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The Psychology of Dance

ANNE C. WARGO
Bridgewater State University

Introduction

This research paper attempts to answer several questions: “What is the Psychology of Dance”; “Does dance impact humans in a positive manner?”; and “Does dance affect us cognitively, physically, emotionally, and socially?”, or more simplified, “Can dance really make us happy?” It is believed that the origin of dance dates back to cave etchings found in India nearly 9000 years ago, and, very likely earlier, although there is no concrete evidence. Speculation that the latter is true, identifies dance as part of the human fiber of ancient existence dating back and coinciding with the onset of verbal communication (Dance Facts, 2020). So, was dance a form of historic language? In Egypt, about 5,000 years ago, there is proof of tomb painting depicting religious ceremonies where dance existed (Dance Facts, 2020). Approximately 3,000 years ago in Greece, paintings represented a public form of dance garnered from images around the time of the inception of Greek Theatre and just prior to the ancient Olympic Games (Dance Facts, 2020). Dance has been around for an incredibly long time, yet the benefits of dance or the “Psychology of Dance” have only been studied and discovered over the past few decades.

According to Merriam-Webster’s (2000) dic-

tionary, the definition of psychology is “the science or study of mind and behavior in relation to a particular field of knowledge or activity” (para 2) and the mental or behavioral characteristics of an individual or group” (merriam-webster.com/dictionary/psychology, para 1). Merriam-Webster (2000) defines dance as “an act or instance of moving one’s body rhythmically, usually to music” (merriam-webster.com/dance, para 1). The concepts that stand out and are identified as shared commonalities from both of these definitions are (a) science and art, (b) mind and bodily movements, (c) group behavioral characteristics and social activity, and (d) rhythm and music (merriam-webster.com/dictionary, 2020). In the following pages, research studies are presented that show scientific results identifying how dance benefits us mentally through cognition; behaviorally through emotion; socially through non-verbal language; and physically through improvements in balance, coordination, and other bodily functions. Psychology and dance are related because psychology is about mind and behavior and dance is about cognition and movement, four interconnected concepts with proven causal relationships (Lovatt, 2011).

Cognitive Dance

Dance is known to improve cognitive processing in several ways. Cognition is the mental processing of experiential learning and the translation of neurological data as part of the acquisition of knowledge, or the mind’s ability to think (Merriam-Webster, 2020). The intricacy of dance choreography and the brain’s need for concentration while learning the different movements and combinations, along with the capacity to memorize and repeat the choreographic movements,

requires complex mental processing, which attributes to cognitive improvement (Languipo, 2019; Lovatt, 2011; Machado et al., 2018).

Peter Lovatt, Director of the Dance Psychology Laboratory at the University of Hertfordshire, concluded that “dancing helps the brain find new neural circuits benefiting the thought process and creativity” (Tucker, 2011, p. 2). Lovatt has posited that the motor cortex and the basal ganglia along with the cerebellum work together when one attempts to develop and implement rhythmic and choreographic movements of dance (Bergland, 2018). Lovatt himself did not read until he was 22 years old, and in his *Ted Talk*, he describes how he translated his ability to “learn how to dance” with a mission of “learning how to read” (Lovatt, 2011, 00:06:31). Lovatt is known for his research on convergent problem-solving, which is when only one solution is developed or required as in math or science, as well as in divergent problem-solving, which is when multiple solutions are a possible conclusion. It is the latter type of cognitive reasoning that enhances creativity (Lovatt, 2011). Lovatt explains that when individuals are performing a structured dance, they improve on their convergent thinking, and when individuals perform a more improvisational dance, i.e., more creative, individuals improve on divergent thinking (Lovatt, 2011). In a cognitive study on social dancing and walking, researchers found that dance had improved the cognitive domain of spatial memory, which is found to be important for learning dance choreography. Dance can improve brain health and memory by lowering the risk of dementia by 76%, as studied at the Albert Einstein College of Medicine (Languipo 2019; Verghese et al., 2003). In this same study, dance was

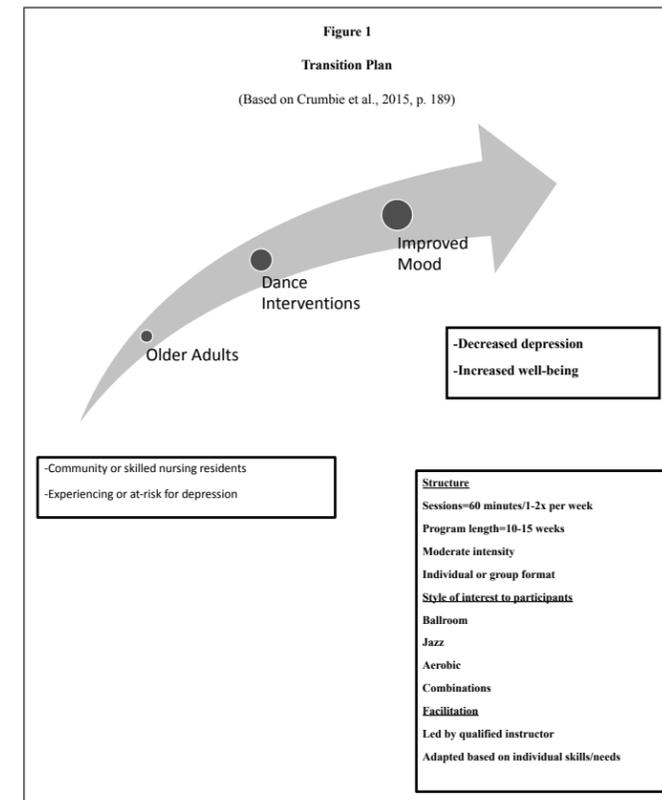
found to slow the rate of loss of volume in the hippocampus, which is a result of aging, and the research also showed that there were improvements in neural synapses in the brain (Exploring the Mind, 2017; Verghese et al., 2003). Also, in this study, the researchers found that the unique characteristics of dance versus the eleven different types of physical activity they tested, including cycling, golf, swimming, and tennis, resulted in only dance benefiting memory primarily because dance activates the mental and social connections more so than the other activities (President & Fellows of Harvard College, 2020; Verghese et al., 2003). The benefits of dance are similar to physical exercise, including improved memory and heightened neuronal connections (President & Fellows of Harvard College, 2020).

Emotional Dance

Dance contributes to emotional expression in a wide array of circumstances. Emotion can be represented by mood, which results from changes in the brain due to physiological or neurological demands on the brain (Baixauli, 2017). Emotion can be represented through self-expression because dance is not only an art form but also a form of creative movement (Lovatt 2011; Merriam-Webster, 2020). When the body and mind connect through movement, the result is emotion in the form of changes to the brain and changes to the self-concept (Baixauli, 2017).

Crumbie et al. (2015) tested senior adults, who were identified as at-risk for or experienced depression. The goal of the study was to develop therapeutic interventions for depression. Crumbie et al. noted positive improvements in mood after dance therapy. Figure

1 is a replication of Crumbie et al.’s “Translation Plan” (p. 189).



Professional dancers were researched as part of a neuroscience study, and results were identified linking “stronger synchronization of the low theta frequency” in the brain with emotion, social interaction, and self-awareness (Bergland, 2018, p. 1). Hanna Poikonen’s (2018) doctoral dissertation proposed that “pain, stress, anxiety, and depression” could be treated with dance choreography to help reduce these symptoms and “lessen the mental fluctuations” (p. 3).

Based on information previously cited about cognition, it is proven that rhythmic movement, or dance, connects various parts of the brain, including the sensory and motor circuits, and when connected to music, stimulates the pleasure centers of the brain

(Krakauer 2008). The pleasure centers of the brain release hormones of serotonin and dopamine that help boost mood (Baixauli, 2017). Serotonin, which regulates mood, and dopamine, which is associated with improved mood or happiness, are two hormones responsible for diminishing the production of cortisol, known as the stress hormone, as well as disconnecting the amygdala, which when connected, stimulates emotions like fear (Baixauli, 2017; Exploring the Mind, 2017). According to Harvard Health Publishing (2020), there are ‘neurochemical benefits of aerobic exercise’ (para 7), and since dance is considered a form of aerobic exercise, it has been proven that dance can help “reduce the body’s stress hormones known as adrenaline and cortisol” (Harvard Health, 2020, para. 7). Dance also “stimulates the brain’s production of endorphins, the chemicals that are the body’s natural pain reducers and mood elevators” (Harvard Health, 2020, para. 7). The completion of a workout or a run can result with a “runner’s high”, which is described as the emotion one feels after aerobic exercise. These are feelings associated with happiness, “relaxation and optimism” (Harvard Health, 2020, para. 7). Thayer et al. (1994) proved that exercise seems to be the most effective mood-regulating behavior to enhance and improve emotion, i.e., boost mood, and he and his colleagues determined that music was a close second. Dance that combines exercise and music was tested in a study done in Warsaw, Poland, and the results found that HT (hedonic tone) was high, meaning that the subjects were pleased, optimistic, and happy; this occurred when the participants had experienced recreational dance (Zajenkowski et al., 2014). In this same study when testing competitive dancers, it was found that their HT (hedonic tone) was

lower after dancing because of the competitive nature of the dance, and the subjects were more focused on their performance than on the enjoyment (Zajenkowski et al., 2014). A University of New York study on DMT (dance movement therapy) found positive variance in subjects after dancing versus cycling, as the dancers had “significant improvements in emotional well-being” (Campion & Levita, 2013, p. 142).

Social Dance

Dance is often done in a social setting, whether in a group, in pairs, or as a community coming together (Dance Facts, 2020). There are many types of dances that are considered social dances. The Rumba, Cha Cha, and Salsa all originated in Cuba; the Merengue came from the Dominican Republic, the Foxtrot from the United States; the Waltz from Europe; and the Tango from Buenos Aires. These are known also as ballroom dances and are historically done in couples or pairs (Tejeda, 2020). Traditionally, dance has cultural roots and special rituals that date back to ancient times, whether related to certain tribes or families, specific religious ceremonies, or various geographic regions (Dance Facts, 2020). The historic and cultural dances are referred to as folk dances, with a long list across the entire world including the Polka, Irish Step, Fandango, Hora, Kolo, Square Dance, and many more (Dance Facts, 2020). These traditional and cultural folk dance experiences are often performed as part of a celebration, where dance is the integral part of these social gatherings. Some examples include weddings, baptisms, bat and bar mitzvahs, and other important celebrations (Dance Facts, 2020).

The social connection made during these danc-

es impacts the human spirit in a variety of ways. It brings people together with loved ones and introduces them to new people, creating more opportunities for human connections (Exploring the Mind, 2017). It is sometimes a form of communication; there are no words, only rhythmic movement of two or more people in unison and often to music (Lovatt, 2011). According to Dance Facts (2020), “dancing remains one of the most expressive forms of communications that we know” (para. 1). A study at the University of Derby gave patients, who suffered from depression, Salsa lessons over the course of nine weeks, and at the end of the study, the patients showed an increase in endorphins and self-confidence as a result of the “social interaction, physicality of exercise, and cognitive complexity of choreography” (Anderson, 2010, p. 42). Humans are sensitive to the movement of others and gain pleasurable benefits, especially from watching others dance (Krakauer, 2008).

We have evolved as a species to “dance in synchronized unison” which impacts how we “think and interact” with each other socially (Bergland, 2018, p. 2).

Physical Dance

Dance is a form of exercise that has been known to strengthen the physical body by toning muscles and enhancing flexibility (Harvard Health Publishing, 2020). Exercise is proven as a prevention method and deterrent of heart diseases such as hypertension and arteriosclerosis, diabetes, osteoporosis, and obesity (Harvard Health Publishing, 2020).

A study done on a 39-year-old male, who had a disease known as cerebellar atrophy or shrinking of the brain, suffered for 15 years with a number of physical

limitations. After an 8-week dance program, researchers documented his improvements of balance, postural stability, gait characteristics, and functional mobility (Bergland 2018). Studies on Parkinson’s disease, which is a movement disorder, have shown that after dance therapy, participants gained improvement in balance, gait, and upper extremity function (Lovatt, 2011; President & Fellows of Harvard College, 2020). Peter Wayne, Ph.D., is the Interim Director at Osher Center, Harvard Medical School and Brigham and Women’s Hospital. Wayne is known for studying the efficacy of Tai Chi, and what he calls a “more ritualized, structured form of dance” (President & Fellows of Harvard College, 2020, p. 5). Wayne has found that participants in his studies who did Tai Chi not only improved “strength and flexibility” but also “achieved balance capabilities that were two times better than weightlifters and four times better than those who stretched” (President and Fellows of Harvard College, 2020, p. 5).

Summary

Dance is an aerobic exercise and an expressive art form that benefits the mind, body, and spirit. This article demonstrates that transformations happen to the brain and body, resulting in improvements to the human species in four main ways: cognitively, emotionally, socially, and physically. There are also significant changes to the chemical reactions of the brain that cause release of endorphins like serotonin and dopamine, the “feel-good” hormones. Dance has been researched to help improve depressive episodes in the elderly, decrease dementia and enhance spatial memory, and improve balance and strength in Parkinson’s patients. Dance is social in nature, a form on non-verbal

communication between couples or groups of people, whether in a religious ceremony, a celebratory event, or a casual setting. Dance has complex choreography, and the cognitive process of learning and repeating the movements improve neural transmission in the brain. Dance not only seems to make us happy, but it also improves our overall health and wellness. At this time of your lives, more than ever, you should kick up your heels and dance (Anderson, 2010).

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About the Author

Anne Wargo is a graduate student at Bridgewater State University. She has a BA from the University of Maryland in psychology and is currently teaching physical education and health at the Duxbury Middle School in Duxbury, Massachusetts. Her experiences with both psychology and physical education have significantly contributed to the writing of this manuscript.