AFRICAN MEMBRANE DRUM AND STUDENTS' ACADEMIC ACHIEVEMENTS IN ANAMBRA STATE'S SECONDARY SCHOOL MUSIC EDUCATION

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Introduction

Education is widely regarded as a veritable instrument for social change, social mobility and national development. It is a continuous process which transfers the morals and values of our culture to the next generation. It enables us to develop, and build up the new generation of our nation. In this context, schools play an important role. There is need to evolve new methods, approaches and techniques aimed at improving the quality of the teaching/learning process as well as increasing accessibility to qualitative education in Nigeria (Akudolu, 2000:27). The implication is that learners in Nigerian schools should be able to see the interdependent relationship that exists between academic contents of students offered while in school and their real life applications, for music education to be relevant and functional (Modeme, 2009).

Music education therefore is the type of education that exposes the learners to theoretical and aesthetic experience in the art of music (Ehiwario, 1997). It is the musical training or musical knowledge received under a musically trained teacher in an organized formal school. Corroborating, Modeme and Sunday-Kanu (2012) viewed music education in Africa, through the informal system as a natural process by which members of the public gradually imbibe skills, knowledge and attitudes appropriate to musical life in their communities. They further stated that, in the formal education system, it is a field of study associated with the teaching and learning of the musical arts which enables students to acquire or develop some latent skills and abilities to perform different African musical instruments. There are many kinds of musical instruments that are found in African cultures. The human voice is the most common musical instrument that everybody who can talk plays well. The human body also produces musical sounds. The chest, for instance, can be played as a drum when we beat it with the hands.

Drum is a "musical instrument made of a hollow round frame with plastic or skin stretched tightly across one or both ends, or a large container for oil or chemical, shaped like a cylinder" (Hornsby, 2000). Contributing to the meaning of drum, Chukwu (2011) opined that the drum generally is conceived as a vessel. The vessel refers to the hollow nature of the drum trunk, which gives a more resonating effect to the sound emitting from the surface of the drum skin as the drummer strikes or plays. Meki and O'dyke observed that there are various types of drums in Africa. The part of a drum that produces sound when we strike it can be made of membrane (animal skin), wood or clay. There are therefore, membrane drums, wooden drums and clay pot drums.

The membrane drum is about the commonest traditional musical instrument found in various shapes and sizes in African culture groups. A membrane drum has a hollow wooden shell covered with animal skin. When the membrane drum has only one end of the wooden shell covered with specially prepared animal skin, it is called a single membrane drum. If the other end of the hollow shell is open, it is called an open ended single membrane drum. When both sides of the hollow drum shell are covered with skin membranes, and both sides are played to produce musical sound, this type of drum is called a double-ended membrane drum. The shell of a single membrane drum may have a closed end. Chukwu further added that whether single or double, it is worthy of note that the playing techniques, all over Africa, are almost done with the palms, with beaters (sticks) or both. However, there are possible variations in playing, in some parts of the world. Instruments found in and around Africa can be classified into the following groups based on their method of sound production as follows: membranophones, idiophones, aerophones and chordophones. Membrane drums are classified under membranophones: which are instruments that have a stretched membrane over a shell and the membrane struck to produce sound. These would include all types of drums. The traditional African membrane drum is very subtle musical instrument that is conceived as mind elevating and enhances physical and psychical communalism (Chukwu, 2011). He also observed that membrane drum plays both melodic and rhythmic roles, as far as African drum music performance is concerned. Hence, the membrane drum is a melo-rhythmic instrument. As such, it is normally used as a singing or talking musical instrument, signaling instrument, accompaniment to singing, dancing, healing and also for musical and extra-

musical activities/functions. The relationship or the symbiotic essence of the animal skin and the wood used in constructing the drum, gives drumming an interactive mood that excites drummers and motivates the students to learn.

One of the learning characteristics is that students should have interest in the subject they are studying. Airing her view on the above subject, Olikeze (1999) defined interest as persisting tendency to pay attention and enjoy some activities or content that is of concern if it is pleasing and engages one's attention. An activity that motivates the individual for action could be seen as interesting (Chauhan, in Modeme, 2009). Smith & Ragan (1993) observed that for effective teaching and learning, students' interest and motivation are most critically important. The point that interest promotes learning is an indisputable fact. Research literatures are consistent in emphasizing the need to consider the learner's interest in the learning process. Expressing their minds, Leonard and House cited in Anekwe & Modeme (2013) maintained that the success of the general music program at all levels depends to a great extent upon the amount of consideration given to interests and participation in determining objectives, selecting subject matter, planning experiences, structuring assignments and evaluating outcomes. Keller in Anekwe (2006) proposed four conditions that must be met for a learner's interest to be aroused and be sustained to learn. Attention, relevance, confidence, and satisfaction (ARCS) are the conditions that, when integrated, motivate students to learn and promote student's high academic achievement in music.

For many years educators and researchers have debated which school variables influence students' academic performance. As policy makers become more involved in school reform, this question takes on new importance since there are many initiatives which rely on presumed relationship between various education related factors and learning outcomes. Therefore music student's academic achievement refers to measures of achievement on standard tests, schools' tests and public examination. Such measures are expressed as achievement scores or raw scores. Consequently, students' academic performance are based on students' general aptitude (verbal, qualitative, quantitative and spatial) and competencies that are the results of good learning in school (Maduewesi, 2005). This implies that learning in music should encourage

and promote students' high academic achievement in music education for relevance and attainment of self-reliance.

This paper has therefore set out to determine the effect of African membrane drum on students' interest and academic achievement in secondary school music education in Anambra State. The researcher is skeptical as to whether the African membrane drum would arouse students' interest in the learning of music and subsequently improve students' achievement. To what extent would students' interest be aroused and sustained when music lesson is taught using African membrane drum? Would students' interest be motivated and retained better when music is taught with membrane drum or taught without it? This gap in knowledge underscores the need to investigate the influence of African membrane drum on students' interest and academic achievement in music. Therefore, the problem of this study put as a question is: Would African membrane drum when used in teaching be able to arouse the students' interest and promote high academic achievement in studying music education? Providing answers to this problem is the main thrust of this paper.

Aim and Objectives of the Study

The aim of this study is to determine the effect of African membrane drum on students' interest and academic achievement in secondary school music education in Anambra State.

Specifically, the objectives are to:

1. Ascertain the mean interest scores of students taught with membrane drums and those taught without it.
2. Determine the mean achievement scores of students taught with membrane drums and those taught without it.

Research Questions

The following research questions guided the study.

- Which group of students, those taught with African membrane drum or those without, obtains higher mean score in music interest inventory (MII)?
- Which group of students, those taught with African membrane drum or those taught without, obtains a higher mean score in music achievement test (MAT)?

Research Hypotheses

The following null hypotheses were tested in this study at 0.05 level of significance as stated below:

- The mean interest scores of students taught with African membrane drum and those taught without it will not differ significantly.
- There is no significant difference in the mean achievement scores of students taught with African membrane drum and those taught without it.

Methodology and Design of the Study

The design is a quasi-experimental design. It is a quasi-experimental study because subjects were not randomly assigned to groups rather intact classes were randomly assigned to experimental and control groups. The design involved the administration of pre-tests and post-tests to two intact groups. One of the groups is the experimental group while the other is the control group.

Area of Study

The study was conducted in Onitsha Education zone under the Post Primary Schools Service Commission (PPSSC) Awka in Anambra State. Onitsha Education zone comprised Onitsha North, Onitsha South and Ogbaru Local Government Areas and has thirty-two secondary schools. The rationale for the choice was based on the fact that most of the schools in Onitsha urban have at least two music teachers which were very important for the research. The study was limited to only two secondary schools which were: Comprehensive Secondary School (CSS) Onitsha and Eastern Academy Secondary School (EASS), Onitsha.

Population of the Study

The target population comprised all the five thousand, two hundred and ninety (5,290) junior secondary class two (JSS II) students in twenty-three (23) secondary schools offering music in Onitsha education zone. The total working population for the two schools was one hundred and forty (140).

Sample and Sampling Techniques

The research sample comprised one hundred and forty (140) JSS II music students in two (2) secondary schools in Onitsha urban (CSS – 70 and EASS, 70). Subjects were not randomly assigned to groups rather intact classes were

randomly assigned to experimental and control groups. Each intact class was assigned to a treatment condition using the balloting technique. The treatment condition which a student picked placed him/her class in that treatment group.

Instruments for Data Collection

Two instruments, Music interest inventory (MII) and Music Achievement Test (MAT) developed by the researcher were used for data collection in this research. The MII was a 30-item interest scale which has a 4-point modified Likert type response scale. The respondents were expected to indicate their degree of agreement on a number of statements (positive and negative) about music in general. The scale and the scoring are as follows: for positive items: Strongly Agree = 4; Agree = 3; Disagree = 2, Strongly disagree = 1. For negative items: Strongly Agree = 1; Agree = 2; Disagree = 3, Strongly disagree = 4. The MAT was a 30-item 4-option multiple choice objective test based on the lessons of study in JSS II music curriculum content analysis. The subject content on which the test was developed were thythms, time and tempo amongst others.

Validation of Instruments

The draft MII was given to two (2) qualified experienced music lecturers for validation. Face and content validation were established for the MAT thirty (30) items. For the face validation, the researcher sent two copies of the initial draft of MAT to two experienced music lecturers for clarity of words, appropriateness to the class level and plausibility of the distractors.

Reliability of Instruments

The internal consistency of MII was ascertained using the Cronbach Alpha procedure, and reliability coefficient of the MAT was determined with Kuder Richardson Formula 20 (K-R 20) technique. The researcher administered the final MII and MAT to 33 JSS II music students of Army Day Secondary School, Onitsha and Unity Comprehensive Girls Secondary School, Onitsha. The student's responses were used to compute the coefficient of MII and MAT which were found to be 0.94 and 0.89 respectively.

Instruments of Data Collection

The two instruments for data collection in this study (MII and MAT) were administered to the students before the experimental treatment. Students' scores in this first administration served as the pre-test scores of the study. At this stage, the treatment commences and lasted for one month that is eight lesson periods. At the expiration of the treatment, the items of these instruments were re-arranged, produced in yellow coloured question papers and re-administered to the subjects. The scores obtained from this second administration served as post-test scores in the study. The essence of item rearrangement and change of the colour of the question paper helped to distract the students from realizing they had responded to the instrument before.

Method of Data Analysis

The research questions were answered using means and standard deviation. The hypotheses were tested at 0.05 alpha level, using analysis of covariance (ANCOVA). The pre-test scores were used as covariates or control measure to the post-test scores. ANCOVA was deemed appropriate here because it served as a procedure for controlling the initial differences across the groups as well as increasing the precision due to the extraneous variables thus reducing error variance (Ferguson, Hinkle, Wiersma and Jurs cited in Modeme 2009).

Results

The results of the study were presented in tables according to the research questions and hypotheses. All research questions were answered using means and standard deviations while the hypotheses were tested using analysis of covariance (ANVOCA) at 0.05 level of significance.

Research Question 1

Which group of students, those taught with African membrane drum or those taught without African membrane drum, obtains higher mean score in music interest inventory (MII)? In order to answer research question 1, mean scores and standard deviations of students in MII were calculated and presented in Table 1 below:

	Mean	48,9231	73,0615
Experimental	Standard deviations (SD)	11,7587	9,6001
(MD)	N	70	70
Control	Mean	49.3467	50, 5333
(No MD)	Standard deviations (SD)	11,7064	10.2619
	N	70	70

Table 1: Means and Standard Deviation (SD) of Students Pre-test – Posttest interest scores by Experimental (membrane drum MD and Control groups (No MD)

Table 1 showed that students taught with membrane drum (MD) recorded higher post-test interest score 73.0615 with a SD of 9,6001 while the students taught without MD had a lesser mean posttest interest score of 50,5333 with SD of 10,2619. It seemed that the experimental group (MD) showed more interest in music than the control group (No MD) as indicated in their mean post-test score in MII.

In order to make a decision on students' interest based on the use of MD and No MD in teaching secondary school music, hypothesis I was tested at 0.05 level of significance.

Hypothesis 1

The mean interest scores of students taught with African membrane drum and those taught without it will not differ significantly.

Source of variation	Sum of Squares	Degree of freedom (df)	Mean Squares	F-calculated	Sign of F	F-critical
Corrected Model	3162,212	4	790,553	32,132	.00	
Intercept	4172,418	1	4172,418	169,589	.00	
Pretest	173,166	1	173,166	7,038	.009	
Treatment	1048,336	1	1048,336	42,610	.00	3.91
Expt x Control	1258,065	1	1258,065	51.134	.00	3.91
Error	3346,008	136	245.603			
Total	80217,000	140				
Corrected Total	6680.507	139				

Table 2: Analysis of Covariance (ANCOVA) of Student Post interest scores (Post MII) in MII (Experimental and Control)

The F-calculated for teaching strategy (MD) was 42.610 at 0.05 level of significance, 1df for numerator and 136 df for denominator while the f-critical value was 3.91. Since F calculated (42,610) is greater than F critical (3.91), the decision was to reject the null hypothesis. This implies that there is a significant ($p<0.05$) difference between the two teaching methods (experiment (MD) and control (No MD) as measured by the students mean MII scores. This appears equally to suggest that the early observed difference between the means of the two groups was not attributed to chance error but due to the treatment.

Research Question 2

Which group of students, those taught with African membrane drum or those taught without, obtains a higher mean score in music achievement test (MAT)?

		Pre-test	
Experimental	Mean	48,5932	63,4769
(MD)	Standard deviations (SD)	10,5436	11,5039
	N	70	70
Control	Mean	41.6897	49.7333
(No MD)	Standard deviations (SD)	14.9762	8.9024
	N	70	70

Table 3: Means and Standard Deviation (SD) of Students Pre-test – Posttest Achievement scores by Experimental (MD) and Control groups (No MD)

The data in table 3 showed the mean posttest achievement score of students taught with MD was 63.4769 with SD of 11.5039. While students taught with no MD had a mean posttest achievement score of 49.7333 with a standard deviation of 8.9024. The mean difference between the experimental group and control group was 13.7436. This suggested that those taught with MD have higher academic achievement than students taught without MD. Hence MD seems to have more effect on students' academic achievement.

Hypothesis 2

There is no significant difference in the mean achievement scores of students taught with African membrane drum and those taught without it.

Source of variation	Sum of Squares	Degree of freedom (df)	Mean Squares	F-calculated	Sign of F	F-critical
Corrected Model	1247.952	4	311.988	11.067	.000	
Intercept	3390.081	1	3390.081	120.254	.000	
Pretest	79.439	1	79.439	2.818	.095	
Treatment	176.633	1	176.633	6.266	.013	3.91
Expt x Control	516.319	1	516.319	18.315	.000	3.91
Error	4031.366	136	28.191			
Total	60431.00	140				
Corrected Total	5279.318	139				

Table 4: Analysis of Covariance (ANCOVA) of Student Post Achievement scores (Post MAT) in MAT (Experimental and Control)

Table 4 reveals that MD (treatment) as the main effect is significant on the students' achievement scores which leads to the rejection of the null hypothesis in favour of the alternative. The f-calculated for treatment (MD) was 6.266 at 0.05 level of significance, 1df for numerator and 136 df for denominator while the f-critical value was 3.91. That is there is significant difference between the mean academic achievement of students taught with MD and those taught without. This seems to uphold the facts that MD enhanced the ability of students in the experimental group.

Discussion of the Findings

The Effect of Teaching Strategy (MD and without MD) on Students' Interest in Music

The study has revealed that students taught using MD showed significant interest towards music than those taught without. The findings of the study with respect to students' interest agree with that of Ifeakor (2005) and Olekeze (1999) who observed that students taught with Computer Assisted Instruction (CAI) showed greater interest in Chemistry and Biology respectively than those taught with teacher centered method. This simply means that the mode of instruction has significant effect on the interest rating of students. This finding is also in line with the observation made by Nzewi and Nzewi (2007) that "the sound of the drum affects the mind in a manner that is psychically therapeutic or, if programmed accordingly, induces mood excitation". Supporting the idea of using MD, Chukwu

(2011) opined that certain drum sounds could spur a community into certain actions. The high interest score (73.0615) in Table1 by treatment group against the control group (50.5333) might have been as a result of motivations and use of contextual situations to enhance meaningfulness of the lesson. The application of such contextual situations is necessary as learners' prior experience is recognized.

The Effect of MD on Students Cognitive Achievement in Music

The study has revealed that students taught using MD performed significantly better than students taught without. The trend of higher performance by the treatment group could be attributed to the fact that the MD was subjected to the benefits of real life experiences. The major problem associated with the teacher-centered method had been lack of real life applications. The MD content however, is constructivist built. Such content ensures that students learn from one another through cooperation, discourse, teamwork (Vygotsky, 1978). In a similar vein, Resnick (1998) asserted that learning closely tried to real world issues and work places through outside-of-classroom experiences, anchored on students prior experiences and promotion of students active participation.

Conclusions

From the findings and discussions the following conclusions are drawn:

The study had shown that MD had significance on the students' interest and cognitive achievement in music. Hence MD approach should be considered for use by classroom music teachers as it is effective in increasing students' interest and high academic achievement in music.

When membrane drums are employed in teaching abstract concepts and principles in music, learners will not see the subject as assemblage of disjointed facts. They will appreciate the relationship that exists among concepts and principles as comprehension is bound to be achieved because issues are presented using learners' prior and immediate experience.

When relevancy of music lessons are highlighted in music classes the utility and career prospects of the learner is no longer in doubt as the lessons are tied to work places. Thus, the concept of self-reliance will also be assured.

MD approach in this study has demonstrated its effectiveness in increasing meaningful learning since it is an activity oriented learning strategy subsumed in

mental activity that brings about reconstructing of knowledge. Therefore, music teachers need to adopt MD as their teaching strategy for meaningful learning in our classroom.

Recommendations

The following recommendations were made in view of the foregoing findings of the study.

- Since the use of MD in teaching has been found to enhance the interest and quality of achievement in music, music teachers should be encouraged to employ it more in the teaching of the subject. By so doing, the interest and achievement of students in music could be improved.
- The fact that high mean interest and achievement scores were recorded through the use of MD, calls for music teachers to acquaint themselves with the distinctive characteristics of constructivist teaching and learning principles' technique with a view to enhancing students' affective and cognitive outcomes of learning. This could be done through seminars, conferences and workshops organized by government and professional bodies like Association of Nigerian Musicologists (ANIM) and Curriculum Organization of Nigeria (CON).
- Teaching and learning should be contextually approached. This is necessary so that teachers and learners can see the relationships that exist between academic content and the real life experiences.
- African membrane drum teaching strategies should be adopted at the primary and secondary school levels of education in the teaching of music education.
- All those involved with curriculum development in music education should adopt membrane drum perspectives in restructuring music curriculum in our primary and secondary schools.

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