



Contribution of Music Awakening in Emotion Regulation Through Dance Movements

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Abstract

The present synthesis deals with the impacts of music awakening on the emotion regulation, especially for children. At present, music education is introduced from kindergarten by awakening program including music and dance learning through choreography conceived by the learners. The movements practiced according to a rhythm and song would act on emotions and may contribute to their regulation. Based on relatively recent studies, the review discusses the health beneficial effects of dance, the relationship of this well-practiced art with neurosciences, and finally the musical awakening input for human well-being.

Keywords: Music Awakening; Dance; Emotion Regulation; Health

Introduction

Since decades, scientific progress was made exploring the linkage nature established between art and sciences, catching the interest of multidisciplinary scientists', especially human and behavioral scientists, psychologists and arts-related disciplines researchers [1]. In the 2000th, the first International Conference on Neurosciences and the Arts launched by the University of California, Berkley and co-sponsored by the Institute of Neurasthenics of the University College of London, discussed for the first time the relationship of the "Pleasure of the Arts and the Brain". Later in 2005, research on mirror neurons and their contribution in imitation empathy, as well as inter subjectivity were developed, especially the emotions universality, manifested by facial expression [2,3]. These mirroring features would help in explaining the mechanisms of the social, kinetic and emotional cognition as well as their understanding. They exhibited that the neural discharges are sparked following a direct simulation of the observed events,

without intellect nor reasoning [3]. This mirror concept is actually subject of neurosciences and is a keystone of therapeutic process based on the dance / movement [4,5].

Although the dance, a universal form of human expression that is conceived by harmonizing music with body-members movements, is a key in therapeutics based on mirroring neurons' activities, few works investigated the relationship between dance with numerous health benefits, and neurosciences considering music awakening interest in education [5-8]. Actually, dance associates one or multiple bodies moving in a specified rhythmical manner with or without music performing diverse professionalism degrees. Thus, dancers are required to generate, observe, execute, and coordinate complex movement patterns challenging physical and cognitive skills integration, judged by the performers' physical virtuosity through limb coordination, flexibility, and strength, as well as other performances and subjective esthetic elements [9-11]. These

crucial elements are basic for psychology and neuroscience studies while considering the physical and the artistic demands of dance that requires multiple cognitive abilities [9,12,13]. Therefore, this paper investigated the music awakening contribution in emotions regulation, based on dance and movements. This research will begin by presenting some health beneficial effects of the dance, and then the association between art and neurosciences and the mechanism established in relation with music awakening, fundamental in young musical education, will be developed.

Health Benefits of Dance

Sport is considered as much more than physical activity, and rather the key to balanced life, nourishing the body, mind and soul. Sport is acting a crucial role in our lives, far beyond physical exercise. It plays a complex and multifaceted role in community and global health; it contributes to our physical and mental well-being, while also providing social and emotional benefits [11,14-17]. As physical benefits, exercise is an effective way to maintain good physical health. It strengthens the cardiovascular system, improves flexibility, and helps with weight management. Regular exercise reduces the risk of chronic diseases such as heart disease, diabetes, and obesity. Moreover, considering its social development contribution, sport promotes the development of essential social skills. Indeed, by participating in sports teams or groups, individuals learn collaboration, leadership and teamwork, strengthening social bonds, and improving social integration [18-21].

Furthermore, sports offer a healthy way to release accumulated tension through high levels of stress managing modern life disadvantages; it allows to unwind and regain emotional balance, whether is the sport activity, practiced individually or in team. In the educational field, sport teaches values such as discipline, perseverance and rules respect. These skills are transferable to other daily life aspects, such as the professional, academic or personal sphere [20]. Indeed, sport goes far beyond physical improvement and has insightful repercussions on the mental, the social and the emotional well-being. Consequently, incorporating regular sporting activity or dance into daily life can bring significant benefits, contributing to a healthier and more balanced life [22]. Therefore, dance movement practice represents a type of art therapy that has been embedded in modern culture for more than 70 years. Dance provides benefits for personal as well as independent participants. Such participation provides both physical and mental wellbeing [12,19,20].

Dance may be apprehended in kindergarten where it is practiced in music awakening [5,6,8]. In educational institutions, the sport implementation ensures a well-rounded education, focused on body and mind development [20]. Recent researchers have identified the emotional education as a key tool to achieve a satisfactory level of personal well-being; this is fundamentally applied at childhood in musical awakening session that develop both of music perception, then its harmonization through space exploration through dancing and choreography. Musical creativity and benefits for human health is acquired by musical education diversity methods', specifically awakening, where the improvisation of musical ideas joined to

movements facilitate emotion and feelings expression [5,8,20,22].

Dance and Neurosciences

Moving the body to transform the mind while hearing music is a way to change the state of the soul. Indeed, in recent years, neuroscience has discovered that dance changes certain areas of the brain and directly influences our emotions, memory and creativity. The brain and dance have a fascinating connection that has attracted the attention of neuroscientists. It has recently been discovered that dance can change neurological architecture in exceptional ways. Interestingly, music, dance and movement synchronize to shape certain brain regions [10,11,20]. For centuries, dance and rhythmic movement have been used to enhance expression and modify emotions [5]. Actually, in the Western countries, dance movement therapy has been practiced as a form of art therapy since the early 1950s. This therapy associate music, light exercise, and sensory stimulation, providing a nonpharmacological treatment of mild depression. It helps recovery from the psychosocial and psychophysical effects of physical trauma and diseases such as neurological impairments (brain injury), heart disease, and cancer, chronic pain, and succeeding surgery (limb amputation) [20,21]. The literature suggests that dance movement therapy produces both subjective and objective improvements including redefining and strengthening body image; clarifying ego boundaries; providing an outlet for relief of physical tension, anxiety, and aggression and neuropathology, reducing cognitive and kinesthetic disorientation. It increases communication capacity, pleasure, fun, and spontaneity. It was demonstrated that dance movement therapy improves emotional responses and modulates neurohormones in mild depressed adolescents [17,24,25].

During the last few years, research developing dance interventions has shown an increase. In spite of this scientific interest, an awareness of dance as a viable physical activity alternative is needed. Moreover, some reviews were interested in children and adolescent populations and have exhibited that dance therapy would promote beneficial health aspects while considering children suffering from autism spectrum disorders [20]. Indeed, it was demonstrated that for children with emotional and physical problems, dance may be linked with positive physical, cognitive and sociological adaptations [24]. At the Chestnut Lodge Hospital in Maryland, Seides (1986) worked with cardiac patients on their rehabilitation. The results confirmed that dance/movement therapy increased body awareness, expanded the range of movement and affective expression; it also helped in resolving conflicts through action, declined depression achieved by rhythm and movement, provided a way to externalize inner thoughts and feelings and encouraged active participation in a group experience [21,24,26]. The active methods of Dalcroze, Orff, Kodaly Martenot and Suzuki offer the learner the possibility of experiencing and learning music through bodily experience, through listening, movement, interpretation, creation or music theory activities [27].

Dance and Brain Performances Processes

Considering the brain' mechanisms, neural synchronization,

the ability of different nerve cells in the brain to synchronize their activity and emit electrical impulses at the same time, was found remarkable in professional dancers; these have also a good working memory. This cognitive resource allows to store information in the short term and also permits to manage processes more efficiently, such as attention or visuospatial memory. Furthermore, the synchronization was related to the theta brain waves. These brain waves connect and balance the functioning of the hippocampus, the basal ganglia and the cerebellum with the cerebral cortex. As a result, a direct link between music, emotions and physical movements is enhanced [11].

Moreover, it was found that the somatosensory cortex located in the parietal lobe is one of the most active areas in dancers. This area is responsible for regulating the following processes: eye-hand coordination, tactile information, vibration sensations and muscle movements. The receptors of the somatosensory cortex receive information related to touch, temperature, pain. They also inform us of the position of our body [22,27]. Dance promotes new neural connections. The brain and dance have a very healthy relationship thanks to neuroplasticity [8]. Studies conducted at the University of Sao Paulo (Brazil), showed that professional dancers develop a brain with abundant neural connections contributing to consider both of the musical aspect and the gestures as well as space moving and their synchronization [28]. Recently, the technology in the field of tactile interactive human-computer interaction has been applied in the music field. This widely used technic was specifically applied for somatosensory interaction technology in children's music enlightenment products and exhibited a better performance [29].

Conclusion

The intersection of dance and brain-based models of esthetic are to be considered, since the neurasthenics field offers opportunities for dancers, musicians and scientists to collaborate in order to gain a better understanding in dance creativity and expression perception/modulation enhanced by music creativity. Any musical activity involves the body as both transmitter and receiver of music, and gesture is the vector of sensitive expression mobilized for production and perception. As neuroimaging technologies are progressing, better understanding of the relationship to dance will attract interest from domains ranging from cognitive psychology, neuroscience, music awakening, and cross-cultural psychology, to dance and choreography.

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Conflict of Interest

No conflict of interest.

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