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Candidate session number			
Candidate name			
School number			
School name			
Examination session (May or November)	MAY	Year	2013

Diploma Programme subject in which this extended essay is registered: PSYCHOLOGY
(For an extended essay in the area of languages, state the language and whether it is group 1 or group 2.)

Title of the extended essay: TO WHAT EXTENT IS MUSIC THERAPY EFFECTIVE IN ENHANCING THE DEVELOPMENT IN VERBAL, PHYSICAL, PSYCHOLOGICAL AND EMOTIVE COMMUNICATION SKILLS OF INDIVIDUALS DIAGNOSED WITH AUTISTIC DISORDER?

Candidate's declaration

This declaration must be signed by the candidate; otherwise a grade may not be issued.

The extended essay I am submitting is my own work (apart from guidance allowed by the International Baccalaureate).

I have acknowledged each use of the words, graphics or ideas of another person, whether written, oral or visual.

I am aware that the word limit for all extended essays is 4000 words and that examiners are not required to read beyond this limit.

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Please comment, as appropriate, on the candidate's performance, the context in which the candidate undertook the research for the extended essay, any difficulties encountered and how these were overcome (see page 13 of the extended essay guide). The concluding interview (viva voce) may provide useful information. These comments can help the examiner award a level for criterion K (holistic judgment). Do not comment on any adverse personal circumstances that may have affected the candidate. If the amount of time spent with the candidate was zero, you must explain this, in particular how it was then possible to authenticate the essay as the candidate's own work. You may attach an additional sheet if there is insufficient space here.

, spent a great deal of time and effort on her extended essay. From our first consultation, in grade 11, knew she wanted to write an essay on Autism. For , this essay was a passion project and even though we do not offer Psychology as an IB subject at our school I decided to mentor her through this process as I knew right away after our first meeting that she would write an outstanding paper on this topic.

, struggled on two fronts. The first, ensuring that her paper was not simply an informative one and that it addressed both information on Autism as well as an argumentative opinion based on studies and research. In doing so, she did a tremendous amount of research on topic. Secondly, editing her essay. For a while, struggled with her word count, as it was well over 4000 words at one point.

Through our discussions and consultations, I believe that this extended essay reflects not only 's passion on this particular topic but the time and effort it took on her part to put together such a well written piece. It is not the most articulate essay that I have ever read. But it is one of the most genuine ones. I am very proud to have mentored through this process and I am very proud of her.

This declaration must be signed by the supervisor; otherwise a grade may not be issued.

I have read the final version of the extended essay that will be submitted to the examiner.

To the best of my knowledge, the extended essay is the authentic work of the candidate.

I spent hours with the candidate discussing the progress of the extended essay.

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Date:

Assessment form (for examiner use only)

Criteria	Achievement level					
	Examiner 1	maximum	Examiner 2	maximum	Examiner 3	
A research question	2	2		2		
B introduction	1	2		2		
C investigation	3	4		4		
D knowledge and understanding	2	4		4		
E reasoned argument	1	4		4		
F analysis and evaluation	2	4		4		
G use of subject language	3	4		4		
H conclusion	2	2		2		
I formal presentation	2	4		4		
J abstract	1	2		2		
K holistic judgment	2	4		4		
Total out of 36	21					

IB Extended Essay

Subject: Psychology

Research Question: To what extent is music therapy effective in enhancing the development in verbal, physical, psychological and emotive communication skills of individuals diagnosed with Autistic Disorder?

Name:

Word Count: 3757

Abstract

Autism, which is a neural-based disorder, causes deficiencies in speech, social integration and psychological communication for affected individuals. Although therapeutic methods for each individual varies based on his/her diagnosis on the Autism spectrum, key aspects such as multi-sensory and motivational techniques are required to broaden the extent of communicative development in autistic individuals. Unlike other forms of therapy that focus primarily on improving a single aspect, such as speech or social integration, music therapy develops numerous skills in autistics. To what extent is music therapy effective in enhancing the development in verbal, physical, psychological and emotive communication skills of individuals diagnosed with Autistic Disorder?

The sources that are used in this research paper include journals of therapists who are specialized in music therapy for both autistic and non-autistic individuals, articles highlighting the benefits of music therapy and books that compiled research about the Autism Spectrum Disorder. The sources include case studies of autistic children who showed positive communicative development when undergoing music therapy. Comparisons between music therapy and other forms of therapy for autistic individuals were drawn from books that included treatment options for individuals with autism.

It is concluded that music therapy is very effective in enhancing verbal, physical, psychological and emotive communicative development in those who are autistic. Autistic individuals engage in music therapy with ease, as its use of a flexible medium allows individuals with differing needs to relate and engage in musical activity. The lyrical, instrumental and musical aspects of music therapy not only develop speech and physical behaviour, but they also allow for individuals to understand what evokes certain emotional and psychological responses. Through case studies, it is evident that music therapy has caused for this extent of development in an autistic individual, which is often difficult to achieve otherwise.

Word Count: 290

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Introduction

Autism, which falls under the broader Autism Spectrum Disorder, is a lifelong psychological disorder that causes comprehensive and communicative deficits in individuals affected by it. In addressing the needs of autistic individuals, learning therapies, such as *Applied Behaviour Analysis, Analysis of Verbal Behaviour, Discrete Trial Teaching, Pivotal Response Training, Occupational Therapy, Social Skills Training* (Tuchman et al., 2006) and *TEACCH* have been developed (Roth et al., 2011). The clinical use of music to expand an autistic individual's ability to communicate is what is referred to as music therapy. To what extent is music therapy effective in enhancing the development in verbal, physical, psychological and emotive communication skills of individuals diagnosed with Autistic Disorder? Music therapy uses multi-sensory techniques and a flexible medium to address the multiple autistic deficiencies caused by this neurological disorder. Based on its successful outcomes, music therapy is the most effective psychotherapy in enhancing the verbal, physical, psychological and emotive communication skills of individuals diagnosed with Autistic Disorder.

Jerome Bruner's Constructivist Theory of Cognitive Development is a psychological theory that refers to cognitive processing that forms the basis for educational therapy (Trinity College Dublin, 2002). As the individual undergoes a variety of experiences that allow him/her to comprehend the information, cognitive growth occurs. This growth is divided into the following stages:

1. **Enactive Stage:** The individual's understanding occurs through physical interaction with the environment and motor skills.
2. **Iconic Stage:** Imagery is used to represent multiple understandings of the world.
3. **Symbolic Stage:** Symbolism, language and logic enable the furthest cognitive growth, as the individual can interpret abstract concepts.

This theory, in the chronologic stages of cognitive development, is similarly present in music therapy. The ability to communicate begins at concrete levels, such as kinesthetic and verbal communication, and it transcends to psychological and emotive communication (Trinity College Dublin, 2002). The application of this theory in music therapy shows that mental development for an autistic individual is similar to that of a normal individual, however the autistic individual requires a further broken down process that places emphasis on each individual step.

Defining and Characterizing Autism Spectrum Disorder

The Autism Spectrum Disorder, also referred to as ASD, attributes individuals on a spectrum with a behaviourally defined disorder (Bock et al., 2003). ASD encompasses a variety of related disorders and syndromes that include Asperger Syndrome, Pervasive developmental disorder – not otherwise specified, and Autistic Disorder (Tuchman et al., 2006). Kanner, who first introduced his findings in 1943, described symptoms to include multiple deficiencies in the individual's communicative ability (Bock et al., 2003). Social interaction, lack of response to sensory stimuli, insufficient eye contact, inadequate capacity of memory and repetitive behaviour are all indicative of the conducts of individuals with ASD (Bock et al., 2003). The subtypes of

ASD that are mentioned vary based on whether or not specific descriptors, such as language or cognitive delay, are selectively present (Tuchman et al., 2006). This essay focuses on individuals who are diagnosed with Autistic Disorder, which is commonly referred to as 'autism'. Autism is not a physical disability; its primary effects on the neurological and psychological development of the brain cause for the deficiency in communication.

Autism is a disorder that impairs the neurodevelopment in autistic people throughout their lives, therefore no form of intervention will completely cure the disorder (Roth et al., 2011). A child who is classified as a "high functioning autistic" has an intellectual capability that is approximately equivalent to or above that of a normal individual (Bock et al., 255). It may even be difficult to distinguish between a "high functioning autistic" and a normal individual, however social deficiencies and the lack of cognitive processing may be visible in the autistic individual. "Low functioning" autistic individuals are classified as those have an intellectual capability that is lower than that of the regular child, as well as severely impaired verbal, social and cognitive skills (Bock et al., 255). Regardless of the extent in which autistic characteristics are evident in an individual, research has shown positive communicative development in those enrolled in learning therapies (Bock et al., 2003). Music therapy is an example of a highly effective therapeutic intervention that has enhanced the verbal, physical, psychological and emotive abilities for autistic individuals to communicate effectively (American Music Therapy Association, Inc., 2011).

Defining and Characterizing Music Therapy

Music Therapy is defined as "the clinical and evidence-based use of music interventions to accomplish individualized goals within a therapeutic relationship by a credentialed professional who has completed an approved music therapy program," (American Music Therapy

Association, Inc., p.1). There are numerous aspects of deficiencies caused by autism that can be addressed through music therapy. In terms of social education, those who are autistic require the opportunities to initialize interest on a one-to-one relationship with the therapist, but eventually he/she should integrate himself/herself with others (Roth et al., 2011). There are specific components of intervention that coincide with music therapy and are effective in developing communication skills. Intervention that is structured, behaviour-based and dependent upon routine that avoids the development of stereotypical behaviour is essential. The skills and abilities that the individual possesses must be emphasized so that the individual does not prevent himself/herself from communicating due to a lack of motivation. Opportunities that occur naturally must be taken advantage of, and the environment with the family, the therapist and peers must be of an educative one. Using cues and repeating specific skills in educative therapy allows for memory in autistic individuals to be strengthened (Bock et al., 2003). These various interventionist methodologies are incorporated into music therapy.

With a spectrum based disorder such as autism, music therapy is effective, as it allows for a variety of musical elements to assist in behavioural change (American Music Therapy Association, Inc., 2011). Music affects the mind, body and emotions for both autistic and non-autistic individuals (Alvin et al., 1992). According to studies conducted by Pamela Heaton, Beate Hermelin, and Linda Pring, “individuals with autism show no deficits in processing musical affect” (Khetrapal, pg.11). The listening process essentially becomes the fundamental foundation of music, (Alvin et al., 1992) which is why “communication through music bypasses speech and language barriers in individuals with autism,” (Khetrapal, pg.12). The purpose of music therapy for an autistic individual is to improve communicative and socio-behavioural skills (Khetrapal,

2009). Rutter explains that the impact that visual representations have on normal children and some high-functioning autistic children may not be as effective as interaction with objects and sensory perception for other high-functioning and low-functioning autistic children (Alvin et al., 1992). Rhythmic components, taking turns with others, listening to the therapist and responding to the therapist's instructions allows the child's social interaction skills to develop. Music is "processed in both hemispheres of the brain," thus cognitive development through music therapy will also cause development in speech and linguistic skills (American Music Therapy Association, Inc., pg.2). What is significant about this method is that it allows for multi-sensory stimulation to occur, thus the individual is able to interact through auditory, visual, and tactile methods (American Music Therapy Association, Inc., 2011).

The absence of sound is just as important in music therapy. It detects changes in auditory response due to a cognitive understanding that the music has now stopped playing (Alvin et al., 1992). Self awareness and emotive communication are affected by the individual's relationship to an instrument and the sound(s) that it produces. When he/she has the freedom to observe and engage in playing instruments or singing according to their liking, the individual refrains from abnormal behaviour caused by factors such as fear and restricted emotions. In effect, the positive responses can be used to structure therapy well suited to preferences. Music therapy has been divided into three phases regarding the development of communication in autistic individuals (Alvin et al., 1992):

- a. Phase I: Non verbal expression can occur, as music undergoes cognitive processing and causes emotional and/or psychological response.

- b. Phase 2: The individual's relationship with music and his/her surroundings can be observed.
- c. Phase 3: Self-expression and self-understanding is definite.

Effects of Music Therapy on Communicative Development in Autistic Individuals

Verbal Communication

The 'Enactive Stage' of the Constructivist Theory of Cognitive Development is evident in the verbal approaches of music therapy, which allows an autistic person to understand his/her environment through interactions with people. The second phase of music therapy uses this approach. Verbal communication refers to language that is associated with social interaction. Pragmatics, prosody and language are weak elements in verbal communication for autistic individuals (Roth et al., 2011). Learning a language verbally and visually may be difficult for them, as it requires the "coding and decoding of conceptualised symbols" (Alvin et al., pg.12). *Social Skills Training* and the *TEACCH* method have been developed to use visual organizers and images that assist autistic individuals in communicating and socializing (Tuchman et al., 2006). Visual schedules are primarily used in order to allow verbal and non-verbal autistic children to visualize their duties (Roth et al., 2011). Music therapy allows for the use of a flexible medium to be adjusted accordingly to the severity of autism (Alvin et al., 1992). Individuals may have a hard time identifying, processing and applying images, but because music is processed subconsciously, it is communicated with much more ease.

Verbal responses will vary based on each individual. For non verbal people, the recognition of the melody may trigger verbal engagement, thus leading to speech. Music

naturally provokes one to respond through a process that begins by auditory identification, then proceeding to similar responses and finally resulting in vocal regression. The mental memory of sounds assists in verbal speech, because individuals with autism initially require repetition of the same sounds to be able to reproduce it. Music takes it one step further, because connecting specific words with vocal or instrumental sounds allows the individual to associate a positive or negative connotation to that word based on the emotive response to the sounds produced (Alvin et al., 1992). Another form of therapy for autistic individuals is the *Analysis of Verbal Behaviour*, which focuses primarily on speech development. Echoic, which is the repetition of sounds, and verbal requests are incorporated in both *Analysis of Verbal Behaviour* and music therapy, however music therapy allows the contextual understanding of language due to an emotional appeal for it (Tuchman et al., 2006).

Spontaneous singing and humming are verbal responses to music therapy, thus it enables creative development in the child (American Music Therapy Association, Inc., 2011). In addition to creativity, it was observed by Buday (1995) that autistic children had a greater ability to sing rather than speak words, thus music establishes a comfort zone for speech. Pitch variation and rhythmic cues initialize emotive responses, which is significant for an autistic individual to be motivated towards engaging in speech (Khetrapal, 2009). While melody allows for verbal communication to develop, rhythm focuses primarily on the development of physical communication (Alvin et al., 1992).

Physical Interaction/Communication

The development of motor skills is another component of the 'Enactive Stage' that allows for cognitive development in autistic individuals. Music therapy includes both vocal and

instrumental training. Physical behaviour that is used as a form of communication for autistic people is established through his/her interaction with instruments. Rhythm in music allows them to organize senses such as auditory processing, sensory-motor, gross and fine motor skills, as they learn to use instruments and play according to a structured tempo (American Music Therapy Association, Inc., 2011) An example of multi-sensory development that portrays a relationship between auditory and tactile senses occurred with a seven year old autistic child named Patrick. Patrick was a hyperactive individual, but when he was able to feel the vibrations of the piano keys, he closed his eyes and became psychologically involved in the tonal changes of the sound. Basic motor control is improved, as the repetitive physical interaction with the instrument causes the child to have more practises refining this ability (Alvin et al., 1992). More so, the involvement in the music allowed Patrick to become cognitively aware of the rhythm and tone of each key, thus allowing him to have control over his motor skills to produce the desired music.

Coordination for the child is improved due to the comfort found in his/her environment. *Occupational therapy's* focus is to teach and train autistic individuals to control multiple behaviour deficits and perform daily activities (Tuchman et al., 2006). The individual's abilities and disabilities are used as an indication of the types of activity that he/she can conduct. What is essential about this technique is that it breaks down each task into a series of individual steps that would not be necessary for a normal person. The seclusion and individual attention for an autistic individual is necessary, however treating him/her much differently in society in comparison to a normal person evokes anxiety and discomfort. Learning to play an instrument

uses similar techniques of *occupational therapy*, however the autistic individual does not engage in instructional physical behaviour that differs from a normal one.

The development of physical skills can be attained through learning how to play instruments and through singing, because vocal vibrations and physical actions are forms of movement. Physical interaction between the individual and the instrument is encouraged when its tone and shape become a form of self expression. Verbal communication, which is difficult for many autistic people, is not required in the process of becoming accustomed to the physical entity of the instrument. The purpose of music therapy is to allow one to become comfortable using music as a medium so that there is a progression in the individual's cognitive understanding. The changes in involuntary physical reflexes caused by pitch, volume, tempo or tone are indicative of comfort or discomfort towards the music. The repetitive behaviour of rocking that is evident in autistic individuals can be addressed by increasing the tempo to one that is faster than the rocking. With this technique, not only is one conscious of the change in movement, but he/she is also aware that he/she is causing this movement (Alvin et al., 1992). As discussed in Bruner's Constructivist Theory of Cognitive Development, it is after physical interaction that an individual is able to perceive cognitively.

Psychological Communication

The 'Iconic Stage' and the 'Symbolic Stage' of the Constructivist Theory of Cognitive Development are exhibited in the first and third phases of music therapy, thus allowing for cognitive development in the autistic individual. Due to the fact that each autistic individual varies in their extent of ASD related symptoms, psychological comprehension will also vary. For example, the autistic child may not pick up on sarcasm as a normal child may. Within autism

itself, high and low functioning individuals will have varying responsive capabilities. The malleability of music allows for it to be easily motivational and enjoyable, thus music can be manipulated to accommodate the various needs of autistic individuals on the spectrum. Its multi-sensory input is a natural form in which the child's engagement is a result of a cognitive appreciation for the sounds produced (American Music Therapy Association, 2011).

The pathway between the individual and his/her ability to perceive music is also established through an interpersonal relationship with the therapist. When the therapist gets more involved with the individual, the individual is exposed to increasingly complex situations, as he/she must now understand both his/her role and the therapist's role in creating music together. When one understands this, improvement in their cognitive understanding is evident. Due to the fact that music penetrates subconsciously, Juliette Alvin, who works with autistic children, encountered several breakthroughs with children who were in fact unresponsive to music therapy during its initial stages. Michael was an example of a hyperactive autistic child who had no speech. There was an instance where he struck a cymbal and vibrantly responded to its resonance. Thus, the experience triggered a positive response from Michael, and he later showed more musical interests and improved behaviour. Michael then became socially active, as he joined the dancing group, and he developed socially accepted behaviour, such as using manners and paying attention (Alvin et al., 1992). In this study of Michael, it is evident that there had to have been a psychological understanding of sounds that enabled him to evoke a positive response. This led to a personal connection drawn to the sound of the cymbals that instigated an emotional response as well.

This second stage of music therapy is based on cognitive progression, because this is an indication of a more complex understanding and form of communication. Regardless of natural or acquired musical talent, psychological understanding of music is developed and made evident through the way an individual plays an instrument or sings a song. If he/she has obsessive qualities, similar behaviour is associated with the playing of an instrument. A person who is imaginative will experiment with different instruments and changes in tones or rhythm (Alvin et al., 1992). *Applied Behaviour Analysis (ABA)* focuses on specific behaviour that should either be improved or discouraged in autistic individuals (Tuchman et al., 2006). The desired response is continuously repeated until the individual does not require the support of a therapist. ABA, which forms the foundation for many therapies, is successful in several aspects of communicative development, because repetition is necessary for an autistic person to grasp the concept of something. However, music therapy further enhances the effects of ABA, because the individual grasps a psychological understanding of his/her behaviour, and music serves as an enjoyable medium (Kantz, 2005). A child engaged in ABA therapy may understand when, where or how to behave in a socially accepted manner, as the therapist structures the curriculum based on learning strategies that repeat and emphasize the desired behaviour. This prevents the individual from knowing *why* he/she must behave that way. To the autistic child, washing his/her hands may be an activity that he/she will be rewarded for, thus it will be done each time after using the bathroom. However, the child does not necessarily do this with the awareness of sanitary and health needs. With music therapy, the child obtains the freedom to engage in compositions and instruments of his/her choice. The individual is aware that the reason behind this preferential choice is the appeal and sense of comfort.

Emotive Communication

The first phase of music therapy, which allows one to interpret complex emotions, allows an autistic individual to experience the 'Symbolic Stage' of the Constructivist Theory of Cognitive Development. Like other ways of communicating, emotive communication in an autistic individual occurs alongside verbal, physical and psychological communication. Tonal variation instigates variation in emotion, and cognitive research has discovered that those with autism possess a good ability to detect pitch from musical tones. This means that autistic individuals can express emotions due to music. In this aspect, emotive communication is largely reliant upon tones, pitches and the melody rather than upon rhythm. In an investigation pertaining to this claim, the variations in pitch were removed from one group of music while variations in pitch and tempo were removed from another. The experiment concluded that tonal variation was necessary in triggering emotive responses from the individuals with autism, and that rhythm could not prompt distinction of emotions. However, this does not mean that emotive communication cannot occur due to rhythmic or temporal components of music therapy. It was further explained that the effects of tempo on the ability to express emotions may be more effective when it is on its own rather than when it is accompanied by tonal variation (Khetrapal, 2009). Regardless, components of music therapy evoke emotional response. Group work establishes an environment in which the child's emotional, psychological and social responses are made evident. The autistic individual in a choir or an orchestra battles the difficulties of being able to communicate in interpersonal and intrapersonal situations. In such surroundings, resistance, obsession, jealousy and possessiveness are negative emotional responses, however they still portray that he/she is able and developing emotive communication

skills (Alvin et al., 1992). Learning to overcome these fears is an educative experience for the individual.

Pivotal Response Training (PRT) uses naturally occurring situations to motivate and encourage an emotional response from the individual. When one shows a liking or sense of comfort towards something, that particular behaviour is used to enable self-motivation and self-initiation (Tuchman et al., 2006). Music therapy is very similar, because the individual has the opportunity to choose and develop an aspect of music based on his/her preference towards it. The variety of musical elements, such as genres, instruments, tempos, and compositions, allow the individual to experience and express numerous emotions. PRT primarily relies upon what may please or discontent an individual before proceeding with an activity. Whether it is the lyrics that a verbal autistic individual comprehends or the tunes that a low-functioning autistic child hums, the variation in music evokes a much broader range of emotions than PRT does.

Conclusion

The deficiencies in socialization, speech, physical behaviour, cognitive understanding and intellectual capabilities are the characteristics of autistic individuals that complicate their ability to communicate effectively (Roth et al., 2011). This disorder that can be diagnosed at a very young age requires therapy and educative intervention to establish a comfortable environment. Music therapy is a highly effective form of intervention mainly because music can be apprehended through multiple communicative pathways. Music encompasses a variety of techniques that range from understanding basic notes to producing compositions vocally and/or instrumentally. Music is generally acquired by progressively educating oneself of the fundamentals and layers used to produce pleasing sounds. That which a normal child would undergo through music

lessons is very similar to that which an autistic child experiences, thus establishing a more inclusive environment that other therapies lack. Furthermore, the multisensory characteristics of music therapy not only make it flexible to address the different needs of the autistic individual, but it also allows for communication to exist and develop physically, verbally, psychologically and emotionally. While other therapies address each of these forms of communication individually, music therapy targets all of it. Music subconsciously causes cognitive development, which is much more complex than repetition and rote memory for an autistic person. It is through music that many autistic individuals enjoy experiences and build relationships with others. The autistic individual is most definitely unique, and the boundaries to their creativity are limitless. Music shall continue to provide an unrestricted path of motivation and self-expression for those affected by autism. Thus, the most effective psychotherapy in enhancing the development in verbal, physical, psychological and emotive communication skills of individuals diagnosed with Autistic Disorder is music therapy.

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