

MUSIC ENSEMBLE ACTIVITIES IN DEVELOPING MUSICAL UNDERSTANDING AND CREATIVITY AT INTERNATIONAL SCHOOLS IN KUALA LUMPUR, MALAYSIA

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Abstract

Musical activities such as school band, school orchestra, school choir and other music ensembles have become very popular in international schools in Kuala Lumpur, Malaysia. Evaluating students' musical understanding and creativity remains an integral process to ensure the success of these activities but the effectiveness of such activities in developing musical understanding and creativity among teenagers are rarely systematically observed and recorded. A more common (traditional) method of evaluation would be to use a formally administered test usually conducted at pre-determined periods of a music program. Although it is observed that there is a high participation rate recorded for music related activities, participation rate recorded for music programs (such as the IGCSE and IBDP and IBMYP music) remains relatively low thus such evaluation may prove to be ineffective and inconclusive.

Based on the problem stated above, it can be hypothesized that an alternative method of evaluation to gauge the effectiveness of the music ensemble as an activity in developing musical understanding and creativity in teenagers is will possibly yield a more accurate/ethical result. By using the theoretical framework from the '4E Cognition' (embodied, embedded, enactive and extended) studies, pupils' development over a predetermined period of time is recorded. The data collected will then be analysed to determine the level of musical understanding as well as to determine the change/development in musical creativity shown by students.

The results from this study may be used to further develop approaches and philosophies used in the running of such musical activities which in turn can be tailored to benefit the participants. Further studies could also be conducted in different cultural setting to determine the effect and validity of such study as the '4E Cognition' framework takes into consideration interactions between the brain, body and both the physical and social environments.

Keywords

Music Education, Musical Ensembles, Musical Understanding, Musical Creativity and 4E Cognition

Introduction to the Study

Musical understanding and musical creativity are the two most important aspects of the music making process. This is because before one can recreate music as in the case of a young student learning a new repertoire, there is a necessity for that person to understand what they are attempting to recreate and why they have to focus on this repertoire. Creativity will then enable this student to recreate this repertoire with his 'personal touch', rather than merely recreating

only the pitches and rhythms of the music learned in a manner that will come across as machine-like in similarity and precision among all the students in the class. This will make the re-creation of the same repertoire different to the earlier versions in the same way how different performance of the same repertoire will never sound exactly the same. Similar arguments are also valid if one is to create a piece of music from scratch such as in the case of a person composing a piece of music. The bottom line is without musical understanding and musical creativity; music making will lack the individualistic elements that makes music making to be a process and experience unique to the individual carrying out this action in the first place.

The teaching of musical understanding and musical creativity may happen in many different situations, spaces, times and contexts. However, any formal education system has unofficially established itself as the most accepted medium to act as ‘the’ platform to transmit knowledge that would serve as the basis of musical understanding and musical creativity in school going children. This has been the practice in many, if not most schools in Malaysia since 1983, beginning with the introduction of music as a compulsory subject in all elementary schools in Malaysia (Abdullah, 1990). Through a preliminary observation, it can be concluded that most international schools¹ in Kuala Lumpur to date, offers music classes as a compulsory subject up to the ‘lower secondary years’². As for the ‘upper secondary years’³, music as a subject is still offered but the status of the subject is now ‘optional’ which means that students are allowed to choose if they would like to register to take this subject or not.

From a formal educational context, a student assessment is integral to music teaching and learning (Scott, 2012). The data that can be obtained through such assessment have the potential to not only indicate the students’ level of understanding and progress; it may also be used by the teachers or program facilitators to reflect on the effectiveness of their teaching methods, approaches as well as materials. After all, the educational context emerging from the application of multiple roles for assessment, specifically, assessment for learning and assessment as learning, corresponds with constructivist perspectives for learning (Scott, 2012). Based on this statement, the importance of assessments in an educational context can hardly be denied, however the question of whether conventional classroom assessment methods used in the area of music in particular provides the students as well as the teachers essential individualized information in order for them to effectively progress in the teaching and learning process.

¹ Schools which offer syllabus that are foreign to the host country; usually the ‘International General Certificate of Secondary Education’ (IGCSE) and/or the ‘International Baccalaureate (IB) as their main curriculum or ‘International Schools’ as it is popularly known in Malaysia has been gaining popularity especially in the last decade. While precise statistics are not available, the Malaysia press has reported in 2013 that there are 112 international schools in the country and that Malaysia students in international schools formed 49% of international school student enrolment (Bailey, 2015).

² For the purpose of this article, ‘lower secondary years’ refers to students up to year 9 in the IGCSE curriculum and the ‘Middle Years Program’ (MYP) of the International Baccalaureate program. Although in terms of classification, music as a subject is classified as ‘electives’ under the MYP, students are still required to take this subject, the only implication of the ‘electives’ classification is that this subject will carry a lighter weightage in the calculation of their overall grades in the student’s report card.

³ For the purpose of this article, ‘upper secondary years’ refer to students between year 10 to those doing their pre-university programs such as the A-Levels or the International Baccalaureate Diploma Program.

Problem Statement

At the secondary school level of international schools around Kuala Lumpur, there seem to be a dwindling level of student participation in formal music programs such as those offered in the International General Certificate of Secondary Education (IGCSE) and International Baccalaureate (IB) program, although student participation in musical activities such as school choir, school orchestra, and school band can be considered as highly popular. In Malaysia, this scenario was already recorded earlier through the study of Abdullah (2002). Upon further investigation, this scenario seems to be also occurring with students of a similar age group across different geographical locations. This can be traced through the findings of studies conducted by Lamont, Hargreaves, Marshall, & Tarrant (2003) as well as Office of Standards in Education, Children's Services and Skills (OFSTED) (2002a). This leads to the main problem that prompted the exploration of options in this study.

With the low participation of students in formal music programs but high student participation in musical activities, conventional methods of assessment⁴ become rather irrelevant as only the very few students who chose to participate in music programs will be assessed. Furthermore, this method of assessment will not be suitable to assess the larger majority of students who participates in musical activities. This is mainly due to the differences in approaches and manners in which music programs and musical activities are conducted. Musical activities however, are more exploratory and informal in nature thus trying to adopt the conventional method of assessment in such a setting will be unsuitable. Although a result can possibly be obtained in such setting, it will likely not reflect the true picture of students' musical understanding and musical creativity.

Another matter worth taking note with the manner in which musical activities are conducted at the secondary level in international schools around Kuala Lumpur is that, these musical activities are being conducted generally in an informal and exploratory manner. This manner of conducting musical activities usually result in students being highly enthusiastic to participate in musical activities as the activities are student centered instead and not syllabus centered. The downside of this however, is that there are rarely any systematic observations or records of students' progress and development. As such the effectiveness of such activities in developing musical understanding and creativity among students are not known in detail.

What is '4E Cognition'?

This term '4E Cognition' (embodied, embedded, enactive, and extended) is a relatively young and thriving field of interdisciplinary research (Newen, Bruin, & Gallagher, 2018). Rowlands (2010) attributed the initial usage of this term to Shaun Gallagher who organized a conference on '4E Cognition' in 2007 at the University of Central Florida. Newen, Bruin, & Gallagher (2018) however stated that,

“The first use of that term, however, as far as we know, emerged in discussions at a workshop on the embodied mind at Cardiff University in July 2006, which included the

⁴ The conventional method of assessment refers to a formally administered test usually conducted at pre-determined periods of a music program. This method of assessments typically consists of written/theory based assessment as well as a coursework/practical based assessment due towards the end of the program.

following participants: Shaun Gallagher, Richard Gray, Kathleen Lennon, Richard Menary, Søren Overgaard, Matthew Ratcliffe, Mark Rowlands and Alexandra Tenesini.”

To understand ‘4E Cognition’, we must first understand about cognition and the constraints or limitations that should be taken into account in answering this. Based on the representational and computational model of cognition (RCC), cognition is a kind of information processing that consists in the syntactically driven manipulation of representational mental structures (Newen, Bruin, & Gallagher, 2018). To summarize the conceptual explanation of this model using a more common tone, the process of cognition involves the ‘perception stage’ that usually occur thought sensory input and the ‘action stage’ that is commonly reflected through the motor outputs or in other words, seen through putting knowledge into practice. This conforms to the idea of cognition as provided for in the English Oxford Living Dictionaries which defines cognition as the mental action or process of acquiring knowledge and understanding through thought, experience, and the senses.

Another important aspect of the RCC model is that this model also involves a specific view of where cognition was supposed to take place – some kind of “contingent intercranialism” (Adams & Aizawa, 2008). Based on this, it can be assumed that in the case of humans (and animals), cognitive processes occur only through the processes in the brain. In other words, the cognitive process can be metaphorically likened to a typical desktop unit where the ‘Central Processing Unit’, also known as the CPU received the commands from the user via the keyboard or mouse, process information through the ‘Random-access Memory’ (RAM), ‘Read-only Memory’ (ROM) and multiple other types of processors which are held together by the motherboard and finally, execute all the commands of the user by fulfilling the commands of the user. In the case of humans, the input of information are through sensory stimulation namely, sight, touch, smell, sense and taste after which this information are then process and stored by the brain and subsequently put to use through the actions (motor output) of the person.

However, arguments have been made against the ‘assumption that cognition is an isolated and abstract, quasi-Cartesian affair in the central processing unit in a brain’ (Newen, Bruin, & Gallagher, 2018). Such ideas are usually associated with functionalism and therefore these functional roles form an autonomous level of analysis. Proponents of 4E cognition however pointed out that the cognitive phenomena studied through modern cognitive science as well as traditional cognitive science are not abstract, modality-unspecified processes in a central processing area, but rely essentially rely on the system’s body and its dynamical and reciprocal real-time interactions with its environment (Newen, Bruin, & Gallagher, 2018). By debating against the RCC view that the brain is the sole unit responsible for the cognitive process and maintaining that cognition occur as a result of processes that involves interaction between inter and extra-cranial processes, the 4E approaches opened up a diverse debate⁵ by scholars. One might conclude that there is no homogeneity within 4E cognition, except a shared enemy – cognitivism (Menary, 2010).

Newen, Bruin, and Gallagher (2018) categorically summarized and distinguish four different claims about embodied cognition which reads as follows:

⁵ Menary (2010) provides a detailed account of the many debates surrounding the understanding of the 4E Cognition.

- a. A cognitive process is *strongly embodied by bodily processes* if it is partially constituted by (essentially based on) processes in the body that are not in the brain;
- b. A cognitive process is *strongly embodied by extrabodily processes* if it is partially constituted by extrabodily processes;
- c. A cognitive process is *weakly embodied by bodily processes* if it is not partially constituted by but only partially dependent upon extracranial processes (bodily processes outside the brain);
- d. A cognitive process is *weakly embodied by extrabodily processes* if it is not partially constituted by but only partially dependent upon extrabodily processes.

The last version of the claim (d) is identical with the property of being *embedded*, i.e. being casually dependent on extrabodily processes in the environment of the bodily system. Furthermore, being *extended* is a property of a cognitive processes if it is at least partially constituted by extrabodily processes (b), i.e. if it *extends* into essentially involved extrabodily components or tools (Stephan, Walter, & Wilutzky, 2014; Walter, 2014).

Besides arguing that cognition involves extracranial processes, proponents of 4E cognition also maintain that cognition is enacted in the sense that it involves an active engagement in and with an agent's environment (Varela, Thompson, & Rosch, 1991). This sets the tone for future research in this area and a more thorough exploration of the process were being made from which, Newen, Bruin and Gallagher (2018) distinguished two further versions of this claim which reads:

- e. A cognitive process is *strongly enacted* if it is partially constituted by the ability or disposition to act;
- f. A cognitive process is *weakly enacted* if it is only partially dependent upon the ability or disposition to act.

Hence as a summary, the 4 'E's show a flow of the cognitive process and are represented by 'embodied, embedded, extended and enactive'.

Using the Framework of 4E Cognition to Develop an Assessment Module

Modern day assessment generally entails the necessity to be able to provide data to indicate the multiple perspective of the learning process. In today's data driven educational climate, there is a great need to demonstrate that learning is, in fact, taking place (Asmus, 1999). This data driven educational necessity as indicated in Asmus' (1999) study of the scenario in the USA is also identical in what can be observed in Malaysia. Any assessment carried out should have the ability to indicate if factors such as students' progress, student's level of achievement, the effectiveness of the teaching approaches, and the relevance of the teaching materials.

“While the ultimate purpose of assessment is ensuring the most effective instruction possible to enhance student learning in music, assessment can also be used to determine the effectiveness of the teacher and the instructional program.” Asmus (1999: 23).

Reflecting on the statement above, the 4E cognition concepts (embodied, embedded, extended and enactive) could serve as an assessment framework that would fulfil the purpose of assessment in music education. Taking into consideration that musical activities in the

secondary level of international schools around Klang Valley are conducted predominantly using an informal/casual approach and one of the factors that attracts students to participate in musical activities is the fact that students do not have to worry about having to sit for any sort of ‘real’ test, careful considerations were made to ensure that this framework of assessment also takes these factors into consideration. Hence the assumption made in the field of 4E cognition; that cognition is shaped and structured by dynamic interactions between the brain, body, and both the physical and social environment (Newen, Bruin, & Gallagher, 2018), to use concepts from this interdisciplinary research as the basis of this assessment framework is deemed highly suitable. This is because the concepts from this research of 4E cognition is able to provide an assessment framework that gives a thorough and more comprehensive report that reflects a more honest portrayal on each individual student’s progress and ability based on their participation in musical activities. This conclusion is made based after comparing student reports from the conventional assessment method and a simulation of reports based the 4E cognition framework using data observed from the same set of students. However further exploration and research with regards to the applicability and accuracy of this assessment framework is still necessary.

To briefly summarize this assessment framework, for each of the musical activity, students will be assessed through the following steps and methods:

1. The students’ ability to *embody* the musical concepts and/or ideas presented.
2. The students’ ability to then *embed* these musical concepts and/or ideas.

The above-mentioned criteria will be able to provide the teachers or facilitators of the activities with data that indicates the students’ achievement of musical understanding as well as the effectiveness of the activities and materials in delivering and facilitating the learning of the said musical concepts. Upon the establishment that the students have already achieved both the above-mentioned criteria of cognition, they will then be assessed for the following two criteria, namely:

3. The students’ ability to *extend* the musical concepts and/or ideas acquired.
4. The students’ ability to *enact* the musical concepts and/or ideas acquired.

It is important to note at this point that the summary of the framework as listed above does not enlist the specific type of activities or materials used to conduct the assessment but rather the ‘area’ which the teacher/facilitator of the musical activity should look into. It is also proposed that the assessments are not conducted in an individual capacity but rather within their musical activity groups as the students’ interaction with their physical and social environment is a factor in determining to what degree their cognition is shaped and structured. Another important aspect of this framework that should be considered is that assessment should be conducted informally during the duration in which the musical activity is conducted. This is important in order to ensure that the data obtained from such assessment reflects a more ethical/accurate result of the students’ musical understanding and creativity.

This in itself is different from the conventional method of assessment, especially those used in music programs offered by international schools in this geographical location whereby the understanding of musical concepts are usually ‘tested’ either via a written examination conducted at a predetermined interval of the program or an assigned time slot of practical based

exam whereby students will present their prepared repertoire on their chosen instrument(s). The ‘testing’ of musical creativity is perhaps only reflected (rather partially) through tasks within the formal exams such as composing a brief melody or through the practical component in the form of activities such as improvisation. This assessment concept is perhaps derived from the Representational and Computational Model of Cognition (RCC) , whereby cognition is recognized only through the processes of the brain and therefore students are assessed based on what the brain remembers and is able to recall during the said assessment period.

Some Ideas on Possible Observation Criteria

Depending on the creativity of the teacher or facilitator in charge of these musical activities, various activities as well as criteria for observation can be drawn for the purpose of assessment based on the suggested framework of assessment. Activities and observation criteria may also be adjusted to cater to the needs of the sample of students that will be assessed. This may include age groups, the duration of ‘study’ as well as duration of each session of musical activity. Due to the framework of assessment being carried out in a group setting, the teacher or facilitator in charge of the respective musical activities will need to constantly remind themselves to be mindful of observing everyone in the group so as to avoid becoming overly fixated on one or a few particular students in the group. It is also possible to avoid the situation where one or only a small group of students are observed by allocating 2 or more teachers’ facilitators within the musical activities and their observations are then tabulated and agreed upon. This is especially necessary if there is a possibility of one or a small group of students within the group who are significantly more able than the general majority of students.

The embodied stage of cognition, in this case, the embodiment of the musical concepts is the process where students may be observed and assessed through the students’ ability to embody to the concepts introduced. Depending on the age group and experience of the students, this can be the observation of simple processes such as being able to replicate the given explanation through the successful execution of the concept(s) in an applied manner such as through performing the music or the summary of and relating the given explanation/task to the keywords or specific terminology of the concepts. For example, in a secondary school orchestra setting, the teacher may ask students from the same instrumental section to play a certain passage in a manner in which the sound produced by individual instruments blends with the others and as a result a ‘new’ timbre or color of sound is produced by the combination of the varying sounds of individual instruments. This passage may be repeated a few times if each attempt is deemed to not blend very well, however it is important for the teacher to point out ‘who needs to change what’. When the students within this section finally are able to play with the desired ‘balance’ in volume, tonal colors and/or timbre, they may be considered to have embodied the concept of balance.

The embedded stage of cognition, in common language, is where the knowledge is then being applied into a larger picture. In this case, one such scenario would be an application of the musical concepts not only within the particular section but also within the bigger picture of the surrounding mass. Using the earlier example of the school orchestra setting with the musical concept of ‘balance’, now the teacher in charge may ask students to compare a few ways of how a particular *tutti* passage from the music is being rehearsed, each time with one particular section of instrument from the selected *tutti* passage playing significantly louder or softer (or simply tangibly different) from the rest. This may be done in as many times as the teacher wish

but it should also include once where it is played with the desired ‘balance’ in sound. After which, the students are then asked to identify the occasion which they prefer (or dislike) the most and the reason for their answer. If the students are able to identify their choice and provide a reason such as ‘some section sounds too loud’, ‘the balance of sound is not right’ or ‘everyone is playing with the role of each other’s part being considered’, then it may be considered that the students have embedded the musical concept of maintaining balance according to the respective roles within the ensemble. This shows that the process of embedded cognition or in other words ‘being casually dependent on extrabodily processes in the environment of the bodily system’. ‘Extrabodily processes’ being the individual student’s need to consider the playing style of their orchestra mates and ‘in the environment of the bodily system’ being all these processes happens within the ‘bodily system’ being the school orchestra.

Next, the ‘extended’ stage. This stage typically entails the cognitive ability to make the particular musical concepts and/or creativity ‘larger’. ‘Larger’ in this discussion does not only constitute making it a bigger picture but it can also be considered that the musical concepts and/or creativity being assessed have been put into practice for a prolonged duration. Once again for the purpose of illustration, the earlier example of the secondary school orchestra setting and the musical concept of ‘balance’ are used. Having already achieved the idea of balance within the individual instrumental section, within the respective sections of instruments as required by the repertoire, the students may then be prompted to consider this concept in other segments of the repertoire or to continuously be conscious about ensuring the continuity of this concept throughout that rehearsal session. In the event that the students have their roles switched as a result of the requirement of the repertoire itself (from playing the melody to being part of the accompaniment or vice versa) and that it is evident that the students are still able to maintain the desired ‘balance’ sound, it is already perceivable that the students are now extending their cognitive process regarding the musical concept of balance towards a material that was not yet rehearsed.

The enactive phase of cognitive process will see the ability to enact or initiate the particular musical concepts and/or creativity at will under appropriate circumstances. We shall again use the same setting as the examples discussed before such as the secondary school ensemble and the musical concept of ‘balance’ to understand this phase of the cognitive process. When there is evidence that the students are able to clearly and independently establish the desired balance under different roles within the orchestra or the establish this concept of balance in another repertoire as well as being able to apply and execute this musical concept in other parts of the repertoire , then it can be concluded that the students have reached the enactive stage of the cognitive process.

Concluding Discussion

The framework that is being proposed here takes into consideration the cognitive processes as advocated by the 4E cognitive proponents. By assessing the students’ progress based on the different phases of the cognitive process, the assessor will be able to gauge first and foremost, if the students are able to comprehend their explanation or instructions. After which, the assessor will also be able to ‘test’ if the students are only reacting or imitating to the explanation given or they fully understood the given explanation or instructions by observing to what extend

the students are able to use and apply the information obtained by designing their planned activities around the different phases of the cognitive process.

Another benefit of assessing through this framework is that the assessment process is continuous and is possible to be conducted without the students actually realizing that an assessment is taking place. This will likely mean that the students are evaluated in a more real environment without most of the other external pressures that is typically associated with going for an assessment. This will likely result in the collected data being more accurately reflective of the students' level of musical understanding and their musical creativity; and as such steps can, therefore, be taken to improve what is lacking and maintain what is necessary. As a result, all those involved stakeholders within this musical activity will benefit from being able to improve their musical understanding and enhance their musical creativity from the experience of participating in different musical activities which was designed to stimulate the different phases of the cognitive process.

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