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Research Paper



The Sonic Brain: A Musical Subculture in Akropong School for the Blind, Ghana

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Abstract: The purpose of the study was to investigate the scope of the music curriculum in Akropong School for the Blind (ASB), and approaches through which students were taught music. We examined resources available for music in addition to identifying prospects for the students. We gathered qualitative data from two Research Consultants through separate semi-structured interviews via telephone. Additionally, we observed videos of musical activities involving the students for further insights. Peter Webster's "Model of Creative Musical Thinking" and the Multisensory Learning Theory underpinned the study. Results indicated that ASB used the same music curriculum as all other public schools in Ghana. Findings further indicated that the school had some resources for music instruction and there was optimism about students' musical prospects except for further education. In conclusion, although a child may have visual impairment, they still have sonic brains that enable them to pursue music education to the highest level. We therefore, recommended creation of higher formal learning opportunities for the visually impaired. Future research will examine specific curricular contents and instructional strategies for various areas of music such as piano, strings, winds percussion, and vocals in ASB.

Keywords: curriculum, co-curricular, approaches, visually impaired, prospects

I. INTRODUCTION

Humans are known to operate with five senses - hearing, seeing, touching, feeling and tasting. The process of musical transmission depends largely on the sense of hearing for listening and the sense of seeing for reading, imitation, in addition to several other activities requiring sight, although the other three are also essential to them. The means by which visually-impaired students learn and perform music then poses a bewildering novelty, a contemplation which motivates this research interest. The setting for the study was Akropong School for the Blind (ASB). The school is located in Akropong, the capital town of the Akuapem North District in the Eastern Region of Ghana.

Historical accounts indicated that Akropong School for the Blind began in 1932, with a Scottish Missionary tutor called P. D. Harker who took care of a visually challenged boy at Akropong. Harker taught the boy who was called Bernard good grooming and handicrafts such as weaving of baskets, stools and doormats in addition to lessons on communication skills. By 1936, three other visually impaired children joined he lessons which began to gain public recognition. Subsequently in 1945, the government of Gold Coast (now Ghana) stepped in, and the School for the Blind was opened at Akropong Akuapem in the Eastern Region of Ghana with four pupils. The School is currently a residential institution from Kindergarten (KG) to Junior High School (JHS) three and it has a Vocational Section and a Rehabilitation Center, primarily for adults who become blind due to accidents or diseases. Music, mainly singing of hymns and patriotic songs was usually led by teachers at the Vocational Section until 2008, when a substantive music teacher was recruited.

1.1 The School Curriculum and the Visually Impaired Learner

Although the official music curriculum in Akropong School for the Blind has the same content as what is used in all other public schools in Ghana, I anticipated some distinctions in pedagogical strategies for several seasons. First, according to Krahé & Altwasser (2006), children with visual impairment face problems caused by their disability depending on the severity. They further state that the commonest problems faced by persons with visual impairment, in some cultures include isolation, frustration and dependency and in some cases their lives were

terminated. The negative attitude to the person with visual impairment stemmed largely from beliefs and cultural practices of the traditional societies that considered individuals with visual impairment as not worth living. Gradually however, the killing and the ostracization began to give way to the right of children with visual impairment to live; they were therefore, given protection and compassion (Krahé & Altwasser, 2006) hence their education in a residential setting. Further, the socio-cultural context in which these special needs children find themselves and the kind of demoralizing enculturation they have experienced prior to their enrollment in the school demands that they are offered special (music) educational attention.

On the musical abilities of children with visual impairments, I agree with Welch (2005) who argues that we are all born musical and that music, like speech, is a product of both our biologies and our social interactions. Music is a necessary and integral dimension of human development and same has played a central role in the evolution of the modern human mind (Cross, 2001). Human musicality is known to be universal because just as we are all born to be linguistic, with specific languages to be learned determined by our dominant culture, so are we born with the cognitive means to be responsive to music as a domain of our culture (Hodges, 2020). Musical cognition unfolds in human beings as part of our growth and maturation process, beginning from the socio-cultural environment and advances through training, be it formal or informal. One of the means through the child develops music cognition is entrainment.

The term 'entrainment' refers to the process by which independent rhythmical systems interact with each other through vibration, having in common some form of oscillatory activity (Clayton, 2007). This interaction takes due to some form of coupling effect that exists between the rhythmical systems, resulting in those systems synchronizing, in the most common sense of aligning in both phase and period. Although entrainment theory is not a domain-specific one, Clayton, Sager & Will (2005) suggest that musical manifestation of entrainment takes place at three different levels. The first level is intra-individual entrainment which takes place within a particular human being. An important phenomenon at this level is the entrainment of networks of neuronal oscillators, which are responsible for metrical perception in the human being (Large & Kolen, 1994). Another aspect of intra-individual entrainment is the co-ordination between individual body parts as in the limbs of a child who is engaged in motor activities such a walking, dancing and plying. Since the work of every child is (musical) play (Harwood, E. 1998), it follows that musical entrainment takes place in every child.

The second level is inter-individual, in other words, intra-group entrainment. This concerns co-ordination between the actions of individuals in a group, which is essential for ensemble playing in any musical tradition. It is this level emphasizes the fact that as children perform playground musical activities, musical entrainment takes place in them unconsciously. The third level which is known as inter-group entrainment concerns the co-ordination between different groups. This is less widely recognized although it is a widespread phenomenon in musical performances (Lucas et al., 2011).

These different levels of musical entrainment are interdependent in the sense that each level builds on the previous level: intra-personal entrainment allows us to perceive metrical structures in musical stimuli and to coordinate our actions to those structures (Nozaradan, Peretz, Missal, & Mouraux, 2011). Without this it would not be possible for individuals to play in time with others; and without musicians playing together in groups we could not have multiple groups interacting with one another. The interdependence may however, not always be in one direction. All these facets of musical entrainment partly constitute the children's musical enculturation which further serves as the foundation for further music cognition in the formal learning context.

1.2 Transmission of Musical Knowledge and Skills

Among the most significant issues about music in every culture in the world is transmission (the process by which it is taught and learned). According to Wade (2004), the principal means by which music transmission takes place are oral and visual, often referred to as written. However, an ethnological distinction exists between oral and aural transmissions. Wade postulates that oral transmission takes the perspective of the teacher serving as a repository of knowledge and technique, and implies interaction between teacher and learner, while aural transmission takes the perspective of the learner who listens to the teacher both intentionally and osmotically. Despite the global recognition of effectiveness in the use of oral-aural with the inseparable imitation approach to music instruction, mostly found in traditional African apprenticeship (Tang, 2007; Euba,1990), studies suggest that in music schools, notation is privileged over all forms of music learning (Draves & Parker, 2017). Against the background of this research information, it is imperative to observe that in the instance of individuals with visual impairments, sound is primary snice they cannot read materials meant for their typically developing counterparts. Notation, in the school for the blind, is secondary even when it is braille-transcribed (Abramo & Pierce, 2013; Moss, 2009. The need for greater attention to the use of oral-aural/imitation techniques in schools for the blind is further

necessitated by scarce of braille music in many developing countries, including Ghana. Even in a school where there may be braille, De Garmo (2005) laments:

Without the services of a trained volunteer music transcriber who can turn out this material rapidly, the visually impaired child does not have the chance of being able to take his rightful place in the music program that is offered by the school, no matter how talented he may be (p. 25).

Furthermore, the child will very likely be unable to study privately with a sighted teacher, if he should so desire, unless the teacher is one who can appropriately choose the music to be studied for the visually impaired learner. Such freedom can be assured only if a transcriber can be found who is able and willing to provide the brailed scores.

Co-curricular activities such as music festivals offer young several psychological and social benefits to young people (Packer & Ballantine 2010), making in important to encourage all students to participate in such activities. In addition to development of music composition, performance and listening skills, music festival provides a means of Entertainment for participants. The essence of entertainment these learners is explained by Daly and Kunstler (2006) who state that entertain is all about having fun together, getting involved, discovering new things, sharing the spirit, laughing together, playing together, belonging, respecting and refreshing one another as we learn and grow every day. Hence, participation in entertainment programs helps promotes social, physiological, psychological and intellectual, ... (holistic) wellbeing of these special need students.

Finally, compared to their typically developing counterparts, students with visual impairments have exceptional educational needs which are most effectively met using a team approach involving professionals, parents and students themselves where possible. Curry & Hatlen (1988) opine that in order to meet their unique educational needs, students with visual impairment must have specialized services, books and materials in appropriate media (including braille), specialized equipment and technology. They also require peculiar instructional strategies, including the Comprehensive Musicianship Approach (Abeles, 2004) to ensure equal access to the core and specialized curriculum. This enables them to most effectively compete with their peers in the mainstream schools and ultimately in society. Recent studies (VanWeelden & Whipple, 2014; Gerrity, Hourigan & Horton, 2013;) show that compared to research findings from twenty years ago, music teachers have now gained better understanding of what constitute effective music education and achievement when working with special needs students in their schools/classrooms/ensembles. This progress is partly attributed to such factors as intensive preservice training, school district in-service training, and workshops among others.

II. CONCEPTUAL AND THEORETICAL UNDERPINNING

The study was underpinned by Peter Webster's Model of Creative Musical Thinking (See Figure 2 below). This was corroborated by the Multisensory Learning Theory (Murphe, 1997) also known as the Visual-Auditory-Kinesthetic-Tactile (VAKT).



Figure 2: Peter Webster's Model of Creative Musical Thinking

This model indicates that regardless of which aspect of musical activity engaged in, one's creativeness is an embodiment of five common elements: (1) a problem-solving context, (2) convergent and divergent thinking skills, (3) stages in the thinking process, (4) some aspect of novelty, and (5) usefulness of the resulting product. The first three (and partly) the fourth are principally cognitive processes that result in the fifth element, which the ultimate musical product. Webster opines that there are three fundamental ways that humans engage in musical Behavior. These include listening (by far the most common of behavior), composition, and performance. Listening exists as a focused experience, often resulting in an experience in which the listener forms a sense of the music with or without the goal of a formal analysis. It is therefore, considered an effective way of music transmission in both formal and informal cycles. Hence, emphasis on listening (oral-aural) as a teaching strategy for the visually impaired as found in this study was appropriate.

2.1 The Creative Musical Thinking Process

According to Webster, the creative musical thinking process is almost entirely a cognitive process. It does not necessarily require sight. The visually impaired musician like the sighted counterpart is capable of engaging in it - that is what students in ASB manifested as well. Webster's creative musical thinking model is corroborated the multisensorial learning theory (Murphe, 1997) otherwise referred to as the Visual-Auditory-Kinesthetic-Tactile (VAKT). The latter states that students learn best when information is presented in different modalities. The multisensory approach is an eclectic approach that teaches all children regardless of their preferred learning style. Ideally, all four learning styles should be addressed equally. However, as noted by Blau and Loveless (1982) "we emphasize the visual component of VAKT too much". The belief is that students learn a (new) concept best when it is taught using the four modalities. This implies that learners employ multiple senses in grasping (musical) concepts and skills. In the case to the visually impaired, although one of the senses (sight) is defected, the child is still capable of using the other active senses to acquire musical knowledge and expertise. David Baker (December 21, 1931 – March 26, 2016), a blind musician remarked:

.... Once I learn it [from Braille], I don't really forget it. I don't really have an issue with forgetting things because I think it's so engrained into my long-term memory that I can focus on musical things. I notice that, when people have read from the score, they get so attached to the musical score. I think, if you memorize, it's something less that you have to think about and you can really start focusing on the musicality (Baker, 2014).

Baker's remarks suggest that loss of sight does not necessarily prevent a person from musical pursuits. Somehow, the visually impaired music learner is rather motivated to develop and maintain a sonorous brain that compares favorably with that of the sighted learner.

III. METHOD

3.1 Design, Research Consultants and Procedure

The study was a qualitative case study. We chose the case study design because it allowed me to situate the study specifically in the context of Akropong School for the Blind, have in-depth interaction with the consultants, and to construct meaning as it was in the context of the school. We sampled two Research Consultants purposively for the study. These included the Headmistress of the school and the Music teacher, our Principal Research Consultant. For some unavoidable reasons, the Headmistress herself could not host us for an interview. She therefore, appointed one of the longest-serving teachers in the school to grand me the interview on her behalf. The representative respondent was said to have been in his twenty-first year of teaching in the school. We interviewed him via the telephone.

The music teacher had been the first and the only teacher recruited to teach music since September, 2008. He had then graduated from the Music Department of University of Education, Winneba as an African Music Major. Although he was employed as a music major, he attended several in-service training programs to equip himself for handling the special needs students. We had the main interview session with him on telephone. However, in the course of analyzing the data, we still contacted him further for some clarifications and further details, which we did through both telephone calls and WhatsApp messaging.

IV. FINDINGS

4.1 The School Curriculum

Findings from the study revealed that Akropong School for the Blind (ASB) was a school complex which comprised the following sections: A two-year Kindergarten, a six-year Primary School, a three-year Junior High School (J.H.S.), a three-year Vocational School and a two-year Rehabilitation Centre. There was also an Information Communication Technology (ICT) Centre as well as a Functional Literacy (Non-formal) Program. According to Mr.

Oppong, "The Basic level (KG-J.H.S.) is academic in nature and runs the same curriculum of the Ghana Education Service (GES) and J.H.S. candidates sit for the same Basic Education Certificate Examination (BECE) as their sighted counterparts" (Interview: April 17, 2020). It important to note that music was not part of the BECE since it was a "non-examinable" subject at the basic education level in Ghana.

The Research Consultant further stated that students pursue music "as a course during the three- year J.H.S. period" (interview, April 17, 2020) as he put it, with the hope of going to study the subject further at the Senior High School (S.H.S). But they end up not furthering formal music education but rather join their respective musical groups after graduation, depending on their individual areas of musical strength. This is so because there is no S.H.S. in Ghana that admits visually impaired students for music programs. On the other hand, those who participated in musical activities as hobbies with main academic interest in other subject areas were able to pursue formal education in those areas

(other than music) at the Senior High School level. Many of such students were able to progress to tertiary institutions including Colleges of Education and the Universities. It was also revealed that private lessons were organized internally by the music teacher for slow learners as well as those who were not enrolled in full-time programs of the school. The total student enrollment was 400 (220 males and 180 females). But the number of students enrolled in the official curricular (music majors) and co-curricular music programs at the time of conducting this research are specified in Table 1 below:

Table 1	: Student	enrollment	in curricul	lar and Co	-curricular	Program
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Program (Group)	Male	Female	Total
Official Curriculum (Music Major)	17	1	18
Dance Band	15	5	20
School Choir	18	22	40
Cultural Troupe	16	14	30
Brass Band	12	3	15
*Total in music programs (Group)	78	45	123

*This total is based on an assumption that no student belonged to more than one program.

The scope of official music curriculum included rudiments and theory of music, practical instructions in jazz drumming, playing keyboard/piano, brass instruments, strings, woodwinds. Additionally, traditional drumming, and vocal music were taught as well. Studio sound engineering was also offered on part-time basis.

In terms of co-curricular activities, the groups identified in Fig.1 above in addition to solo performances featured in both on-campus and off-campus musical events. On-campus events included entertainments, vespers, and annual celebrations. Beyond the school premises, the students performed (on invitations) at festivals, durbars, church anniversaries, wedding receptions, funerals, inter-school cultural festivals, TV3 "Reality Shows" and state functions. Photos from some of these events are shown in Fig. 1 below:



Fig. 1: (a) Boboobo at Movenpick Ambassador Hotel in Accra

(b) The choir at vespers, on-campus

Both Research Consultants indicated that the school had some human and material resources for music teaching and learning. Apart from the music teacher, there were other musically inclined members of staff (amateur musicians) who were helping, especially with the co-curricular activities. Available material resources included a music classroom, instruments - 5 keyboards, 2 electronic pianos, 2 sets of jazz drums, 100 pieces of plastic flutes

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(recorders), a set of brass instruments, 5 acoustic guitars, 4 bass guitars and a set of *Boboobo* instruments. Equipment available for music teaching and learning also included a braille, a braille music book, audio recorders and a set of sound system.

4.2 Pedagogical Strategies

Pedagogical strategies were the rote types. The music master explained his classroom teaching strategies saying he normally drew the timetable from Monday to Friday and allocate time for each instrument and students who are learning it (individually and in small groups), since not all of students play the same instruments. According to him, a two-hour duration was allotted to an instrument, ensuring enough time for the learners. He usually blended both the theory and the practical lessons while teaching how to play a particular instrument. He would begin by mentioning the name of the instrument and playing it to the hearing of the student(s) either live or from pre-recorded audio device. He then let the students hold the instrument and do "feel and explore" the instrument with the hands. For example, they could feel the black and white keys on the keyboard/piano and figure out intervals, pitches and scales. Similarly, they could feel the valves on the trumpet, the strings on the guitar, etc. After that the teacher gave a brief historical and utilitarian account of the instrument. That was followed by gradual explanation of how to produce sounds on the instrument, hence bringing the theoretical perspectives into the lesson. As the students begun to practice playing the instrument, he explained further by means of questions and answers, demonstrations, imitation and what he referred to as "hand-to-hand" techniques.

According to the Principal Research Consultant, there were two dimensions of the "hand-to-hand" technique. The first dimension involved the teacher holding the hand(s) of the student with only visual challenges to manipulate and/play the instrument. The second dimension of this technique had to do with students having multiple impairments; blind -and - deaf or blind-deaf-and-dumb- in which cases the service of a language "signer" was required. Fortunately, there were several members of staff who could help with the sign language. As the students began to play an instrument, appropriate songs were selected for them to practice.

Regarding co-curricular musical training, Mr. Boateng stated that he auditioned students into various musical groups by means of thorough assessment of their abilities to perform specific musical tasks and the area of each student's musical interest. He could identify the abilities of students by observing them during classroom (practical) lessons, vespers, entertainment programs, other school gatherings like assembly (where they have the opportunity to sing or do anything musical), and sometimes by anecdotes.

The students took inspirations from both colleague staff members and visitors. Teaching and non-teaching staff members often visited during classroom lessons and rehearsal periods to advise and encourage the students. They also accompanied the school band/other musical groups to programs at various places in the country where they were invited to perform. In addition to the staff, renown musicians-both local and international-who visit the school to perform for or with the students. Students were motivated to develop their innate musical abilities with passion, aiming to become great musicians with improved living conditions in the future. For that matter, some of them had made the school their 'second home' in the sense that as long as their parents could continue to pay their fees, they remained in the school to continue studying music; some for as many as thirty years. This experience resonates with the Carnatic music transmission in the 1930s where Ranganayaki Rajagopalan spend twenty-two years, learning to play the *veena* through *guru-shisya* apprenticeship system (Titon, 2009).

Expressing his optimism about prospects of the students, my Principal Research Consultant said: "I foresee the future of my students very bright since they don't look down upon their disabilities. About ninety percent of the students are already into the music industry; some are artists, performing in various kinds of 'Reality Shows' while others are instrumentalists, song writers, and sound engineers" (Interview, April, 15, 2020). He was therefore, expectant that products of Akropong School for the Blind could compete favorably with their sighted counterparts in the socio-economic musical world.

4.3 Discussion

In this study, I sought to examine the music curriculum in Akropong School for the Blind, instructional strategies used by the music teacher and the extent of musical communality being experienced by the students. Results of the study revealed that the school complex embodied multiple sections including Kindergarten, Primary School, Junior High School, Vocational School and a Rehabilitation Centre. Additionally, there was an Information Communication Technology Centre, a Functional Literacy (Non-formal) Program as well as Private Music Classes for slow learners. Basic level (KG -J.H.S.) was the main academic stream and ran the same curriculum of the Ghana Education Service (GES). J.H.S. candidates wrote the same Basic Education Certificate Examination (BECE) as their sighted counterparts. This finding emphasizes the fact that apart from their sight challenges, visually impaired

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children were as intellectual as their sighted counterparts. Hence, despising and discriminating against them with negative perceptions are attitudes must be discouraged. Krahé & Altwasser (2006) note that negative attitudes of people toward others with disabilities result is status degradation and hinder the productivity of the victim. The psychological effect of negative attitudes usually suppresses the intellectual productivity of some physically challenged individuals. It therefore, implies that when offered the necessary support and motivation, the visually student can exhibit the same cognitive strength as the typically developing ones. This explains the ideals in offering the same music curriculum the students in ASB as done in the mainstream public Junior High Schools.

The "non-examinable" designation of music in Ghanaian basic schools made several schools withdraw from offering music lessons to learners at that level. This was partly due to the school system generally becoming product oriented at the expense of the process. Furthermore, teachers' work output appeared to be measured in terms of grades obtained by students in the BECE. Since music did not constitute part of those results, many schools had decided to neglect it in the school curriculum. It was therefore, good to know that ASB was offering music.

The socio-economic progress being made the students through performance in on-campus and off-campus contexts demonstrate the competitive musical skills being developed by the students as they prepare for the world of self-reliant life. As expressed by Packer & Ballantine (2010), opportunities offered to the students to express their creative musical abilities at festivals, durbars, church anniversaries, wedding receptions, funerals, inter-school cultural festivals, TV3 "Reality Shows" and state functions. This helps build their self-images and confidence for meaningful livelihood after graduating from the school.

According to Lau (2008), the Confucian ideal embraced all and sundry; including the commoner and the literati and music was an inseparable means of ensuring the individual's self-cultivation and improvement into prominence. Music was also a strong tool in promoting a harmonious and prosperous society. As these amateur musicians accompany the school band/other musical groups to programs at various places it offers the students the avenue for identity with these musicians and also serves as motivation to them. In effect, the presence of several amateur musicians in Akropong School for the Blind therefore, privileged the high musical knowledge acquisition and personal development of the students. As Webster (2002) opines in Figure 2 above, the context in which the music learning task is set can have a strong effect on creative thinking of the learner.

Furthermore, the effective utilization of the oral-aural approach was ideal to yield in ASB because music cognition relies heavily on the use of one's brain. Webster, through his model explains the extent of cognitive engagement in which a musician finds him/herself when dealing with music as a creative process. The model suggests that creative musical thinking of any king begins with a Product Intention and ends with the Creative Product. It involves utilization of one's Enabling Skills (innate abilities) and Enabling Conditions (environmental factors) to succeed. By this model, Webster posits that the creative musical thinking process is largely a cognitive one. Hence, the model suggests a reason for which visually impaired music students could be better at music cognition and memorization than those who are sight-dependent.

V. CONCLUSIONS AND RECOMMENDATIONS

Premised on finding of the study, we concluded that visual impairment is not musical impairment. The visually impaired child has equal right to formal music education, and the ability to do so, just like the typically developing child. What make that possible include the provision of conducive learning environment, use of appropriate pedagogical strategies and giving the needed motivation. These special needs children are prospective self-actualized individuals in music and music–related fields, whose fates largely depend on the kind of educational attention offered them during their formative years.

We recommended that opportunities for formal music education ought to be provided for the visually impaired child at the post-basic school levels in Ghana. There is need to provide more braille in the music unit to enhance music teaching and learning in the school.

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