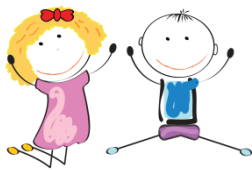




Musical Maths

Learning Maths through Music and Dance



EAAE 6004

Leadership Skills in Entrepreneurship

By

Student No. 1601919

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The Business Plan

Introduction

It is my experience that some children are transitioning from reception without recognition of numbers or understanding of what numbers represent. Without the ability of literacy and mathematics children will find it hard to communicate and express themselves, which can lead to low self-esteem and lack of creativity (O'Connor and Daly, 2011).

For several years, I have conducted intervention for a small number of children in year one, for both literacy and mathematics improvement. The strategy put in place for literacy is called Jolly Phonics, it has been created for children when learning sounds for reading and letter formation. It was this system of showing flash cards and playing games, that was the original foundation for my idea of a mathematical lesson plan called "Musical Maths". Ariati et al. (2018) suggests that phonics can be systematically taught to aid the support of literacy and can be adapted based on children's ability. I thought if this was able to work for literacy, then surely it would work for mathematics too.

My innovative idea, "Musical Maths" can promote maths through music and dance which will lead to creativity in the early years. The mathematic is primarily for promoting and understanding of the concept of recognising numbers and what they stand for. The idea is to promote mathematics in a fun way, create an experience of learning that will be enjoyable for all children (Melhuish et al., 2008). According to Yelland (2011) and similarly, Siraj-Batchford (2012) children learn better when they are enjoying the activity. To do this I intend to create a daily routine for all the children in the setting, promoting mathematic using music and dance.

Benefits to Early Years

I have worked within education settings for the past 17 years and have seen many different systems for teaching and learning. With the introduction of the Foundation

Phase in 2003 and the upgrade to the Foundation Stage in 2007 which included Numeracy and Literacy.

Similarly, to Moyles (2010) I can see the importance of children learning through play. However, I can also see the importance for a child to be able to understand mathematics and literacy to succeed in an increasingly competitive world (Donaldson, 2015). Whitehead (2003 cited in Blandford and Knowles, 2016) agrees and says, removing barriers when children start in reception is the key to success in the future. This is the reason that I would implement an idea of improving children's learning for math's in the early years to avoid children falling behind from the beginning of their education. The benefit of such a strategy is that the child will be ready to learn with peers (Zepke, 2018). The proposal for this plan would be to introduce Mathematics through music and dance. To remove any barrier for a child a practitioner needs to be positive and confident in the belief in what is being taught Whitehead (2003 cited in Blandford and Knowles, 2016). For Whitehead (2003 cited in Blandford and Knowles, 2016) teachers should empower children to feel confident as empowerment breeds independence.

Foundation Phase

Using the strategy "Musical Maths" can also promote:

- * Personal and social through sharing, interacting and sociable behaviour.
- * Physical through the exercise of learning the dances, gross motor skills will be developed.
- * Creativity learning to dance and make shapes and sizes using their own bodies and each other.
- * Language learning new words and numbers through song and dance.
- * Welsh, as we would learn could learn some songs in Welsh, when the English numbers have been established.

Challenges and Barriers

According to Vygotsky's Zone of Proximal Development children learn at different rates, similarly, Bruce (2010) tells us children develop along similar paths but also tells us, each child responds differently when faced with different events. I have also

experienced that children will only learn when they are ready or have interest, therefore the lesson plan needs to be fun and exciting. It is therefore necessary to provide a type of learning that will benefit all (Bruce, 2010). The planning would therefore reflect all the children and be planned according to the observations made.

I have worked with children that have struggled with the recognition of numbers, as a result, children that found it hard to concentrate within the teachers Big Math's session, as the child does not understand the mathematical language that the teacher was trying to portray. When I took the children out of this environment and introduced singing and dancing to nursery rhymes and songs incorporating numbers whilst showing flashcards with numbers on the children responded. The lesson then builds adding and subtracting into the program and eventually prepositions. Prepositions would also be demonstrated by introducing songs such as 'The Grand Old Duke of York' – for up and down. However, I noticed that these children were missing the lessons the teacher was preparing and still falling behind their peers (Zepke, 2018). This innovative idea would therefore be suited to start in nursery so that the child developed the skills alongside peers, in readiness for school.

Stakeholders

Innovation is an important aspect in Early Years Education. As innovation leads to benefits for the child and all the stakeholders. The stakeholders are the governors, teachers and parents of the school. The benefit to the governors would be as the school statistics would improve through promotion of this strategy, children would benefit from a good education which would be beneficial for parents and the teachers will have more motivation and governors will spend less money. When a leader of the setting is looking for innovative ideas the practitioner can draw upon the ideas training courses and research authors and of theorists to offer more creativity in learning and therefore enhance the strengths of the children in the setting.

Bronfenbrenner (1979 cited in Blandford and Knowles, 2016) tells us of the persons present when a child is making experiences and learning, change the perspectives for the child, it is therefore important to keep all the stakeholders involved in any

changes to the child's learning program and routine. It also can help if the parents are on board as they may be able to promote the language and songs at home.

According to music educators in Canada using music, it can also promote main interaction and a bond with the child and parents and the community through the songs and dances that can be learnt together (Spring, 2016).

Finance

For this innovation the investment from the school shall be the time of a teaching assistant, to run the strategy every morning in the reception class. I would be best suited to run this strategy as I have already had valuable experience in promoting language for children that are struggling and I have piloted my mathematics idea on children in year one, which was effective.

Another reason for my running the strategy is that as not all children learn the same, adjustment to the program may be required. As I have the vision of what I expect should happen, and if it doesn't then through the observations I make, I can adjust then plan accordingly. The program of resources has been made into a manual of flashcards and games, the cost of photocopying and laminating is required. Also, a CD of all the songs compiled has been put together. It will be necessary to purchase a portable CD player to be able to play music to the children both inside and outside. As outside learning is important too (Waite, 2011).

Eventually I believe the idea should be taught to other staff and run for other children in the school, of all ages. It could also be set up as extra interventions for children with Individual Education Plan's.

I would hope that my idea would be taken to the Welsh Assembly Government and be introduced through the curriculum (Early Years Business, 2014).

Part 2

Critical Analysis

Education psychologists have been researching and analysing ways to teach children for decades. Including Vygotsky, Bronfenbrenner and Yelland. This part of the portfolio will critically analyse the innovative idea 'Musical Maths' which can promote creativity in the early years. It will critically analyse how it will support children in the early years and discuss the effects on children in the early years. It will also point out the strengths and weaknesses that can occur through the implementation of the new idea as well as the benefits and barriers that could be faced.

To be able to implement a new innovative idea, it is important that the settings policies and procedures are considered and are adhered to. According to Shonkoff (2010) evidence suggests that policy and program development can improve the interventions set for improving children's education. When implementing an innovation/strategy, a detailed plan of how the strategy will be introduced, should be reported to the stakeholders. In all settings reflective practice should influence all the decisions within the setting for the expectation of an excellent service for the children (Baldock, 2013). Reflection should have emphasis on the quality of the service (Baldock, 2013).

According to Hargreaves (2004 cited in Pound and Lee, 2015) music is used in a high proportion on everyone's lives especially at home, in fact Hargreaves also suggests that 40% of people's lives are spent listening to music.

An Innovative Idea Promoting Creativity

Benefits of Implementing Mathematics through Music and Dance

Alexander (2010 cited in Pound and Lee, 2015) suggest children can be highly motivated to learn maths when taught through music. Despite this according to Hargreaves (2004 cited in pound and Lee, 2015), not much time in schools is set aside for music sessions. Through the implementation of Musical Maths children would benefit from both music and mathematical development.

Mathematics

Education is for most children is the only route to success, mathematics is in this sense a tool to turn in the key of the door to success in society (Alsina, 2002). The foundation phase states that math's should be incorporated within each of the seven areas of learning. However, some children need more support, to understand number concepts. If we can change the experience for a child's maths lesson to feel more like play the whole experience can be more creative for the child. According to Piaget (1962 cited in Ashiabi, 2007) and Vygotsky (1978 cited in Ashiabi, 2007) play allows a child to extend knowledge and skills, especially when they interact with the environment and the children around them.

Benefits of 'Musical Maths'

For any type of learning to occur the child needs to use the working memory. The working memory is responsible for storing information for the short term (Badeley 1987 cited in Kroesbergen et al. (2012). The working memory according to Lazar (2017) is the brains ability to store and process information as part of an ongoing mental process, which is essential for cognitive function. The Baddeley and Hitch Model suggests there are components that are responsible for coordinating activities of comprehension and phonological/numerical awareness (Baddeley and Hitch, 1974). Alloway (2006) suggests that the working memory has a vital role in supporting a child's learning, similarly, research by Kroesbergen et al. (2009) also suggests that the working memory is important in mathematical development. Furthermore, Alloway (2006) suggests that the working memory stores information for the foundations for the acquisition of skills required for complex skills and knowledge. However, Kroesbergen et al. (2003) suggests there is evidence that poor working memory leads to poor mathematical performance later in life. Which could suggest that intervention or the promotion of mathematics is more important in the early years to ensure development for the future.

Pound and Harrison (2010) suggest that music can support memory and that it is being used in everyday lives to allow us to remember things for example jingles in advertising the alphabet song and even the adults still sing rhymes to remember how

many days of the month are in each. According to Butterworth (2005 cited in Pound and Lee, 2015) research suggests children are naturally born with mathematical competences.

Pound and Lee (2015) suggest that for years research has shown that adults struggle with maths due to low standards of achievement. It is for this reason that the government needed to raise the standards of maths (Welsh Assembly Government, 2016a). These standards were to include social and cultural development and the use of cross-curricular means to promote mathematic (WAG, 2016b).

Personal and social

Barrett (2016), similarly, has observed how children can express themselves through music which can create an individual identity as well as to interact with peers through group work. This can also promote sharing and shared experiences, it therefore promotes personal and social development. Through sharing, interacting and sociable behaviour, similarly, Alexander (2010 cited in Pound and Lee, 2015) suggests that children learn to develop concentration and self-discipline (for example turn-taking, the need or requirement to finish the task to see the pattern completed.

'Musical Maths' will provide children with an opportunity to enjoy math's and build a good relationship with the subject. Everyone enjoys music and making a relationship between the two is a bonus that can encourage learning. Froebel, Steiner and Montessori believed that creating an environment that is favorable to all children allows for a better learning experience for the child, which increases development (Bruce, 2010). Learning songs together will create a more sociable environment (Barrett, 2016).

According to O'Connor and Daly (2016) dancing can also promote spatial awareness which can promote the child's sense of well-being. With the correct planning and an enthusiastic practitioner to conduct the session the possibilities for learning could be very rewarding.

Physical

O'Connor and Daly (2016) believe that dance should be imbedded within the education system, because it is linked with physical development, which supports sensory and integration. O'Connor and Daly (2016) also suggest that for the most of us there is always an urge to dance when music is heard. Music and dance has health benefits as it promotes exercise which uses gross and fine motor skills together with motivation and self-esteem. Exercise also stimulates the vestibular which is the system in the brain that promotes language (O'Connor and Daly, 2016).

According to Greenland (2005) using physical education supports mathematic exploration for the child, as the child can explore the patterns that can be made with the number of beats in the music, also through beating a drum and counting, identifyies with the number that you are teaching children to keep in time. It can also promote size and shape for the child in the dances that they can create shapes and designs (Greenland, 2005).

Language

According to Kraus and Chandrasekaran (2010); O'Connor and Daly (2016) and similarly Kuhl (2010) nurturing brain activity promotes the speech that can improve a range of abilities for the child. Berti et al. (2006) suggests that music can create a more efficient brain as it encourages a child to start to make more stable memories, which makes the working memory more efficient due to the commencement of the sequencing process and syllabic structures. This according to Patel (2010 cited in Clément François, et al. 2013) supports research that musical training can help develop language skills.

Music according to Anvari (2002) uses the same vocal cords as language, combining music and speech can promote small elements of the language to be generated, until phrases are meaningful to the child. Therefore, singing language and numbers can according to Anvari (2002) promote the use of numbers and language. Children are subjected to musical speech according to Fernald (1989 cited Anvari, 2002) speech such as rhymes and songs that are full of repetition and patterns that promotes language.

Creativity

Wakening the creativity of the child can offer exciting new opportunities. According to Harkleroad (2006 cited Pound and Lee, 2015) the patterns and abstracts of the numbers develop the symbolic language that maths is based on. Similarly, Egan (1991 cited in Pound and Lee, 2015) suggests that learning through patterns and symbols can support and enhance other learning for the child, which according to O'Connor and Daly (2016) also suggest when linking language and dance, can enable a child to not only express themselves verbally, but by promoting language and physicality can also promote and enhance creativity, as children can make up their own dances and suggest games that can be played. According to Lindon (2013), child-initiated activities can promote the child's creativity.

Challenges and Barriers

However, for this mathematic strategy to benefit these interventions are required to be conducted as early as possible in the early years, before difficulties are presenting. According to Allen (2011) evidence suggests that intervention strategies should be put in place as early as possible for such strategies to have maximum effect. Steiner also believes that children in the early years usually are willing to do most things that are asked of them and the role of the adult is to ensure that nothing compromises this will (Bruce, 2010).

In year one a formal type of math's called Big Math's is introduced, children that have not developed the necessary skills, find the next stage of mathematical development problematic and continue to fall further behind, however, if intervention had been taken place earlier and not been instead of the math's official math's lesson it could have been even more effective (Big Maths, 2018).

Another barrier to a child's learning is living in poverty with the lack of a quality homelife, or adverse experiences, this leads to poor communication skills, lack of personal and social skills, behavioral problems which also leads to poor literacy and numeracy (Joseph Roundtree Foundation, 2016). Musical Math's can support these children in personal and social development also. However, according to Rutter (2006) not necessarily all children living in poverty suffer educationally. Rutter (2006)

tells us that there are some children that can thrive even when faced with conditions that are harsh as they become resilient. But for those that might not, Rutter (2006) suggests intervention programs can support children living with adverse experiences and can then help children to become resilient. O'Brien (2014) agrees with Rutter (2006) and suggests that children can use adverse experiences to give them strength to be determined. Henderson and Keith (2015) also agree and suggest paradoxically, even though some children are faced with adverse experiences some of these children are still resilient due to the introduction of new innovations that promote independence and determination to succeed.

Strengths and Weaknesses of the Plan for the Early Years Child

For Musical Maths to be effective it is necessary to be reflective in practice. Being reflective can enable the practitioner to spot strengths and weaknesses in the planning. For the practitioner to be able to do this it is advisable that all practitioners receive training, as continuous professional development (CPD) can promote the skill of reflection, which can benefit the child further (Nutbrown, 2012).

Children have the right to a quality education, Articles 28 and 29 of the United Convention on the Rights of the Child states this (Unicef, no date). Therefore, to ensure quality, reflective practice according to Newton (2000 cited in Waller et al. 2014) is essential. Ensuring the CPD of educators can create motivation through gaining new experiences that can also allow for inspiration of new innovations. However, according to Nutbrown (2012) practitioners may not know how to be reflective or suggest there is a lack of time for reflection. However, Bolton (2009) disagrees and suggests that reflection could be as simple as discussing the day's events with the fellow staff and the line manager. Nutbrown (2012) agrees with Newton (2000 cited in Waller et al. 2014) that the strengths of using reflective practice is that it can promote self-awareness in the practitioner and improve practice for the child. Reflection also promotes quality performance at work (Baldock, 2013).

Reflective analysis can identify what can be done more effectively. A way of achieving this is through a SWOT analysis (Strengths, Weaknesses, Opportunities and Threats), of the practice and plan to be implemented.

- S The strengths of Musical Math's are the cross-curricular learning that can be promoted through the plan. (discussed earlier in this portfolio).
- W The weaknesses are the lack of funds that schools have to spend on interventions for the children and the lack of time that practitioners have to implement new strategies.
- O Opportunities are for the child and the practitioner. If the Musical Math's is implemented the child will be able to start school at the same level as peers, therefore for the practitioner less interventions will need to be conducted.
- T Threat, the threat is that the timing is not right for the intervention or that the plan may start then not continue due to lack of funds and time.

Conclusion

In conclusion the evidence and research suggests' that through the promotion of music and dance, mathematics, language, personal and social and physical education can all be developed and then then further developed in a fun and exciting way.

However, Allen (2012) suggests for this to have maximum effect it is important that interventions should be conducted as early as possible. The practice should also involve constant reflection to ensure that the system is working (Nutbrown, 2012), by a highly skilled practitioner (Lindon, 2013) in an environment that meets quality standards (Sylva, 2010).

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