Using Rhythm and Dance to Improve Balance and Wellbeing in Learners with Down Syndrome

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Abstract

The health benefits of dance are increasingly being recognised, with improvements to a person's physical, emotional and social welfare reported. To date, however, there is little documented research exploring the potential benefits of dance in learners with Down Syndrome (DS).

Rhythm and dance were introduced as a 'teaching innovation' to learners with DS to determine whether it had any effect on their balance and/or levels of enjoyment/happiness. The specific style of dance introduced was Argentine Tango, the only improvised dance for couples. The balance of the learners was tested at the start and finish of the two-week intervention, together with an assessment of their overall enjoyment and how the sessions made them feel. Balance for all learners tested improved, and most reported that they enjoyed the sessions, wanted to do more and felt pleasantly tired.

Key Words

Dance, Argentine Tango, Down Syndrome, Teaching Innovation, Constructivist Approach to Learning, Pedagogy.

Introduction

This article is derived from an assignment submitted in 2018 as part of a Teaching Qualification in Further Education, where a teaching innovation was introduced to learners. The innovation centred around the active introduction of rhythm and dance to learners with Down Syndrome (DS) with a view to noting any subsequent effect on their balance and levels of enjoyment/happiness.

In introducing a teaching innovation, there was an awareness of previous reports that learners with DS differ from each other regarding their capacities and skills for understanding and learning (Daunhauer, Fidler & Will, 2014). Due to their intellectual disabilities, compared to unaffected learners, and in order to function independently, learners with DS need a great deal of support and active stimulation (Felix *et al,* 2016), which music and dance have the potential to provide.

Down Syndrome Scotland (2005) asserts that learners with DS are not only likely to have learning difficulties but also associated health problems such as hyperthyroidism, atlanto-axial instability, hypotonicity and joint hypermobility. These factors combined, can result in tiredness, disinterest, difficulty walking and a tendency to become inactive. With a view to improve this, this innovation introducing rhythm and dance was developed.

Given that 'learning from experience' is significant for many learners and that Skoning (2010) had found that dance and a constructivist approach to learning worked well together, the introduction of dance appeared to be an appropriate teaching innovation. Skoning found that dance could, over-time, increasingly engage learners, affording them the opportunity to work through their own ideas, whilst their teachers provided the necessary scaffolding to allow the learners to reach higher levels of understanding. Research by Tusting and Barton (2006) concurs with this view, stating that interaction with other people is necessary for learning, and they cite Bruner (1985) who sees learning as involving a scaffolding process whereby learners will prompt and help each other to recall information.

In contrast to Skoning (2010) who preferred a constructivist classroom (with no prescribed curriculum, thereby allowing learners to problem-solve and address real and meaningful questions), the dance classes that were delivered as part of this innovation followed a set format, starting with balance and being 'grounded to the floor'. However, if the innovation was repeated, it may be more appropriate to create a more flexible environment, trying to capture the imagination of all learners both physically and mentally, with them eventually taking the lead in moving to a rhythm, choosing music that they liked and most importantly, would support and help each other. In this way there could be maximum engagement within the class.

In addition, dance can also be the catalyst for co-operative group work, where students can use dance to explore and solve problems, whilst simultaneously increasing their self-esteem and overall enjoyment of a class.

Literature Review

Whilst the health issues associated with DS have already been referred to above, and appreciating that these are likely to adversely affect the activity levels of learners with the condition, Sharav and Bowman (1992) suggest that there are also social, environmental and familial factors preventing these learners from enjoying physical activity and dance. Both Jones (2003) and Menear (2007) go further to suggest that learners with DS are likely to engage in a lower level of physical activity due to their cognitive ability and lack of social or behavioural skills, which means that those learners who would benefit most from dance, are less likely to do so. Indeed, studies by Cissik (2012) showed that dance and exercise programmes followed by learners

with and without DS yield similar results in terms of fitness, yet due to the intellectual disabilities of the learners with DS, learning sequences for them, may result in frustration and subsequent lack of motivation.

With DS occurring in one in every eight hundred births, this has resulted in a significant number of individuals with this condition, yet according to Cissik (2012) very little research into the relevant fitness needs for this group has been undertaken. Dance and physical activity can assist in helping correct the awkward gait patterns associated with learners with DS due to their hypotonia and hyperflexibility, although these conditions are likely to impact on an individual's comfort level when it comes to walking and dancing. Despite this, Cissik believes exercise and dance are extremely important for a learner with DS, as they will usually have secondary conditions, resulting in a high body mass index, fatigue and communication difficulties.

Perhaps the first study into the benefits of creative dance using a scientific base rather that anecdotal evidence from dance teachers, came in the work of Quin, Frazer and Redding (2007), writing as the Hampshire Dance and Laban research project. They suggested that their research proved, for the first time, that creative dance improved both the physical and psychological wellbeing and creativity of children and young people with learning disabilities. They also found that for females in the 11-14 age category, who might stop participating in most other physical activities, are more likely to continue with dance as a means of keeping fit and making new friends. Downs *et al* (2013) reinforced this view that as learners with DS are predisposed to gaining weight and have an increased risk of suffering cardiovascular disease, dance and physical activity are most useful in the management of this condition.

Skoning (2010 p.172) looked at the benefits of dance from a different angle, as that of a teacher, and found that whilst students with additional support needs might often fidget, requiring the teacher to constantly manage that behaviour, when the class was introduced to physical activity and dance, that movement became 'an integral part of the learning process rather than a problematic behaviour'.

Skoning (2010) cites Theodorakou and Zervas (2003) and Meekums (2008) who found that the introduction of dance to the classroom led not only to an increase in self-esteem, emotional expression and self-regulation but had the added by-product of including the hard to reach learners. Apart from advocating a constructivist approach to learning, Skoning also suggests that there is a place for co-operative learning where dance is concerned. In a dance class, Skoning noted positive interdependence and individual accountability coming to the fore in co-operative groups, whilst simultaneously, increasing in self-esteem with the addition of improved retention and attitudes towards school, as learners problem-solved together and supported each other.

Soriano and Batson (2011) examined the physiological benefits of introducing dance to adults suffering from Parkinson's disease. They found that improvised dance allowed these adults to fully express themselves, exceeding previously held limitations. Further, their research also corroborated the results from previous research by Hackney and Earhart (2009; 2010) who found that dance, especially improvised dance, helped improve the gait, static balance and general balance confidence in young people with learning disabilities.

Reinders, Bryden & Fletcher (2015), considered the bio-psycho-social benefits of dance, agreeing that the physical, social and psychological development of students with DS, can be positively impacted by dance. Apart from the physical benefits, such as increased coordination, strength, endurance and motor abilities such as gait speed, balance and joint flexibility, their study suggests that psychosocially, dance fosters communication skills and reduces social anxiety.

A study by Alesi and Pepi, 2015, suggests that the physical nature of dance can help a learner with DS by way of increased cardiovascular and respiratory muscle function, agreeing with previous studies that this in turn will help control obesity and coronary artery disease. Jobling and Cuskelly (2006) concluded that physical activity is recommended for a student with DS to control their chronic health problems such as a lower basal metabolic rate, decreased muscle strength, muscle hypotonicity, joint hypermobility and ligamentous laxity.

Becker and Drusing (2010) found that the psychological benefits of dance to students with DS, "may consist of increased self-esteem, self-confidence and quality of life", which meets most of the four capacities of the Curriculum for Excellence (Scottish Executive, 2004) and surely describes the aims of programmes provided by Further Education institutions for learners with additional support needs, as they aim to promote independence, self-esteem and confidence.

Methods

The teaching innovation was specifically introduced to determine whether the introduction of rhythm and dance to students with DS could have a positive impact upon their balance and levels of enjoyment/happiness.

Having carried out the initial review of literature and learning that dance could potentially have a positive impact on learners with DS, Inverness College UHI's 'performing arts studio' was booked. The studio has a good quality sound system and sprung floor (making it easier to literally feel the rhythm), tiered seating and main curtain and feels like a 'real theatre' thus adding to the sense of occasion for the students, enhancing the feeling that they were about to embark on 'something special'.

In the class immediately before the first practical session, the five learners with DS (alongside the remaining five learners in the class who all had a learning disability), performed a simple 'balance' test, where they were shown how to balance, first on one foot, and then on the other, on a piece of wood measuring 600mm x 45mm x 20mm, placed on the floor. The learners spent 20 minutes practicing this skill, prior to being timed and recorded for how long each could balance on one leg or the other (then combining both figures); this test was repeated after the practical sessions.

The practical dance sessions were held during class time on 11 and 18 January 2018, led by two Argentine Tango teachers, who introduced the learners to rhythm and timing in the first session, by first performing a simple warm-up routine followed by trying to walk forward in a circle, in time with the music. The learners initially walked forward 'alone' then forward with a partner (facing the same way). During the second session, the instructors recapped on previous points with the addition of both partners walking in the line of dance, with one facing forwards and one facing backwards, in a loose hold.

Discussion and Conclusions

Following the two dance sessions, the simple balance test was repeated, where the learners were asked to balance, first on one leg and then the other for as long as possible. Whilst it is accepted that the learners may simply have improved at performing the act of balancing (on a piece of wood on the floor), a summative evaluation of the results show that all five learners with DS improved on their overall balance time (combined left and right leg times).

As part of this research, the learners were also asked to evaluate their enjoyment of the dance sessions. Four of the five learners said that they very much enjoyed the experience, making comments such as 'amazing' and 'fantastic'. This assessment was backed up by using a smiley face chart, where they were asked to rate the classes as being 'OK', 'quite good' or 'really good'. Four of the five learners elected to choose the 'really good' face, with the remaining one voting for 'quite good'.

As part of a formative evaluation of this innovation, the learners appeared to improve at walking in time with the music. Learners with DS usually have an awkward gait, often with their feet being pronate, however, repeated walking during the sessions did appear to improve this with some students also feeling 'pleasantly tired' at the end of the sessions. In addition, when the learners were asked if they would like to participate in this type of class in their own time, if such a class existed, four of the five learners said that they would like to.

During the sessions, judging by the increased rate of breathing from some of the learners, the dancing introduced a higher level of physical activity which, due to

their specific physiology, is needed, in order to remain healthy. From experience, many of these learners would prefer not to take part in 'traditional' physical activities in order to keep healthy, yet, in this case, the learners, without necessarily realising it, were exercising and enjoying it. It was pleasing to note that regardless of fitness level, all the learners were happy to participate.

In evaluating the sessions, the learners gave an insight into what gave them pleasure. This appears to be learning something new, in a safe, and nurturing environment. The learners were aware that the tango instructors were friends and quickly built up a good rapport with them, listening attentively, being a little cheeky and ending the second class with hugs all around. This social aspect of the class was important, as the learners met new people but also worked well with their peers, giving encouragement and peer feedback, having reviewed their own performance.

Introducing two external teachers reinforced how much the learners enjoy meeting new people and learning from them; although apprehensive of the new teachers at first, the learners quickly trusted them and tried their best to excel. This shows the importance for the learners to frequently meet new people, work with them and hopefully gain in confidence and perhaps self-esteem, as they cope in a new situation.

As a result of this innovation, there has been some bonding social capital where there was close support between the learners as they helped each other to move with the rhythm. Indeed, the inclusive practice observed, enhanced the social capital and the relationship between lecturer and learners appears to have become even stronger, as everyone took part in all of the activities suggested.

Future Developments

Having reported back the results of the evaluation to peers on the 'teaching qualification' course, a number of very useful suggestions were made, including:

Following this feedback, it is intended to incorporate this type of dance into the curriculum and to carry out further research into the final two points made above.

Based on the success of this innovation, further research will soon start with the introduction of Argentine Tango over a 12 week period to learners with DS. The effect of this intervention will be investigated in relation to the learners' balance, agility, self-esteem and quality of sleep.

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