BRAINDANCE: AN INNOVATIVE PROGRAM FOR THE TEACHING OF TRADITIONAL AND CREATIVE DANCE IN THE SCHOOL SUBJECT OF PHYSICAL EDUCATION

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Review paper

Abstract

Introduction: *BrainDance is proposed as a form of exercise that activates the human body and wires it with the brain. BrainDance can be used as a warm-up or main exercise with all ages and at all learning levels since it contributes to align the body, reorganize the central nervous system, develop focus and concentration, release stress and enhance social skills. BrainDance uses Laban's Movement Analysis. It is an all-promising innovation for the teaching of traditional and creative dance within the context of physical education in the school setting, supporting the psychomotor, cognitive, creative, as well as the social and emotional development of the students, by improving their relationships and communication skills.* ***Aim:*** *The purpose of this bibliographic research is to document that the BrainDance program is an effective form of teaching traditional and creative dance, in order to enhance and efficiently improve the students' quality of life in the school subject of physical education with regard to the psychomotor, emotional, cognitive and social domain.* ***Conclusions:*** *From the literature review, it is evidenced that it is important and necessary to understand the BrainDance program in order to enhance the structured and organized education through the implementation of the BrainDance and Laban's Movement Analysis in a traditional dance program within the school subject of physical education. This dimension of learning multiplies the educational benefits, creatively approaches the relationship among knowledge, action and human interaction, as well as altogether impacts the holistic development of the students and their perceptions regarding the health related quality of life within the school setting.*

Key words: *BrainDance, Laban, health-related quality of life, traditional dance, creative dance, education.*

Introduction

The scientific research of the relationship between cognitive and physical activity already started during the decade of 1930, with educators and scientists- researchers trying to find new learning paths, and the technological development leading to new research fields and understanding of the way the brain, and learning itself, function (Hillman, Erickson & Kramer, 2008). A recent study in neuroimaging techniques showed that physical exercise leads to observable changes in the structure and function of the brain (Booth & Lees, 2006). BrainDance can be used as warm-up or main exercise with all ages and at all levels of learning. It activates the human body and wires it with the brain, it contributes to align the body, reorganize the central nervous system, develop focus and concentration, enhance social skills and release stress (Hackney, 2003; Gilbert, et al., 2006; Billingham, 2009; Gilbert, 2015; Theocharidou, 2017; Lykesas, et al., 2018b).BrainDance uses Laban's Movement Analysis and it seems that can theoretically constitute an all-promising innovation in the context of the school subject of physical education. In many countries around the world, dance is a particular element of the school curriculum across all educational levels, and especially the first two levels of primary and secondary education, as it helps to the holistic development of the student, not only physical but also expressive and creative (Dunkan, 1928; Stinson,1988a; Stinson,1988; Arts Council of Great Britain, 1993; Bergmann, 1995; Miller, 2007; New York City Department of Education, 2007; Irish National Teachers' Organization, 2009; Baltimore Country Public Schools, 2012; Council of Ontario Drama and Dance Educators-CODE, 2016). Even though there are many theories regarding the benefits of dance for children (Dimondstein, 1974; Best, 1985; MacDonald, 1991; Davis, 1995; Swindlehurst & Chapman, 2008; Gilbert, 2015), unfortunately, there is an overall lack of research regarding the impact of dance and movement to the students' developmental integration(Lobo & Winsler, 2006; Quin, et al., 2007; Bungry & Vella-Burrows, 2013; Tsompanaki, 2014).Over recent years, dance is researched as an appropriate form of exercise for all ages that seems to have a particularly beneficial impact to the physical and spiritual health, but also the quality of life (Lee et al., 1987; Lykesas, &Zachopoulou, 2006; Lykesas, et al., 2010; Lykesas, et al., 2012; Bougiesi, et al., 2014; Theocharidou, 2017; Lykesas, et al., 2018a; Lykesas, et al., 2018b; Theocharidou, et al., 2018). In terms of the student, dance offers motivation, improves self-esteem and goal achievement since the student is interested more in discovering herself/himself, becomes more open minded, eager to collaborate with others in order to discover their ideas and work beyond the time limits of the lesson

for their realization (Bergmann, 1995; QCA, 2004; Gilbert, 2015). In her dissertation, Theocharidou, (2017) examined the impact of a combined program of creative dance and BrainDance, based on Laban's Movement Analysis, to primary school students with quite satisfactory results regarding their health-related quality of life. The results showed that this combination reinforced their creative skills, enhancing them with new motor actions, and improved their perceptions about the health-related quality of life, while it showed improvement and higher values in almost all dimensions of the Kidscreen-52 questionnaire. The dimensions of this questionnaire covered the following domains: Physical Activities & Health, General Mood, Emotions, Self- Perception, Friends, School, Learning, and Self & Others.

Kaufmann & Dehline (2014) also support that dance helps students improve their coordination, balance, flexibility, and control over their movements. Stamina and physical strength are increasing. Being aware of their center of gravity and the shift in muscle tension during movement gives refinement and aesthetic quality to a pleasant physical activity(Kaufmann & Dehline, 2014).More specifically, apart from the acquisition of health practices, stress release, and awareness of their body in space, which lasts for a lifetime, through dance students cultivate abilities such as: a) kinesthesis, b) they strengthen their physical and natural abilities, c) they develop body control, improve balance and their motor skills d) they learn how to express their thoughts and emotions through movement (that is, they cultivate their expressive skills)(Stinson, 1988).

For a more efficient form of dance teaching, attention must be given to the technical development of the lesson and the teaching methods, always emphasizing creative teaching methods and especially practices that encourage the students' expressive ability in the school setting (Mathe et al., 2008; Lykesas & Koutsouba, 2008). Teaching for the enhancement of the students' expressive ability is the form of teaching that intends to develop their creative thinking or change their behavior (NACCCE, 1999). Some characteristics of groundbreaking teaching may be innovation, relevance, control and the teachers' pedagogical knowledge (Craft, 2005).This way, personal effort is further emphasized in an environment without competition, resulting in the children's motivation for a longer period (Laban, 1975; Koutsouba, 2005). In terms of communication through dance, the dancers are interested in transmitting their messages through the act of dancing, putting emphasis on the form of dance (Adshead et al., 2007). Thus, the relationship between the communicator (dancer) and the message (dance), is determined by the behavior of the latter towards movement, and in particular, depends on the way s/he combines the motor factors of space, time, center of gravity and flow (Dania et al., 2009; Dania, 2013; Lykesas, 2018).

Hence, the aim of this bibliographical research is to document the impact of a BrainDance program on a more effective way of teaching the traditional and creative dance, in order to enhance and improve the students' quality of life, within the context of the school subject of physical education in relation to the psychomotor, emotional, cognitive and social domains.

The BrainDance program

In 2015, influenced by Rudolf Laban's four movement categories, Gilbert formed her own movement vocabulary and proposed a creative dance program which addresses all ages and levels of learning. The four elements of creative dance include fifteen dance concepts (table 1):

Table 1. Dance elements and concepts according to Gilbert.

Dance elements	Dance concepts
1)Space	Placement in space, size, level, direction, pathway, focus
2) Time	Speed, rhythm
3)Force/Dynamics	Energy, weight, flow
4) Body	Parts, shapes, relationships, balance

BrainDance owns its existence to Laban's collaborator, Irmgard Bartenieff (1890-1981) who created a set of movement patterns, known as "Bartenieff Fundamentals" (Hackney, 2003; Billingham, 2009). It is based on the 8 developmental movement patterns (primary reflexes), which appear in healthy infants during their first year of life, in order to activate the central nervous system, so that the brain functions in the very best of its capacity. These movements are the basis for the connection and development of a healthy brain (brainstem, mid-brain/limbic system, cerebral cortex) (Gilbert, 2015). According to Gilbert (2015), the various arguments relating to whether the students need more movement as an art form(dance), movement as exercise (physical education), or movement as a means for teaching other school subjects (dance integration), have stood as an obstacle to the development of strong dance programs through all educational levels in American schools (USA) and the rest of the world. She also argues that, preferably, schools would provide students with opportunities to experience all three types of movement. Another obstacle to the introduction of dance in education is the misconception of the terms "dance education" and "dance training" (specialization). The former refers to the progressive integration of dance in all educational levels through the school curricula, whereas the latter prescribes movements and strategies for the learning of specific motor skills, aiming at the mastery of the technique and a possible professional dance performance in the future (Koff, 2000; Theocharidou, 2017).Due to this misconception dance is nowadays classified only as a branch of physical education (Koutsouba & Tyrovola, 2003).

Unfortunately for the arts and cultural education in schools in Europe, the Irish National Teachers' Organization (2009) reports that visual arts and music are of higher importance than dance and drama within the school curricula of the other state members. However, USA (Baltimore County Public Schools, 2012; New York City Department of Education, 2007) and Ireland (Irish National Teachers' Organization, 2009) have implemented creative dance in their school curricula. Additionally, in Taiwan, according to the school program applied in 2001, creative dance has found itself in the educational system under the umbrella discipline of "Performing arts" (Wu et al., 2012). According to a research conducted by Chiang & Griego (2017), an experimental BrainDance group was compared to a control group for the evaluation of the students' behavior in terms of reading results, social, learning, and negative behavior. The findings did not show an important difference in reading fluency, but the BrainDance group improved in four specific areas: focus, sensorial use, multiple senses and anxiety. Positive connections among social and learning behaviors were also established.

In Greece but also in other countries around the world, dance lessons and, especially, creative dance lessons are still considered artistic activities only familiar to talented or wealthy people and are usually provided in private studios and rarely in public schools as educational programs. In the Greek National Curriculum for Physical Education, dance is solely represented by the unit of traditional dance, always within the context of Physical Education. Through the Pedagogical Institute of the Ministry of Education and Lifelong Learning (P.I., 2011), in the last proposed school curricula for the "New school" in the field of Culture - Artistic activities for compulsory education, it was proposed to include cultural programs in primary education (as a unified zone of free activities of aesthetic education or as a two-hour weekly activity), as well as in secondary education (two hours per week with free selection among ten artistic subjects in order to form "six-month" independent activities of aesthetic education).

This proposal would embrace five areas of artistic expression: music, fine arts, theatre, audiovisual expression and dance-movement. However, dance (both traditional and creative)has neither acquired yet its placenor the respect that it deserves in the Greek academic community or the formal educational system (Koutsouba, et al., 2003; Savrami, 2012). The possible reasons seem to be the lack of expertise among P.E. professors, especially regarding a) issues relevant to creativity, and b) their ability to recognize and develop the creative potential of their students (Konstantinidou, et al., 2011). According to Gilbert (2015), dance teaching needs structure, guidance, and experience. She also claims that surely it is not enough to simply let children move as they wish listening to music. The presence of dance in education requires an educator that knows how to create and deliver a proper environment for students to develop the skills of self-knowledge and interaction with the rest of the world (Bergmann, 1995; Gough, 1999; Curl, 2005; Mc Cutchen, 2006). The teaching practices and the pedagogical incentives that are used in the dance lesson also determine the value of dance for children (Gard, 2001; 2008). These practices should include: a) a specific signal for the beginning and the end of an activity, b) the physical demonstration, that is motor actions exemplified by the educator her/himself, c)rules that ensure the physical and psychological safety of the participants and can be decided in common with the students, d) the necessary questions and suggestions for the possible ways to research a topic(Russell, 1987; Davis,1995), e) possible ways to invent dance through the use of the basic elements of movement, f) feedback along with the students' movement g)instructions from the educator on possible collaborations and facilitation in the composition of teams, h) presentation, performance and interpretation of the creative result by the students, i) positive feedback for the students' skill, performance, behavior, and participative collaboration.

The content of a BrainDance program

The design of a BrainDance program, as it has been adapted by Gilbert (2015), should be based on Laban's elements of movement: the body, the space, the time, the force of movement, and the relationships that are developed among them, in order to allow the production of movements moving through space and in one spot (Laban, 1975). The dance elements and concepts that should be taught are the following: 1) the space: place, levels in space, size, direction, pathway, concentration/focus, 2) the time: speed and rhythm, 3) the force: energy, weight shift, flow, 4) the body parts: a) body parts, b) body shapes, c) relationships and balance, 5) the choreographic style: suite, a repetitive theme and variation, abstract narration, fragmented form, random dance.

Each dance lesson should be composed by three parts: 1) the warm-up (5'-20') which includes the BrainDance technique and, in special cases, may extend to 30'-60' with minor or major intensity so that it finally constitutes 2) the main part (30'-60'), together with the use of Laban's elements of dance a) the discovery of the dance theme (guided improvisation, shapes in pairs or groups, musical instruments or rhythmical concepts), b) the development of skills (movements in static position or traveling through space, skipping, leaps, twists, combination of traditional or creative dance movements, use of auxiliary instruments), c) the development of creativity (structured improvisation/free dance, choreography) that will progress to an organized form of dance (traditional or creative), and 3) the presentation and evaluation of the dance activity-choreography by the students, and finally the relaxation and mental training.

The traditional or creative dance lesson will therefore be based on the eight movement patterns that are included in the structure of the BrainDance and will be carried out in combination with Laban's movement elements (Gilbert,et al., 2006; Gilbert, 2015; Theocharidou, 2017; Theocharidou, et al., 2018; Lykesas, et al., 2018b). Daily or weekly repetition of the BrainDance, could cover possible gaps in the kinesthetic system of a child or an adult that were either caused by birth trauma or lack of contact with the floor (in prone or supine position) during early years, as well as illness or head injury at an older age(Hackney, 2003; Gilbert, 2015).

The structure should be maintained intact and in each new lesson a new dance concept should be incorporated. The dance elements and concepts should be permanently exposed in the classroom in the form of boards, as a reference point for the educator and the students. After the BrainDance warm-up there will be an introduction to a new dance concept with the students being in front of the board, where the dance concepts are exposed, reading them aloud, and demonstrating them physically. Knowing new and revising old concepts would lead to their mental connection and the development of motor memory resulting in better movement. The eight movement patterns, that constitute the structure of BrainDance, are always applied in the following order:

1. Breath: It includes breathing-in deeply, from the nose, in order to fill the belly, the diaphragm and the lungs with air, and breathing-out from the mouth. The flow of oxygen in the brain is increased so the exercise is conducted with flow and ease, stress is reduced, and both brain and body are refreshed. It is the regulator of emotional development and control. The skillful movement emerges from the breath flow. Breath is fundamental to all learning and emotional balance.
2. Tactile: The hands apply pressure to the whole body; squeezing, patting, finger tapping, brushing, scratching, rubbing, and in general several kinds of tactile movements are experimented. It awakes the sensorial system and proprioception; it develops the sense of touch and increases the sensorial completion. The proper touch when dancing with other dancers, the skillful management of auxiliary instruments, and the better articulation of hands is demonstrated.
3. Core-distal: The movements that concern the active relationship between the center of the body and the extremities, that is, movements that grow and shrink, from and towards the body center, the toes, and fingers, the head and spine, in symmetrical and non-symmetrical shapes. Strong self-awareness and perception of the others are enhanced. Emotional stability and physical balance are created while the individual is activated and protected.
4. Head-tail (spine): These are bending movements and movements of spinal extension in different directions that concern the active relationship of the head and coccyx of the body. The internal sense and body posture are reflected. Proprioception, balance and muscle tone are energized. The entrance and exit of the situation of balance happens easily and it simultaneously supports eye contact and social development.
5. Upper-Lower body: These movements are produced with the half upper or half lower part of the body. The function and mobility of the joints is increased, as well as the stability of the body and the expression in movement. The muscle tone of the head and the neck is increased and the short and long focal length is developed. The well-aligned body posture can constitute a major source for the development of skills and pleasure to the child.
6. Right-Left side: These movements are made with the right or the left side of the body still and earthed, whereas the opposite side is moving towards all directions, speeds or levels. The body and both brain hemispheres are strengthened and balanced. Horizontal eye tracking (crucial for reading) and side dominance are developed. Strength and flexibility on both sides of the body are demonstrated.
7. Cross-lateral body movements: When executed these movements easily show a coordinated body and mind collaboration. Bothbrain hemispheres are integrated; vertical eye tracking is developed, as well as complex thinking. These movements determine the student's ability to participate later in higher levels of coordination. (Gilbert, et al., 2006; Gilbert, 2015; Theocharidou, 2017).
8. Vestibular system: These movements shift the body from its center of balance, provoking a bit of dizziness in order to increase balance. A strong and complete kinesthetic system is developed, as well as spatial awareness, balance and coordination. Moreover, the system that controls the five senses is reinforced (Gilbert, et al., 2006; Gilbert, 2015; Theocharidou, 2017).

The eight movement patterns of BrainDance that are described above with all their respective benefits also enhance perceptual abilities and dance skills while they contribute significantly to the improvement of the quality of life in the school setting (Hackney, 2003; Gilbert & Rossano, 2006; Billingham, 2009; Gilbert, 2015; Theocharidou, 2017; Chiang & Griego, 2017; Theocharidou, et al., 2018).

Conclusion

Generally through the movement patterns of BrainDance and Laban's movement elements, the central nervous system is reorganized, warmed up and aligned with the body, proprioception and the tactile sense are awaken, increasing sensory completion. The movements that relate to the active relationship of the body center and the extremities, as well as the spinal movements of bending and extending in different directions are activated. Balance, cross-laterality and the muscle tone are developed. The joint function, and mobility, as well as the stability of the body, and the expressive movement are increased. The student's ability to participate in higher levels of coordination and balance but also in focus and

concentration are developed. The social and emotional skills are also enhanced. Moreover, visual tracking is reinforced and stress is released.
An elaborated program of dance/movement, combining Laban's movement features and BrainDance, offers opportunities to develop all the above necessary elements for a structured and, at the same time, successful dance lesson (for both the traditional and creative dance). It is also found that through the performance and repetition of these eight fundamental movement patterns (BrainDance) people develop and improve, during the first year of their lives, proprioception, memory, the ability to focus their eyes, balance, behavior, motor skills with positive results to their whole onward progress but also the educational process. (Gilbert, et al., 2006; Gilbert, 2015; Theocharidou, 2017; Theocharidou, et al., 2018; Lykesas, et al., 2018b).

Dance, and accordingly traditional dance, is present in several scientific areas as: a) a means of the students' creative development and aesthetic cultivation within the school subject of P.E. (Tyrovola, 1989; Kraus et al.,1991; Lachapelle et al., 2003; Koutsouba, 2004; Pedagogical Institute, 2011), b)an art object in the frame of theory and history of art, c) a means of cultural heritage conservation and, d) a teaching object for several dance academies, schools and universities (Tsompanaki, 2006; Gousdowa & Koutsouba, 2006; Tyrovola & Koutsouba, 2007). Wherever though traditional dance is found, it aims at the familiarization with the cultural elements of an area, the full development of the individual's personality through the acquisition of knowledge and dance education and its preparation to participate successful yin the public, social and cultural life (Stinson, 1988; Koutsouba, 2000; 2007; 2010; Tyrovola, 2012). As it is analyzed in detail by the research of Lobo & Winsler (2006), Lykesas et al., (2014), Lykesas, et al., (2018b) και Theocharidou, et al., (2018), dance, through a carefully designed and organized program, significantly improved the development of basic motor skills and overall motor behavior, strengthened the social skills and helped to improve aggressive behavior.

Research has shown that educational programs that combine BrainDance programs and dance have positive effect even with preschoolers in terms of: a) creative thinking of children, imagination and increasing rhythm of development, fluency, flexibility, innovation, thought processing, and freedom of expression (Stinson, 1988; Davis, 1995; Lykesas et al., 2003; Zachopoulou et al., 2006; Lorenzo-Lasa Ideishi & Ideishi, 2007; Chronopoulou & Riga, 2012; Theocharidou, 2017; Theocharidou, et al., 2018),b) leap and dynamic balance development (Zachopoulou et al., 2004), c) social competency, interiorization and exteriorization of behavioral problems (Lobo & Winsler, 2006), d) rough motor skills (Wang, 2004), e) body awareness, concentration, and focus, consciousness, and respect of the others, contribution to the classroom functioning, cognitive learning and self-esteem (Stinson, 1988a). The need for art and especially dance in education is even pointed out by Isadora Dunkan (1928), who supported that children at school should learn how to express their thoughts, ideas and emotions through their bodies in a natural and creative way, in order not to lose their originality in movement as they grow up. Something that happens under the pressure of a conventional and mechanical life, which is imposed by educators, is established for the rest of their lives and finally paralyses the expression through movement (Daly, 2002). Miller (2007) in his book "The Holistic curriculum" also argues that through movement and dance students can feel the connection between brain (thoughts, judgment, emotions) and body (movement, action). Stinson (1988) claims that the kind of dance that covers the multiple needs of children and is more appropriate for primary school young learners is creative dance, as it is an art form based on the natural movement and not a specific dance style (Stinson, 1988; Lykesas et al., 2006; 2009; 2014). Russell (1987) suggests that creative dance should be included in the school curriculum as it helps the child to experience a dance that rises from personal expression.

Bergmann (1995) mentions that creative dance is easy to teach in different schools since it does not require years of previous training, as opposed to other dance forms. Mc Coll (1979) distinguishes movement in functional movement, orientated towards the accomplishment of an action, and expressive movement, able to express a thought or an emotion. The thing though that really distinguishes movement in education from the children's dance is the emphasis that dance gives to expression and aesthetics (Mc Coll, 1979). According to research, dance and traditional dance programs helped students to create and discover new knowledge, significantly improved the variables of quality of life such as fitness, self-esteem, and socialization, to boost self-knowledge, well-being, and psychological mood, and finally students present bigger interest and more active participation in the course of traditional dance (Lomax, et al., 1972; Capel, 1986; Nieminem, 1997; Lykesas, et al., 2009, Theocharidou, 2017; Lykesas, et al., 2018b). Dance, not only as a means of release but also as a pleasant physical activity at school and during free time, contributes to the entertainment and recreation of the participants, giving opportunities for emotional expression and the development of social interactions. Dance, and by extension traditional dance, is the most repetitive and formally structured system of physical communication presented in culture. The communicative powerof dance is found in the ability to activate the whole body, under the multiple depiction that is inscribed through the collaboration of all senses, but also supporting the psychomotor, cognitive, creative as well as the social and emotional development of the student, improving her/his relationships and communication skills.

In conclusion, the BrainDance has a positive impact to the teaching of traditional dance and creative dance bringing multiple benefits to the participants, as it is not simply a pleasant physical activity but it also contributes to the improvement of their quality of life in many ways.

Suggestions

For a more effective teaching of the traditional and creative dance, the educator should be familiar with the BrainDance and Laban's Movement Analysis so that s/he could: a) design and adapt the lesson according to her/his experience, the lesson's goals, the needs and possibilities of the class, b) define with clarity the condition/limitation of the situation according to which students are supposed to respond through movement, c) encourage students to make their own decisions and decode the educator's stimuli their own unique way, knowing that there is no right or wrong d) give time and freedom to students in order to act on the basis of their imagination, and, most importantly, e) stay open to challenges and the continuous discovery of learning (Tsompanaki, 2006; Lavin, 2008; Lykesas & Koutsouba, 2008). The communicative potency of dance is found in its ability to activate the whole body under the terms of a multiple depiction through the collaboration of all senses. It also supports the psychomotor, cognitive, creative, social and emotional development of the students, improving their relationships and communication skills with their classmates (Lomax, et al., 1972; Capel, 1986; Nieminem, 1997; Lykesas, et al., 2009). As it is demonstrated from the above there is a possibility to enhance the structured, organized learning through the implementation of a combined program of BrainDance and Laban's Movement Analysis for traditional and creative dance lessons, in the context of the school subject of Physical Education. This dimension of learning multiplies the educational benefits and creatively approaches the relationship between knowledge, action, and human interaction, as well as it impacts the students' holistic development. Nevertheless, in order to generalize such a conclusion more research should be conducted in different schools, time periods and educational stages. Qualitative research or mixed research could also be carried out for the collection and analysis of data. Hence, BrainDance intervention programs should be implemented within the school subject of P.E. as, among other reasons; they improve the students' perceptions of health and physical activity related quality of life. Moreover, along with the objectives of the school subject of physical education teachers are required to know and seek different teaching strategies in order to enhance the students' performance and successful learning in the motor, cognitive and social domain (Derri & Pachta, 2007).

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