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Ways to enhance embodied learning in Dalcroze-inspired music education

ABSTRACT

Drawing on the phenomenology of embodied learning, this article presents suggestions for ways that embodied learning can be enhanced in Dalcroze-inspired music education. Here, embodied learning refers to learning from interactional experiences of the self with the physical and social environment through senses, perceptions and mind–body action and reaction. It is suggested that embodied learning can be efficiently facilitated through teaching that promotes multisensory perceptions, images, integration and experiences, while also motivating physical, social, emotional and intellectual participation. Furthermore, promoting social interaction as well as interaction between perceptions, thoughts, emotions and actions could be regarded essential. Embodied learning can be reinforced by pedagogical actions, such as advancing awareness and a sense of self, triggering mental images, integrating different functions, building a balance between mental and physical activities, and fostering positive emotions and experiences in learning situations. By reflecting on experience, embodied learning becomes more explicit and shareable.

KEYWORDS

embodied learning
Dalcroze
embodiment
music education
phenomenology
body movement

INTRODUCTION

People have a natural need and desire to move to music. 'Music moves us to move' (Sheets-Johnstone 2014: 8), and people 'feel immersed in, and resonant with, the physical sound energy' (Maes et al. 2014). Young children in particular respond naturally to music physically, experiencing it and learning about it through movement. In education, moving to music encourages and provides an opportunity to play, discover, experience, embrace, express and understand music, and offers teachers a window into children's music perceptions. This is especially pertinent for children who have difficulties communicating through a given language (Sutela et al. 2020).[1]

Using body movement is a powerful way of enabling and enhancing embodied learning in and through music education practice. A growing number of studies have examined and advanced our understanding of the role of movement in and for (musical) learning. For example, such studies (Chandler and Tricot 2015; Gallagher and Lindgren 2015; Goldin-Meadow et al. 2009) suggest that learning processes and body movements are inextricably bound, and part- and whole-body movements can positively affect children's learning and performance, especially when movements are infused into the classroom environment and integrated into learning tasks (Chandler and Tricot 2015).

In this article, I first introduce Dalcroze approach and its pedagogical ideas of applying movement in music teaching and learning. Second, I discuss some previous studies (primarily related to Dalcroze pedagogy) to investigate learning in music-and-movement practices. Third, as the main aim of this article, I thematize and suggest practical ways of enhancing embodied learning in and through Dalcroze-inspired music education. This is achieved by reflecting on my understanding of Dalcroze approach (Juntunen 2016) against the phenomenology of embodied learning. Accordingly, I seek to increase music educators' overall awareness of embodied learning and how it can be promoted in music teaching practices. With this article, I also wish to encourage further discussion on embodied learning in music education. By Dalcroze-inspired music education, I refer to music education that applies Dalcroze ideas of how to use body movement in music teaching and learning without necessarily applying all the educational ideas of the approach or without being recognized as Dalcroze teaching. (This is usually associated with teachers with formal training in the approach.)

DALCROZE APPROACH: TOWARDS EMBODIED MUSIC EDUCATION

Applying body movement in music education and integrating body movement (improvisation) to music listening, creation and expression had already begun in the late-nineteenth century, as educational philosophies initiated 'a shift from traditional curricular goals focused on singing and note-reading to the more progressive view of rhythmic movement as an avenue for the total development of the physical, social, cultural, and expressive needs of the child' (Campbell 1991: 12). This idea was first developed by Émile Jaques-Dalcroze (1865–1950) but was adopted later by other music education approaches, such as Orff (Abril 2011).

As is often the case with novel pedagogical approaches, Dalcroze approach originated when searching for practical solutions to identified challenges (Juntunen and Westerlund 2011). While working at the Geneva Conservatory of Music, Jaques-Dalcroze ([1921] 1980) became concerned, among other

1. A study among students with special needs suggests that the strength of Dalcroze-inspired teaching applying movement is that it enables non-verbal communication and thereby supports participation, interaction and learning – especially for students for whom verbal interaction as well as participation in more conventional musical activities (e.g. playing instruments) can be challenging (Sutela 2020).

things, with why the professional training of musicians taught music theory as an abstraction that was disconnected from students' emotions, sensations and experiences. He also considered how children were primarily taught to play and sing, but seldom to hear and listen. Observing the rhythmic nature of children's daily movements led him to consider the possibilities in using body movement in music education. Jaques-Dalcroze started to conduct teaching experiments with adult students at the conservatory; however, he soon applied his ideas to teaching children. He began to argue that children should experience music with their whole bodies, learning to move, keep time, sing and hear and also 'to move and think accurately and rhythmically' (Jaques-Dalcroze [1921] 1980: 8) before starting instrumental studies. This kind of education should begin in early childhood when most patterns of response are being established and when physical response is the child's means of organizing music (Joseph 1982). Jaques-Dalcroze ([1921] 1980) suggested that musical sensations, especially of a rhythmic nature, called for the response of the whole body.

Consequently, one of his major practical questions concerned the body's relation to musical knowing, understanding and expression; how musical experiences and understanding could become more embodied, that is, more rooted in perceptions and in bodily, lived experiences (Juntunen 2004). As a result, the main focus of the approach was to recommend that elements of music are effectively experienced, expressed, understood and learnt through body movement. Accordingly, the approach incorporates bodily movement into every aspect of music learning. As a practice, it integrates rhythmic movement with ear-training and improvisation. Today, Dalcroze approach is applied in a variety of teaching and artistic practices as well as in gerontology and therapy (Matthieu 2010). It has 'contributed crucially to ideas of body-awareness, mindfulness, imitation learning, and embodiment' (Altenmüller 2019: 116).[2]

2. For more general information about Dalcroze approach, see Bachmann (1991), Greenhead et al. (2016), Nivbrant Wedin (2015), Jones (2018) and Mead (1994).

THE ROLE OF BODY MOVEMENT IN DALCROZE APPROACH

Dalcroze approach uses movement for a variety of purposes. The basic principle is that moving the body together with music facilitates the child's musical agency through the medium of their own living and moving body, which becomes like a musical instrument (Joseph 1982). Moving with music may even create 'the illusion of taking part in the actual skilful production of the music, which would be impossible in real life' (Maes et al. 2014). Often, body movement reflects listening to music: the participant shows through movement what they hear and how they understand music. Listening guides movement while movement informs listening (Juntunen and Hyvönen 2004). Movement allows a child to learn through bodily experience and provides an opportunity for the teacher to 'see' the quality of the child's learning (Juntunen 2016).

Dalcroze teaching also uses body movement to improve overall motor skills, coordination and body awareness. Developing basic skills such as balance, coordination, locomotive movement and body placement is the focus when teaching young children. Often, teaching children starts with exploring movement and discovering their own body. This is achieved, for example, by exploring different body positions and moving in different (creative) ways; by imagining movement in songs, stories and pictures; or by telling a story in movement. In addition, tools such as hoops, balls or scarves are frequently

used. A long-term objective is to master movements in related activities such as playing an instrument, singing and conducting (Findlay 1971; Juntunen 2002, 2016).

When exploring movement qualities with very young children, movements often imitate those of animals or humans in action. For instance, while pretending to move like an astronaut, a child uses imagination and practices different movement qualities that can be (later) integrated with sound qualities (movement as a physical/enactive metaphor; see Gallagher and Lindgren [2015]). Then, experiences gradually move away from the depiction of non-musical events to the physical realization of sound events in music (Findlay 1971). Teaching encourages spontaneous, intuitive movement reactions to music first, and only later focuses on refining them. Building a connection between music and movement often starts with improvised music being used together with children's movements (such as walking, running, galloping, skipping, swaying and turning) in such a way that the music supports the movement. Furthermore, starting-and-stopping games (sound and silence),[3] expressing music with fingers, hands and arms, performing and experiencing the beat through movement (e.g. by bending the knees, jumping, walking and clapping in various ways) or using tools (such as bouncing or passing a ball), and adjusting actions to changes in tempo are frequently used exercises. Walking (also jumping) is considered an effective way to experience and perform the pulse (the beat) of music (recommended with children aged over 3 years). This idea is supported by recent studies that suggest walking is an inborn, strong and steady rhythmic movement that is strongly automated. This means that we do not need to consciously direct walking, or think about starting different parts (Wallén et al. 2007).

By practicing stepping, clapping and whole-body movements with music (thus perceiving rhythms through muscular senses), rhythmic expression gradually becomes more accurate and in balance with certain time–space–energy relations (Jaques-Dalcroze [1921] 1980). Children are often first guided to explore basic musical elements and phenomena (such as high/low or fast/slow) by analogous body movements, which embody these qualities.[4] Likewise, other elements of music are explored and internalized. In all activities, the quality of movement and music is supposed to match and support each other.[5]

From the very beginning, children are encouraged to improvise and find different ways to move and vary their movement responses. A variety of creative movement exercises with or without music are used, and lessons often involve easy choreography to music, which often also includes drama expressions. In addition, other art forms can be integrated by using poems, other texts, photos or pictures. Many Dalcroze teachers include songs with movement as well as dances (such as folk dances, dance styles from different cultures and historical dances) in their teaching.

STUDIES EXAMINING THE INFLUENCE OF BODY MOVEMENT ON (MUSIC) LEARNING

Jaques-Dalcroze's initial ideas of using body movement in music education were based on his observations and pedagogical experiments. Only later research has begun to verify many of his empirical findings. Several recent studies in music education and music education philosophy (Bowman 2004; Bowman and Powell 2007; Rabinowitch et al. 2012), systematic musicology

3. As an example of a starting-and-stopping game, see a video from the Jaques-Dalcroze Institute in Geneva (https://www.youtube.com/watch?v=hX2QRoGdtlc). The theme of the lesson is *ascending and descending melody patterns*. The teaching process starts by practicing starting and stopping in walking. Then, the children are supposed to respond to music: to stop when hearing a descending broken chord and to start walking again when hearing an ascending one. Then, the lesson proceeds to singing a melody by Mozart with solfege names, and the children perform a little choreography to the music. Very often in Dalcroze teaching, musical phenomena are first explored through movement with improvised music, and then at the end of the lesson, illustrated and examined through real-life music examples.

4. For a teaching process of long and short notes, see https://www.youtube.com/watch?v=yMLp5bjl5aY.

5. For a practical example, see https://www.youtube.com/watch?v=EOEditUWK54&list=PL1XSEjdkScVl7oWcaD5BrteZ6jeyedreP&index=3.

(Godøy and Leman 2010; Leman 2007), (cognitive) neurosciences (Damasio 1994; Hodges and Grühn 2012; Jonsson 2007; Seitz 2005) and (educational) psychology (Chandler and Tricot 2015) support the idea of applying body movement in music teaching and learning (for a review on the role of body movement in music education, see Abril [2011], Davidson [2009] and Ferguson [2005]). Evidence from brain research shows an unbreakable bond between the auditory and motor systems in music perception and interpretation (Hodges and Gruhn 2012) that suggests a close connection between music and movement. Neuropsychologist Seitz (2005) argues that because of this close connection, body and body movement should be at the core of music education.

A number of Dalcroze studies have focused on examining the learning outcomes (see, e.g. Berger [1999]). Especially intervention studies (mostly conducted with children aged 2–7 years) have sought to determine the impact of music–movement instruction on the development of rhythmic abilities, in particular, and have identified a large variety of abilities that can be developed. For example, in a study by O'Dell (2007), a significant improvement in the ability to perform a steady beat was identified among a group of children who received movement-based instruction, compared to a control group that received the same lesson without movement activities (also see Rose [1995]). Other studies, including those beyond Dalcroze teaching, have identified that rhythmic movement instruction with music has a positive impact on synchronization skills (Croom 1998; Overy 2012; Repp 2006), movement abilities and rhythm achievement (Blesedell 1992; Deli et al. 2006; Gallahue 1996; Pollatou and Hatzitaki 2001; Wang 2008; Zachopoulou et al. 2004), rhythmic abilities (in locomotor tasks) (Pollatou et al. 2012; Venetsanou et al. 2014; Zachopoulou et al. 2003) and rhythmic perceptions and identification skills (Joseph 1982; Phillips-Silver and Trainor 2005).

Synchronization studies (Repp 2006; Snyder and Krumhansl 2001) have examined how children express a steady beat using movements. Children appear to be most successful on synchronization tasks where the tempo is closest to their own personal tempo. For example, this means that they will be more successful at walking with music when the tempo is close to their everyday walking tempo (much faster than that of adults). Therefore, it is important to pay careful attention when choosing a tempo for music-and-movement activities. Using the correct tempo also enables the child to experience success (Alperson 1994). Studies also suggest that slower tempi are generally the most challenging (Drake et al. 2000), larger movements are more challenging to control than small motor movements (Rainbow and Owen 1979) and the addition of speech while moving may improve rhythmic accuracy and expressivity of children's rhythmic movement (McFarland 2006). There may be a tendency to anticipate the beat; however, when additional sounds or movements are added between the beats, this tendency disappears (Repp 2006; Snyder and Krumhansl 2001).

Previous studies have also identified other musical competences that can be developed through music-and-movement instruction. For instance, a study by Crumpler (1982) suggests that Dalcroze activities have a positive influence on melodic discrimination ability. A good number of studies also suggest that motor functions, rhythmic abilities and the development of communication and language skills are interrelated (Brown et al. 1981; Corriveau and Goswani 2009; Overy 2000; Thomson and Goswami 2008; Tierney and Kraus

2013). The younger the students, the more important the role played by tactile kinaesthetic learning in general (Chandler and Tricot 2015).

While many of the studies already cited focus on preschool or primary school levels, '[p]arallel results from adults and infants suggest that the movement-sound interaction develops early and is fundamental to music processing throughout life' (Phillips-Silver and Trainor 2007: 533). Furthermore, there is no evidence from the literature of any clear differences between various music-and-movement approaches (such as Dalcroze, Orff or Laban) regarding their impact on rhythmic learning (Blesedell 1992; Venetsanou et al. 2014). It seems that any training or movement experiences that maintain a steady beat with the body can result particularly in an increase in kinaesthetic synchronization abilities. According to Thomas and Moon (1976), gender is not a factor differentiating synchronized motor responses in preschool age; however, in several studies, girls outperformed boys in tasks of rhythmic movement performance (see also Pollatou et al. [2005, 2012]). However, this may just confirm that all motor performance differences (and consequently, also rhythmic abilities) at preschool age are already culturally and environmentally provoked. Regardless, both boys and girls seem to improve their rhythmic ability in a similar pattern (Thomas 2000; Venetsanou et al. 2014).

Some studies have examined (adult) students' learning in Dalcroze teaching whereby students have been able to reflect on their experiences of participation (see, e.g. van der Merwe [2015], Habron and van der Merwe [Forthcoming 2020]). In a study by van der Merwe (2015), first-year Bachelor of Music students found that Dalcroze-inspired teaching enhanced social integration, joyful experience, bodily experience, musical understanding and musical expression. Studies focusing on student experience can be considered important when accounting for the perspective that Dalcroze teaching is – above all – about 'personal experience' (Jaques-Dalcroze 1935: 3).

My research has focused on the aspects of embodiment and embodied learning in Dalcroze pedagogy that emphasize the ontological and epistemological bases of Dalcroze approach, together with the question of 'how' in music teaching and learning (Juntunen 2004, 2016, Forthcoming 2020; Juntunen and Hyvönen 2004). I have analysed Dalcroze practice and the aspects of embodiment in it through the lens of Merleau-Ponty's (1962) phenomenological philosophy. In line with Jaques-Dalcroze's practical aims, his philosophy highlights the body that perceives and acts, experiences and reasons, and 'emphasises action and engagement as primary, preceding, and grounding all theory' (Yakhlef 2010: 415). Some other Dalcroze studies that use the notion of embodiment approach it from a slightly different perspective. For example, Goldman (2019: 62) uses embodiment 'in its reference to how the motor system and the auditory system interact to co-represent musical structures' based on cognitive-scientific theories.

EMBODIED LEARNING

The primary aim of this article is to suggest how Dalcroze-inspired music education can enhance embodied learning. This is done by reflecting on my understanding of Dalcroze practice against the phenomenology of embodied learning. Today, *embodiment* is a popular topic and a commonly used notion with somewhat varying definitions across different fields (Juntunen 2017). Most importantly, it 'is a way to overcome dualism' (Altenmüller 2019: 114), which separates the mind and the body. Here, embodiment means the

integration of the physical or biological body and the lived, experiential or phenomenological body, which suggests a network that integrates thinking, being, doing and interacting (Varela et al. 1991). This recognizes the mind as embodied and the body as mindful (unseparated from the mind) (Sheets-Johnstone 2011).

In accordance with phenomenological views (Kerka 2002; Yakhlef 2010), *embodied learning* here refers to learning from experiences of interaction of the self with the physical and social environment through senses, perceptions and mind–body action and reaction. My understanding leans on Merleau-Ponty's phenomenology, since 'his approach to the body as a system for action makes it readily suitable to explore learning and knowing processes as doings, action and practices, providing a more comprehensive understanding of embodied learning' (Yakhlef 2010: 415). Embodied learning takes place within the entire human being. It extends 'beyond what can be thought and verbally articulated to include what takes place in the tacit mode of organisational life' (Yakhlef 2010: 411). Understanding learning from the embodied perspective avoids the distinction between perceiving, thinking and acting (Yakhlef 2010: 411) and asserts that, in learning, these all work in close interaction and affect one another (Rouhiainen 2007). Learning is influenced by thought, emotion and bodily experience alike. In practice, aiming at embodied learning advocates teaching that promotes students' active engagement in the classroom (Kosmas et al. 2018), 'through "doing" things by using and moving the body in certain ways' (Yakhlef 2010: 418), and practices that build and connect bodily movements, physical interaction and sensorimotor abilities within the learning content (Anderson 2003; Brooks and Goldin-Meadow 2016).

In accordance with both sociocultural and phenomenological views of learning, the social dimension is essential in embodied learning (Küpers 2008; Nguyen and Larson 2015; Yakhlef 2010), where learning and acting take place through lived situations in interaction with other people and the environment. As Küpers states, 'a variety of interactive phenomena arise from a direct and engaged participation in the embodied ambiguous life-world. This participative embedment includes both physical and perceived realities with all kinds of tacit knowledge' (2008: 391). However, learning from others does not require 'inter-personal meaning-creating processes or deep sense-making interactions, because […] what people know is displayed in what they do; learning from them becomes imitating and incorporating what they do' (Yakhlef 2010: 421).

ENHANCING EMBODIED LEARNING IN DALCROZE-INSPIRED MUSIC EDUCATION

In previous writings (Juntunen 2004, 2016; Juntunen and Hyvönen 2004), I have argued that Dalcroze pedagogy enhances the embodied learning of music in the following ways: by turning attention to and promoting the understanding of embodiment in music education; by addressing the bodily, pre-reflective knowing in music; by acknowledging the meaning and importance of holistic mind–body experiences for musical knowing and personal development; and by offering pedagogical applications and tools for promoting embodied musical learning. In this article, I suggest pedagogical means to promote embodied learning that can be applied in any (Dalcroze-inspired) music education context: (1) promoting multisensory perception, images, integration and experience as bases for personal, multisensory learning; (2) advancing awareness;

(3) involving, integrating and challenging different functions; (4) balancing between intellectual and bodily functions; (5) regarding emotional, creative and intersubjective dimensions as fundamental for learning; and (6) building a strong sense of self. In the following discussion, each of these means is considered more specifically.

Promoting multisensory perception, integration, images and experience as bases for learning

The child's first relationship with the world is wholly sensory. Their knowledge is bound to what they hear, touch, see, smell and sense through touch. Their multisensory perception is the basis for knowing the world (Merleau-Ponty 1962). In typical Dalcroze teaching, exercises primarily stimulate auditory perception, but also multisensory perception and integration are enabled in several ways. Often in exercises, children/students are expected to listen carefully to music and to find ways to express what is heard, felt, understood and known, usually through bodily movement. In this process, auditory perceptions are transferred into holistic bodily expression and experience, which in turn guide attention and listening. Participants are simultaneously visually active, for example, by watching other people move and by paying attention to (their use of) the space. Students are also guided to pay attention to and become aware of their own body positions and movements, and to listen to their kinaesthetic sensations (Juntunen and Hyvönen 2004). Furthermore, they are guided to 'listen' and to sense other bodies and movements of other people, through what is referred to as kinaesthetic empathy (Rabinowitch et al. 2012; Wood 2016). In the field of contemporary neuroscience, this interrelatedness of auditory perception, somatosensory and visual experience, and body movement is called multisensorimotor integration (Altenmüller 2015).

Perceptions can also be aroused through just the imagination. For example, aural images can be produced by imaging music. When singing a song first with body movement, the movement can later be executed by singing the song only 'in the head'. This ability to mentally hear and think in and about music when no music is present is referred to as 'inner hearing' – or by the term 'audiation', coined by Edwin Gordon (1979) – and is considered an important facet of embodiment in Dalcroze approach (Altermüller 2019). This important ability assists musical performance and is particularly important for improvisation (Goldman 2019; Philips 2016) and composing (Shouldice 2018). Furthermore, movement can be imagined before it occurs ('considered response'), or after it occurs, although imagining movement does not have to be followed by actual movement (e.g. imagining movement in stories). Thinking about and anticipating upcoming movement prepares the mind–body for tangible action and expression. Imagining or re-experiencing movement enriches kinaesthetic imagination and can be widely applied in mental training and motor (re)learning settings, since they generate similar motor representations as actual execution of movement (Anema and Dijkerman 2013). It is also of great interest how music-induced body movements may initiate a sense of *imagined participation* with the production of the sound, which is referred to by different terminology, such as *kinaesthetic empathy*, *imaginary agency*, *simulated control* and *active perception* (Eitan and Granot 2006; Maes et al. 2014).

Embodied learning builds upon multisensory perceptions and experiences. In Dalcroze practice, embodied (multisensory, integrated, mind–body)

experience is a primary means of accessing musical knowledge, and a primary way of learning about music, oneself and others. It is the teacher's task to provide students with learning processes and experiences that facilitate such learning (Juntunen 2016). Much learning takes place through embodied activities without reflection, whilst the necessity for reflective attitude and awareness varies according to teaching practices and situations. However, embodied learning is reinforced by asking students to remember, think of, reflect on, remember and express in words their experiences, by the 'mixing of feeling and thinking' (Motycka 1989: 189). Reflection allows the possibility of being an 'outside spectator' and enables us to understand our past experiences. As an outside spectator, one can also reflect on the actions and experiences of other people (see Merleau-Ponty [1962]: vii–x). Through reflection and words, the bodily experiences and embodied learning become more explicit and shareable, thereby possibly enriched by others' reflective words.

Advancing awareness

To learn from and through kinaesthetic and multisensory experiences, one needs to become aware of them. In fact, acting with awareness – being fully present to what is taking place – and becoming aware of somaesthetic/kinaesthetic sensations and multisensory experiences are fundamental for embodied learning (Goldman Schuyler 2010). However, being aware of sensations while moving and acting is not self-evident; it is a skill that often takes time to develop and requires practice.

There are several ways to awaken body awareness. Guiding students to pay attention to their body positions, different movements, and how these 'feel' in the body are such means. Warm-up exercises at the beginning of a teaching session have the potential to bring about a state of concentration whilst also helping students to tune in to themselves and become aware of their bodies, body positions and possible muscle tensions. Furthermore, variations of movement enhance kinaesthetic awareness. For instance, walking on either the toes or heels, or sideways or backwards instead of just walking normally forward can change the experience of the qualitative character of walking. Exploring different ways of performing habitual movements such as walking, it is possible to obtain a sense of the original experience of them. 'By making the familiar strange, we familiarise ourselves anew with the familiar' (Sheets-Johnstone 1999: 143).[6]

The so-called exercise of excitation and inhibition increases one's awareness of the body's habitual responses to music. Here is one example of such exercise where students walk with improvised music. Every time there is a triplet played in the music, they are supposed to stop or start walking again. However, they are not supposed to react to any other changes in the music – for example, to stop walking if the music stops. In other words, they are to resist the habitual or 'natural' response to changes in music. The exercise requires conscious control over kinaesthetic processes.[7]

When working with music-and-movement, participants are guided to become aware of the elements of time and energy, and also of space, which is considered equally important for embodied learning (Nguyen and Larson 2015). For very young children, using space can be challenging at first: they tend to move to the centre of the room (to feel safe) instead of using the whole space. Therefore, it is recommended to explore the space, for example, by touching the walls, making exercises in different parts of the room and

6. There are also particular methods and practices to promote body awareness, such as yoga, the Feldenkreis method and the Alexander technique. They guide participants to pay attention to and become aware of the body, breathing, muscular tensions and sensations connected to them, as well as to become aware of habitual movements and to change them if needed.

7. See https://www.youtube.com/watch?v=hX2QRoGdtIc.

encouraging children to use the whole space and find their own way instead of moving in a circle (except when running, for safety reasons). Space awareness can also be developed by exploring spatial relationships, such as by using the front/back of the body, beside another person, by the window, or far from/close to all others. Overall, making students kinaesthetically and thus qualitatively aware of their movements, their different qualities, use of space and general experiences within a lesson, as well as in the long term promotes learning from movement and bodily experience, and thereby embodied learning.

Fostering integral involvement of different functions

Dalcroze teaching takes place through music.[8] In teaching practice, this implies, among other things, that instead of verbal directions, the teacher guides students' body movement actions mainly through (improvised) music. In exercises, students have to listen very carefully and understand what the music means and 'invites' them to do. Conversely, the teacher watches the students closely and responds, through music, to their actions. Through music, the teacher can challenge, accompany, question, test or even contrast students' responses, which forms a dialogue between the teacher and the students through music, each influencing the other (Juntunen and Eisenreich 2019). This non-verbal dialogue requires full presence in the moment.

Therefore, Dalcroze exercises include a constant challenge to be alert, to pay attention, to perceive, to use the imagination, to change the movement, to be(come) aware and to improvise; in short, to be 'available'. In particular, the so-called quick reaction or quick response games, such as starting-and-stopping or changing the direction of movement with music or a signal (e.g. 'hop' or played by an instrument), require full attention and concentration, promote active listening and develop the ability to respond quickly.[9] This integral involvement of different functions, namely the interaction of perceptual, physical and analytical (intellectual) functions that Jaques-Dalcroze (1935) sought in his educational approach, reinforces mind–body unity and has also been found to have therapeutic effects (Altenmüller and Scholz 2016; Bogdanowicz 2016; Habron-James 2013; Kressig 2015). When working with children, the constant challenge to respond to sensations and make changes (for instance, in movement responses) helps them to maintain focus and concentrate in learning situations. Activities in which children need to respond and find different and effective ways to solve a problem also provide an ideal environment for cognitive development, which affects children's thinking and reasoning (Zachopoulou et al. 2004). This requirement for constant improvisational response to music (to teacher's instructions, and/or actions of other participants) is suggested to be the most influential element of Dalcroze education among children and adults alike (Kressig 2017).

Balance between intellectual and bodily functions

To have a balance between the mental and physical energy required for each activity during a given lesson, it is important to pay attention to how exercises are paced. In addition, making the teaching process evolve step by step, moving from easy to difficult whilst varying the level of difficulty of the exercises, will help students maintain a state of concentration and motivation. This means that students are not taught more (or faster) than they can deal with effectively (Alperson 1994). Furthermore, leaving space for improvisatory

8. Jaques-Dalcroze ([1930] 1985: 56, 58) believed that music, especially its rhythm, is a great educational tool, which sets up communication between our inner and outer forces.

9. For a sample of a quick reaction game, see https://www.youtube.com/watch?v=UWif5Xss_Ec&list=PL6PAp7nYJDmfeAO6d9VNXBhIBL48KZpnA.

elements and flexibility in the lesson structure inspires and supports participation. Any good teaching, as often stated, proceeds in an improvisational way in accordance with students' responses and learning (Graue et al. 2015; Sawyer 2011).

Jaques-Dalcroze ([1921] 1980) wanted to establish music education practice that would enhance the balance between thinking and doing. In turn, he thought this would promote a freedom of imagination and emotion, and thus general well-being. In bodily actions, it is important to find a balance between control (mind), sensing and 'automatic' movements. As Jaques-Dalcroze ([1921] 1980: 52) stated, excessive intellectual thinking in action (the imbalance between the intellect and sensing) results in an inability to master rhythmic movements. Therefore, it is important to learn to trust the body and its ability to move knowledgeably. Exercises that combine music and movement provide an opportunity to practice and acquire such trust.

Regarding emotional, creative and intersubjective dimensions as fundamental for learning

Like many other music education approaches, Dalcroze approach recognizes that positive emotions and experiences, social interaction with other participants, and creative engagement are integral elements of comprehensive and meaningful musical learning. Positive emotions and experiences can be promoted by regarding the exercises as games in which children play 'against' the music according to set rules, but without competition between one another (Alperson 1994). The activity becomes rewarding when the task can be completed successfully. The spirit of the game also liberates the student from being self-conscious and brings joy, which, it is suggested, supports learning and reduces stress and anxiety (Rantala and Määttä 2012). The important role of emotions for learning, especially for directing attention and motivation, has been recently confirmed by researchers, in particular by emotion theorists such as Damasio (Immordino-Yang and Damasio 2007; see also Burrow [2009]).

However, it is important to recognize that in music-and-movement teaching, as in any teaching, experiences and emotions are not self-evidently positive, or only positive. Learning through movement can be difficult for children who, for instance, have challenges in movement or are self-conscious about moving to music. For example, lack of ease, deficiencies in motor skills or social insecurity may prevent them from enjoying participation and thus from gaining positive experiences. Movement and expression through movement in front of others may make the student feel vulnerable, and even small mistakes or comments may evoke negative emotions. As MacLaren (2009) notes, negative emotions could lead to a kind of loss of self, whereby an emotion takes over and drives the individuals to act in ways they would not normally act. This could even lead to primitive, compulsive behaviour or regression. In teaching, we easily consider such expressive attempts through a moralistic stance as bad behaviour to be punished; this, in turn, may decrease students' motivation to participate. Instead, teachers should look for functional ways to help children realize that the situation is likely to result in momentary liberation of emotional tension. According to MacLaren (2009), overcoming emotional tension and finding a meaningful way to deal with a conflicting situation while making sense of it with the help of others will have a crucial influence on both experience and agency.

In Dalcroze teaching, essential objectives include encouraging musical expression and creativity, leading students to trust their own ideas and creations and helping them to discover their body as an expressive musical instrument. As mentioned previously, from the beginning of their educational experience, children are encouraged to find different ways to move and to vary their movement responses. They are also offered abundant possibilities for improvisation and spontaneous expression. Improvisation is a bodily activity that activates virtually all information functions. It requires a holistic presence that combines body and mind into one holistic action. Improvisation motivates students to express their own ideas and stretches students' imagination, resulting in a sense of accomplishment and satisfaction (Mead 1994).

Similar to sociocultural learning theories (Hedges and Cullen 2012), learning from music-and-movement group activities takes place through interactive processes. It is recognized that intersubjective and social relations generate different ways of understanding music, self and others. As Gallagher and Lindgren (2015: 394) note, '[o]ur interactions with others, from infancy onwards, shape our perceptions and actions'. Joint action and participation can result in understanding that extends well beyond any individual accomplishment (Gallagher and Lindgren 2015; De Jaegher and Di Paolo 2007). In music-and-movement exercises, children observe, imitate and take others' ideas. They also suggest ideas for others to explore; thus, learning becomes a mutual activity. They work in pairs, in small and large groups, take turns, lead and follow. Children/students may work collaboratively in a small group to prepare a simple choreography to given music, or they may improvise movements spontaneously together to music they listen to. Working in a group with music-and-movement also increases social bonding and social inclusion, which are, in turn, found to have crucial importance for motivation, willingness to participate, experience and learning (DeNora 2000; MacDonald and Miell 2000; Small 1998).

Considering (music) education from a holistic perspective

As I see it, considering embodied learning from a wider educational perspective includes broad educational views that relate to child development and growth. By this, I mean that in education at any level we take into account not only the specific learning outcomes but also a wide range of capabilities together with the holistic growth of children. When working with music-and-movement, a large variety of abilities, skills and competencies are involved. This offers the possibility for the teacher to focus on various aspects of children's/students' learning and development, and their personal transformation is therefore not limited to musical and physical development (Juntunen and Westerlund 2001). Participation in music-and-movement exercises enhances a variety of general non-musical capacities, such as attentiveness, concentration, memory, reproduction or change of an action, communication, social skills, imagination and creativity, as already noted earlier. Furthermore, broad, holistic views may also include the mind–body and spirit–body connections, and spiritual aspects (see Habron and van der Merwe [2017, Forthcoming 2020]). Thus, according to Habron and van der Merwe (2017), holism, balance, aesthetic experience and movement in time, space and with energy become core concepts.

One (if not the most) important aspect with regard to personal growth is that by resonating through sounds, the moving and sensing body contributes

to a sense of wholeness (Stubley 1999). In Dalcroze exercises, students are encouraged to become sensitive to how movements feel within the body. This kind of listening (tuned to the self) develops an awareness and sense of self – the experience of 'I' (Greenhead and Habron 2015; Levin 1989). Furthermore, finding another way of acting helps the individual to become more connected to the personal self. The relationship between subjectivity and body is dialectical. Personhood constitutes an integrated experience of body and movement, which involves both non-intentional processes and awareness (Mackenzie 2009). For example, 'an infant can only start to develop […] a more complex sense of self once it has some awareness of its own body' (Mackenzie 2009: 116). Becoming a subject and existing as subject relates to more broad existential questions in education, which Biesta (2017), as a response against extremely curriculum-centred education, places at the very centre of his educational theory, arguing further that education should focus on exploring not only 'who' I am but 'how' I am; 'what it means to exist as subject in and with the world' (Biesta 2019b: 56), that is, what it means to be in dialogue with the world. As Biesta (2019a) suggests, arts education has a rich potential for this task.

CONCLUDING DISCUSSION

In this article I have discussed ways to enhance embodied (musical) learning. Considering education from a holistic perspective can be viewed one of them. Furthermore, using movement in music education has a practical potential to promote embodied learning. Yet, embodied learning can be reinforced in several pedagogical means, such as enhancing attention, awareness and presence in the moment; developing a balance between the mental and physical energy required for exercises; involving and integrating different functions; and promoting social interaction and positive emotions in learning situations. The educational function and value of music-and-movement teaching as part of (music) education is that it integrates the power of music with an exploration of the body's competence to move and improvise. This provides children with a kind of embodied experience (integrating the physical, cognitive, social, emotional and spiritual) that the physically inactive contemporary lifestyle seldom offers. However, the connection between music and movement and between musical listening/understanding and movement necessitates time and practice to develop (Gallagher and Lindgren 2015). Therefore, it is beneficial to start music-and-movement teaching at an early age, and to continue the practice throughout the school years. Thus, movement can become an inherent part of music education, and children will have sufficient time to develop their skills and knowledge gradually, which consequently can facilitate and motivate participation and learning in such activities.

Music-and-movement teaching is an important educational way of developing children's rhythmic and other music-related abilities and to help them become competent movers. However, it is equally important to pay attention to *how* learning takes place. Embodied learning addresses this question. However, there is still relatively little discussion about how it can be promoted in music education and, further, how it can be assessed: how can we observe, demonstrate, interpret, understand and share what is learnt if we communicate through the body? Yakhlef suggests that in such situations 'the use of the body (including emotions and movement) as a method for understanding other bodies becomes central' (Yakhlef 2010: 421; also see Sutela et al. [2017]

for a research context). Schiavio (2019: 3) proposes that the solution could be to move beyond the dichotomy of 'subjective' versus 'objective' in assessment; instead, by drawing on phenomenology, the student experience is valued and examined from a 'situated' point of view in a way 'that admits no discontinuities between "inner" experience and the "outer" world'. In practice, this could suggest integrating self-assessment with other forms of assessment so that participants of any age are guided to become aware of, reflect on and assess their own actions, performance, experiences and learning (Juntunen and Eisenreich 2019). Self-reflection and self-assessment are therefore worth considering as tools 'for bringing out the experiential nature of the learning and for making students' experiences explicit, known, and part of assessment processes' (Juntunen and Eisenreich 2019: 586).

Although in this article I refer to Dalcroze as an example of pedagogical practice that applies movement in music education, it is not necessary to be an expert in the approach to apply some of its pedagogical principles. It is also possible to focus on some area of the approach, as Bachmann notes, '[i]t offers many paths to follow, every one of them shaped by its own particular landscape' (1991: 24). Furthermore, it is recognized that no method, approach or set of pedagogical ideas guarantee good results. It always comes down to the quality of interaction, participation and experience. When promoting embodied learning, the quality of student experience becomes crucial.

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