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The Benefits of Music for Children with Autism

Xi Gu[1]

Yancheng Teachers University, Yancheng 224000, Jiangsu, China

Abstract: With the development of medicine, people are more and more aware of the status quo of autistic children. At the same time, more people are concerned about how to help autistic children to establish their social ties, so as to make them have a better life. In recent years, some researches have found that music has generally become a tool for autistic children to communicate with society. Therefore, this paper attempts to emphasize and study how music treats autism from the perspective of music expression and music learning. And then provide reference for more music education attempts.

Keywords: Findings from Past Researches; Benefits to Social Interaction/Verbal Skills and Speech/Gross and Fine Motor Skills/ Brain Development; Future Imagine

1. Intervention of music in autism

Autism is a neural-developmental disorder that signifies persistent deficit of social engagement in an autistic child with the social and non-social objects (Bagatell, 2012). The children find it is difficult to generate appropriate social initiations and express interpretative responses for getting acknowledged as a part of the society or the world. The disorder is seen largely in behavioral levels (What...disorder, 2017), such as difficulties in communication and restricted, repetitive behaviour (Anglia Ruskin University, 2014). In the field of therapies was focus more on engaging children with various activities to gradually guide them to get to use their surroundings, while there is a greater need to seek improvement on task-behaviour and learning outcomes. LaGasse (2014) have commented that 'music seems to fill this gap as it is both empirically tested and theoretically described for its outcomes, on the cognitive behaviour of the subjects in their learning environment'. "Approximately 12% of autism interventions and 45% of alternative treatment strategies in schools involve music-based activities" (Srinivasan and Bhat, 2013). The empirical evidence support that music has the therapeutic and recuperative abilities for children suffering from autism (Erena,2015). Immersion into music can promote the development in communicating and guide them understand the tangible world, also express the intangible world of their inner by music. Therefore, this essay makes an exploitative inquiry into of the understanding of therapeutic efficacy for being able to induce more pronounced benefits for an autistic child. An effort is being made to emphasise the ability to cure autism and not just treat autism. Therefore, endorsing a critical point has not only helped in highlighting the benefit factor, but also in evaluating how the music intervenes autistic children and builds a bridge for vulnerable group to communicate with the world.

2. The benefits of music for children with autism

2.1 Benefits towards social interaction

Autism represents deficiencies in terms of interpersonal interactions, linguistic conventions and speech (Noterdaeme et al., 2002). In this case, the intervention of music has offered significant therapeutic value for inducing social cognition in an autistic child. Applebaum et al. (1979) have mentioned that "Three normal children with reported musical ability and three autistic children were tested for the ability to imitate individual tones and series of tones delivered by voice, piano, and synthesiser", and the results prove that most of the children with ASD [Autism Spectrum Disorder] are more sensitive to understand and comprehend music comparing with the normal children. It is claimed that 'music works as an integrating force as it stimulates the child's cognitive processing within his or her level of emotional and intellectual tolerance' (Peretz & Menard, 2000).

Music helps circumvent the verbal language by methodologically bridging the gap on non-verbal self-expression. Erena (2015) has confirmed this by studying intervention of music and its impact on the social skills of 6 ASD adolescents during 8 sessions of 90 minutes duration. The autistic children were required to perform to different dance forms, creative movements, rhythmic games and singing in dyads, small groups and large groups. The findings shows that the ASD adolescents showed significant improvement on initiating and sustaining social interaction with each session and there was lesser resistance observed

1 **About the author:** Xi Gu, Female, born in Yancheng, Jiangsu Province, teacher, Faculty of Educational Sciences, Yancheng Teachers University, 224000

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during the interaction (MacKay et al., 2007).

2.2 Benefits towards verbal skills/speech

Music also have a determining impact on the development of verbal skills of children suffering from ASD. I worked as a volunteer in Dalian China Children Autism and Cerebral Palsy Rehabilitation Centre for teaching autism children to improve their attentions by playing improvisational music with various instruments. The argument finds its roots in the fact that music therapy interventions of significant use in autistic children through contacting with autistic children in individual and group forms in 2012. We made the experiment for autistic children as individuals and groups in the program. Learning and imitating the behaviour of each child, musicians and language helpers could build up the trust with children in the first experiment. Then they regrouped the children into the obvious reaction and slight reaction, observed their interaction with teachers. Next, they chose their own instruments and joined into the band, acting as a performer and a listener. The teacher communicated with children through improvisational performance, also they provided chances for children to perform and express. The experiment records 46 children who responded to vocal teacher in 5 minutes, 32 can repeat the head melody from music, 8 said the words at the end of the lyrics, and the other 6 children did eye contact with teachers. Also, unlike the conventional routine, our programs have made the therapy 'customised' to children needs. The customisation of therapy is one of particular importance as it corresponds to the unique abilities of the individual in terms of attention span and cognitive abilities. The programs also seek a greater study on how music promotes verbal skills and speech.

The finding show that prolonged music training has an additive effect on not just receptive language but also expressive language. In discussing the life of the blind autistic pianist Derek Paravicini (Derek, 2013), Derek can speak bravely and body movement getting better when he plays the piano after prolonged training. Likewise, the subjects in most studies, were children of 6 -12 years old and a few of the studies were based on children who were suffering from dyslexia. Although the available evidence 'an effort to synchronise arm and body movements to the rhythm of music could promote motor coordination in children' (Srinivasan & Bhat, 2013,) give the researchers a head-start in promoting motor-skills. It can also be argued that most of the evidence stem from the literature on music education and only a few studies belonged to the literature. The gap can be observed in terms of its statistical validation and theoretical substantiation. Only a few studies had conducted randomised controlled trials for examining the effect of the intervention of music on learning behaviour of the children suffering from autism.

2.3 Benefits towards gross and fine motor skills

While dealing with autistic children, I have learned that music has a positive impact on the refinement of gross and fine motor skills of developing children. I see this with how music coupled with walking, clapping and marching tend to produce rhythmic movements which help in the development of gross motor skills. Apparently, the musical rhythms induce the temporal patterning for an improved motor skills in children (Overy, 2000). Similarly, the playing of musical instruments would help in polishing the fine motor skills for children (Srinivasan and Bhat, 2013). The participatory process motivates the children to practice more for greater precision. This seems to go along with empirical evidence where music is observed to improve the gross motor performance in growing children around 5 years old (Frego et al., 2004). Here, Frego et al., (2004) used the Motor proficiency test (MOT 4-6) to demonstrate the children engaged in musical physical education program performed better on rhythmic exercises and dynamic balance as compared to the children engaged in the non-musical physical education program. I have used piano successfully training for finding improvements on fine-motor skills in terms of dexterity subsets, upper limb speed, visual-motor control and response speed in my case. This makes me propose a valid argument that children with autism already suffer from serious impairment of bilateral or gross motor skills, which is the abilities acquired of kids' motor growth and greater exposure to music could help them in gaining control of their motor movements.

2.4 Benefits towards brain development

Music can be of significant therapeutic effect in treating the asymmetries of the brain (Srinivasan & Bhat, 2013). When a musician is playing an instrument, he works on his visual, auditory, motor, sensory and perceptual senses at the same time. The coupling of motor, somatosensory, visual and auditory impulses have a developmental effect on the brain and particularly for individuals (Ornitz, 1976). Based on the connectivity theory postulates that 'the brain cells of an autistic individual suffer from long-range under-connectivity and short-range over-connectivity' (Belmonte et al., 2004, p229). The cortical-cortical connections of the cortical, parietal, temporal and frontal regions are thus ill-formed and cause the impairment of many psychomotor function (Raybaud, 2010). Therefore, it can be claimed that music can induce brain cells in overcoming the multimodal integration deficits of an autistic individual (Srinivasan and Bhat,2013). Also, an argument is based on the experimental studies that have outlined that 'music successfully contemplates integration of audio-motor senses for a positive outcome on speech and language skills' (Hesling et al., 2010). Belmonte et al. (2004) proved that the neural abnormalities have an inhibitory effect on the speech of an autistic child, but its effect on the musical skills. In addition, diffusion tensor imaging and functional magnetic resonance for children, have concluded that 'inferior frontal gyrus of an autistic child showed the higher response when compared to speech stimulation' (Lai et al., 2012).

3. Critical elements in intervention of music in autism

Not all autistic child experiences music in the same way. (autism.org.uk., 2017). In the seminar on how Derek Paravicini learned piano, Ockelford (2017) mentions the music is 'a natural gift' for Derek. These findings cannot essentially be used as evidential support for every case in reference. In spite of the evidential support, there are certain gaps in terms of the scope of the studies, sample size and the interpretation of the results (Srinivasan and Bhat, 2013). The methodologies in most studies highlighted that some of the samples were lacked the control group. There was also a wide variance in terms of participant's age,

demographic factors and the subjective conditions, a wide variance makes it difficult to generalist findings.

In addition, musical therapy can be various on the type of activities involved (Wheeler, 1983). Every form of music has its application area and benefits. Pertinent findings by Pellitteri (2000) have shown that AIT (Auditory Integration Therapy), a form of passive listening technique, is more useful for addressing behavioral problems, while Dalcroze-based integrated program is more useful for addressing learning disabilities. Therefore, be argued that a multimodal intervention of music needs to be implemented to address the individual requirements (Miller et al., 2014).

4. Conclusion

Based on my experiences with teaching autistic children, I have witnessed music changed their way of thinking and help them understand and be understood. I would endorse the viewpoint that music contributes to emotional stimulation and intellectual development in autistic children. Music can be a tool or even a language for them to communicate with outside world, show their inner world. There is still need for a more valid, reliable and standardize evaluation that studies the tangible benefits of music for treating autism.

References

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