your lungs and surges through your body. Now, dip slightly and exhale anything that doesn’t serve you. (Participants were guided through the breathing and the movements.) Just ahead, a flock of terns are foraging for food. They scurry briskly as a wave advances. Be the wave. Roll like this, your arms are cresting. Lunge and break upon the shore. Hold the back of your chair if you feel unstable. Sweep back. Follow loosely. You know your own limitations. Scoop and lunge. You are the wave. Looking down you spy a conch shell. It spirals inward. Be the spiral. Now spiral outward. (During this portion, kinesthetic expression was used for imaginative indwelling of waves, shells, clouds, rocks, driftwood, and a seagull encountered on the beach.) Your wings are so graceful as they mount the breezes, lifting you high above the shoreline, as they arc and sweep. Gliding, arabesque, balance on one foot. Bank and dip like a roller coaster. (Balancing was used for proprioceptive training.) Look over there! A fisherman is casting. Clasp your hands around the fishing pole. Reel and cast – lunge step, reel and cast again. Now look down and reverse your clasp on the fishing pole. (The non-dominant side was used for ambidexterity training. Participants impersonated those whom they encountered on the beach, including a jogger,
a bicyclist, and a swimmer.)  Your arms move like a windmill as you cut through the surf.  
Look!  Here comes a wave!  Now you’re the wave.  You are the ocean.  Are your waters gentle or raging?  Go ahead – nobody’s watching.  You are moving as the sea.  Move as the sea.  You are the ocean.  You are vast.  Show vastness.  You are fluid.  Show fluidity.  
(Freeform improvisation was incorporated into each routine.)  You are washing up onto the beach.  Step out of the ocean to walk beside the shoreline.  Suddenly you feel the weight of something on your shoulder – that duffle bag is such a burden!  You’re wondering why you brought it with you, when suddenly you spy a rowboat near the shore.  (Participants climbed aboard.  They rowed past jagged rocks and a pod of dolphins.  They impersonated these and then counted the dolphins with thumb-to-finger taps.)  Glancing down at the heavy duffle bag, resting in the hull, you now remember what’s inside.  It is full of anger, worry and sorrow.  You went through so much to fill that duffle.  It cost you dearly.  You want to throw it overboard but it’s not easy to let go.  Reaching down, you groan out loud as you lift that duffle.  Uuugguuuuuhhhhh.  Slowly, you haul it overboard and release it.  Watching as the duffle bag sinks out of sight.  Down into the depths, you’ve let it go.  You feel much lighter!  (The visualization concluded by rowing ashore, joyfully stepping onto the sand and synchronizing with the ujjaya breath, a yogic victory breath that sounds faintly reminiscent of the ocean.)
APPENDIX B
INFORMED CONSENT FORM
Informed Consent Form

Study of Creativity Enhancement

Principal Investigator: Lauren Parmelee Murphy, co-researcher, Michele Forinash, Director of the PhD program in Expressive Therapies, Lesley University.

You are being asked to volunteer in this study to assist in my doctoral research on Creativity Enhancement. The purpose of the study is to investigate the efficacy of expressive arts exercises which were formulated to promote wellness by strengthening the aptitudes and attitudes associated with creativity.

This study will not necessarily provide any benefits to you. However, you may experience increased creative thinking and increased self-confidence.

You will be given four tests, both before and after the study. They are the Torrance Test of Creative Thinking, the General Self-Efficacy Test, the Flourishing Scale, and the Life Engagement Indicator Scale. Your test results will be kept confidential. They will be stored in a locked file cabinet. Your own results will be available for you to review.

The write up of this research will identify you with a number (no names will be used). The place will be described as a location for older adults in northern New Jersey (no places will be named).

You will be personally interacting with only myself as the principal researcher. Two women will be monitoring this research. One or both of them may be present to observe at any session. This research will take place in September, October, and November of 2012. The research project will be written up by approximately May 2013.

I, ________________________________ consent to participate in the research.

You may contact my advisor Dr. Michele Forinash at (617) 349-8166 or forinash@lesley.edu with any additional questions.

We will give you a copy of this consent form to keep.
a) Investigator's Signature:

_________________________  _________________________  ____________
Date                      Investigator's Signature          Print Name

b) Participant’s Signature:

I am 18 years of age or older. The nature and purpose of this research have been satisfactorily explained to me and I agree to become a participant in the study as described above. I understand that I am free to discontinue participation at any time if I so choose, and that the investigator will gladly answer any questions that arise during the course of the research.

_________________________  _________________________  ____________
Date                      Participant’s Signature          Print Name

There is a Standing Committee for Human Subjects in Research at Lesley University to which complaints or problems concerning any research project may, and should, be reported if they arise. Contact the Dean of Faculty or the Committee at Lesley University, 29 Everett Street, Cambridge, Massachusetts, 02138; telephone: (617) 349-8517.

Dr. Robyn Flaum Cruz is co-chair of the Committee. You may e-mail her at rcruz@lesley.edu
APPENDIX C

INFORMATION REGARDING TORRANCE TEST OF CREATIVE THINKING
Torrance Test of Creative Thinking

Author: Dr. E. Paul Torrance

Available from: Scholastic Testing Service  http://sttesting.com/

Form Used: Figural Form A

Age Level:
Grade 4 through Adult for group administration
Kindergarten through Grade 3 require small group or individual administration

Working Time: 30 minutes

Scoring: The Figural TTCT can be scored locally or by STS.

Norming:
National norm tables with standard scores and national percentiles for each score area.
National percentiles for average standard scores.
The General Self-Efficacy Scale

Authors: Ralf Schwarzer and Matthias Jerusalem, 1995

Please read each statement and indicate your feelings about it, using the 1–4 scale below:

1 = Not at all true  
2 = Hardly true  
3 = Moderately true  
4 = Exactly true  

1. ___I can always manage to solve difficult problems if I try hard enough.  
2. ___If someone opposes me, I can find the means and ways to get what I want.  
3. ___It is easy for me to stick to my aims and accomplish my goals.  
4. ___I am confident that I could deal efficiently with unexpected events.  
5. ___Thanks to my resourcefulness, I know how to handle unforeseen situations.  
6. ___I can solve most problems if I invest the necessary effort.  
7. ___I can remain calm when facing difficulties because I can rely on my coping abilities.  
8. ___When I am confronted with a problem, I can usually find several solutions.  
9. ___If I am in trouble, I can usually think of a solution.  
10. ___I can usually handle whatever comes my way.

**Scoring:**

Sum up the responses to all 10 items to yield the final composite score with a range from 10 to 40. A high value is associated with an optimistic self-belief.
APPENDIX E

FLOURISHING SCALE
Flourishing Scale ©

Authors: Ed Diener and Robert Biswas-Diener, January 2009

Below are 8 statements with which you may agree or disagree. Using the 1–7 scale below, indicate your agreement with each item by indicating that response for each statement.

- 7 - Strongly agree
- 6 - Agree
- 5 - Slightly agree
- 4 - Neither agree nor disagree
- 3 - Slightly disagree
- 2 - Disagree
- 1 - Strongly disagree

____ I lead a purposeful and meaningful life

____ My social relationships are supportive and rewarding

____ I am engaged and interested in my daily activities

____ I actively contribute to the happiness and well-being of others

____ I am competent and capable in the activities that are important to me

____ I am a good person and live a good life

____ I am optimistic about my future

____ People respect me

Scoring:

Add the responses, varying from 1 to 7, for all eight items. The possible range of scores is from 8 (lowest possible psychological well-being score) to 56 (highest possible psychological well-being score). A high score represents a person with many psychological resources and strengths.
APPENDIX F

THE LIFE ENGAGEMENT INDICATOR SCALE
The Life Engagement Indicator Scale

Please read each statement below and indicate your feelings about it. Please use the following scale when responding to each statement.

1 = Strongly Disagree
2 = Somewhat Disagree
3 = Undecided
4 = Somewhat Agree
5 = Strongly Agree

1. ___ I feel energized when I think about the things that interest me.
2. ___ What happens to me is of my own doing.
3. ___ If something is difficult, it is generally not worth bothering with.
4. ___ I am able to make a positive difference in this world.
5. ___ It makes no sense to plan things way in advance because they may never happen.
6. ___ Deciding how to spend my time depends upon what I enjoy doing rather than what will impress others.
7. ___ Sometimes if I’m bored I will just take a nap.
8. ___ I enjoy learning new skills.
9. ___ I cannot understand why some people work so hard on certain things.
10. ___ This world is a fascinating place with so many things to see and do.

Scoring:

Reverse code items 3, 5, 7, and 9 before scoring (1=5, 2=4, 3=3, 4=2, 5=1).

Sum the responses to all 10 items to yield a total score with a range from 10 to 50.

A high value is associated with highly engaged, proactive intentionality.
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